Joint Convention Incoming Report (sorted by page)

Note 1: You will find that most of the questions have a one-to-one section-to-page reference; but please pay particular attention to the "Reference (as submitted)" section as this shows exactly how it was submitted to us--a few of the questions may reference more than one location.

Note 2: "Article 99 - MISCELLANEOUS" references those questions that were submitted without an article number.

From	Reference (as submitted)	Section	Page
Netherlands	**Table A.2, pp 3, 4**	**A.2**	**3**
ARTICLE 99 - GENERAL			

Question ID: 932

Question: Clickable references to internet sites and documents are a good idea. Unfortunately not all addresses seem to be accessible.

Answer: When converting to a PDF file, some of the clickable reference links possibly became corrupted. The hyphen (-) is lost when they are copied to a URL location. Please re-try by typing them directly. We apologize for any inconvenience.

From	Reference (as submitted)	Section	Page
China	**Section A.3, Table Section A-3, Page 6**	**A.3**	**6**
ARTICLE 99 - GENERAL			

Question ID: 925

Question: Disposal or recycle is the the long-term management policy of disused sealed sources, what is the practice for recycle of the disused source?

Answer: Within the Department of Energy, recycling is encouraged as a pollution prevention measure. However, due to the dispersible nature of radioactive sealed sources and associated threat profile, the National Nuclear Security Administration's Global Threat Reduction Initiative (NNSA/GTRI) does not currently recycle sources that have been removed from the private sector through the Offsite Source Recovery Project.

In commercial practice, recycling depends on the half life and specific activity of the isotope involved. In general, industry does not recycle Co-60 (with the exception of sources from high activity applications such as the Gamma Knife), due in part to its short half life. Cs-137 recycling does occur. Industry is also "recycling" larger (> 185 GBq [5 Ci]) Am-241 sealed sources due to their very long half life (more than 400 years), primarily by re-encapsulating the sources after 10-20 years of use or around the time that their special form certifications have expired. Ra-226 generally is not recycled, as it was replaced beginning about 40 years ago by Cs-137 and other isotopes and the sources are prone to leakage due to gas buildup.

From	Reference (as submitted)	Section	Page
France	**A.3 - p. 6 & 7 & E.1 - p. 47**	**A.3**	**6-7**
ARTICLE 18 - IMPLEMENTING MEASURES			

Question ID: 972

Question: The US-DOE submitted a license application to the US-NRC on June 2008, for authorization to begin the construction of a proposed repository at Yucca Mountain. In September 2008, the US-EPA issued an amended rule for Public Health and Environmental Radiation Protection Standards for Yucca Mountain. Could US indicate if US-DOE takes into account this amended rule in the file conveyed to the US-NRC on June 2008?

Answer: The Yucca Mountain License Application addresses the proposed EPA standards and describes the methodology used to project the long-term repository performance as required by Nuclear Regulatory Commission (NRC) regulations. The final EPA standard required peak mean annual doses to remain below 1 mSV for the period from 10,000 to 1 million years and the license application also addresses this measure. The NRC issued its final rule on March 13, 2009. DOE is evaluating the effect of revisions from the proposed rule to the final rule and anticipates no substantive changes on the license application. The NRC will determine if the projected repository performance meets the final standards.

China	**Section A.3, Bulletin 2, Page 7**	**A.3**	**7**

ARTICLE 99 - GENERAL

Question ID: 926

Question: 40 CFR 197, amended in 2008, maintains the 0.15 mSv/a standard for the first 10,000 years, and establishes a 1 mSv/a standard for the period after the initial 10,000 years out to one million years. What is the consideration with the future generation protection?

Answer: The 1 mSv/a standard applicable beyond 10,000 years is consistent with the public dose limit recommended by ICRP, and adopted in the U.S. by the Nuclear Regulatory Commission at 10 CFR 20.1301. As such, it represents a reasonable level of public health protection for individuals in the far future. EPA concluded that a dose standard that changes over time would be appropriate after considering both its statutory direction to establish a dose standard for individuals, and international guidance that less reliance should be placed on quantitative dose projections in the far future because of the increasing uncertainties in projecting disposal system performance. From this perspective, projected doses are more commonly viewed as one indicator of safety, rather than as a determinant of safety, as EPA was directed to establish. For example, IAEA WS-R -4 safety requirement on "Geological Disposal of Radioactive Waste" (July 2006) and ICRP 81 (July 2000) suggest that projected doses in the longer term may exceed the dose constraint because of uncertainties, but that this does not necessarily indicate a lessening of protection. The use of dose and risk as "targets" or "reference levels" by other countries also suggests that projected exposures that would not be acceptable in the near term may be acceptable in the longer term. As a result, EPA judged that it would not be appropriate to apply a dose constraint suitable for the first 10,000 years as a compliance standard for up to 1 million years. Application of the current public dose limit in the far future provides appropriate consideration for the protection of future generations.

Slovakia	**page 7**	**None**	**7**

ARTICLE 99 - GENERAL

Question ID: 933

Question: What are the main technical reasons for the increased value of 1 mSv/a after the initial period of 10 000 years?

Answer: EPA determined that the 1 mSv/a standard is consistent with the level of precision achievable by projecting the evolution of a complex disposal system for up to 1 million years, and the level of confidence that can be placed in those projections for purposes of regulatory decision-making. EPA concluded that a dose standard that changes over time would be appropriate after considering both its statutory direction to establish a dose standard for individuals, and international guidance that less reliance should be placed on quantitative dose projections in the far future because of the increasing uncertainties in projecting disposal system performance. From this perspective, projected doses are more commonly viewed as one indicator of safety, rather than as a determinant of safety, as EPA was directed to establish. For example, IAEA WS-R-4 safety requirement "Geological Disposal of Radioactive Waste" (July 2006) and ICRP 81 (July 2000) suggest that projected doses in the longer term may exceed the dose constraint because of uncertainties, but that this does not necessarily indicate a lessening of protection. The use of dose and risk as "targets" or "reference levels" by other countries also suggests that projected exposures that would not be acceptable in the near term may be acceptable in the longer term. As a result, EPA judged that it would not be appropriate to apply a dose constraint suitable for the first 10,000 years as a compliance standard for up to 1 million years. The 1 mSv/a standard is consistent with the public dose limit recommended by ICRP, and adopted in the U.S. by the Nuclear Regulatory Commission at 10 CFR 20.1301. As such, it represents a reasonable level of public health protection for individuals in the far future.

Spain	**Page 7**	**None**	**7**
ARTICLE 99 - GENERAL			

Question ID: 934

Question: EPA Standard for Yucca Mountain Could USA explain how this decision affects the programme for the constraction and operation of Yucca Mountain?

Answer: The final Environmental Protection Agency (EPA) standards will not impact planning or operations at the proposed Yucca Mountain repository. The license application addresses the proposed EPA standards and describes the methodology used to project the long-term repository performance as required by Nuclear Regulatory Commission (NRC) regulations. The final EPA standard required peak mean annual doses to remain below 1 mSV for the period from 10,000 to 1 million years and the license application also addresses this measure. The NRC issued its final rule on March 13, 2009. DOE is evaluating the effect of revisions from the proposed rule to the final rule and anticipates no substantive changes on the license application. The NRC will determine if the projected repository performance meets the final standards.

Belgium	**Section A Introduction / pages 8 and 19**	**A**	**8 and 19**
ARTICLE 32 - REPORTING			

Question ID: 1030

Question: It is noted that Depleted Uranium can be a resource or radioactive waste. Would it be possible for the USA to give more information about who decides in this matter, the owner or manager of the material?

Answer: The owner of depleted uranium determines if there is further use for the material and thus whether it is waste.

NRC regulations at 10 CFR Part 20 Appendix G define a waste generator to be "an entity --- who (1) possesses any material or component that contains radioactivity or is radioactively contaminated for which the licensee foresees no further use ---."

It should also be noted that the NRC will be initiating rulemaking to amend current disposal regulations in 10 CFR Part 61 to accommodate disposal of large quantities of depleted uranium. See http://www.nrc.gov/reading-rm/doc-collections/news/2009/09-052.html and the response to question 970.

Belgium	**Section A, page 9, Table A-4**	**A**	**9**

ARTICLE 99 - GENERAL

Question ID: 924

Question: In table A-4, mention is made of “the repository”. Could the USA please specify which repository it refers to in table A-4 ?

Answer: Yucca Mountain is the repository referenced in Table A-4.

Hungary	**A.3 p.9, H.1.4 p.128-129**	**A.3**	**9**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1019

Question: Does the lack of a clearance regulation (as indicated in Table 4-1) cause any delay in the licensing processes for decommissioning due to the case-by-case analysis?

Answer: The lack of a clearance regulation does not generally cause a delay in the decommissioning licensing process. Licensees often commit to follow existing guidance, so that review and approval is simple and expedited. When licensees submit unique approaches that must be reviewed as a case-by-case analysis, the review can often be performed in parallel with review of other aspects of the overall decommissioning case. In this situation, the overall review would not be delayed. Infrequently, the case-by-case review may delay the licensing process for decommissioning.

United Kingdom	**Table A-4, Page 9**	**A.4**	**9**

ARTICLE 99 - GENERAL

Question ID: 935

Question: The last row of the Table refers to "the repository "implying that there will be only one. However on page 17, Section B.3.3 talks of "at least one mined geologic repository". On page 28, Section D.1.2 says that studies at sites other than Yucca Mountain must be discontinued, but page 29, final paragraph, also refers to a second repository and the limit on the first repository being 70,000 t HM compared with a requirement of up to 130,000 t HM by 2055. See also page 48, Section E.1, final sentence. (1) Could the US please clarify the intentions with regard to accommodating more than 70,000 t HM of spent fuel and HLW? (2) Will the first repository at Yucca Mountain be extended; will a second repository be constructed at Yucca Mountain; or might a second repository be located somewhere else?

Answer: The Nuclear Waste Policy Act of 1982, as amended, established a statutory capacity limit of 70,000 metric tons of heavy metal (MTHM) for the Nation's first repository, until a second repository is in operation. That limit is not based on technical considerations related to Yucca Mountain. Studies indicate that three times, or more, this statutory limit could be accommodated by expanding the repository layout at Yucca Mountain. Unless Congress raises or eliminates the current statutory capacity limit of 70,000 MTHM, the U.S. will need a second repository for spent fuel (SF) and high-level radioactive waste (HLW). Prior to the enactment of the Nuclear Waste Policy Amendments Act of 1987 (NWPAA), DOE conducted site activities for a second repository. However, the NWPAA directed the Secretary of Energy to terminate all site specific activities (other than reclamation activities) at all candidate sites and to focus site characterization activities only at Yucca Mountain. In addition, the NWPAA prohibits the Secretary of Energy from conducting site specific activities with respect to a second repository unless Congress has specifically authorized and appropriated funds for such activities. The Administration has indicated that a panel of experts should be convened to evaluate alternative approaches for meeting the Federal responsibility to manage and ultimately dispose of SF and HLW.

DOE issued a report on the need for a second repository in December 2008 and it is available at: http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

Croatia	**page 13**	**None**	**13**

ARTICLE 32 - REPORTING

Question ID: 1040

Question: It is stated that the U.S. classification system has two separate subsystems. One classification subsystem applies to commercial waste and is defined in NRC regulations. The other classification subsystem applies to DOE spent fuel and waste. Can radioactive waste or spent fuel during time change license and consequently regulatory body and classification subsystem?

Answer: If ownership of radioactive waste is transfered from DOE to a commercial entity licensed by NRC, the waste is then subject to NRC regulation (and classification).

Hungary	**B.2.3 p.13**	**B.2.3**	**13**

ARTICLE 32 - REPORTING

Question ID: 1053

Question: The U.S. classification system has two separate subsystems. One classification subsystem applies to commercial waste and is defined in NRC regulations. The other classification subsystem applies to DOE spent fuel and waste. The two systems are used for different purposes and different situations so conflicts do not occur. Do the authorities strive for unification of the two classification subsystems?

Answer: DOE and NRC each regulate nuclear materials and facilities pursuant to independent legal authority. Both regulatory systems are intended to result in similar levels of protection and to not conflict. Because of the different situations and purposes to which the two systems are applied, the differences in the systems are intentional and appropriate. Because the systems are compatible, there is no intent to make them identical or combine them.

Romania	**Section B, page 13**	**B**	**13**

ARTICLE 32 - REPORTING

Question ID: 1059

Question: If the specific activity is used as criteria for classification of the radioactive waste, can the values of gamma/ beta/ alpha emitting radio nuclides activities be specified?

Answer: Please refer to 10 CFR 61.55 for specific values of radionuclides. See http://www.nrc.gov/reading-rm/doc-collections/cfr/part061/part061-0055.html on NRC's website.

Romania	**Section B, page 13**	**B**	**13**

ARTICLE 32 - REPORTING

Question ID: 1058

Question: Which are the important parameters of radioactive waste that are used as criteria for classification (e.g.: radiological physical, chemical, biological)?

Answer: Tables B1 and B2 of the U.S. National Report, summarize the descriptions of the various waste classes. In some instances waste is classified due to source, for example HLW. Other wastes are characterized based on concentration, for example DOE TRU waste. Thus, classification/characterization is not uniformly determined. Radiological properties are the primary consideration for commercial LLW classification for disposal. The regulations in 10 CFR Part 61 place constraints on the waste form for disposal, including certain physical, chemical and biological constraints. For example, some wastes must be disposed of in a form that will remain stable for 300 years. If LLW is mixed with hazardous waste, the hazardous waste disposal requirements must also be met.

Ukraine	**Para Â.2.3.2, page 14**	**Para A.2.3.2**	**14**

ARTICLE 32 - REPORTING

Question ID: 1068

Question: What are the risk management approach in respect with significant delays in commissioning of geological disposal facility Ykka Moutain ?

Answer: The U.S. nuclear power plants will be able to manage their spent fuel storage requirements by increasing reliance on dry cask storage.

China	**Section B.2.3.3, para.2, Page 15**	**B.2.3.3, Para 2**	**15**

ARTICLE 99 - GENERAL

Question ID: 927

Question: Newly defined materials is allowed to be disposed of in a permitted non-radioactive waste disposal facility. What is the acceptance criterion for waste disposable in a permitted non-radioactive waste disposal facility?

Answer: Acceptance criteria are established on a case-by-case basis by the States that permit the facilities. For the newly defined Atomic Energy Act byproduct material as specified in sections 11e.(3) and 11.e(4), future disposal of these materials in non-radioactive facilities can be used to the extent that they were used in the past, before the new legislation was passed.

Spain	**Page 16: B.3.1 Spent fuel storage**	**B.3.1**	**16**

ARTICLE 32 - REPORTING

Question ID: 1066

Question: Programme for the management of S.F. from foreign reseach reactors Could you elaborate on which criteria and conditions must comply with those countries interested in being included in this programme? Alternatively, what are the conditions and criteria for the S.F.?

Answer: In general, research reactors provided with fuel enriched in the U.S. are eligible for the repatriation program. The spent fuel must meet acceptance requirements, such as minimum cooling period. There are other conditions that must be satisfied, such as the country must agree to convert the research reactor to low-enriched uranium fuel. Most common research reactor spent fuel is eligible. Some specialty or exotic fuel may not be acceptable. All known research reactors with eligible fuels have been included in an Environmental Impact Statement (EIS), and subsequent supplemental analyses (SA). The highly-enriched uranium spent fuel from Spain's JEN-1 research reactor has all been repatriated to the U.S. Additional information can be found in the EIS at http://www.gc.doe.gov/NEPA/1001.htm and in supplemental SAs at: http://www.gc.doe.gov/NEPA/supplement_analyses.htm. The Record of Decision (May 17, 1996) and subsequent revisions, including the latest revision to the Record of Decision (January 23, 2009) may be found: http://www.gc.doe.gov/NEPA/records_of_decisions.htm. At these websites the user should use the "Find" tool in the browser searching on the word "foreign". Additional information can be provided by contacting the National Nuclear Security Adminstration Office of Global Threat Reduction: http://www.nnsa.energy.gov/nuclear_nonproliferation/1550.htm (Contacts can be provided upon request to the U.S. Joint Convention point of contact).

Ukraine	**Para J .3.1, page 16**	**Para J .3.1**	**16**

ARTICLE 32 - REPORTING

Question ID: 1069

Question: It is stated that spent fuel of both national and foreign reactors, in addition to the limited quantity of commercial fuel, is stored at sites of the Department of Energy – DOE (Savannah River Site and the Idaho National Laboratory) till its transfer to further disposal. DOE continues to receive fuel (in particular it is planned that fuel from foreign reactors be delivered till 2019). For how many years the storage period was estimated? Are the capacities for the planned fuel volumes sufficient? Was the schedule for begging of operation of the geological repository agreed considering the time for licensing with the possibility to store at DOE’s sites?

Answer: The Department of Energy spent fuel storage facilities at Savannah River Site and Idaho National Laboratory should have sufficient capacity for all currently planned foreign research reactor spent fuel through 2019, consistent with existing plans at these sites. DOE's current policy and planning includes managing foreign research reactor spent fuel for 40 years or until ultimate disposition. Coordination between the programs managing the spent fuel and developing the geologic repository is ongoing.

Croatia	**page 17**	**None**	**17**

ARTICLE 32 - REPORTING

Question ID: 1041

Question: It is stated that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation of that reactor. This 30-year period includes revised or renewed license, as well. This storage can be at a spent fuel storage basin or at an onsite or offsite ISFSI. In case of 60 years of operation and 30 years beyond the licensed life for operation it will mean almost 100 years of storage. Is there any limitation of maximum time length for a wet or dry storage of spent fuel allowed by NRC?

Answer: Currently, there is no maximum time interval that spent fuel can be in interim storage. There are three site-specific ISFSIs that have been renewed for a 40-year term (G.E. Morris, North Anna and H. B. Robinson) in addition to the original 20-year term of the license. Additionally, the NRC is in the process of publishing a proposed rulemaking that would increase the license and certificate term from 20 years to 40 years in 10 CFR Part 72. The regulations also allow possible renewal of the license and certificate terms.

NRC waste confidence rule at 10 CFR 51.23 considers the timing of storage and disposal. NRC is currently re-evaluating these provisions.

China	**Section B.4.3, para. 5, Page 18**	**B.4.3, Para 5**	**18**

ARTICLE 99 - GENERAL

Question ID: 928

Question: High level wastes from commercial reprocessing activities was vitrified and is stored at the former reprocessing plant in West Valley. Is the performance of the vitrified waste forms well monitored, whether the performance meets the expectation at the time of processing?

