Belgium– General Discussions (contents)

- Countries of CG4 (United Kingdom, Belgium, Italy, Slovenia, Austria, Denmark, Ireland, Malta, and Serbia) and other CPs being present (USA, Japan, France, Canada, Germany, China, Australia, Netherlands, South Africa, Switzerland, EURATOM)
- Summary of discussions
- Points of agreement / disagreement
- Follow-up from 5th Review Meeting

Belgium – General Discussions (add.1)

UK, Slovenia, Denmark, Ireland, Italy, Denmark, USA, Japan, Germany, South Africa provided questions on Belgium presentation; the following topics were discussed:

- The roles and chain of reporting of Health Physics departments at sites
- Reason for selection of dose criteria for disposal facility (0,1 mSv/year)
- Lifetime vs. licensing period for dry spent fuel (SF) storage
- Definition of VLLW categories (short and long-lived)
- Liquid waste preprocessing by freezing for decay storage and clearance

Belgium – General Discussions (add.2)

- Role and responsibility of BEL V (the technical support organization for Belgium regulator FANC) in the inspection program
- The reason for estimated nuclear liability cost increase
- How SF inventory data is collected from operators
- Task force (waste management agency, regulator, and Government) activities to clarify roles and responsibilities of regulator and implementers in the waste acceptance system (WAS)
- Independence of Bel V from operators when performing safety assessment reviews
- Challenges to keep already pre-conditioned RW compliant with WAC as defined for disposal

Belgium – General Discussions (add.3)

- How actual decommissioning costs corresponds with the previous estimations, specifically in case of Best Medical Belgium (BMB) company bankruptcy
- Implications of unavailability of policy decision concerning reprocessing/direct disposal of SF
- The mechanism for public to provide feedback on published National Program
- How long the non-conformant drums have been in storage before discovering of gel-like leakage (2012).
- The way to avoid liability issues similar to BMB
- The need to consider two SF final disposal options before relevant political decision is made

Belgium – General Discussions (add.4)

- Technical RW inventory is not published on web-site, but used for different reports and evaluations.
- Potential affect of asbestos on the cost and schedule of decommissioning projects
- Plans to complete a systematic evaluation of possible nonconformities in a very broad inventory of legacy wastes
- Timeline for management of Radium bearing wastes
- What was the rationale to suspend in 1993 reprocessing of SF

Belgium – General Discussions (add.5)

- Points of agreement / disagreement
  - None identified

Belgium – General Discussions (add.6)

- As a follow-up from 5th Review Meeting, progress since the previous review meeting against all the identified challenges were presented and discussed:
  - Dealing with major non-conformities of conditioned NPP waste discovered during inspections gel-like material in conditioned low-level waste packages
  - Clarification of status and policy for SF: reprocessing or direct disposal
  - Approval and implementation Waste Policy for the long-term management of HLW, long-lived waste
  - Development of plan for radium-bearing waste
  - Decommissioning Financing - liability fund for Institute for Radioelements (IRE) decommissioning
  - Regulatory framework and guidance on decommissioning (clearance, site release, staff, licensing)
  - Consequences of Nuclear Energy Phase-out on the waste management chain
  - Licensing and construction of the surface disposal facility
  - Implementation of safety improvement measures from the stress tests

Belgium – General Discussions (add.7)

- Follow-up on relevant overarching issues identified from 5th Review Meeting
  - Staffing, staff development, funding, and other human resource areas. – not discussed
  - Maintaining and increasing public involvement and engagement on waste management, to provide public confidence and acceptance. – presented
  - Developing and implementing a holistic and sustainable management strategy for radioactive waste and spent fuel at an early stage. – presented and discussed
  - Management of disused sealed sources. – not discussed

Belgium – Overview Matrix (1)

