Question / Comment	Answer
Are the different policies for management of spent fuel from different research reactors driven by differences in the characteristics of the fuel (e.g. metallic fuel)?	Yes indeed. Unlike oxide fuels, the compatibility of metallic fuels with geological disposal is not demonstrated due to their higher (chemical) reactivity. The enrichment of the BR2 spent fuel additionally drives its management strategy towards reprocessing.
By when does Belgium expect to have decided the long-term management policy for all spent fuel (i.e. reprocessing or direct disposal)?	In the deep geological disposal programme the disposal of both scenarios (disposal of spent fuel or disposal of reprocessed waste) is considered. As part of the Phoenix deal between Engie Electrabel and the Belgian State the spent fuel will be transfered to the Belgian State without reprocessing. The status of the spent fuel for disposal will have to be confirmed in a future part of the national policy.
Regarding the strategic roadmap for disposal, by when is the DGR anticipated to be operational for receipt of spent fuel for disposal?	A reference scenario has been developed to allow for evaluation of the costing associated with the implementation of a geological disposal. A hypothesis of this financial reference scenario is a license for the construction of a geological repository by 2050. In this financial reference scenario the spent fuel would be disposed of from ~2100. The decisional process for the implementation of geological disposal is being prepared by NIRAS/ONDRAF and will be submitted to the Federal Government in 2026 as a proposal for part 2 of the National Policy.
Noting that policies on the long-term management of spent fuel from research reactors B1 and VENUS do not yet exist, by when are such policies required by the legislative and/or regulatory framework in Belgium?	As already mentioned (see also question38879), the ARTEMIS mission held in 2023 stated: "The Government should formulate a well-defined policy decision regarding spent fuel management options, specifically addressing the choice between reprocessing and direct disposal. Policy or policies should encompass all nuclear power plants and research reactors." The lack of a comprehensive policy on the long-term management of spent fuel for research and commercial reactors is a breach of the European regulatory framework, and has been recognised as such since 2018. Policies are therefore already required by the current legislative/regulatory framework. SCK CEN is currently examining the industrial feasibility of reprocessing or treating and conditioning the spent fuel that it owns and whose status has not yet been clarified, namely the spent fuel from the BR3 and VENUS reactors, and the future spent fuel from the BR1 reactor (Section M.3.1). The hypotheses to be proposed regarding the further use of this spent fuel will depend on the outcome of the feasibility studies. If proved feasible, the reprocessing or treatment and conditioning of this fuel would facilitate its management in a geological disposal facility.

Question / Comment	Answer
Noting long-term management of radioactive materials and substances in Umicore's licensed storage facilities will be the subject of future policy decisions, is there a time set or expectations by the government or regulatory body for when such policy decisions are to be made?	NIRAS/ONDRAF is responsible for submitting the policy proposal for disposal of the radioactive radiumbearing waste to the Federal Government and has announced this to Government for mid 2025. It is not possible to provide a precise timeline for the political decisions regarding the long-term management of radioactive materials and substances at UMICORE-licensed storage facilities. Currently, a global remediation project is underway at the UMICORE legacy site. This is a long-term initiative involving multiple stakeholders. The initial political decisions concerning the long-term management of radioactive materials in UMICORE-licensed storage facilities are expected to be made in the coming years.
Please clarify that all the foreseen capacity needed for interim storage of spent fuel from the power reactors between now and when the DGR will be operational has been acquired and licensed.	Interim storage of spent fuel from the power reactors is currently ensured by the SCG and SF² dry storage facilities at the Doel site, and the SF² (dry) and DE (wet) storage facilities at the Tihange site. According to the recent agreement between the Belgian government and the NPP operator, all spent fuel will have to be stored in dry condition at the latest by the 1st of January 2050. For this reason, the NPP operator has planned to apply for a licence for an additional dry storage facility at the Tihange site.
Please clarify whether it is the intent to continue to utilize wet storage for spent fuel from the Tihange units until the DGR is operational, or whether there is a plan to shift all to dry storage.	According to the recent agreement between the Belgian government and the NPP operator, all spent fuel will have to be stored in dry condition at the latest by the 1st of January 2050. For this reason, the NPP operator has planned to apply for a licence for an additional dry storage facility at the Tihange site.