Answer: The 275 high level waste (HLW) canisters at West Valley have met regulatory, radiological, chemical production, quality assurance, and technical requirements when they were produced starting in the mid 1990s. All 275 HLW canistered waste forms are now being stored under an active surveillance and maintenance program to assure that they meet national repository quality assurance and technical acceptance requirements. For example, the cell where they are stored is ventillated and the temperature of the canisters is monitored to assure that the borosilicate glass does not exceed 400 degrees Centigrade.

Romania	**page 18**	**None**	**18**

ARTICLE 32 - REPORTING

Question ID: 1057

Question: Might USA offer us more information about management of neutron generating sources (Am-Be, Pu-Be, Ra-Be) regarding final disposal of these sources, especially?

Answer: The americium-beryllium and plutonium-beryllium sources are generally classified as greater-than-class C (GTCC) low-level radioactive waste (LLW), for which disposal alternatives are being evaluated in the GTCC Environmental Impact Statement. If these sources pose a public health and safety or national security risk, they may be recovered by the DOE's Offsite Source Recovery Project; and if they meet the waste acceptance criteria, they may be disposed of at a DOE facility (e.g., the Waste Isolation Pilot Plant). Radium sources can be disposed of in a low-level radioactive waste disposal facility, such as the U.S. Ecology commercial facility in Richland, Washington, if they meet the waste acceptance criteria.

Japan	**B.5 (P21)**	**B.5**	**21**

ARTICLE 09 - OPERATION OF FACILITIES (SF)

Question ID: 954

Question: It is said in your Report that NRC regulations specifically require applicants for license to describe haw facility design and procedures will facilitate eventual decommissioning. Please show typical, remarkable and good practices facilitating decommissioning in the eventual new reactor design.

Answer: Since this regulation has been in effect only since August 28, 2007, it is too early to report on the results. New facility designs are still under development and the licensing process is incomplete. Specifics on how new facility design will facilitate eventual decommissioning will be more clear after a licensing action is completed.

Korea, Republic of	**p.21 (B.5)**	**B.5**	**21**

ARTICLE 32 - REPORTING

Question ID: 1054

Question: Is "facilitation of decommissioning" considered to be a licensing criterion of construction permit or operational license of a nuclear facility (e.g. commercial nuclear power plant) and reviewed by the regulatory body based upon review guidance such as standard review plan? If so, please provide more specific and detailed information on the pre-operational regulatory review on the "facilitation of decommissioning".

Answer: Details are described in Regulatory Guide 4.21 issued in June 2008 at the following: http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=081570375 on www.nrc.gov.

For example, a pre-operational review would include the licensees' design for detecting leaks from spent fuel pools, tanks and buried pipes. Early detection of leaks is intended to facilitate decommissioning since leaks can be repaired and prevent large areas from becoming contaminated. See Section F.7.2.

Slovakia	**page 21**	**None**	**21**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1021

Question: What are measures to ensure the availability of adequate financial resources for decommissioning in the case of premature/unplanned shutdown of nuclear facility?

Answer: Licensees that are not regulated by state public utility commissions are required to be "prepaid" if they use trusts, or have full financial assurance through other approved mechanisms at all times during operations. If trusts are used, such licensees are able to take advantage of an earnings credit over the planned life of the facility of up to a 2 percent real rate of return. This means that if the plant shuts down prematurely, there may not be the full amount of cash in a trust fund meeting the minimum required amount (as determined by an NRC formula) since the licensee had been able to take advantage of an earnings credit to meet minimum requirements. Since SAFSTOR is an acceptable decommissioning alternative, any licensee may place the reactor in SAFSTOR while the trust fund accumulates sufficient earnings to cover the completion of decommissioning.

For licensees regulated by state public utility commissions, who are not required to be prepaid at all times from the start of operations, ratepayer funds may be available to cover decommissioning costs, notwithstanding an early shutdown. Reactors shut down prematurely in the 1990s were regulated licensees, and thus may have had recourse to ratepayer funds to complete decommissioning.

China	**Section C.2, para. 2, Page 23**	**C.2, Para 2**	**23**

ARTICLE 03 - SCOPE OF APPLICATION

Question ID: 936

Question: The United States does not consider diffuse sources of NORM generated outside the nuclear fuel cycle to be within the scope of the JC. What does the diffuse source of NORM mean ?

Answer: The U.S. does not consider NORM outside the nuclear fuel cycle to be within the scope of its Joint Convention obligations, as permitted by Article 3, paragraph 2. However, the NRC has recently broadened the classes of byproduct material (designated as 11e.(3) and 11e.(4) byproduct material) to be regulated under the aegis of the Atomic Energy Act provisions. 11e.(3) and 11e.(4) byproduct material is regulated by the NRC under 10 CFR Part 30. These new materials include discrete sources of radium-226 and other NORM as well as accelerator produced material. Examples of this type of byproduct material produced by accelerators are: tritium (hydrogen-3), carbon-14, fluorine-18, krypton-87, and cobalt-57. Discrete source means a radionuclide that has been processed so that its concentration within a material has been purposely increased for use for commercial, medical, or research activities. Certain concentrations and quantities are exempt from the regulations. More specific information on discrete NORM sources, can be accessed at http://www.nrc.gov/materials/byproduct-mat.html.

Diffuse sources of NORM include those that are not included in the definition of discrete source. Furthermore, NRC does not regulate as discrete sources the inadvertent movement or concentration of NORM such as scale from pipes used in the fossil fuel industry, fly ash from coal power plants, or phosphate fertilizers. For additional information, the NARM tool box is accessible at http://nrc-stp.ornl.gov/narmtoolbox.html.

Romania	**Section C4, page 24**	**C.4**	**24**

ARTICLE 03 - SCOPE OF APPLICATION

Question ID: 937

Question: United States has facilities in the decommissioning phase declared as waste management facilities by constructing on-site disposal facilities for some of the radioactive waste being generated during cleanup activities. That means that at every site is set up a disposal facility?

Answer: Only a few of the DOE sites in the decommissioning phase have disposal facilities for radioactive waste at their sites. The disposal facilities referenced on page 24 in Section C.4 are located at the Department of Energy (DOE) sites with large cleanup programs. The DOE operating disposal facilities for decommissioning or cleanup waste are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and are located at the Hanford Site, Idaho National Laboratory, and Oak Ridge Reservation. Closed disposal facilities from cleanup are located at Weldon Spring Site and Fernald, where cleanup activities are complete.

Australia	**Page 25**	**None**	**25**

ARTICLE 32 - REPORTING

Question ID: 1029

Question: How much spare capacity does the US have for the storage of spent nuclear fuel? How long is fuel kept in wet storage before being moved to dry storage?

Answer: The U.S. nuclear power plants have been able to manage their spent fuel storage capacity by increasing reliance on dry cask storage. Most U.S. nuclear power plants do not have site or space limitations for increasing their capacity of dry cask storage.

The minimum required cooling time for spent fuel to be stored in wet storage (spent fuel pool) is dependent upon fuel design, burnup and dry storage system design. Typical cooling times for spent fuel are in the 5 to 7 year range.

Romania	**Section D1, page 25**	**D.1**	**25**

ARTICLE 32 - REPORTING

Question ID: 1061

Question: The spent fuel remains on site until Yucca Mountain geologic repository will be in operation. But the decision is not available yet as is written in the next pages. If the decision will be NO, which are the alternative solutions?

Answer: In accordance with the Nuclear Waste Policy Act of 1982, as amended, the NRC is reviewing DOE's application requesting construction authorization for a repository at Yucca Mountain, and will issue a decision approving or disapproving the construction authorization. The Administration has indicated that a panel of experts should be convened to evaluate approaches for meeting the Federal responsibility to manage and ultimately dispose spent fuel and high level waste.

United Kingdom **Section D.1.1, Page 25** **D.1.1** **25**

ARTICLE 32 - REPORTING

Question ID: 1073

Question: The first paragraph implies that some dry storage casks may not be suitable for transportation. (1) Are those licensed sites which use casks that are not suitable for transportation required to provide a facility for the transfer of spent fuel from such casks into others that are approved for transportation? (2) Are such licensed sites allowed to store spent fuel in casks not approved for transportation before a transfer facility has been fully commissioned?

Answer: (1) There is no requirement for sites to have a facility to transfer spent fuel from a storage cask to a transportation package. Currently, the certificate holders for most storage casks (or internal canisters) that have not been approved for transportation have not yet applied for a transportation certificate of compliance.

(2) The independent spent fuel storage facilities that do not have a spent fuel transfer facility are decommissioned sites which do not have a spent fuel storage pool (Fort St. Vrain, Trojan, Maine Yankee, Big Rock Point, Yankee Rowe, Haddam Neck, Rancho Seco and Humboldt Bay). All of these sites either have a dual-purpose storage cask or the inner canister is authorized for transport in an overpack.

Canada **Section D 1.1, p.27** **D.1.1** **27**

ARTICLE 32 - REPORTING

Question ID: 1033

Question: The projected spent fuel discharges (taking into account plant life extensions) is estimated to be some 130,000 Metric Tons of Heavy Metal by the year 2055. Does this estimate take into account the potential new reactors that have been approved or planned to be approved?

Answer: The estimate does not include spent nuclear fuel or high level radioactive waste from new reactors. New reactor wastes were addressed in the document submitted to Congress on the need for a second repository, available at http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

Romania **Section D1.2, page 28** **D.1.2** **28**

ARTICLE 32 - REPORTING

Question ID: 1062

Question: If Yucca Mountains is rejected have you in view another repository site?

Answer: In accordance with the Nuclear Waste Policy Act of 1982, as amended, the NRC is reviewing DOE's application requesting construction authorization for a repository at Yucca Mountain, and will issue a decision approving or disapproving the construction authorization. The Administration has indicated that a panel of experts should be convened to evaluate approaches for meeting the Federal responsibility to manage and ultimately dispose spent fuel and high level waste.

Ukraine	**Para D.1.2, pages 28-30**	**Para D.1.2**	**28-30**

ARTICLE 32 - REPORTING

Question ID: 1070

Question: It is desirable that specific values of dose limit/risk limit restrictions (quotas) be indicated for the Yucca Mountain geological repository.

Answer: Please refer to Sections E.2.2.2 and G.5 for dose limits for Yucca Mountain and for a reference to EPA's drinking water standards, which are consistent with the ground-water protection standards for Yucca Mountain. See Table A-2 for a reference to EPA's Yucca Mountain Standards Internet website for additional information.

Belgium	**Section D, page 29, first paragraph**	**D, Para 1**	**29**

ARTICLE 32 - REPORTING

Question ID: 1031

Question: It is mentioned in the report that a “full and fair public hearing”. Could the US please specify which legal and regulatory framework determines the characteristics of this public hearing process ?

Answer: NRC's regulatory framework for public hearings can be found in 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders." See http://www.nrc.gov/reading-rm/doc-collections/cfr/part002/.

For more information on public involvement in NRC's HLW management program please visit: http://www.nrc.gov/waste/hlw-disposal/public-involvement.html.

China	**Section D.1.2, para. 2, Page 29**	**D.1.2, Para 2**	**29**

ARTICLE 32 - REPORTING

Question ID: 1037

Question: EnPA reuqires NRC to incorporate EPA's final Yucca Mountain standards into 10 CFR Part 63. What is the current situation, and what is the major change to 10 CFR Part 63?

Answer: The Commission has approved NRC's final regulations for the period of time after 10,000 years up to one-million years: Implementation of a Dose Standard After 10,000 Years (74 FR 10811, March 13, 2009). NRC's final regulations adopt EPA's individual dose limit of 1 mSv/year (100 mRem/year) for the period of time after 10,000 years up to one-million years (including certain constraints on the performance assessment used to evaluate repository performance over this time period) and allows for use of newer dosimetry methods for calculating dose to members of the public. Additionally, the NRC regulations specify a particular range of deep percolation values to be used to represent climate change after 10,000 years and up to one-million years and specify that calculations of radiation doses to workers use the same weighting factors that EPA has specified for calculating doses to members of the public.

France	**D.1.2 - p. 29**	**D.1.2**	**29**

ARTICLE 32 - REPORTING

Question ID: 1047

Question: The NWPA limits emplacement of waste at the first geologic repository to 70,000 MTHM until the commissioning of a second repository. The US-DOE evaluated a larger than 70,000 MTHM capacity in its Final Environmental Impact Statement of 2002 and its Supplemental Environmental Impact Statement for a Yucca Mountain repository (issued in June 2008). Could US indicate the total capacity taken in account in the last file? What is (are) the main parameter(s) that limits (limit) the capacity for a Yucca Mountain repository?

Answer: The capacity used in the June 2008 Supplemental Environmental Impact Statement was 130,000 MTHM. The amount of waste that could be placed in a Yucca Mountain repository is a function of design constraints that address the heat load that the waste would introduce in the rock mass and the volume of rock of sufficient quality to allow the design to meet the constraints. The 70,000 MTHM statutory limit is not based on any technical consideration related to Yucca Mountain, and studies indicate that three times, or more, this statutory limit could be accommodated by expanding the repository layout at Yucca Mountain. DOE issued the report on the need for a second repository in December 2008 and it can be found at http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

Slovakia **page 29** **None** **29**

ARTICLE 32 - REPORTING

Question ID: 1063

Question: Will this decision have and impact on the probabilistic assessment of the Yucca Mountain repository during he NRC evaluation? (see our question on this subject from 2006)

Answer: The final Environmental Protection Agency (EPA) standards and NRC regulations, which address the time period after 10,000 years up to one-million years, provide certain constraints on the performance assessment used to evaluate repository performance over this time period. These constraints provide limits for evaluating the impacts on performance due to seismic activity, igneous activity, climate change, and general corrosion to ensure a reasonable test of repository performance is evaluated. The NRC issued its final rule on March 13, 2009. DOE is evaluating the effect of revisions from the proposed rule to the final rule and anticipates no substantive changes on the license application. The NRC will determine if the projected repository performance meets the final standards.

United Kingdom **Section D.1.2, Page 30** **D.1.2** **30**

ARTICLE 32 - REPORTING

Question ID: 1074

Question: The final sentence says that "…waste packages [can be] readily removed, if necessary." (1) From Figure D-3, it would seem that the design concept might require the movement of several, or perhaps many, packages in order to remove a particular package that is giving rise to concern. Is this impression accurate? (2) Does the design for which a license application has been made provide any indication of how many packages might need to be moved in case of problems with one? (3) Could this be an issue for licensing?

Answer: Please refer to the Yucca Mountain License Application, Section 1.11 Plans for Retrieval and Alternative Storage of Radioactive Wastes. Information is presented on how the structures, systems and components built and operated in the facilities implement a safe operating approach and maintain the capability to retrieve waste. Anywhere from one to a number of packages may have to be removed to gain access to the package of interest for recovery, as discussed in Section 1.3.3 of the Yucca Mountain License Application. The Nuclear Regulatory Commission will determine the feasibility of the proposed retrieval plan during its review of the license application. Section 1.11 of the license application can be found at: http://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html.

Canada	**Section D 2.1.1, p.31**	**D.2.1.1**	**31**

ARTICLE 32 - REPORTING

Question ID: 1034

Question: Of the 177 underground tanks containing waste, only 7 have been fully emptied and stabilized. Is there a schedule for emptying and stabilizing the remaining 170?

Answer: The seven underground tanks at the DOE Hanford Site that have had all of their HLW retrieved are awaiting regulatory approval by Washington State to certify that they have been emptied and can be closed and sealed. Plans are to continue retrieving HLW from the remaining single shell tanks and to begin vitrification treatment of HLW when the Waste Treatment Plant becomes operational as currently scheduled for 2019. All tanks are planned to be emptied and stabilized by 2040.

China	**Section D.2.1.1, para. 3, Page 31**	**D.2.1.1, Para 3**	**31**

ARTICLE 32 - REPORTING

Question ID: 1038

Question: Low-activity waste is mentioned. What is the definition of low-activity waste? What is the relation to other waste categories?

Answer: In the Waste Treatment Plant high level waste would be separated into a higher activity fraction and a lower activity fraction. The "low-activity waste treatment facility" would treat the lower activity fraction. "Low-activity waste stream" is the name given to the lower activity waste process stream in this treatment facility. "Low-activity waste" is not a waste category or classification used in the United States.

France	**D.2.1.1 - p. 31**	**D.2.1.1**	**31**

ARTICLE 32 - REPORTING

Question ID: 1048

Question: At Savannah River Site, the vitrification of the HLW stored in the underground tanks has started in 1996 in the Defence Waste Processing Facility and this operation continues. Could US indicate when this operation will be ended ? Will all this HLW be processed in the Defence Waste Processing Facility?

Answer: At the current processing rate, the Defense Waste Processing Facility is planning to complete vitrification treatment of the existing HLW in underground tanks by approximately 2030. However, the time necessary to complete operations is subject to change based on annual budget appropriations by the U.S. Congress, technology processing improvements employed, and the amount of tank farm waste inventory generated from operating existing facilities at the Savannah River Site.

France	**D.2.1.1 - p. 31**	**D.2.1.1**	**31**

ARTICLE 32 - REPORTING

Question ID: 1049

Question: At Hanford Site, the HLW from the reprocessing of spent fuel has been stored in 177 underground tanks. Currently, 7 tanks have been fully emptied and stabilized. Could US specify the process used to trait and package the HLW contained in these 7 tanks?

Answer: The HLW from 7 single shelled tanks has been retrieved and transferred into newer, double-shelled tanks. Construction of a Waste Treatment Plant is underway to vitrify the HLW, and it is expected to begin operating in 2019. For additional information, please visit: http://www.hanford.gov/orp/ on waste retrieval and http://www.bechtelvitplant.com/proj_solution.html on the Waste Treatment Plant.

France	**D.2.1.1 - p. 31**	**D.2.1.1**	**31**

ARTICLE 32 - REPORTING

Question ID: 1050

Question: At the Idaho National Laboratory site, some HLW from the reprocessing of spent fuel has been scorched and stored in stainless steel bins. Could US indicate if this solid HLW will be packaged before its disposal ? If yes, what process would be used for that ?