Type of Liability	Long Term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
Spent Fuel	- On-site wet or dry storage of SF from NPPs - Storage or reprocessing of SF from research reactors	Long term management policy still to be defined: disposal of waste from reprocessing or direct disposal	NPP operators contribute to the fund managed by SYNATOM	Extension of storage facilities on NPP sites Geological disposal still to be confirmed by policy decision (disposal, predisposal facilities to be decided)
Nuclear Fuel Cycle Waste	Centralized storage at Belgoprocess site of all SL-LILW, LL-LILW and HLW transferred to ONRAF/NIRAS	SI-LILW : Near surface disposal LL-LILW and HLW : policy still to be defined	Producer pays, contribution to ONDRAF/NIRAS long-term funds Various funds for historical liabilities fed by state	Surface Disposal for SL-LILW at Dessel, including the disposal facility and other facilities for waste packaging for disposal.
Application Wastes	Centralized storage at Belgoprocess site of all SL-LILW, LL-LILW and HLW transferred to ONDRAF/NIRAS Radium waste storage at Umicore/OLEN	SL-LILW: near surface disposal LL-LILW: policy still to be defined Radium waste: policy still to be defined	Producer pays, contribution to ONDRAF/NIRAS long-term fund; Insolvency fund; Radium waste: producer pays	Idem

Belgium – Overview Matrix (2)

Type of Liability	Long Term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
Decommissioning	Present projects: BR3 Research Reactor; Eurochemic reprocessing plant SCK-SEN waste department; Belgonucleare MOX FFP and FBFC FFP; Radio-element production facility ex-"Best Medical Belgium"	Responsibility of operator; approval of decommissioning plan by ONDRAF/NIRAS SL-LILW: near surface disposal LL-LILW policy still to be defined	NPP operators contribute to the fund managed by SYNATOM; various funds for historical liabilities fed by state; Transfer of financial means to ONDRAF/NIRAS (waste funds managed by ONDRAS/NIRAS)	
Disused Sealed Sources	Return to supplier, decay storage or transfer to ONDRAS/NIRAS	Implementation of EU directive, recovery of orphan sources	If no return, holder has to setup financial guarantee	

Belgium – Challenges

- Dealing with major non-conformities of conditioned NPP waste discovered during inspections such as gel-like material in conditioned low-level waste packages. – *in progress, robust program has been initiated*
- Clarification of status and policy for SF: reprocessing or direct disposal.
- Approval and implementation Waste Policy for the long-term management of HLW, long-lived waste
- Development of plan for radium-bearing waste
- Regulatory guidance on decommissioning (clearance, site release, staff, licensing). – *in progress, nearly completed*
- Consequences of Nuclear Energy Phase-out on the waste management chain
- Licensing and construction of the surface disposal facility. – *in progress,*
- Prepare final shutdown and decommissioning of NPPs (2022- 2025)

Belgium – Good Practices

- None identified.

Belgium – Areas of Good Performance

- A safety culture observation tool for regulatory staff was developed and implemented into inspection results evaluation process
- New and improved regulatory framework, including enhanced emergency preparedness, decommissioning, RW and SF storage
- The roles and responsibilities between the Regulator and the National Agency for Radioactive Waste Management have been clarified
- Review of Waste Acceptance System for the new cAt disposal facility, including development of roadmap to address nonconforming wastes in storage

Belgium – Suggestions

- Belgium is encouraged to establish a timeline for a policy decision on HLW disposal and radium-bearing wastes management and SF management
- Belgium is encouraged to fully complete implementing financial guarantees for all operators

Belgium – Planned Measures to Improve Safety

- Surface disposal facility for LILW is being developed in Dessel
- Improvement of the licensing system for disposal facilities
- Further improvement of the Regulatory Framework:
  - Finalization of EU BSS transposition, incl. Health Physics Organisation
  - Licensing regime of Disposal facilities
  - Safety of Disposal facilities
- Licensing of
  - Surface disposal Facility
  - New on-site Spent Fuel Storage
  - ASR-affected waste drums management facility
- Continue « Task Force » efforts with elaboration of regulation proposals