Question / Comment	Answer
Please elaborate what modifications were made to the spent fuel deactivation pools as this detail was not provided in section G.2.1.a	As a consequence of IRS 8243 and IRS 8299, improvements were made to the siphon breakers of the Spent Fuel Pool (SFP) (increase of the diameter and periodic inspections) of the Belgian units within the context of the Belgian stress tests. Several other improvements were made to the SFP in this framework (2011-2015). After that, within the context of the implementation of the WENRA Reference Levels of 2014, a series of studies related to the SFP were performed (e.g. extension of Postulated Initiating Events list and SFP PSA). These studies considered the international and national operational experience feedback (e.g. Bayesian update of the failure rates and the initiating events frequencies used in PSA to incorporate the Belgian operating experience) and led to many improvements on site, such as further elaboration of operational procedures and improvements of the cooling system of the SFP (qualified electrical supply of the pumps, spare pump availability and availability of spare parts of the pumps to repair them if needed, redefinition of the design temperature of the pumps, independent additional cooling circuit). Also, within the context of the current PSR exercise, the need of qualified and redundant monitoring of SFP parameters (water level, temperature, radiological parameters) was also identified in order to allow the quick reactions of the operator in case of incident. Associated modifications on site are being implemented by the utility.
When does Belgium anticipate having second phase R&D outcomes available and for implementation for the ASR and ion exchange wastes?	Belgium has initiated reseach programs focused on both ion exchange resin waste and ASR-sensitive concrete waste to develop safe and effective disposal solutions. These research efforts are ongoing, and the outcomes will be shared as soon as they yield partially or fully conclusive results.

Question / Comment	Answer
Regarding competency and resources of the regulatory body, what technical and scientific disciplines have been identified as being necessary for the assessment of long-term safety (including post closure) of radioactive waste disposal facilities, both near surface and deep geological facilities? Please include the following in your response:(a) Scientific and technical disciplines and corresponding numbers of people employed (full time equivalent) within the regulatory body(b) Additional skills and numbers of people (full time equivalent) via external experts, including any Technical Support Organisation (e.g. IRSN)(c) Any strategy or plan to increase capacity in the identified areas in parallel with phases of disposal facility development: e.g. supporting dialogue with operators in advance of applications, in developing associated regulatory guidance, and then in assessing an application for licencing	W.r.t. long term safety considerations (not including general competences related to ionising radiation) for underground disposal, FANC has identified the following disciplines:- Comprehension of fFire analysis and protection systems in underground installations - Geosciences (geology, hydrogeology, geomechanics including THMC, underground construction and tunnelling, geochemistry)- Radionuclide chemistry including actinide chemistry, RN solubility and complexation, RN sorption - Radionuclide transport in porous media including clay, concrete; diffusive transport, advective transport, gas transport - Radioactive waste matrix LT evolution including spent fuel, glass, concrete, bitumen- Radioactive waste package LT evolution including corrosion (aerobic and anaerobic)- Waste disposal LT safety analysis (deterministic, stochastic) - Waste disposal operational safety deep disposal including "mine safety", transport heavy loads in shafts and ramps - Climate change including glaciations FANC and its TSO Bel V do not currently have sufficient expertise in all these disciplines. A gap analysis is on-going and a strategy will be developed, in parallel with the advancement of the underground disposal policy in Belgium, to obtain the necessary expertise. This may involve developing it internally, relying on the TSO, buying it externally or deliberate hiring. FANC has about 4 FTE whose expertise directly contributes to the above.
The report includes a description of the qualification procedure for waste conditioning processes, and a shorter procedure for unconditioned wastes. How does ONDRAF/NIRAS do this for future disposal facilities (including a deep geological repository) for which waste acceptance criteria are not yet fully known? Does regulatory licencing of interim storage, conditioning and treatment facilities also assess the evidence of this qualification?	For a non-licensed disposal facility NIRAS/ONDRAF can define, to the extent possible and as long as the facility is not yet licensed, waste acceptance criteria in a prospective manner, based on R&D results and good practice. The regulatory license of facilities does not assess the evidence of qualification. The waste acceptance criteria established by NIRAS/ONDRAF have to be conform with license requierements and this conformity is checked by the safety authority FANC.