Answer: Plans are to package the “calcined” HLW at the Idaho National Laboratory site (which is a granular solid stored in 7 bin sets) in standard stainless steel canisters (similar to other Department of Energy HLW) before disposal. Alternatives for potential treatment prior to packaging are being evaluated, but no decision has been made on a preferred alternative.

China	**Section D.2.1.2, para. 1, Page 32**	**D.2.1.2, Para 1**	**32**

ARTICLE 32 - REPORTING

Question ID: 1039

Question: GTCC LLW contains sealed sources. What are the activity limits of sealed sources for GTCC LLW?

Answer: There is no upper limit on activity of GTCC sealed sources. There is a lower activity threshold for GTCC LLW as defined in 10 CFR 61.55. The tables in this regulation are isotope-specific.

Croatia	**page 32**	**None**	**32**

ARTICLE 32 - REPORTING

Question ID: 1042

Question: It is stated that most of GTCC waste is generated by decommissioning nuclear power plants, and excess or unwanted sealed sources. On the other hand, there are no facilities currently licensed by NRC for the disposal of GTCC LLW. Does operators of the commercial NPPs have obligation to collect funds for disposal of GTCC LLW in addition to funds that are being collected for decommissioning purposes.

Answer: No. However, the U.S. Government could require generators of GTCC LLW to share in the costs for disposing of such waste. Section 3(b)(3)(E) of the Low-Level Radioactive Waste Policy Amendments Act of 1985 specifies that the Federal Government must identify options for "ensuring that the beneficiaries of the activities resulting in the generation of [GTCC low-level] waste bear all reasonable costs of disposing of such wastes…" DOE plans to present such options in a Report to Congress describing the disposal alternatives (report will be submitted after the Environmental Impact Statement is issued).

France	**D.2.1.2 - p. 32 & 33**	**D.2.1.2**	**32 and 33**

ARTICLE 32 - REPORTING

Question ID: 1051

Question: The US-DOE performs the National Environmental Policy Act analyses of potential GTCC LLW disposal alternatives, including the development of an Environmental Impact statement. The US-DOE has to issue a report for the US-Congress describing the disposal alternatives considered and await action by the US-Congress before US-DOE deciding its preferred disposal alternative. Could US indicate when a final decision on GTCC LLW disposal alternative will be taken ?

Answer: DOE anticipates that a final decision on the preferred alternative or alternatives for GTCC LLW disposal could be made as early as late-2010. This date assumes that the Draft Environmental Impact Statement (EIS) is published in 2009, a Final EIS is published in 2010, and the U.S. Congress acts in 2010 regarding the report on the disposal alternatives, which DOE plans to submit to Congress after the final EIS is issued.

Netherlands	**art 32.2, D.1.1/1.2**	**D.1.1 and D.1.2**	**art 32.2**

ARTICLE 32 - REPORTING

Question ID: 1056

Question: As of the end of 2007 more than 58 000 MTHM of spent fuel has been generated by commercial nuclear power industry alone. It is estimated that by the year 2055 the total waste inventory will be about 130 000 MTHM, under the assumption that no additional LWRs will come into operation. The capacity of the foreseen Yucca Mountain repository will "only" be 70 000 MT HM. Are there plans already to expand the YM capacity? It is feasible to dispose the excess SF in the WIPP?

Answer: In accordance with the Nuclear Waste Policy Act of 1982, as amended, (NWPA) the Nuclear Regulatory Commission is reviewing DOE's License Application and will issue a decision approving or disapproving the application at the conclusion of the licensing process. The NWPA requires the Secretary of Energy to report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository for the Nation's spent fuel and high level waste (HLW). Studies indicate that three times, or more, of the NWPA statutory limit could be accommodated by expanding the repository layout at Yucca Mountain. DOE issued the report in December 2008, and it can be found at http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

The Waste Isolation Pilot Plant (WIPP) is designed and authorized to dispose of mixed and non-mixed, contact-and remote-handled transuranic wastes resulting from nuclear weapons production, dismantlement, and site cleanup. Spent fuel and HLW are not authorized by statute for disposal at WIPP.

Spain	**Page 32: D.2.1.2**	**D.2.1.2**	**32**

ARTICLE 32 - REPORTING

Question ID: 1064

Question: GTCC LLW category: Study of alternatives. According to the estimation of generation and capacities of the existing facilities, what could be the proper date for DOE making a decision on GTCC LLW disposal alternatives?

Answer: DOE anticipates that a final decision on the preferred alternative or alternatives for GTCC LLW disposal could be made as early as late-2010. This date assumes that the Draft Environmental Impact Statement (EIS) is published in 2009, a Final EIS is published in 2010, and the U.S. Congress acts in 2010 regarding the report on the disposal alternatives, which DOE plans to submit to Congress after the final EIS is issued.

Ukraine	**Para D.2.1.2, page 32**	**Para D.2.1.2**	**32**

ARTICLE 32 - REPORTING

Question ID: 1071

Question: Are there installed any timetable for considering alternative sites for final disposal of waste which refer to the category of class higher than C (deferred decision). Considering possible increase in volumes of such waste this can be important from the viewpoint of ensuring safe storage of such radwaste. Is there considered the possibility of disposing such radwaste in the geological repository?

Answer: DOE anticipates that a final decision on the preferred alternative or alternatives for GTCC LLW disposal could be made as early as late-2010. This date assumes that the Draft Environmental Impact Statement (EIS) is published in 2009, a Final EIS is published in 2010, and the U.S. Congress acts in 2010 regarding the report on the disposal alternatives, which DOE plans to submit to Congress after the final EIS is issued. Two of the disposal alternatives being evaluated in the GTCC EIS include disposal in a deep geologic repository - the Waste Isolation Pilot Plant and the proposed Yucca Mountain Repository.

Korea, Republic of	**p.33 (D.2.1.3)**	**D.2.1.3**	**33**

ARTICLE 32 - REPORTING

Question ID: 1055

Question: Section D.2.1.3 states that commercial generators of LLW waste must treat these wastes to remove free liquids, stabilize or destroy other hazardous components contained in the waste. 1. What kinds of waste streams from NPP could usually contain free liquids and chelating agents? 2. What are the common methods to remove and quantify free liquid and chelating agent (e.g. EDTA, NTA, Citric Acid, etc.) contents in the waste?

Answer: Nuclear Power Plant (NPP) waste streams that initially contain free-standing liquid are primarily ion exchange resins and filter cartridges. The use of chelating agents was ceased several years ago when the U.S. Environmental Protection Agency effectively banned their disposal. Waste is de-watered by introducing a de-watering tree (a series of tubes that access all sections of the waste mass and allow for placement of the waste sludge into the waste container) and pumping out the free liquid. The process is repeated after several hours to remove residual liquid. Additional details can be found in Section 11.4 "Solid Waste Management Systems" of NUREG 0800 - "Standard Review Plan for Review of Safety Analysis Reports for Nuclear Power Plants." This can be found in the Electronic Reading Room of NRC's public web site: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/ch11/

Absorbent material is commonly added to waste packages to ensure that waste complies with waste form requirements.

Ukraine	**Para D. 2.1.3, page 33**	**Para D.2.1.3**	**33**

ARTICLE 32 - REPORTING

Question ID: 1072

Question: It is stated that many commercial producers do not have the possibility to dispose low level waste in the disposal facility of the South Caroline State at the Barnwell's site. That is why one is considering the possibility for extending the time for interim storage or long-term storage. How the interrelation of all waste management stages, including final disposal of such waste, was considered?

Answer: For the most part, private companies, operating in a free market, and subject to stringent regulation by the NRC and States, implement the national program. NRC has regulations and guidance that cover all phases of waste management, including disposal.

The U.S. has a program to ensure safe storage of LLW that includes licensing, inspection and enforcement. Although access for Class B and Class C LLW was lost less than a year ago, and the U.S. has a framework for developing new disposal sites and regulating access to existing site, LLW can be safely stored for many years. Nearly all of the Class B and Class C LLW is generated by NPPs and safely stored onsite. Materials licensees also store Class B and Class C LLW and are regulated to ensure safe storage.

See Section F.7.3 of the U.S. National Report for additional discussion on the interdependencies among the different waste management steps.

Spain	**Page 35 D.2.2.2 and K.2**	**D.2.2.2 and K.2**	**35**

ARTICLE 32 - REPORTING

Question ID: 1065

Question: LLW - Atlantic compact What kind of measures have been adopted to compensate the restrictions in accessing waste in the Atlantic compact to other generators out of the 3 States? What kind of measures are envisaged?

Answer: For the immediate future, generators of Class B and C LLW in 36 states which do not have access to compact facilities will have to store such waste. (There is continuing access to disposal capacity for most Class A waste, which represents the largest volume.) In anticipation of this circumstance NRC has updated its guidance related to interim storage for both NPP and users of radioactive material. Despite the inconvenience, regulators and licensees are confident that LLW can be stored safely and securely for the time necessary. As economic circumstances become more favorable (e.g. when potential volumes and revenues significantly increase in conjunction with decommissioning NPPs), it is more likely that businesses will take on the uncertainities in developing additional commercial disposal capacity. The legal and regulatory framework is already in place to allow for the development of additional disposal capacity.

France	**D.2.2.2 - p. 36**	**D.2.2.2**	**36**

ARTICLE 32 - REPORTING

Question ID: 1052

Question: The US waste generators also may use hazardous waste disposal facilities for waste with very low level activity. Could US indicate how many facilities are authorized in US to dispose of VLLW? Approximately, what is the annual volume of VLLW disposed of in this type of facility?

Answer: U.S. does not have a formal VLLW radioactive waste classification. Annual disposal volumes of such waste are not tracked by the Federal Government. There are case-by-case authorized releases by NRC & DOE as well as exempt waste and NORM outside the nuclear fuel cycle. Two commercial facilities dispose of most of the VLLW in the U.S. These are the U.S. Ecology site in Idaho and the Waste Control Specialists site in Texas.

Spain	**Page 37 Point D.2.2.2**	**D.2.2.2**	**37**

ARTICLE 32 - REPORTING

Question ID: 1067

Question: VLLW Is there any general regulation addressing the periods of institutional surveillance for disposal facilities for this type of waste?

Answer: The U.S. does not identify a class of very low-level waste, and facilities intended for the disposal of such waste are not defined. However, certain materials determined to present a low risk to public health and the environment have been disposed of in facilities permitted for hazardous waste or non-hazardous solid waste. These facilities must be actively maintained and monitored for 30 years after closure. This active institutional control period can be reduced or extended by the appropriate EPA or state authorities, depending on whether the closure is determined to be sufficient to protect public health and the environment. Restrictions are also placed on future use of the site. No hazardous waste landfill has reached the end of this initial 30-year period for post-closure care. See 40 CFR part 158 for requirements applicable to municipal solid waste landfills, and 40 CFR part 264 for requirements applicable to hazardous waste landfills.

China	**Section D1.2, Page 39**	**D.1.2**	**39**

ARTICLE 28 - DISUSED SEALED SOURCES

Question ID: 1025

Question: Yucca repository will also receive vitrified waste form. What is the engineering concept for Yucca repository related to the vitrified waste form?

Answer: Stainless steel canisters containing vitrified high level waste will surround a center canister containing DOE spent fuel. This configuration is called a co-disposal waste package.

Romania	**Section D 3.2, page 42**	**D.3.2**	**42**

ARTICLE 32 - REPORTING

Question ID: 1060

Question: What is the impact of the reopening of uranium mines on the remediation action projects of the uranium sites?

Answer: Conventional uranium mines are not managed as part of the Nuclear Fuel Cycle. Only when the uranium ore is beneficiated (sorted, crushed, processed) does the activity become part of the nuclear fuel cycle.

Commercial uranium mills (including solution extraction mining) are required to comply with the provisions in 10 CFR Part 40, Appendix A or equivalent Agreement State regulations. For those facilities undergoing reclamation and closure, the operators can elect to revise or resubmit the license for operation. This decision by the operator is determined by financial considerations and is not restricted by regulation.

Canada **Section D 3.3.1, p.43** **D.3.3.1** **43**

ARTICLE 32 - REPORTING

Question ID: 1035

Question: NRC relinquishes regulatory authority to individual states, including regulation of decommissioning material sites in these states. Does this mean that NRC also relinquishes its legal responsibility?

Answer: Prior to relinquishing this regulatory authority, NRC must make a determination that the State Governor certifies that the State has a radiation protection program for the control of the materials identified within the proposed agreement; and NRC makes a finding that the State program is in accordance with the requirements of the Atomic Energy Act, Section 274b and in all other respects the State program is compatible with NRC's program for the regulation of such materials. The State must have enabling legislation authorizing its Governor to enter into such an agreement. In the case of such a decision, the Agreement State assumes regulatory responsibility over the materials, activities and facilities specified in their agreement.

NRC monitors the adequacy of the Agreement State's safety program by means of the Integrated Materials Performance Evaluation Program (IMPEP). This program is addressed in the National Report in section E.2.7.2 and additional information on the IMPEP can be accessed at http://nrc-stp.ornl.gov/impeptoolbox/impep.html. If a State's safety program is determined to no longer be adequate to perform this regulatory function and responsibilities, NRC resumes the regulatory role. NRC can, upon its own initiative, or upon request of the Governor, terminate or suspend all or part of this agreement and reassert the licensing and regulatory authority vested in it under the Atomic Energy Act. Additional information about the NRC's Agreement State program is available at http://www.nrc.gov/about-nrc/state-tribal/agreement-states.html.

Canada **Section D 3.3.1, p.43** **D.3.3.1** **43**

ARTICLE 32 - REPORTING

Question ID: 1036

Question: Given that the Yucca Mountain licence application has been docketed, and that only 70/130ths of the waste inventory can be handled at Yucca Mountain, when do you expect DOE to report to the President and Congress on the need for a second repository?

Answer: The Nuclear Waste Policy Amendments Act of 1987 established a statutory capacity limit of 70,000 metric tons of heavy metal (MTHM) for the nation's first repository, until a second repository is in operation. Unless Congress raises or eliminates the current statutory capacity limit of 70,000 MTHM, the United States will need a second repository for spent fuel and high-level radioactive waste. Studies indicate that three times, or more, this statutory limit could be accommodated by expanding the repository layout at Yucca Mountain. DOE issued a report on the need for a second repository in December 2008 and it can be found at: http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

Korea, Republic of **p.43 (D.3.3.1)** **D.3.3.1** **43**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 979

Question: Section D.3.3.1 states that NRC can under the provisions of the AEA, relinquish regulatory authority to individual states including regulation of decommissioning material sites in those states. In case of relinquishing the regulatory authority to individual states; 1. What is the NRC's role in the regulatory process? 2. How can the consistency of regulatory viewpoints between NRC and the Agreement States be assured?

Answer: The AEA provides a statutory basis for NRC to relinquish to the states portions of its authority to license and regulate byproduct materials, source materials, and certain quantities of special nuclear materials. NRC began full implementation of the Integrated Materials Performance Evaluation Program (IMPEP) in 1996 to ensure public health and safety are adequately protected from potential hazards of using radioactive materials, and that Agreement State programs are compatible with NRC's program. Under its own internal practices, NRC periodically reviews the performance of each Agreement State to assure compatibility with its regulatory standards. See Section E.2.1.5 of the U.S. National Report on NRC's IMPEP. For further information on IMPEP, please access the IMPEP toolbox at http://nrc-stp.ornl.gov/impeptools.html.

Germany **p. 47; Sec. E.1** **E.1** **47**

ARTICLE 18 - IMPLEMENTING MEASURES

Question ID: 973

Question: In 2008, „EPA issued an amended rule that maintains the 0.15 mSv/a (15 mrem/yr) standard for the first 10,000 years and establishes a 1 mSv/a (100 mrem/yr) standard for the period after the initial 10,000 years out to one million years." What was the reason to choose the 1mSv/a criterion?

Answer: The 1 mSv/a standard is consistent with the public dose limit recommended by ICRP, and adopted in the U.S. by the Nuclear Regulatory Commission at 10 CFR 20.1301. As such, it represents a reasonable level of public health protection for individuals in the far future. EPA reached this conclusion after considering both its statutory direction to establish a dose standard for individuals, and international guidance that less reliance should be placed on quantitative dose projections in the far future because of the increasing uncertainties in projecting disposal system performance. EPA judged that it would not be appropriate to apply a dose constraint suitable for the first 10,000 years as a compliance standard for up to 1 million years.

Spain **Page 47 E1** **E.1** **47**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 984

Question: Amended NWPA NWPA states that a report has to be sent to the Congress on the necesity of a second geological repository. What are the main issues to be adressed by this report? When does DOE foresee that this report could be presented?

Answer: The Nuclear Waste Policy Amendments Act of 1987 requires the Secretary of Energy to report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository for the Nation's spent fuel (SF) and high-level radioactive waste (HLW). DOE issued the report in December 2008. The report considers three options: (1) Remove the statutory limit of 70,000 MTHM for Yucca Mountain and dispose of currently projected quantities of SF and HLW at the Yucca Mountain repository; (2) Begin the process of siting, designing, licensing and constructing a second repository as soon as possible so it will be ready to receive SF and HLW by the time 70,000 MTHM has been emplaced in the Yucca Mountain repository; or, (3) Defer the decision and prolong the time commercial SF generated after 2010 will be stored at reactor sites, as well as the time DOE SF and HLW will be stored at DOE sites. The report can be found at at:
http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

Slovakia	**page 48**	**None**	**48**

ARTICLE 18 - IMPLEMENTING MEASURES

Question ID: 974

Question: What are the main reasons for a second repository and what is the status of the report to the President and Congress prepared according to NWPA?

Answer: The Nuclear Waste Policy Amendments Act of 1987 requires the Secretary of Energy to report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository for the Nation's spent fuel (SF) and high-level radioactive waste (HLW). DOE issued the report in December 2008. The report considers three options: (1) Remove the statutory limit of 70,000 MTHM for Yucca Mountain and dispose of currently projected quantities of SF and HLW at the Yucca Mountain repository;(2) Begin the process of siting, designing, licensing and constructing a second repository as soon as possible so it will be ready to receive SF and HLW by the time 70,000 MTHM has been emplaced in the Yucca Mountain repository; or, (3) Defer the decision and prolong the time commercial SF generated after 2010 will be stored at reactor sites, as well as the time DOE SF and HLW will be stored at DOE sites. The report can be found at at:
http://www.ocrwm.doe.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf

United Kingdom	**Section E.2.1, Page 51**	**E.2.1**	**51**

ARTICLE 20 - REGULATORY BODY

Question ID: 988

Question: Table E-3 shows the NRC Strategic Goals and Outcomes. Although "Effectiveness" is included in the lower set of bullets, it is noted that there is no reference to "efficiency", which many other regulatory bodies include in their list of objectives. Does the NRC view "efficiency" an implicit part of "Operational excellence"?

Answer: Efficiency can carry a negative connotation that safety is negotiable in light of timeliness and minimized resource expenditure. This is not the only interpretation, but may send the wrong message. Certainly, in cases of significant exposure, immediacy is a desired attribute. In the context of organizational productivity (or operational excellence), the Strategic Plan does expound that NRC must efficiently use its resources, update the agency’s regulatory review and construction inspection guidelines, and provide adequate infrastructure to accommodate staff. In addition, the Strategic Plan also stipulates that NRC actions be of high quality, efficient, timely, and realistic, to enable the safe and beneficial use of radioactive materials. Further reading of NRC's challenges and goals is available at URL: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1614/v4/index.html.

Spain	**Page 53 E.2.1**	**E.2.1**	**53**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 986

Question: One of the oversight activities of NRC's regulatory programme is to issue sanctions to licensees who violate NRC regulations and license conditions. Could you please clarify what kind of sanctions exist for penalizing the infractions?

Answer: Just in calendar year 2007, NRC issued 118 escalated enforcement actions, including:
ǐ 77 escalated Notices of Violation without civil penalties
ǐ 18 proposed civil penalties totaling $383,200
ǐ 22 orders modifying, suspending, or revoking a license, including prohibiting involvement in NRC-licensed activities
ǐ One order imposing a proposed civil penalty of $3,250.

The types and severity of NRC enforcement actions are described in the NRC website at URL: http://www.nrc.gov/reading-rm/doc-collections/enforcement/annual-rpts/

United Kingdom **Section E.2.1.2, Page 55** **E.2.1.2** **55**

ARTICLE 20 - REGULATORY BODY

Question ID: 989

Question: The penultimate paragraph says that DoE has "made publically available more than 3.6 million documents relating to the Yucca Mountain licensing on the NRC Licensing Support Network." (1) Can the USA describe how it ensures that particularly important documents are identified and are readily visible to the public? (2) What system is used to help any person trying to find a document on a particular topic to navigate through this huge mass of documentation?

Answer: DOE's license application and supporting references provide the principal means for the public to identify the important documents that form the basis for DOE's demonstration of compliance with the safety regulations. NRC is conducting a safety review and will document the results of this review in a Safety Evaluation Report, will be available to the public. This report will provide the means for the public to identify the important documents that NRC staff has relied upon in reaching its safety decision. The LSN offers a variety of techniques to search for documents (e.g., words, titles, organizations, etc.) included in the LSN by DOE, NRC, and other participants in the licensing proceeding. Members of the public can go to the LSN and search for specific documents relevant to the proceeding.

Korea, Republic of **p.56 (E.2.1.3)** **E.2.1.3** **56**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 978

Question: Section E.2.1.3 describes that reviewing a license application for the LLW disposal facilities within 15 months of receipt is a statutory requirement. However, Section K.2 states that the State of Texas received an application from Waste Control Specialists (WCS) in 2004 for a new LLW disposal facility, and the Texas Commission on Environmental Quality (TCEQ) issued a draft license for public comment in August 2008. 1. Why has the review of the license application spent longer time than the statutory requirement as mentioned above? 2. Section D.2.2.2 states that a license application for a fourth facility is pending. Does the "fourth facility" mean the WCS' LLW disposal facility in Texas?

Answer: The statute states: "to the extent practicable" with regard to the 15 month of review and processing period. Demonstrating compliance with the licensing requirements is complex and involves a number of disciplines and extensive regulatory review. As an indicator of the complexity of licensing, the WCS application was comprised of 34 volumes. In this instance there were deficiencies that required additional technical information and revisions of the license application. Although no new facilities have been developed under the 1985 LLW law, several proposed new facilities underwent regulatory reviews that lasted a number of years, like the WCS review. The "fourth facility" is indeed WCS in Andrews, Texas.

Netherlands **E.2.1.4, p.57** **E.2.1.4** **57**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 980

Question: In section E.2.1.4 (page 57) it is mentioned that each power reactor licensee before decommissioning must request termination of its license; a “License Termination Plan” needs to be approved by NRC. NRC’s criteria for approval seem to have been laid down in NUREG-1700 (see F.6.1). What are the exemption levels used for material release and final site release?

Answer: In general, material to be disposed of at a non-radiological disposal site must have no detectable contamination. Specific approval for disposal of slightly contaminated material in non-radiological disposal sites may be authorized on a case-by-case basis in accordance with NRC regulations at 10 CFR 20.2002. Otherwise, radiological material must be disposed of at a licensed radioactive waste disposal facility. For final site release a site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a total effective dose equivalent (TEDE) to an average member of the critical group that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).

United Kingdom **Section E.2.2.2, Page 61** **E.2.2.2** **61**

ARTICLE 20 - REGULATORY BODY

Question ID: 990

Question: The first bullet refers to "An all pathways dose limit of 1 mSv/a (100 mrem/yr) to apply at the time of peak dose beyond 10,000 years and up to 1 million years after closure". (1) How is it known that the peak dose will not occur sooner than 10,000 years after closure? (2) What is the justification of supposing that future generations more that 10,000 years hence can be exposed to a higher possible dose than those within the next 10,000 years?

Answer: The Nuclear Regulatory Commission must determine that there is a reasonable expectation that the mean projected dose within the first 10,000 years after closure will not exceed 0.15 mSv/a (15 mrem/yr). The term "peak dose" is more generally applied to the standard applicable beyond 10,000 years and up to 1 million years because it was suggested by the National Academy of Sciences (among others) that the peak dose would occur later than 10,000 years. The NAS recommended that compliance be determined at the time of peak dose (within the limits imposed by the long-term stability of the geologic environment), and the long-term standard was established to address this recommendation. 2) EPA concluded that a dose standard that changes over time would be appropriate after considering both its statutory direction to establish a dose standard for individuals, and international guidance that less reliance should be placed on quantitative dose projections in the far future because of the increasing uncertainties in projecting disposal system performance. From this perspective, projected doses are more commonly viewed as one indicator of safety, rather than as a determinant of safety, as EPA was directed to establish. For example, IAEA WS-R-4 safety requirement "Geological Disposal of Radioactive Waste" (July 2006) and ICRP 81 (July 2000) suggest that projected doses in the longer term may exceed the dose constraint because of uncertainties, but that this does not necessarily indicate a lessening of protection. The use of dose and risk as "targets" or "reference levels" by other countries also suggests that projected exposures that would not be acceptable in the near term may be acceptable in the longer term. As a result, EPA judged that it would not be appropriate to apply a dose constraint suitable for the first 10,000 years as a compliance standard for up to 1 million years. The 1 mSv/a standard is consistent with the public dose limit recommended by ICRP, and adopted in the U.S. by the Nuclear Regulatory Commission at 10 CFR 20.1301. As such, it represents a reasonable level of public health protection for individuals in the far future and can be viewed as consistent with the principles of intergenerational equity.

Canada	**Section E 2.2.4, p.63**	**E.2.2.4**	**63**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 976

Question: With respect to the statement “ventilating to reduce radon exposure to the miners, however, increases exposure to the general population,” could you please provide some clarification on the context of the statement?

Answer: The statement relates to the management of radon accumulating in the underground uranium mines. Ventilating the mines to remove radon improves the health and safety of the miners. Releasing the radon to the general environment, however, could slightly increase radon exposures to nearby residents. The Clean Air Act standard under 40 CFR part 61, subpart B, limits exposures to the public.

Hungary	**E.2.2.4. p.63**	**E.2.2.4**	**63**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 977

Question: Subpart T of the Clean Air Act protects people and the environment from 222Rn emissions from no longer operating uranium mill tailings piles. The 222Rn emission rate from a uranium mill tailings pile to the surrounding air must not exceed 0.74 Bq/m2/s. Subpart T does not apply to NRC’s licensees because they are covered by NRC’s regulatory system. If different regulations are applied for radon emissions, does it mean that the dose limits for individual members of the public are also different in the two regulations?

Answer: No. Subpart T originally applied to inactive tailings sites under NRC license, as well as those assigned to DOE by the Uranium Mill Tailings Radiation Control Act (UMTRCA) (known as the "Title I" sites). EPA rescinded the portions of subpart T applicable to NRC licensed sites on the condition that NRC implement a program at least as stringent as EPA's standards. The radon emanation rate in subpart T, which was issued under the Clean Air Act, is identical to that in EPA's UMTRCA standards in 40 CFR part 192, which NRC is required to implement. NRC incorporates this radon emanation standard into its requirements in 10 CFR Part 40. Therefore, the same radon emanation rate applies to tailings piles whether they are subject to subpart T or not.

Russian Federation	**Å.2.3, p. 64**	**A.2.3**	**64**

ARTICLE 20 - REGULATORY BODY

Question ID: 987

Question: How does DOE provide effective independence of its regulatory functions in relation to SNF and RW management at facilities which are under the Joint Convention?

Answer: Article 20 of the Joint Convention states that in accordance with its legistative and regulatory framework, contracting parties shall take the appropriate steps to ensure effective independence of the regulatory functions from other functions where organizations are involved in both SNF and RW management and their regulation.

Section E.2.3 describes the independent regulatory functions implemented by DOE's Office of Health, Safety, and Security including those of the Office of Independent Oversight and the Office of Price-Anderson Enforcement. HSS has authority to enforce nuclear safety requirements by all means, including civil and criminal penalties. HSS is independent of all offices which implement programs. HSS has no responsibilities for program or facility implementation, schedules, or costs; and reports directly to the Secretary of Energy who is a Presidential cabinet member.

In addition, a number of DOE waste management facilities (such as repositories for the geologic disposal of SNF and HLW and certain storage facilities for SNF and HLW) are subject to licensing by NRC. The WIPP facility is subject to regulation by EPA. Moreover, many DOE facilities are subject to oversight and regulation by the state within which they are located. Furthermore, the Defense Nuclear Facilities Safety Board provides oversight with respect to DOE facilities that manage waste from defense activities.

Russian Federation	**Å.2.3, p. 64**	**A.2.3**	**64**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 981

Question: What body issues permission (license) to operate/perform activities on RW and SNF management at DOE facilities, which are under the Joint Convention?

Answer: A number of DOE waste managment facilities (such as repositories for the geologic disposal of SNF and HLW, disposal facilities for Greater-than-Class C LLW, and certain storage facilities for SNF and HLW) are subject to licensing by NRC. The approval of the WIPP for disposal of defense TRU waste is certified by the EPA. Construction or operation of facilities for disposal of LLW are approved by DOE's Deputy Assistant Secretary for Regulatory Compliance in the Office of Environmental Management following review by the Low-Level Radioactive Waste Federal Review Group, composed of experts from across the DOE complex. Other SNF and RW storage and treatment facilities are approved by the reponsible senior DOE official. The Office of Health, Safety, and Security advises the Secretary of Energy on the status of compliance with regulatory requirements.

Russian Federation	**ɾ .2.3, p. 66**	**E.2.3**	**66**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 983

Question: How does DOE's Office of Price-Anderson Enforcement perform its investigations (identification) of potential violations/deviations?

Answer: The processes and procedures for the Office of Price-Anderson Enforcement conduct of inspections, investigations and program reviews are described in 10 CFR Part 820. The office may take such actions as it deems necessary and appropriate to conduct an investigation or inspection. This includes the power to issue subpoenas, take sworn testimony, compel attendance and sequester witnesses.

Russian Federation	**ɾ .2.3, p. 66**	**E.2.3**	**66**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 982

Question: What enforcement measures does the DOE's Office of Price-Anderson Enforcement have the right to apply to the organizations involved in SNF and RW management at DOE facilities?

Answer: Civil penalties not to exceed $110,000 for each violation may be assessed. For a continuing violation, each day of such violation constitutes a separate violation for purpose of computing the penalty. Criminal violations are referred to the U.S. Department of Justice.

Spain	**Page 67 E2.4**	**E.2.4**	**67**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 985

Question: NWTRB Could USA briefly explain what have been the main recommendations of NWTRB in the last 3 years?. What are the lessons learnt from these recommendations?

Answer: The Nuclear Waste Technical Review Board's (NWTRB) findings and recommendations were taken into consideration by DOE during Yucca Mountain site characterization and preparation of the license application. Specific recommendations included performing a less conservative analysis to evaluate the "margin" in the safety argument made to the regulator. This is included in the license application as a confidence-enhancing argument. Specific recommendations were also made with respect to determining the corrosion environment that may be seen by the waste packages, and experiments are planned to satisfy these recommendations, subject to the availability of funding. Due to quality assurance issues regarding an infiltration model, DOE developed a replacement model to be used in a licensing proceeding. NWTRB evaluated the revised infiltration model and provided criticism suggesting that the original model was a better model. However, this recommendation could not be accepted because in a licensing process, a quality-assurance pedigree is as important as sound science, and the former model lacked that pedigree. Both models are defensible given the available data, and the selected model was the more conservative. Among the lessons learned is that external expert review and criticism is helpful. However, at times external experts may not be aware of all requirements involved in a licensing proceeding. Information on the NWTRB can be found on www.nwtrb.gov.

United Kingdom	**Section F.2, Page 73**	**F.2**	**73**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 997

Question: The first paragraph and Tables F-1 and F-2 refer to the number of FTEs "requested" in FY 2009. How likely is it that the "requested" numbers of staff will be (a) approved, and (b) achieved, within FY 2009?

Answer: NRC expects to be able to fulfill its safety obligations within the staffing levels supported by the final FY09 budget (signed March 11, 2009). Currently, the NRC is working at the expected levels for FY2009, as stated in the National Report. However, as each governmental agency assesses its programmed activities over the first few months after enacting the final budget, these levels may be altered to address higher priority activities in this process.

It should also be noted that "FTE" does not signify the actual number of staff assigned to an activity. It is a budgetary construct to signify the level of effort, as in staff hours, allocated to an activity.

United Kingdom	**Section F.2.1, Page 74**	**F.2.1**	**74**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 998

Question: The first paragraph refers to the requirement for license applicants to provide an "organizational structure". (1) Is there a requirement for license applicants to provide details of the numbers of qualified staff in each safety-related function? (2) How does NRC regulate to ensure that the numbers are sufficient to carry out the required safety-related functions? (3) What are the regulations relating to the adequacy of the numbers of qualified staff within the licensees?

Answer: The answers to these questions rely on the type of license that is proposed. The documentation and assessments required for a nuclear power plant would be more complex than would a license for an industrial gauge. How the numbers are determined for each activity requires more detail than is feasible in this response. Refer to the NRC's regulations for each sector of the nuclear fuel cycle and in the medical, industrial and research areas for the specifics on these requirements; these are detailed in Table A-2 of the U.S. National Report.

For illustrative purposes refer to the web site at URL http://www.nrc.gov/waste/spent-fuel-storage/sf-storage-licensing/license-considerations.html. This site provides an example of the decision process to store dry spent fuel in an NRC-approved cask, which can typically take up to three years. A figure is provided detailing the tasks and estimated licensee's staff months, some of which can be completed concurrently. The level of effort totals about 200 staff-months, and is partitioned into various activities such as health physics and dose assessment activities, welding program changes, training and qualification, dry storage system fabrication oversight, etc.

Moreover, Annex F-1 provides manual chapter references for the different inspection requirements for different types of licensees. These differ depending on the circumstances and type of activity also. These can be accessed at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/manual-chapter/index.html.

China	**Section F.2.3, para.2, Page 75**	**F.2.3, Para 2**	**75**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 992

Question: What are the financial assurance requirements for a waste processor? How does NRC review the financial assurance of a waste processor?

Answer: Waste processors must provide a Decommissioning Funding Plan in accordance with 10 CFR 30.35(c)(5) and (e). The amount of financial assurance is determined by a site specific cost estimate.

Guidance is provided in Consolidated NMSS Decommissioning Guidance Financial Assurance, Recordkeeping,and Timeliness NUREG-1757, Vol. 3. Chapter 4 of this document addresses financial assurance for decommissioning, including waste processors who fall into Decommissioning Group 4 (as defined in NUREG-1757, Vol. 1). NUREG-1757, Vol. 3 is available at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1757/v3/sr1757v3.pdf

United Kingdom **Section F.2.3.1, Page 75** **F.2.3.1** **75**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 999

Question: The paragraphs here refer to the types of security that NRC can accept as surety to cover closure, decontamination, dismantlement and stabilization. Has the world-wide financial crisis caused NRC or other parts of the US Government to reconsider the types of security that are acceptable in this context?

Answer: The NRC evaluates each financial assurance proposal individually taking into account whether the company can meet financial tests (Parent or Self Guarantee) or the institute issuing the financial assurance is either regulated by a Federal or State agency. As this is the case, the NRC has not found one broad class of financial assurance no longer acceptable as a result of the current world-wide economic condition. Although, the NRC has found that some licensees may find it more difficult and/or costly to obtain certain types of financial assurance in the current economic environment.

Spain **Page 77 F.2.3.2** **F.2.3.2** **77**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 996

Question: Spent Fuel and HLW Management Facilities The estimated cost in 2007 for transportation and disposal of the radiactive waste in Yucca Mountain repository is a 38% higher than the initial cost foreseen in 2002. How will this increase be allocated to the producers and the consumers of nuclear energy electricity?

Answer: The Yucca Mountain Project is funded on a full-cost recovery basis, with waste generators paying their respective disposal costs. Allocation of costs between commercial and defense waste generators are recalculated when the Total System Life Cycle Cost (TSLCC) is re-estimated and the percentage shares are applied to both historical and future costs. Cost allocation is based on the methodology published in the August 20, 1987, Federal Register Notice 52 FR 31508). The Nuclear Waste Policy Act of 1982 levied a fee of one mill ($0.001) per kilowatt-hour on electricity generated and sold by nuclear power utilities. The Secretary of Energy is required to annually review the fee to evaluate whether it will provide sufficient revenues to offset the commercial utilities' share of the TSLCC of the Civilian Radioactive Waste Management Program. DOE issued the Revised Total System Life Cycle Cost Estimate and Fee Adequacy Report for Yucca Mountain Project in August 2008. It determined that the fee was adequate and found no reason to adjust it at that time. The fee has never been adjusted since the passage of the Nuclear Waste Policy Act.The report is available at at at http://www.ocrwm.doe.gov/about/budget/pdf/TSLCC_2007_8_05_08.pdf

Spain **Page 77 F.2.3.3** **F.2.3.3** **77**

ARTICLE 23 - QUALITY ASSURANCE

Question ID: 1001

Question: Uranium Recovery Waste Management Facilities In the case of uranium mining facilities authorized when the financial surety arrangements for the decontamination and decommissioning cost were not requested, how are now these cost managed?