Question / Comment	Answer
The IRRS mission in 2023 recognised the following as areas of good performance in relation to regulatory tools and processes: a) Effective use of advanced IT systems for managing the regulatory activitiesb) Implementation of “Fast Limited Inspections with Thematic Scope” (FLITS)Can you provide more detail on these areas including the benefits that they have delivered?	a) FANC has developed an integrated central database with state of the art templates for documents and records as well as workflows for various regaulatory activities. This system, called CIS, can keep track of license applications, has several tools for planning,and executing inspections (such as generation of inspections report), tracking of the findings from inspections, meeting reports, ... The system also has a module for the follow-up of enforcement actions. The centralization of all this information is a helpfull feature and allows an increase of efficiency of our regulatory activitiesb) The main objective of a FLITS inspection is to perform a thematic inspection on one or more themes and to gather a maximum of information, to evaluate them and to present the results to the license holder. The basic characteristics of a FLITS inspection are that they are un-announced, using a pre-defined scope, deploying usually a large number of inspectors and experts (up to 20) covering all the themes. The duration is usually short (1 full day) and starts with an entrance meeting led by the coordinator explaining the objectives of the inspection, followed by the inspection activities by the whole team, divided into sub-teams. At the end of the day, a short team meeting is organised to gather the main findings, which are communicated to the facility during the closure meeting. The main advantage of FLITs inspections relies in the fact that due to the larger and broader team composition, several themes can be covered in a very short time and the same moment.
Can you provide more detail on the following area of good performance from the IRRS mission 2023, relating to structured interaction on radioactive waste disposal: interactive tool “Pathway Evaluation Process”?	The “Pathway Evaluation Process” (PEP) is a serious game on Radioactive Waste Management (RWM) Governance that has been developed within the SITEX II project (2015-2017). The objective is to identify issues all along the pathways that would really matter for different categories of actors, which have not the same vision of what should be the pathway and what should be the safe situation for the long term. A PEP session put into discussion different strategies allowing to reach a safe situation for the long term. https://www.sitex.network/projects/
Can you provide further information on SYNATOM’s R&D relevant to the industrial conditioning of spent fuel for disposal, including information on its process for encapsulating and drying leaking fuel rods and the key drivers for researching alternative solutions?	Regarding the conditioning of the spent fuel, the work recently performed is an improved evaluation of the conditioning process taking into account the technical and regulation evolutions. While for the drying and encapsulating process of leaking fuel rod, the key drivers to develop alternatives to the solution already implemented is to have a backup solution in case of defection of the supplier and to avoid a monopolistic situation.

Question / Comment	Answer
Radioactive waste producers can treat, condition and store their waste on their site but treatment and conditioning are subject to the qualification issued by ONDRAF/NIRAS. Could you elaborate more on this qualification process? How does it look like in case of waste treated and conditioned abroad?	If a Belgian waste producer opts for treatment and/or conditioning of his radioactive waste abroad, the same qualification process applies as in national cases. It is the Belgian waste producers responsibility to obtain all necessary qualifications on behalf of the foreign operator. Furthermore, according to the royal decree regulating the qualifications, NIRAS/ONDRAF has the right to analyze the technical part of all contracts which a Belgian waste producer signs with a foreign operator in view of the treatment and conditioning of Belgian radioactive waste.