Answer: Because this section of the U.S. National Report only addresses uranium "milling," it is assumed that the question relates to uranium milling and not conventional mining. When the uranium ore is beneficiated (sorted, crushed, processed) does it fall within the financial surety provisions as described in 10 CFR Part 40, Appendix A, Criteria 9 and 10, as decribed in Section F.2.3.3 of the U.S. National Report.

Where financial assurance requirements were not imposed or were inadequate to decommission the facility, a variety of authorities have taken responsibility for cleanup and remediation. Some mills have been placed on the National Priorities List for cleanup under Superfund. Others are being addressed by state, tribal, or other federal programs, e.g., DOE's Legacy Management or Environmental Management programs.

Canada	**Section F 2.3.4, p.78**	**F.2.3.4**	**78**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 991

Question: Please explain the reasoning behind the limit of $113,000.00, below which the NRC does not require setting aside funds for decommissioning? Does this number change with inflation?

Answer: A U.S. Government interagency working group is currently examining whether or not financial assurance requirements should be placed on NRC licensees which currently fall below the thresholds which require financial assurance. Site specific cost estimates can be updated by using an inflation factor. The specific dollar amounts that are listed in the table found at 10 CFR 30.35 (d) have been determined through NRC's Rulemaking process. The next time the regulation is updated, these numbers may be reevaluated, potentially including such things as actual disposal costs and inflationary factors.

France	**F.2.3.4 - p. 79**	**F.2.3.4**	**79**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 993

Question: NUREG 1307, chap 3 : The adjustment factor is at least equal to 0.65 L + 0.13 E + 0.22 B where B is an escalation factor for waste burial. Waste management is performed by private operators who set their prices depending on their own constraints (waste volumes, dose rates...). Could US clarify how these costs are included in the factor B ? How this factor is calculated ? When States may be linked to waste repositories by a convention, why NRC does not use the actual cost in place of the escalation factor ?

Answer: The formula is an estimate of the minimum cost to decommission a reactor. The formula assumes 22 percent is the low-level waste contribution of the decommissioning costs and the adjustment factor is based on actual costs (an average volume and mix - see Appendices to NUREG-1307) and is adjusted depending on what part of the country/compact. It is used for developing a minimum cost estimate. For details on low-level waste costs, volume, available compacts and curie levels, etc., we refer requestor to current Barnwell and Hanford disposal rate sheets with the caveat that although they are the best estimates available, the sites themselves are not available unless the waste originates within the applicable regional disposal compact.

Spain	**Page 79 F.3 Quality Assurance**	**None**	**79**

ARTICLE 23 - QUALITY ASSURANCE

Question ID: 1002

Question: Does USA plan that the licensees of SF and radioactive waste management facilities should implement a Management System fulfilling requirements of IAEA GS-R-3?

Answer: The U.S. Nuclear Regulatory Commission has well-established quality assurance regulatory programs for Spent Fuel and Radioactive Waste management. This is explicitly described on p. 80 in section F.3.1. For example, the regulations established in 10 CFR Part 72 -- Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste -- Subpart G is devoted to this theme. Furthermore, there are regulatory guides (e.g., 4.15 Quality Assurance for Radiological Monitoring Programs (Inception through Normal Operations to License Termination) -- Effluent Streams and the Environment, July 2007). These references are available at www.nrc.gov.

The U.S. does not routinely incorporate IAEA Safety Standards into its own regulatory framework, but does recognize the use of the IAEA Safety Standards as a good point of reference for those countries trying to establish a safety regulatory infrastructure. It should be noted that some NRC regulations are maintained to be consistent with IAEA's Safety Standards, such as in the case of transportation of radioactive materials (10 CFR Part 71), which is kept consistent with IAEA's Safety Requirement for Safe Transport of Radioactive Materials (TS-R-1).

Korea, Republic of	**p.81 (F.3.2)**	**F.3.2**	**81**

ARTICLE 23 - QUALITY ASSURANCE

Question ID: 1000

Question: Section F.3.2 "DOE Quality Assurance" of Article 23 states that their QA programs must be developed by applying ten QA criteria using a graded approach. Are both augmented QA and graded QA to be incorporated into the QA program? If so, was it proved that the U.S. nuclear industry participating in spent fuel and/or radioactive waste management project are interested in the graded QA?

Answer: Please clarify what is meant by "augmented QA" and by incorporation of both augmented and graded QA into the QA programs. Graded QA is not something additional which is incorporated into a QA program, but refers to implementing the QA criteria in a manner consistent with the hazard of the work to be performed.

The DOE does not regulate the nuclear industry. It only regulates its own activities and activities conducted on its behalf. Its contractors are strong proponents of the graded approach.

Netherlands	**F.4, pp, 81 ff.**	**F.4**	**81**

ARTICLE 24 - OPERATIONAL RADIATION PROTECTION

Question ID: 1005

Question: Are there statistics available (e.g. in the form of graphs) for the annual discharges from the various facilities within the fuel cycle?

Answer: NRC collects data from all NPP licensees and reports are submitted twice each year in accordance with Regulatory Guide 1.21. Similarly, fuel cycle facility licensees are required to submit semi-annual reports in accordance with Regulatory Guide 4.19.

Commercial NPP licensees produce annual reports of their discharges (gaseous and liquid effluents). The annual reports are located at http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html. In addition, 10 CFR 72.44(d)(3) requires the annual submittal of a summary of effluents from the independent spent fuel storage facility.

All reports can also be found in ADAMS at the NRC public website: www.NRC.gov.

Information on radiological discharges from DOE facilities engaged in waste management, environmental clean-up and spent fuel activities is available through the DOE Annual Site Environmental Reports (ASERs). The ASERs are available through the following website http://www.hss.energy.gov/nuclearsafety/env/reports/aser/aserlinks.pdf.

United Kingdom **Section F.4.2.1, Page 82** **F.4.2.1** **82**

ARTICLE 24 - OPERATIONAL RADIATION PROTECTION

Question ID: 1006

Question: The EPA's proposal to apply the ICRP 60 method at Yucca Mountain (see Section F.7.4, page 102) is to be commended. However, the USA has not yet implemented the ICRP 60 recommended average dose limit of 20 mSv at other sites. In view of the low actual doses at virtually all sites adoption of ICRP60 would not appear to pose any practical difficulties. (1) Can the USA please outline the reasons for not adopting ICRP 60 at all sites at this time? (2) Can the USA please describe its future intentions with respect to the adoption of ICRP60?

Answer: EPA's standards for Yucca Mountain are site-specific and apply to members of the public, not workers, which appears to be the thrust of the question. NRC's standards for workers at the Yucca Mountain site are consistent with those applied to other licensed operations. Occupational standards in the US are protective of workers; however, the US continues to evaluate international standards and guidance as they evolve, and will continue to consider their appropriateness for US programs.

For example, DOE has adopted many concepts from ICRP 60 in occupational worker safety requirements and is in the process of incorporating ICRP 60 concepts into its 'Radiation Protection of the Environment and the Public' directive. ICRP 60 recommends an occupational dose limit of 20 mSv per year, averaged over a defined 5 year period; it also states the dose should not exceed 50 mSv for any one year. DOE has not adopted the 5 year averaging requirement. As a result of stringently applied ALARA practices at DOE sites, occupational exposures to individuals at DOE sites have been consistently below both the 20 mSv per year average and the 50 mSv per year limit. Adoption of the 20 mSv per year average would require implementation of new dosimetry tracking systems without increasing worker safety.

France **F4.3.2 - p. 85** **None** **85**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 995

Question: When the license termination plan (LTP) is approved by NRC and funding defined, could US clarify who is the new site responsible ?

Answer: The amount of financial assurance set aside should be sufficient for a third party contractor to perform long-term surveillance and control of the site. If the licensee is still in business and still holds the NRC license, then the licensee would be the responsible party. If the licensee no longer exists, the Government would oversee the contractor that performs the long-term surveillance and control.

Korea, Republic of	**p.86 (F.4.3)**	**F.4.3**	**86**

ARTICLE 24 - OPERATIONAL RADIATION PROTECTION

Question ID: 1004

Question: According to the Section F.4.3, it states that there are qualification training for the employees to achieve ALARA. 1. Are there any special training courses for the health physicist (HP)? 2. Please provide information on the plant specific qualification management program and/or national qualification management program of the HP.

Answer: DOE offers several training courses for health physicists such as one described in DOE-HDBK-1110-2008, ALARA Training for Technical Support Personnel. (http://www.hss.doe.gov/nuclearsafety/ns/techstds/standard/hdbk1110/DOE-HDBK-1110-2008-Part1.pdf) Qualifications for health physicists are described in DOE-STD-1107-97, DOE Standard Knowledge, Skills, and Abilities for Key Radiation Protection Positions at DOE Faciities, Jan. 97. (http://www.hss.doe.gov/nuclearsafety/ns/techstds/standard/std1107/DOE-STD-1107-97_Reaffirm_2005_06.pdf)

Korea, Republic of	**p.88 (F.5.1)**	**F.5.1**	**88**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1009

Question: Please provide information on the number of staffs working in each Regional Incident Response Center of NRC during normal and emergency situations.

Answer: During normal (non-emergency) conditions, NRC headquarters maintains two 24-hour technical staff members to receive and process event-related information and official notifications. These individuals are supported by managers at NRC headquarters and in each of the four NRC regional offices. These managers are designated "on-duty" for assessing and providing initial response to any event. Except for the "on-duty" regional managers, the regional offices do not maintain 24-hour staffing during normal conditions. If the NRC enters one of its emergency response modes, the impacted regional office will staff a team of 25 to 30 technical experts, managers and communicators to support NRC's level of response. If the NRC activates the headquarters operations center, approximately 75 managers and staff respond to support activation. If the agency decides to go to the expanded activation mode and a site team is dispatched, a team of about 25 managers and staff will be dispatched from a regional office to support on-site and near-site response operations.

Ukraine	**Para F.5.1, page 89; Annex F-3, page 195**	**Para F.5.1, Annex F.3**	**89**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1012

Question: It is stated that emergencies at general materials facilities are classified with two emergency classes – “alerts” and “general site emergencies”. According to Annex F-3 “alert”, “site area emergency” and “unusual event” are in use to notify officials. Notification of events belonging to the category “unusual event” is not required by NRC regulations and used by a part of licensees only. What arrangements to notify off-site authorities of lower safety significance events are envisaged for licenses which do not use “unusual event” class?

Answer: NRC does not require fuel cycle facilities to have an emergency response categorization below "Alert," equivalent to the reactor level of "Unusual Event." That being said, the emergency plans for fuel cycle facilities describe additional notifications that licensees make to state and local responders for events and materials releases not regulated by the NRC (e.g., regulated by the EPA or the states). These notifications may describe situations that could involve personnel in a small area of the facility or simply something unanticipated that, if repeated, might have safety significance. Facilities may also informally contact NRC, via NRC Program Managers or Resident Inspectors.

Ukraine	**Para F.5.1.2, page 90**	**Para F.5.1.2**	**90**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1013

Question: It is stated that communications with the news media are coordinated through the HQ Operations Center. How way do the HQ Operations Center and Regional Incident Response Center coordinate their communications with the media? Is this issue covered by the procedural documents for staff of the HQ and regional centres?

Answer: Communications with the media remain the responsibility of the NRC Office of Public Affairs, which may relocate some personnel to the Headquarters Operations Center during an incident. According to the NRC's crisis communication plan, personnel both in the Operations Center and back in the Headquarters Office of Public Affairs will communicate frequently with the media via press releases, Web postings (and a special emergency event Web page), press conferences, if needed, and an open media bridge phone line. The NRC regional public affairs officers normally interact with media personnel during an event that does not result in a change to the NRC's response mode or if the agency is in the Monitoring Mode. During these interactions, the regional public affairs personnel coordinate the agency's responses with public affairs personnel at NRC headquarters. If the NRC goes to Expanded Activation Mode, the regional public affairs personnel will participate in the site team, if a team is dispatched from the region to the site of an event. If an event results in a licensee activating their Joint Information Center (JIC), NRC public affairs personnel in the JIC will assume responsibility for communication with the media, from public affairs personnel at NRC headquarters, when sufficient NRC personnel are onsite. Some public affairs personnel will remain in NRC headquarters, however, to provide support to the site.

Canada	**Section F 5.2. p.92**	**F.5.2**	**92**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1007

Question: Over time, and in the absence of an emergency, there is a potential for Emergency Preparedness Plans to become outdated. What steps is the US taking to ensure that there is indeed “a readiness” on the part of DOE to respond to a possible emergency?

Answer: Every facility or site is required to develop an Emergency Planning Hazards Assessment containing detailed emergency plans and procedures which are updated as new information becomes available. In addition, facilities are required to have the following measures to provide assurance of an effective response to hazardous material releases: structured training and drills programs, a formal emergency exercise program, and a continuous improvement program (or readiness assurance program) to assure that emergency plans, implementing procedures, and resources are adequate and sufficiently maintained and exercised, and evaluated, so that they work when you need them. In addition, periodic independent assessments are conducted by the Office of Emergency Management Oversight.

France	**F - p. 92**	**F**	**92**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1008

Question: Could US detail how transboundary harmonization between the different States is achieved ?

Answer: States, counties and local governments have mutual aid pacts and coordinate in accordance with pre-planned agreements that are specific to each nuclear facility. Additionally, the Federal Emergency Management Agency (FEMA) oversees all off-site response coordination and evaluates off-site readiness by means of full-participation exercises, in which all State and local governments located within the emergency planning zones (approximately 10 miles and 50 miles) participate.

The National Response Framework (NRF) and National Incident Management System (NIMS) outline the process for coordination and communication when multiple agencies are involved in a response activity, whether at the local, state, or federal level. The concepts of "unified command" to direct response activities and the "Joint Information Center" (JIC) for coordination of public information are critical elements of the Incident Command System (ICS) under NIMS. NIMS and ICS define clear roles and responsibilities for response. Personnel responsible for public information are identified and all information for public release is to be coordinated through these functions. The NRF and NIMS guidance can be found on FEMA's NRF Resource Center website at http://www.fema.gov/emergency/nrf.

Ukraine **Para F.5.2, page 92** **Para F.5.2** **92**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1014

Question: It is stated that DOE HQ organization coordinates response with other Federal governmental agencies and branches and the national media. What measures are envisaged to coordinate communications to media by various Federal agencies?

Answer: The National Response Framework (NRF) and National Incident Management System (NIMS) outline the process for coordination and communication when multiple agencies are involved in a response activity, whether at the local, state, or federal level. The concepts of "unified command" to direct response activities and the "Joint Information Center" (JIC) for coordination of public information are critical elements of the Incident Command System (ICS) under NIMS. NIMS and ICS define clear roles and responsibilities for response. Personnel responsible for public information are identified and all information for public release is to be coordinated through these functions. The NRF and NIMS guidance can be found on the Federal Emergency Management Agency's NRF Resource Center website at http://www.fema.gov/emergency/nrf.

Ukraine **Para F.5.2, page 92** **Para F.5.2** **92**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1015

Question: Do facility or site – specific hazards assessment and all-emergency response envisage development of the single emergency plan to cover both radiological and non-radiological hasards?

Answer: Yes, a DOE facility's all-emergency management program (all hazards and all program components) must include both radiological and non-radiological hazards. The program would be based on the facility or site specific Emergency Planning Hazards Assessment (EPHA) required by DOE where identified hazardous materials are present in quantities exceeding what can be safely handled by one person. DOE requires that emergency management programs be commensurate with the hazards, or take a tailored approach. More specific and detailed requirements would be included for facilities with radiological constituents.

France	**F.6 - p. 93**	**F.6**	**93**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1016

Question: Could US detail the requirements regarding end-state of nuclear facilities after decommissioning? If any, what are the release criteria, in term of dose to the public for instance?

Answer: The NRC dose constraint for unrestricted release of a decommissioned facility are detailed in 10 CFR 20 subpart E. The dose limit for unrestricted release is 25 mrem (0.25 mSv) per year above background including ground water sources of drinking water; this limit also stipulates that the residual radioactivity has been reduced to levels that are as low as is reasonably achievable. The end-state of the nuclear facility is then considered "greenfield," with buildings and structures having been decommissioned.

The NRC regulations also permit license termination under restricted conditions (restricted release), in cases where achieving the unrestricted levels would result in net public or environmental harm. In this case, institutional controls (e.g., governmental custody and maintenance or engineered barriers) are required to achieve the 0.25 mSv/a dose contraint. Were the institutional controls to fail, there would need to be reasonable assurance that the dose constraint would not exceed 1 mSv/a or in some cases 5 mSv/a under stricter constraints of custody or justification. See 10 CFR 20.1403 for specific provisions. However, during the period of performance of the institutional controls, the decommissioned facility would be expected to comply with the unrestricted release constraint of 0.25 mSv/a.

Hungary	**F6 p. 93-96**	**F.6**	**93-96**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1018

Question: Is the radioactive waste resulting from nuclear power plant decommissioning in the United States of America being mostly recycled or disposed of?

Answer: Although the U.S. has available low level radioactive waste disposal capacity, disposal costs are typically expensive. During decommissioning, efforts are made to minimize the amount of radioactive material requiring disposal at licensed waste disposal facilities. Some very low level radioactive materials on a case by case basis may be disposed of in a hazardous waste or sanitary waste landfills. Materials exhibiting non detectable levels can be freely released. Valuable material such as metals are usually decontaminated and recycled instead of disposed of as radioactive waste. Very low activity concrete rubble is in some instances recycled as roadbed material. Quantities vary from one facility and state to another.

Ukraine	**Para F.6, page 93**	**Para F.6**	**93**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1022

Question: At what costs the decommissioning of nuclear facilities other than DOE facilities is performed? Is there any difference in regulatory process on decommissioning of research reactors and NPP?

Answer: The decommissioning regulatory process for NPP and research reactors is different. NPPs are permitted to conduct decommissioning activities (decontamination, dismantling and disposal of radioactive waste) without a decommissioning plan and a license termination plan is not required until 2 years before license termination will be requested. Research reactors require a decommissioning plan with details of the dismantling, radiological survey plans and financial information prior to beginning the decommissioning work other than removal of the nuclear fuel from the site. Decommissioning costs of research reactors (typical university pool reactors) are typically 1 percent of the costs of a NPP to terminate the license and achieve unrestricted release status. Additional details on NPP decommissioning cost estimates can be accessed from NUREG-1713, “Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors.”

France	**F.6.1.1 - p. 94**	**F.6.1.1**	**94**

ARTICLE 22 - HUMAN AND FINANCIAL RESOURCES

Question ID: 994

Question: The PSDAR must include arrangements for the decommissioning funds management. The evaluated cost is contractual, but may be modified if needed. If the new estimated cost is more than 20% above the cost mentioned in the PSDAR, the modification is considered as a major one. Could US specify dispositions if the new estimated cost is less than 20%, regarding public information for instance? In case of a change in the decommissioning strategy, doest the PSDAR have to be updated?

Answer: The estimate required along with the PSDAR is a site specific estimate while the funding required prior to shutdown may be consistent with a standard formula in the regulations. The NRC's regulatory basis for decommissioning funding is intended to ensure that a sufficient quantity is available to complete decommissioning with the ultimate goal of releasing the site and terminating the license.

Significant changes in major milestones, schedules, or cost estimates require written notification to the NRC. Such changes require submittal of written notifications to the NRC made under 10 CFR 50.82(a)(7), but the NRC would not routinely require a public meeting to discuss the proposed changes, unless the licensee proposes changing the method of decommissioning, for example, from long-term storage followed by decontamination and dismantlement to prompt decontamination and dismantlement. In that case, a public meeting may be scheduled.

Since the level of detail required in the PSDAR is significantly less than that required in decommissioning plans, licensees who have submitted a decommissioning plan for approval or licensees with an approved decommissioning plan are encouraged to extract the pertinent detail from the decommissioning plan and submit a PSDAR update in the format and content specified by Regulatory Guide 1.185. (See http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=022437422). If excess funds were to be available after decommissioning is complete the disposition of those funds would be controlled by the state regulatory authority that originally authorized the contributions to the decommissioning funds from the rates charged to the electrical generation customers. In case of a change in decommissioning strategy licensees are required to notify the NRC of the change but a revision to the PSDAR is not required.

Regulations in 10 CFR 50.82(a)(9) specify that an application for license termination must be accompanied or preceded by an License Termination Plan (LTP), which is subject to NRC review and approval. According to 10 CFR 50.82(a)(9), the licensee must submit an LTP at least 2 years before termination of the license, the NRC approves the LTP by issuing a license amendment, and NRC must hold a public meeting near the site. Any hearing held in relation to an LTP would fall under either Subpart G or Subpart L of 10 CFR Part 2. If an applicant submits an LTP while the spent fuel is stored under the 10 CFR Part 50 license, Subpart G of 10 CFR Part 2 would apply. Conversely, if the applicant has permanently moved the fuel to an authorized facility, a hearing on the proposed the LTP would be in accordance with Subpart L. Additional details are accessible at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1700/sr1700r1.pdf

It should be noted that NRC does not consider decommissioning costs to include the costs for demolition of decontaminated structures, site restoration activities, or other activities that are not involved with removing the facility from service or reducing residual radioactivity. Rather, the NRC considers such costs to be utility operating expenses and as such, these expenses are not included in the amount of money required to be placed in the plant’s decommissioning fund in accordance with 10 CFR 50.75. The costs of constructing, operating, and maintaining an onsite spent fuel storage facility or independent spent fuel storage installation (ISFSI) are also explicitly excluded from decommissioning costs. A licensee is, however, required to separately notify the NRC of its program to manage and provide funding for the management of irradiated fuel and decommissioning of its onsite ISFSI (See 10 CFR 72.30(c)).

Additional details on NPP decommissioning cost estimates can be accessed from NUREG-1713, “Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors” It should also be noted that the licensee will only be required to update that site-specific cost estimate to reflect any changes that occurred since it was initially submitted. For example, the licensee could be required to update the LTP cost estimate to reflect completed decommissioning activities, inflation, and changes in radioactive waste disposal cost. If little decommissioning has been completed, and

inflation and disposal costs have not changed, the cost estimate required by 10 CFR 50.82(a)(8)(iii) may be acceptable.

When the licensee is required to submit an update to the site specific cost estimate required by 10 CFR 50.82(a)(8)(iii), the update should reflect the current status of the facility, and the licensee's plans for how the actions will be completed. Because the financial assurance instrument required by 10 CFR 50.75 must be funded to the amount of the cost estimate, and because the licensee has been allowed to withdraw the allocated funds during decommissioning, the updated site-specific cost estimate must address the remaining activities necessary to complete decommissioning in order to ensure that sufficient funds are available.

Hungary	**F.6.1.1 p. 94**	**F.6.1.1**	**94**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1017

Question: The report states that the choice of decommissioning methods (SAFSTOR vs. DECON) is left entirely to the licensee but NRC requires to re-evaluate its decision if its chosen decommissioning method could not be completed within 60 years of the permanent cessation of plant operations. Please give reference to the legal provisions of this requirement.

Answer: Title 10 CFR Part 50.82(a)(3) requires that completion of a NPP decommissioning beyond 60 years will be approved by NRC only when necessary to protect public health and safety.

United Kingdom	**Section F.6.1.1, Page 95**	**F.6.1.1**	**95**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1023

Question: Could a reactor site be delicensed in whole or in part whilst spent fuel remained in store on site either (a) in the spent fuel pool, and/or (b) in an on-site dry cask store?

Answer: Yes, a permanently shutdown reactor licensee has to either continue to store spent fuel in the spent fuel pool in accordance with their 10 CFR Part 50 license or request an amendment to the 10 CFR Part 50 license or request a new 10 CFR Part 72 license to transfer the spent fuel to onsite dry casks for onsite storage in an Interim Spent Fuel Storage Facility (ISFSI). Many operating reactors have both a 10 CFR Part 50 operating license and a 10 CFR Part 72 for dry storage of spent fuel in an Interim Spent Fuel Storage Facility. However, this is not the case for general licensees only having a Part 50 license to possess spent fuel. At the completion of decommissioning of the reactor site, the 10 CFR Part 50 license is terminated with the 10 CFR Part 72 license remaining in effect for the ISFSI.

Korea, Republic of	**p.97 (F.6.2)**	**F.6.2**	**97**

ARTICLE 26 - DECOMMISSIONING

Question ID: 1020

Question: With regard to DOE's decommissioning approach, Section F.6.2 states that system and infrastructure stabilization activities are initiated prior to the end of facility operations in preparation for disposition, in transition stage (i.e. Period 2). What are the scopes of and activities to be done for the "system and infrastructure stabilization activities" in transition stage?

Answer: The scope, extent and specificity for system deactivation are facility and system specific, but these are guided by a few common criteria. Most significant is the goal of utilizing existing operator experience before they take other jobs as facility operations are phased out. The second criterion is to ensure the establishment of "stable" conditions - recognizing the potential time lag between the end of operations and full scale deactivation and decommissioning. For example, there are serious impacts associated with leaving corrosive-radioactive liquids/substances in systems and pipelines. Draining and flushing these systems and pipelines should be done early in the process to take advantage of operator knowledge (for example in valve lineups) and to reduce the short term and long term risks associated with corrosive-radioactive "holdup".

United Kingdom **Section F.7.1.1, Page 98** **F.7.1.1** **98**

ARTICLE 04 - GENERAL SAFETY REQUIREMENTS

Question ID: 941

Question: The importance of avoiding a criticality event during the operational and pre-closure phases of Yucca Mountain is clearly understood. (1) What methods are available to "control" a criticality event in the Yucca Mountain repository? (2) What scenarios are envisaged as possible causes of such a criticality?

Answer: One of the necessary conditions for nuclear criticality is the presence of a moderator such as water. Water could enter the waste package only if the package failed. The combination of natural and engineered barriers would greatly limit the ability of water to enter a specific package.

DOE's analysis of the probability of internal criticality in commercial spent fuel packages considered factors such as package failure with water entry, loss of neutron absorbers, and degradation of internal components that would lead to a loss of internal configuration. The calculated probability of a criticality in the total inventory of the waste packages that contained commercial spent fuel is estimated to be below the regulatory screening criteria for consideration.

DOE evaluated the criticality potential of waste packages that would contain high-level radioactive waste glass (which could include immobilized plutonium waste) and certain types of codisposed DOE spent fuel. The probability of criticality for these fuel types is estimated to be below the regulatory screening criteria for consideration. In comparison to a waste package for commercial spent fuel, a DOE spent fuel package would have lower fissile loading and greater flexibility in the use of a neutron absorber.

DOE also evaluated the probability of external criticality. This event, while highly unlikely, could occur if there was a release of enough fissile material from the waste package. The probability of an external criticality in the repository or the rock beneath it after repository closure is estimated to be below the regulatory criteria.

Japan **F.7.2 (P99)** **F.7.2** **99**

ARTICLE 17 - INSTITUTIONAL MEASURES AFTER CLOSURE (RW)

Question ID: 969

Question: It is understandable that the Government takes initiative for the recycling society. Were quantitative criteria set forth for the licensee's minimization efforts?

Answer: Quantitative criteria are not specified, but the topic is addressed in NRC regulations at 10 CFR 20.1406. This topic is also discussed in the U.S. National Report on pages 31, 89 and 110. NRC published Regulatory Guide 4.21, Minimization of Contamination and Radioactive Waste Generation: Life Cycle Planning, June 2008 for implementing this requirement.

United Kingdom **Section F.7.1.2, Page 99** **F.7.1.2** **99**

ARTICLE 04 - GENERAL SAFETY REQUIREMENTS

Question ID: 942

Question: Is there any time limit on the storage of materials in facilities which rely on active, rather than passive, cooling systems?

Answer: The licensee provides and justifies the time limit for active systems in the safety analysis report. In addition to the time duration of the active system, the applicant would show that the system would operate for its intended life and include an off-normal and accident analysis for the system. The description of the active systems would also include the necessary maintenance and surveillance programs for the active system. The off-normal analysis would typically show that operation of the storage facility is not degraded in the event of a loss of some portion of the active cooling, while the accident analysis should show that the storage system will meet all accident criteria if loss of all active cooling occurred.

Canada	**Section F 7.3, p.101**	**F.7.3**	**101**

ARTICLE 11 - GENERAL SAFETY REQUIREMENTS

Question ID: 957

Question: Canada would like to commend the US on its recognition of the need for the integration and management of the interfaces between waste management and the implementation of a system of inspections, enforcement, quality assurance, testing, and record keeping, to ensure the interdependencies remain relatively seamless.

Answer: We appreciate the comment.

Hungary	**F.8 p.103-104**	**F.8**	**103**

ARTICLE 05 - EXISTING FACILITIES

Question ID: 943

Question: Are there any legal provisions for a formal Periodic Safety Review (PSR)? What is the frequency of the PSR for the Fort St. Vrain ISFSI?

Answer: The NRC conducts periodic safety and security inspections of the Fort St. Vrain ISFSI. The periodic inspections typically occur every 3-5 years. In the absence of information indicating that some portion of the original safety analysis report or any of its supplements, which are relied on for either the license or subsequent amendments, may not be accurate or correct, there are no legal requirements for the NRC to perform periodic safety reviews of the licensing basis for either Fort St. Vrain or any other storage system prior to expiration of the license.

Canada	**Section F 9.3, p.105/106**	**F.9.3**	**105**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 945

Question: Canada would like to commend the US on its commitment on public and stakeholder involvement. What provisions are in place to ensure that this trend of increasing transparency will continue?

Answer: The U.S. thanks Canada for its comment on public and stakeholder involvement, and notes the extraordinary public processes cited in Canada's Third National Report. The National Environmental Policy Act (NEPA) of 1969, discussed in Section F.9.1, is the legal foundation providing public access to major federal actions. It requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. Preparing environmental analyses and documents must include participation of communities, interest groups, and the public. Public participation has progressed beyond law to a federal agency corporate culture of openness and transparency in all aspects of decision making. Examples in the U.S. Third National Report include advisory boards, public meetings and hearings, rule making, and transparency created by the availability of information on the internet.

Ukraine	**Para F. 9.2, G.3, H2.2, p. 105, 118, 131**	**Para F.9.2**	**105**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 951

Question: It is desirable to clarify if there are criteria, including those for siting a geological repository established by the regulatory authorities in advance, which exclude completely the possibility to construct disposal facilities of that or those categories of waste (excluding criteria) within the specific territories.

Answer: There are no specific regulatory criteria completely excluding in advance any location for a geological repository. However, general siting guidelines require that consideration be given to sites situated in different geohydrologic settings and different types of host rock, respectively. These diversity guidelines are intended to balance the process of site selection by requiring consideration of a variety of geologic conditions and media, and thereby enhance confidence in the technical suitability of sites selected for the development of repositories. The following regulations can be found on www.nrc.gov: 10 CFR Part 60--Disposal Of High-Level Radioactive Wastes In Geologic Repositories and 10 CFR Part 960—General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories.

United Kingdom	**Section F.10, Page 107**	**F.10**	**107**

ARTICLE 07 - DESIGN AND CONSTRUCTION OF FACILITIES (SF)

Question ID: 952

Question: The final paragraph on this page says that the DOE "requires [that] all…designs facilitate safe deactivation, decommissioning and decontamination at the end of their operating life." There is no clear equivalent statement in the preceding paragraphs which relates to those facilities regulated by NRC. (1) Does the NRC have such a requirement, e.g. for new reactor designs to minimise the activation of construction materials? (2) If so, can the USA please state the relevant regulations?

Answer: NRC regulations cited in 10 CFR 20.1406 specify:

a) Applicants for licenses, other than early site permits and manufacturing licenses under part 52 of this chapter and renewals, whose applications are submitted after August 20, 1997, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

(b) Applicants for standard design certifications, standard design approvals, and manufacturing licenses under part 52 of this chapter, whose applications are submitted after August 20, 1997, shall describe in the application how facility design will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

This was discussed in the U.S. National Report on pages 31, 89 and 110. NRC published Regulatory Guide 4.21, Minimization of Contamination and Radioactive Waste Generation: Life Cycle Planning, June 2008 for implementing this requirement.

Hungary	**F.11 p. 108, G.3 p. 117**	**F.11**	**108**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 947

Question: Parallel to the Independent Spent Fuel Storage Installations (ISFSIs) the so-called Monitored Retrievable Storage (MRS) facilities are also mentioned. Is it a feasible/real option for the predisposal management of spent fuels? Are there existing (or 'prototype') MRS facilities in the US?

Answer: A monitored retrievable storage facility is a viable option under NRC regulation for predisposal management of spent fuel; however, the Nuclear Waste Policy Act of 1982 restricts the ability of DOE to pursue this option by linking pursuit of this type of storage to milestones tied to the program in the development of the Yucca Mountain repository. By definition, this facility is for long term storage and must be operated by the Department of Energy. There have been no applications or licenses issued for a monitored retrievable storage facility.

Ukraine	**Para G.1, pages 115, 116**	**Para G.1**	**115**

ARTICLE 04 - GENERAL SAFETY REQUIREMENTS

Question ID: 940

Question: Pursuant to the information presented the lifetime of a license for dry/wet storage of spent fuel at DOE's sites issued after consideration of the substantiated safety by the regulatory authority is 20 years and its renewal is possible. Which deliverables and inspections, their periodicity as of observance of license terms are provided for?

Answer: Deliverables to the NRC are:
1. Biennial update of Final Safety Analysis Report pursuant to 10 CFR 72.70
2. Biennial report of all changes, tests or experiments pursuant to 10 CFR 72.48
3. Material Balance Report and a Physical Inventory Listing Report pursuant to 10 CFR 72.70 and, if applicable, Nuclear Material Transaction Reports pursuant to 10 CFR 72.78
4. Updates, as applicable to Site Emergency Response Plan and the Site Physical Protection Plan.
5. Annual Radiological Environmental Monitoring Report per 10 CFR 72.44(d)(3)

In addition to periodic inspections by the NRC, some of the additional inspections required by the license include:
1. Annual radiation survey at locations around each storage cask
2. Perform a visual inspection of the cooling inlet and outlet screens at frequencies specified in the license (typically once every 7 days.)

Korea, Republic of p.116 (G.1) **G.1** **116**

ARTICLE 04 - GENERAL SAFETY REQUIREMENTS

Question ID: 939

Question: Section G.1 states that the initial licensing period of 20 years is the same for the Independent Spent Fuel Storage Installation (ISFSI) with wet storage and dry storage. 1. What are the license renewal procedure and examination/testing items to be evaluated for ensuring the operational performance of the dry storage facility after 20 years of initial license? 2. Are there any specific regulations, standards and guides for license renewal of the dry storage facility other than those for the initial licensing?

Answer: 1. The licensee must request renewal prior to expiration of the license. The application for renewal should include items on:

a. Licensee/Certificate of Compliance Holder Information

The licensee should provide sufficient information to meet the requirements in 10 CFR 72.22 including licensee's full name, address, and description of the business or occupation.

b. Financial Information

The licensee should show financial data pursuant to 10 CFR 72.22(e) that ensures the licensee or certificate holder can carry out the activities being sought for the requested duration of the license or certificate. Information should state where the activity is to be performed, the general plan for carrying out the activity, and the period of time for which the license/certificate is requested.

c. Application Content

The application should provide both the time-limited aging analyses and the site's aging management program. The time-limited aging analyses assess systems, structures, and components that have a time-dependent operating life as defined by the design basis. The aging management program should ensure that there are no aging effects, which result in a loss of intended function of the systems, structures, and components during the term of the requested renewal.

In addition, if necessary, the application should provide any additional information related to the final safety analysis report and changes or additions to the technical specifications that are needed to evaluate whether the renewal should be granted.

d. Environmental Assessment

The supplemental environmental assessment should provide information to reflect any significant environmental change including those that may result from operating experience, a change in operations, or proposed decommissioning activities.

Romania	**Section G1.1, page 116**	**G.1.1**	**116**

ARTICLE 10 - DISPOSAL OF SPENT FUEL (SF)

Question ID: 955

Question: A license is covering more different activities or is necessary a license for each activity?

Answer: There are different licenses required by the NRC for all three stages of spent fuel management: interim storage, transportation, and permanent disposal. A licensee would obtain either a site-specific license or comply with the conditions for the general license provided in 10 CFR 72.212 for interim storage of spent fuel.

Title 10 CFR 71.17 conveys to NRC licensees a general license to transport radioactive material, including spent fuel.

Permanent disposal of spent fuel, currently planned for disposal at Yucca Mountain, requires a license pursuant to 10 CFR Part 63.

Hungary	**G.3 p.117-118**	**G.3**	**117**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 948

Question: The report summarizes the long-lasting (June 1997- February 2006) siting process of an Independent Spent Fuel Storage Installation on the reservation of the Skull Valley Band of Goshute Indians, Utah. Finally NRC issued a license for the consortium Private Fuel Storage, LLC. It seems remarkable that this application was only the second one for an away-from-reactor ISFSI and the first for storage of spent fuel from more than one utility. What is the current situation with this site?

Answer: On February 21, 2006, NRC issued a site-specific license for the Private Fuel Storage LLC (PFS) to construct and operate a first-of-a-kind, away-from-reactor independent spent fuel storage installation (ISFSI) on the reservation of the Goshute Indians located in the State of Utah. The license authorizes PFS to store up to 4,000 dry spent fuel storage casks.

The license review process has been lengthy and contested in the courts. In September 2006, the Department of the Interior Bureaus of Land Management and Indian Affairs each issued a decision to deny PFS' requested use of the lands. On July 17, 2007, the Skull Valley Band of Goshute Indians and PFS filed a contention in Federal court contesting the decisions by the Bureaus of Land Management and Indian Affairs.

There are two current litigations pertaining to PFS. First is appeal by Goshute Tribe and PFS challenging the decisions of the Department of the Interior (Bureaus of Indian Affairs and Land Management) to not grant use of the lands for the planned storage site.

The second court case is an appeal, filed by intevenors in the Court of Appeals in the District of Columbia, challenging the NRC's licensing decision. In June 2007, the Court issued a decision putting the appeal on hold, pending further developments in the litigation challenging the Bureaus of Indian Affairs and Land Management actions.

Korea, Republic of p.117 (G.2) G.2 117

ARTICLE 05 - EXISTING FACILITIES

Question ID: 944

Question: Please provide information on the time typically spent for the licensing of the following applications: generic ISFSI license, site-specific ISFSI license, storage cask's Certificate of Compliance (CoC).

Answer: There is no licensing action required or performed by the NRC for a General License. The General License is granted by regulation to any NRC power reactor licensee meeting the conditions of the General License listed in 10 CFR 72.212.

The time to certify a new spent fuel storage cask is approximately 2 years. Licensing of a site-specific ISFSI varies. If the ISFSI is co-located at a nuclear power plant, then the licensing time ranges from 2 to 3 years. For an ISFSI that is not co-located at a nuclear power plant, the licensing time typically would range from 3 to 4 years, while the Private Fuel Storage ISFSI licensing and associated litigation/intervention took almost 9 years.

Canada Section G3, p.118 G.3 118

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 946

Question: Please provide an update on the status of the Private Fuel Storage application for a spent fuel storage site on the tribal lands of the Skull Valley Band.

Answer: On February 21, 2006, NRC issued a site-specific license for the Private Fuel Storage LLC (PFS) to construct and operate a first-of-a-kind, away-from-reactor independent spent fuel storage installation (ISFSI) on the reservation of the Goshute Indians located in the State of Utah. The license authorizes PFS to store up to 4,000 dry spent fuel storage casks.

The license review process has been lengthy and contested in the courts. In September 2006, the Department of the Interior Bureaus of Land Management and Indian Affairs each issued a decision to deny PFS' requested use of the lands. On July 17, 2007, the Skull Valley Band of Goshute Indians and PFS filed a contention in Federal court contesting the decisions by the Bureaus of Land Management and Indian Affairs.

There are two current litigations pertaining to PFS. First is appeal by Goshute Tribe and PFS challenging the decisions of the Department of the Interior (Bureaus of Indian Affairs and Land Management) to not grant use of the lands for the planned storage site.

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Korea, Republic of p.118 (G.3) **G.3** **118**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 949

Question: Section G.3 states that regulations allow states and affected Tribes to participate in the pre-licensing (site) review and licensing review of the HLW repository. Section F.6.1.1 states that the PSDAR is made available to the public and a public meeting held near the plant. 1. What are the scopes of the participation allowed for the states and affected Tribes in the (pre)licensing process? Do they have the right to access relevant information only or have even the right to veto against the regulatory draft determination? 2. Is the public opinion collected at the public meeting and/or in written form reflected in the licensing documents such as PSDAR? If so, please provide information on the process of evaluation and adoption of public opinion.

Answer: The Nuclear Waste Policy Act requires DOE to involve the public, including affected states, Tribes, and local governments, in the development of the proposed Yucca Mountain repository. Notification of key events, such as, preparation of an environmental impact statement, is provided to the public through the Federal Register (a daily U.S. Government publication), public meeting and hearings, and the program's external website at: www.ocrwm.doe.gov . The program's external website also provides the public with planned, current and historic information about the Civilian Radioactive Waste Management Program. The Nuclear Regulatory Commission also invites public participation in the Yucca Mountain licensing process and a listing of public involvement pre-licensing and licensing meetings is available at: http://www.nrc.gov/waste/hlw-disposal/public-involvement/mtg-archive.html#outreach

Spain **Page 118 G.3** **G.3** **118**

ARTICLE 06 - SITING OF PROPOSED FACILITIES (SF)

Question ID: 950

Question: Siting proposed facilities: PFS What is the present situation of the licensing process of this facility?

Answer: On February 21, 2006, NRC issued a site-specific license for the Private Fuel Storage LLC (PFS) to construct and operate a first-of-a-kind, away-from-reactor independent spent fuel storage installation (ISFSI) on the reservation of the Goshute Indians located in the State of Utah. The license authorizes PFS to store up to 4,000 dry spent fuel storage casks.

The license review process has been lengthy and contested in the courts. In September 2006, the Department of the Interior Bureaus of Land Management and Indian Affairs each issued a decision to deny PFS' requested use of the lands. On July 17, 2007, the Skull Valley Band of Goshute Indians and PFS filed a contention in Federal court contesting the decisions by the Bureaus of Land Management and Indian Affairs.

There are two current litigations pertaining to PFS. First is appeal by Goshute Tribe and PFS challenging the decisions of the Department of the Interior (Bureaus of Indian Affairs and Land Management) to not grant use of the lands for the planned storage site.

The second court case is an appeal, filed by intevenors in the Court of Appeals in the District of Columbia, challenging the NRC's licensing decision. In June 2007, the Court issued a decision putting the appeal on hold, pending further developments in the litigation challenging the Bureaus of Indian Affairs and Land Management actions.

Ukraine **Para G.5, page 119** **Para G.5** **119**

ARTICLE 08 - ASSESSMENT OF SAFETY OF FACILITIES (SF)

Question ID: 953

Question: While submitting an application for obtaining a license for beginning construction of a geological repository to the regulatory authority, DOE, along with other documents, submits also a safety assessment report (SAR). Is it necessary to submit preliminary waste acceptance criteria for approval? It is indicated also that one has to perform the probabilistic safety assessment and to estimate quantitatively that the dose for the public does not exceed 0.15 mSv/year after geological repository closure. Is it presumed to demonstrate the compliance with new EPA rules on health and the environment protection (not more than 0.15 mSv till 10,000 years and 1 mSv/year for the period after the first 10,000 till 1 million years as indicated in report section A.3)?

Answer: The Safety Analysis Report is prepared by DOE as part of the license application. In response, a Safety Evaluation Report (SER) is then prepared by the Nuclear Regulatory Commission (NRC) at the conclusion of its licensing review. The NRC's SER makes a recommendation to the Atomic Safety and Licensing Board(s) overseeing the licensing process. The Yucca Mountain License Application (LA) describes the methodology used to project the long-term repository performance as required by NRC regulations and show the results of that analysis. The LA discusses preliminary waste acceptance criteria that could be applicable to specific waste forms. Another section of the LA estimates doses to the public that are calculated using a probabilistic approach called Monte Carlo sampling. A value is selected for each of the uncertain data inputs, and the repository performance is simulated for 10,000 and 1 million years. This is repeated 300 times, and the maximum of the mean (average) value is identified for the 10,000-year and 1 million-year performance standards. The NRC issued its final rule on March 13, 2009, and will determine whether the projected repository performance meets the final standards.

Ukraine **Para G.7, page 121** **Para G.7** **121**

ARTICLE 10 - DISPOSAL OF SPENT FUEL (SF)

Question ID: 956

Question: Spent fuel disposal. Are there any assessments of the maximum time intervals for interim storage? How the stage of storage and final disposal are coordinated by time?

Answer: Currently, there is no maximum time interval that spent fuel can be in interim storage. There are three site-specific ISFSIs that have been renewed for a 40-year term (G.E. Morris, North Anna and H. B. Robinson) in addition to the original 20-year term of the license. Additionally, the NRC is in the process of publishing a proposed rulemaking that would increase the license and certificate term from 20 years to 40 years in 10 CFR Part 72. The regulations also allow possible renewal of the license and certificate terms.

NRC waste confidence rule at 10 CFR 51.23 considers the timing of storage and disposal. NRC is currently re-evaluating these provisions.

China	**Section H.1.1, para. 1, Page 124**	**H.1.1, Para 1**	**124**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 961

Question: For waste that can be disposed of as ordinary trash, what is the radioactivity limits? How is this regulated?

Answer: For waste that can be decayed in storage, NRC has published guidance. See http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2004/ri200417.pdf.

Other waste can be disposed of as ordinary trash if it meets the surface contamination limits in Regulatory Guide 1.86 (http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=003957281), or for volumetrically contaminated materials, is approved under NRC's regulation in 10 CFR 20.2002. This provision allows for case-by-case approvals for disposal in unlicensed facilities.

Ukraine	**Para ן .1.1, page 124**	**Para H.1.1**	**124**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 963

Question: It is stated that in the commercial sector LLW are stored at the producers' sites during certain period of time or until their activity changes, or until a sufficient quantity of waste is accumulated to transfer it for disposal. Are there any time limits for the storage period? Which is the procedure of clearance from the regulatory control?

Answer: There are no time limits for the storage period. The U.S. uses NRC Regulatory Guide 1.86 surface contamination limits for clearing this type of contaminated material. Reference: http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=003957281.

Volumetrically contaminated materials may be cleared on a case-by-case basis using the regulation in 10 CFR 20.2002.

Canada	**Section H 1.2, p.126**	**H.1.2**	**126**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 960

Question: Canada would like to commend the US on its actions to address past practices and formerly licensed facilities. Is this going to be a continual ongoing activity or have all the sites requiring remedial work been identified?

Answer: The U.S. expects there to be continuing activity as regulations, laws and technology evolve and more attention is paid to the impacts from past practices. For example, the Energy Policy Act of 2005 identified new types of materials that now fall under the Atomic Energy Act authorities in the U.S. Likewise, programs in the past such as the Formerly Utilized Sites Remedial Action Program lead to the inclusion of some of these sites into the Complex Decommissioning Program discussed in Sections F.2.3.4 and F.6.1.2.

China	**Section H.1.2, para. 3, Page 126**	**H.1.2, Para 3**	**126**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 962

Question: Early disposal lessons came out the need for long-term stability of disposal site and the waste package. What kind regulatory actions are taken to assure the stability of the waste package? What kinds of inspection are conducted?

Answer: Long-term structural stability and maintenance of recognizable waste form for at least 300 years for Class B and C Low-Level Radioactive Waste (LLRW) is a requirement of U.S. regulations (10 CFR Part 61) governing land disposal of radioactive waste. To implement this requirement, disposal site licenses stipulate both approved stabilization media and High Integrity Containers that have been qualified in accordance with Quality Assurance (QA) protocols to meet all or most of the criteria for long-term stability. Structural stability at the disposal site may be provided or supplemented through the use of large reinforced concrete overpacks, once again fabricated in accordance with applicable QA protocols. Inspections of the fabrication and use of these products, including the QA program, are conducted by both the licensee and the regulator. Inspections of handling, placement, and condition of stable waste at the point of disposal is conducted by the regulator in accordance with regulator approved procedures. For more information, see http://www.nrc.gov/waste/llw-disposal/regs.html.

Ukraine	**Para ן .1.3, pages 126-128**	**Para ן .1.3**	**126-128**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 964

Question: There is no definition of “low-active waste” (LAW). It is stated that such waste contain radionuclides in sufficiently low quantities, this means that management of such waste does not require radiation protection measures. Does this waste category correlate with the IAEA definition of waste for conditioned clearance?

Answer: The U.S. is unaware of any definition of conditioned clearance in the IAEA framework. If it is meant to be clearance of radioactive waste subject to certain constraints (conditions), the U.S. authorizes disposal of LAW on a case-by-case basis in landfills or hazardous waste facilities. Thus, the material is released from a license, but only if disposed of, and not recycled or used in commerce.

United Kingdom	**Section H.1.3, Page 127**	**H.1.3**	**127**

ARTICLE 12 - EXISTING FACILITIES AND PAST PRACTICES (RW)

Question ID: 965

Question: (1) Does the DOE's Office of Independent Oversight still have a role in the inspection and oversight of those facilities handed over to the US Army Corps of Engineers (COE)? (2) What DOE sites/facilities does the COE now manage? (3) Does the list include facilities on sites such as Hanford, Idaho Falls and Savannah River?

Answer: No, the Department of Energy (DOE) Office of Independent Oversight does not have a role in the inspection and oversight of facilities managed by the U.S. Army Corps of Engineers (USACE). The USACE does not manage any DOE sites/facilities. The USACE manages sites in the Formerly Utilized Sites Remedial Action Program (FUSRAP) as listed in Annex D-6. Nearly all the FUSRAP sites once had commercial facilities under contract to the Manhattan Project or Atomic Energy Commission in the 1940s through 1960s as described in Section D.3.2.

Netherlands	**H.1.4, p.128**	**H.1.4**	**128**

ARTICLE 11 - GENERAL SAFETY REQUIREMENTS

Question ID: 959

Question: In section H.1.4. (page 128) is described that NRC addresses the release of solid material on a case-by-case basis. Could you please explain in more detail about some examples? E.g. what exposure-scenario's and which dose-constraints are used? The links in the footnotes 126 and 128 might give this information (p.129), but are not accessible.

Answer: The links address your question, but in activation of the links in footnote 126, the hyphen is lost when they are copied to a URL location. Try

http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1985/in85092.html

http://www.nrc.gov/reading-rm/doc-collections/gen-comm/circulars/1981/cr81007.html

If you continue to experience problems, then try retyping the links manually.

The other 4 are also publicly accessible as listed; you may need to check with your agency protocols that may be blocking your access. These references cite examples of materials, and exposure scenarios. It should be noted that Regulatory Guide 1.86 is also used in the decommissioning of nuclear reactors. Other documents may be useful to understand some of the historical development of decommissioning guidance and can be accessed at: http://www.nrc.gov/about-nrc/regulatory/decommissioning/program-docs.html.

United Kingdom	**Section H.2.4, Page 132**	**H.2.4**	**132**

ARTICLE 15 - ASSESSMENT OF SAFETY OF FACILITIES (RW)

Question ID: 966

Question: The lower set of bullet points describe the dose limits to members of the public from LLW disposal facilities operated by DOE. Given than some DOE sites may measure several kilometres, or even 10s of kilometres, across, does this mean that the nearest member of the public could be assumed to be several kilometres away from the disposal facility, or is the maximum distance generally assumed to be 100 metres (see page 133, second paragraph)?

Answer: During time periods for which access controls will control public access, the member of the public could be assumed to be as far away as the site boundary. However, given the difficulty of maintaining access controls for a large land area for very long time periods and the desire to return land to productive use following closure of DOE facilities, a 100 meter buffer zone is usually used.

Japan	**H2.6 (P135)**	**H.2.6**	**135**

ARTICLE 17 - INSTITUTIONAL MEASURES AFTER CLOSURE (RW)

Question ID: 970

Question: You adopt 4E+5pCi/g3 at maximum for each uranium nuclide in wastes from the Fuel Fabrication Facility and the Enrichment Facility as the upper concentration limits on near-surface disposal. Please let us know how the buildup of descendant nuclides was taken into account in thsetting. Please let us know the reason if it is not taken into account.

Answer: The NRC is currently drafting amendments to low-level radioactive waste (LLW) regulations in order to accommodate disposal of large quantities of depleted uranium. See NRC Press Release no. 09-052 March 18, 2009. This is accessible from URL: http://www.nrc.gov/reading-rm/doc-collections/news/2009/09-052.html. Currently, the U.S. regulation for commercial LLW disposal in 10 CFR Part 61 has no concentration limit for uranium disposal, because amounts of uranium in the waste streams for disposal have been small and pose no significant hazard. Depleted uranium is the byproduct, or tails, of the uranium enrichment process, a key point in the production of fuel for nuclear power reactors. The NRC proposed amendments address an earlier directive in the adjudicatory proceeding regarding a gas-centrifuge enrichment plant being constructed in New Mexico. The proposed amendments to 10 CFR Part 61 LLW regulations would allow disposal of large amounts of depleted uranium; however, there may need to be additional site-specific restrictions on the disposal of the depleted uranium based on unique site characteristics. See NRC paper at http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2008/secy2008-0147/2008-0147scy.pdf.

Netherlands	**H.2.6, p.135, H.4, p.140**	**H.2.6**	**135**

ARTICLE 17 - INSTITUTIONAL MEASURES AFTER CLOSURE (RW)

Question ID: 971

Question: There are plans mentioned for groundwater monitoring and subsidence monitoring. Are there also plans for in-situ monitoring, e.g. activity, pressure, displacement, etc. in the different types of disposal facilities?

Answer: No. The technical and institutional complexities of implementing and maintaining remote sensing capabilities for long time periods are considered to make these techniques impractical.

Japan	**H.2.6? P136?**	**H.2.6**	**136**

ARTICLE 17 - INSTITUTIONAL MEASURES AFTER CLOSURE (RW)

Question ID: 967

Question: Please explain the basis of the period of 700 years. Also, could we have your explanation on how you assure or justify that the markers designed will function at least up to 700 years later after the installation?

Answer: The Environmental Protection Agency determined that DOE complied with the requirements of 40 CFR 194.43 because the measures proposed in the Compliance Certification Application (CCA) for the Waste Isolation Pilot Plant are comprehensive, practicable, and likely to endure and be understood for long periods of time. To determine the expected effectiveness of passive institutional controls (PICs), DOE considered EPA discussions in its 40 CFR 194 final rule. EPA stated that, “Having considered the public comments regarding PICs, the agency believes that such credit could be no more than approximately 700 years past the time of disposal.” DOE detailed its justification for PICs credit in Appendix EPIC of the CCA, which can be viewed at: http://www.wipp.energy.gov/library/CRA/BaselineTool/Documents/Appendices/EPIC.PDF
Also, an update is provided in WIPP/CAO-96-3168, Revision 1 at: http://www.wipp.energy.gov/library/CRA/BaselineTool/Documents/Appendices/EPIC%20Revison%201.PDF

Japan	**H2.6 (P136)**	**H.2.6**	**136**

ARTICLE 17 - INSTITUTIONAL MEASURES AFTER CLOSURE (RW)

Question ID: 968

Question: Please let us know the rationale for expecting that the location, design, and contents of the disposed system are communicated for at least 10,000 years. Was it set forth considering the durability of monuments?

Answer: The durability of the monuments is one part of the passive institutional controls (PICs) concept. To meet the PICs requirements for 40 CFR 194.43, the U.S. Environmental Protection Agency (EPA) expected the U.S. Department of Energy (DOE) to describe the controls that would be used by the Waste Isolation Pilot Plant (WIPP) to warn future generations about the disposal system's design and contents, including the presence and hazards of radioactive waste.

The EPA requires the markers used as PIC to be as permanent as practicable but did not require them to endure or be understood for the entire 10,000-year regulatory time period. DOE used specific design criteria to ensure the markers would survive and convey a message for as long as practicable. These criteria included the use of redundant design feature for messages, materials, communication systems and languages. Other criteria included researching historical analogs relating to communication and enduring materials, requiring material and design testing and a requirement to use materials with low intrinsic value in the design. The criteria were used by DOE to design a markers system that communicates the existence and hazards of the WIPP for as long as practicable. EPA approved the markers design in its final certification decision.

In addition to the internet links for documents cited in Question #45 from Japan on the JCWeb, the PICs conceptual design report is found at:
http://www.wipp.energy.gov/library/CRA/BaselineTool/Documents/Appendices/PIC.PDF

Canada	**Section H 3.1, p.138**	**H.3.1**	**138**

ARTICLE 11 - GENERAL SAFETY REQUIREMENTS

Question ID: 958

Question: How does the US provide for a seamless regulatory system for uranium mines when uranium mining is not regulated as part of the nuclear fuel cycle whilst NRC regulates the milling and disposal of tailings?

Answer: The Atomic Energy Act (AEA) does not extend the NRC's authority to conventional mines (this does not include in situ mining which is regulated under the AEA). Because uranium mines have similar levels of radionuclides as other conventional mine products (e.g., phosphates and other metal extraction facilities), these are not regulated as part of the nuclear fuel cycle. However, in some cases mineral extraction processes result in use or concentration of material above 0.05% by weight uranium, thorium, or in any combination of its daughters, then such facilities are required to obtain NRC licenses. Although the regulatory control may not appear seamless, it is a key part of a risk-informed approach to regulate according to the potential risk as opposed to the continuity of like operations.

Hungary	**K 2. p.155**	**K.2**	**155**

ARTICLE 28 - DISUSED SEALED SOURCES

Question ID: 1026

Question: Most generators of Class B/C LLRW currently do not have access to disposal facilities due to administrative (compact) restrictions. How long can this situation be kept without jeopardizing safety?

Answer: The U.S. has a program to ensure safe storage of LLW that includes licensing, inspection and enforcement. Although access for B/C waste was lost less than a year ago, and the U.S. has a framework for developing new disposal sites and regulating access to existing site, LLW can be safely stored for many years. Nearly all of the Class B/C waste is generated by nuclear plants and safely stored onsite. Materials licensees also store Class B/C waste and are regulated to ensure safe storage.

Hungary	**K. p.155**	**K**	**155**

ARTICLE 28 - DISUSED SEALED SOURCES

Question ID: 1027

Question: Is WIPP facility considered for disposal of depleted uranium and neutron DSRS, even if they are not “defence-related waste”? Is the option of establishing a new repository for GTCC LLW close to WIPP considered?

Answer: WIPP is one of the disposal alternatives being evaluated in the GTCC Environmental Impact Statement for the disposal of neutron sources and other GTCC LLW and similar DOE waste, which may not have originated from defense-related activities. However, the use of WIPP for such waste would require statutory changes. WIPP is not being considered for the disposal of depleted uranium because such material, when designated a waste, can currently be disposed of in low-level waste disposal facilities. The U.S. NRC is currently drafting amendments to low-level radioactive waste (LLW) regulations in order to accommodate disposal of such large quantities of depleted uranium from enrichment plants. See NRC Press Release no. 09-052 March 18, 2009. This is accessible from URL: http://www.nrc.gov/reading-rm/doc-collections/news/2009/09-052.html.

DOE is not evaluating a new repository close to WIPP for the disposal of GTCC LLW, because the siting of another deep geologic repository for GTCC LLW is impractical due to the cost, time, and the relatively small volume of GTCC LLW and similar DOE waste. However, government property in the vicinity of WIPP (and at other DOE locations) is being evaluated in the GTCC EIS for the disposal of GTCC LLW and similar DOE waste in intermediate depth boreholes or enhanced near surface facilities.

Canada	**Section K 2, p.156**	**K.2**	**156**

ARTICLE 98 - PLANNED ACTIVITIES

Question ID: 923

Question: Please provide an update on developments in the application for a low level waste facility near Andrews, Texas.

Answer: On January 14, 2009, the Texas Commission on Environmental Quality (TCEQ) approved an order granting the application of Waste Control Specialists LLC (WCS) for Radioactive Material License No. R04100. The license will be issued after condemnation proceedings are completed on certain land on the site, and the applicant has acquired the mineral rights on the underlying land at which the site will be located.

Hungary	**K3 p.156**	**K.3**	**156**

ARTICLE 28 - DISUSED SEALED SOURCES

Question ID: 1028

Question: The U.S. Government is currently analyzing the environmental impacts of various options for GTCC LLW disposal. a) Borehole technology has not been widely deployed in United States. Can regulatory and public acceptance be achieved? b) What is the projected date to start waste disposal operation for GTCC LLW?

Answer: DOE will be able to better assess whether regulatory and public acceptance could be achieved on the intermediate depth borehole alternative after the Draft GTCC Environmental Impact Statement is published and public meetings on the document are conducted. DOE successfully demonstrated the borehole technology (Greater Confinement Disposal Project) for DOE LLW and transuranic waste at the Nevada Test Site during 1984-1989, and experiences from that project are being considered in the development of the GTCC EIS. DOE estimates that a GTCC LLW disposal facility could be available in the 2015-2022 timeframe, depending upon the alternative or alternatives selected.

Slovenia	**page 196/Annex F-4**	**Annex F.4**	**196**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1010

Question: What are the criteria for the NRC participation in the exercises (in terms of frequency and in terms of scope or goals of the exercises)?

Answer: Each regional office typically participates in four emergency response drills or exercises each year, selected from among the list of hostile action-based drills, fuel fabrications facility exercises, or full-scale Federal Emergency Management Agency (FEMA)-evaluated exercises required of U.S. nuclear facilities. Additionally, NRC headquarters participates with each of the four regional offices annually in a drill or exercise. Each regional office is expected to participate in a drill or exercise with each reactor or fuel facility site, once every six years. On-scene participants during these drills and exercises include the NRC licensee, and state, county, and local emergency response agencies. The scope and goals of these drills and exercises may vary to some degree, but the principal NRC objective is to demonstrate readiness to recognize and evaluate the event and to support state and local authorities, and the nuclear facility, in response to the emergency.

Slovenia	**page 198/Annex F6**	**Annex F.6**	**198**

ARTICLE 25 - EMERGENCY PREPAREDNESS

Question ID: 1011

Question: For LLW Facilities a set of accident scenarios addressed is given. Is the probability of these events assessed? Are seismic events (earthquakes) included into »on-site effects of off-site accidents» or are seismic events considered somewhere else?

Answer: The applicant for a low-level radioactive waste disposal facility is expected to provide assessments of accident frequency that are "reasonable, but pessimistic." Seismic events are not treated as accidents. Rather, they are considered rare, but natural events and are considered within the context of geologic and seismic site characteristics. For additional information please see NUREG 1200, "Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility" available in the electronic reading room at the NRC public web site at www.nrc.gov.

Bulgaria	**F 4.3**	**None**	**None**

ARTICLE 24 - OPERATIONAL RADIATION PROTECTION

Question ID: 1003

Question: What computer models are applicable for evaluation of the consequences from operation of facilities for storage of SNF and RAW?

Answer: For safety analysis of storage facilities DOE sites use different software for specific needs. The DOE Safety Software Central Registry (http://www.hss.energy.gov/csa/csp/sqa/central_registry.htm) is a vetted list of examples.

In addition, the following are examples of computer software applicable to analysis of disposal facilities: GoldSim, PORFLOW, DUST-MS, Mixing Cell Model, RESRAD, and STOMP.

Bulgaria	**ţ 2.2.4**	**E.2.2.4**	**None**

ARTICLE 19 - LEGISLATIVE AND REGULATORY FRAMEWORK

Question ID: 975

Question: DOE controls 24 abandoned sites from the uranium mining industry. The deadline for bringing them into correspondence with the established standards was 15 December 1991. EPA has concluded an agreement with the owners/operators of these sites to eliminate the discrepancies in the most expedient manner. 1. Are there any real deadlines fixed or a programme which envisage specific measures for implementation? 2. Have any epidemiological researches been carried out on the health condition of critical groups from the population of these regions? Has any damage been proven as a result of the carried out activities on extraction of uranium ore?

Answer: The standards as originally issued applied to inactive uranium milling facilities under NRC license, as well as to the inactive sites assigned to DOE by the Uranium Mill Tailings Radiation Control Act (UMTRCA) (known as the "Title I" sites). EPA rescinded the portion of subpart T applicable to NRC-licensed sites ("Title II" sites) on the condition that NRC implement a program at least as stringent as the EPA standards. Therefore, inactive sites under NRC license do not have to comply with subpart T, but must meet similar standards implemented by NRC. The inactive sites under DOE jurisdiction are in compliance with the subpart T standards, with the exception of the Moab, Utah site, which was transferred to DOE in 2001 and will be excavated and relocated. The risk assessments performed by EPA in establishing the standards relied primarily on the epidemiological studies of uranium miners exposed to radon, as well as other studies that evaluated the effects of radon exposure.
Environmental contamination exists at sites and is being remediated to limit public exposure. See Annex D-3A for a list of sites.

Bulgaria	**D 2.1.1**	**D.2.1.1**	**None**

ARTICLE 32 - REPORTING

Question ID: 1032

Question: Have any acceptance criteria been developed for high level of RAW in the future geological repository Yucca Mountain Repository and are they being accounted for during their treatment and storage?

Answer: DOE has acceptance criteria for high-level radioactive waste that is applied in the treatment, packaging and storage of the waste. The DOE Waste Acceptance System Requirements Document can be found in http://www.ocrwm.doe.gov/receiving/pdf/56721.pdf.

Czech Republic	**B.3.1/16**	**B.3.1**	**16**

ARTICLE 32 - REPORTING

Question ID: 1043

Question: Annex D-1 contains additional information on spent fuel storage facilities. The information about estimated activity of stored spent fuel in commercial facilities is missing. Are these data available for US NRC from other resources?

Answer: The NRC does not keep information on estimated activity at spent fuel storage facilities. Unless such information is necessary to comply with safety provisions in an NRC license, it is not required of the licensee. All available information has been provided.

Czech Republic	**B.3.1/16**	**B.3.1**	**16**

ARTICLE 32 - REPORTING

Question ID: 1044

Question: In some cases one operator (NPP) is operating dry ISFSI on two sites in the same state (as example Excelon Generation Comp. in Illinois or Dominion Generation in Virginia). Are these ISFSI licensed only for storage of spent fuel from NPP? What is the strategy of ISFSI operators in case that the Yucca Mountain repository will be not in operation after the end of NPP operation?

Answer: A site-specific license would describe the spent fuel authorized for storage in the Technical Specifications. The Technical Specifications normally indicate that only spent fuel from the reactor at the site of the storage facility can be stored.

For a general license, 10 CFR 72.212(a)(1), Conditions of general license issued under 10 CFR 72.210, only authorize storage of spent fuel in an ISFSI for which the general licensee is authorized to possess at the site under the specific license (nuclear power plant license) for the site.

Unless a state or regional storage facility, such as Private Fuel Storage, is licensed and becomes operable, it is expected that nuclear power plant/ISFSI operators will continue to utilize dry cask storage after the end of operations.

Czech Republic	**B.3.4/17, D.2.1.1/31**	**B.3.4/D.2.1.1**	**17**

ARTICLE 32 - REPORTING

Question ID: 1045

Question: Who is responsible for the operation and safety of storage facility containing 275 canisters with HLW generated by former commercial reprocessing plant at West Valley, NY and operated by Nuclear Fuel Services?

Answer: The Department of Energy is responsible for the operation and safety of the storage facility for HLW canisters at West Valley. Nuclear Fuel Services, the original operator of the facility, terminated operations in 1972. Subsequently in 1980, the Department of Energy was required by law to treat the liquid HLW at West Valley as part of the West Valley Demonstration Project, a treatment and decommissioning project. For additional information, please visit this website: http://www.wv.doe.gov/.

Czech Republic	**B.4.5/19**	**B.4.5**	**19**

ARTICLE 32 - REPORTING

Question ID: 1046

Question: What are the regulatory requirements and criteria related to the cost/benefit analysis of potential use of depleted uranium?

Answer: There are no regulatory requirements or criteria related to cost/benefit analysis of potential use of depleted uranium. It is driven solely by market conditions in the commercial sector.

However, it should be noted that NRC is currently drafting amendments to low-level radioactive waste (LLW) regulations in order to accommodate disposal of such large quantities of depleted uranium from enrichment plants. See NRC Press Release no. 09-052 March 18, 2009. This is accessible from URL: http://www.nrc.gov/reading-rm/doc-collections/news/2009/09-052.html.

Denmark	**None**	**None**	**None**

ARTICLE 99 - GENERAL

Question ID: 929

Question: 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: There is no uniform clearance standard used by the U.S.; decisions on clearance of radioactive materials are made on a case-by-case basis. Although a national clearance standard would have regulatory benefits, it has been deferred because of higher priority tasks and limited resources. The current case-by-case decision process is fully protective of human health and safety.

For NRC, licensees are responsible for the complete radiation protection program, including the clearance function. Competence in this clearance function is assured through the regular regulatory mechanisms of licensing and inspection. Through licensing, the licensee submits proposed approaches for clearance to NRC, and NRC staff review and approve the approaches. Through inspections, NRC staff may make observations of how the clearance function is performed by the licensee.

NRC also makes use of technical support organizations, such as the Oak Ridge Institute for Science and Education, for performance of confirmatory surveys. Other quality assurance-related efforts include accompaniments of the licensee's technical staff in performance of inspections and audits during active decommissioning. For example, NRC Guidance in NUREG-1761 (See http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1761/sr1761.pdf) sets quality assurance programs, as recommended in ASME NQA-1-1994, EPA Guidance Document QA/G-5, and Regulatory Guide 4.15 (NRC, 1979). These specify minimum quality assurance program elements for procedures and instruction, personnel qualifications, and quality control of measurement systems. General requirements that apply to calibrations are documented in ANSI/ASQC M1-1987 and ANSI/ISO/IEC 17025:2000.

NRC guidance documented in the series of 3 volumes of NUREG-1757 (See http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1757/) describes acceptable procedures and types of equipment for use in clearance of contaminated areas or items.

Clearance levels are determined based on two methods. In many cases, licensees commit to follow existing guidance, which includes some approved clearance levels. In other cases, licensees submit approaches for clearance levels that are then reviewed by NRC staff on a case-by-case basis. The NRC staff guidance on clearance levels is summarized in an NRC report (NUREG-1757, Vol. 1, Rev. 2, Section 15.11). This is available from the NRC website at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1757/v1/.

Japan	**G1**	**G.1**	**None**

ARTICLE 04 - GENERAL SAFETY REQUIREMENTS

Question ID: 938

Question: Effective period of ISFSI approval is 20 yrs. Although it is mentioned that renewal procedure should be taken after expiration, it is probable, in such a long period of time, that operators quit management due to financial difficulties or other reasons. For such cases, what kind of measures are considered in the USA on long-term storage of spent fuels?

Answer: The U.S legal framework for all licensees of independent spent fuel storage facilities is such that operators are required by law to show that they will be able to financially support the ISFSI for the life of the facility including decommissioning (see 10 CFR 72.30(c)). For operators that are general licensees, one of the requirements is for the facility is to be located at a nuclear power plant with a license to operate or possess fuel. All nuclear power plant licensees are required to have an independent fund for decommissioning and to show that they can financially support the facility for the duration of the license.

Netherlands	**None**	**None**	**None**
ARTICLE 99 - GENERAL			

Question ID: 930

Question: The Third National Report of the USA is a comprehensive, clearly written document that contains an abundance of relevant information. The report clearly reflects the culture of high standards in the USA concerning the management of the safety of spent fuel and radioactive waste, not only inside and outside the USA.

Answer: We appreciate your comment.

Netherlands	**None**	**None**	**None**
ARTICLE 99 - GENERAL			

Question ID: 931

Question: n comparison to the 2nd National Report, a considerable amount of changes and additions have been implemented in the 3rd Report. These changes have clearly been identified in Section A.3.

Answer: We appreciate your comment.

China	**Section I.3, Table I-1**	**I.3**	**Table I-1**
ARTICLE 27 - TRANSBOUNDARY MOVEMENT			

Question ID: 1024

Question: In Table I-1, it shows that there are 22 waste exports and 23 waste inports respectively from 2000 through 2007. Would you please provide more information about the imports and exports in the year of 2007?

Answer: A table of exports and imports for 2007 is provided as an answer support document on the JCWeb page.

Total Questions: 152