Is the waste producers storage period specified in the conditions of the authorization? / Radioactive waste producers are required to avoid any excessive acucumulation of radioactive waste on their sites	GRR-2001 (art. 27bis) mentions that all radioactive waste should be declared to NIRAS within 6 months and if it's longer then 5 years on site, a justification is needed. Class II & III waste producers can have a specific lincence with a longer periods mentioned (ex. extended decay storage at universities)
The report say that "the need for a specific national policy dedicated to the long-term management of NORM substances to be managed as radioactive waste has been assessed by FANC and ONDRAF/NIRAS. They concluded that no such specific policy will be needed since the expected volume of these substances to be managed as radioactive waste is very low." - 1. How did FANC and ONDRAF/NIRAS determine that the expected volume of NORM substances to be managed as radioactive waste is very low? 2. What are the potential risks of not having a specific national policy for the long-term management of NORM substances? 3. What are the implications of this decision for industries that produce NORM substances as part of their operations?	Waste' in this case refers to radioactive substances for which no further use is foreseen within the facility or installation where it was used or produced. Apart from transfering these substances/materials to NIRAS/ONDRAF for further management as waste, alternative options include in specific cases reuse or recycling. Reuse examples include the transfer of ownership of old, spare cyclotron parts between cyclotron facilities, or transfer of ownership of no-longer used shielding materials. Recycling examples include the transport of activated metals to foreign nuclear melting facilities (e.g. Cyclife Sweden, Siempelkamp Germany, EnergySolutions USA). 1. The criteria below which NORM substances can be safely managed as conventioal hazardous (chemical) waste are the impact of 0,3 mSv/y to the public/environment coming from that waste disposal site. Examples of site remediation show that for material up to 15 Bq/g U-238sec this can be garanteed in specific conditions. The inventory of radium pollution shows that the volume of material > 15 Bq/g NORM is low. 2. There is a policy for the long-term management of NORM residus (not as radioactive waste so for limited activity concentrations <50 Bq/g). 3. The NORM indisutry knows and follows the existing regulations with the disposal of NORM residues up to 50 Bq/kg (in fonction of the annual volumes) in autorized NORM waste disposal facilities. RP122 part 2, FANC website

Question / Comment	Answer
The report say that "NORM substances and radium-bearing substances containing activity levels below a certain threshold should not be managed as radioactive waste. These thresholds for NORM are defined in the regulatory framework (GRR-2001) and as a result almost all NORM residues that were or are still being produced in Belgium do not have to be managed as radioactive waste.". 1. How are the thresholds in GRR-2001 determined and updated within the regulatory framework? 2. What processes are in place to ensure compliance with the GRR-2001 thresholds for NORM substances produced in industry? 3. Are there provisions in the regulatory framework to ensure the safety and environmental protection of NORM substances that are not managed as radioactive waste?	1. The tresholds are determined based on a dose criterion of 0,3 mSv/year to the environment/public and 1 mSv/year to the workers. 2. Compliance is assured by the authorization process (registration) of NORM facilities and NORM residue management facilities (waste operators) that need to monitor, inventorize and notify the NORM streams to FANC. 3. These regulations are monitored by reporting of the operators and enforced by inspections. RP 122 part 2, website fanc
The report mentions a legacy site. 1. Who is responsible for the cleanup of historical radium-bearing waste at the UMICORE site in Olen? 2. Is there any requirements for environmental monitoring of the licensed storage facilities and landfills with radium-contaminated materials, if it is what does that entail? 3. What specific measures are in place to ensure the safe management and remediation of radium-contaminated substances at the UMICORE site? 4. How is the effectiveness of the cleanup and environmental monitoring efforts at the UMICORE site evaluated and reported?	1. UMICORE is responsible for the cleanup of historical radium-bearing waste at its Olen site. The company has collaborated with the Federal Agency for Nuclear Control (FANC), the National Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS), and the Public Waste Agency of Flanders (OVAM), to develop and implement remediation strategies. 2. UMICORE has established a monitoring program in collaboration with external radiation experts and reports periodically to the authorities. This program includes: • Visual inspections to ensure the integrity of the external grass cover. • Radon emanation measurements. • Stability assessments. • Monitoring of groundwater quality. 3. The following measures are in place: What specific measures are in place to ensure the safe management and remediation of radium-contaminated substances at the UMICORE site? • Depollution of External Premises: The company has cleaned up contaminated areas outside the plant to permanently improve conditions and provide effective long-term protection for people and the environment. • Monitoring Program: a comprehensive monitoring program is in place, involving external radiation experts and periodic reporting to authorities. • Collaboration with Authorities: UMICORE continues to work with FANC, NIRAS and OVAM to find long-term solutions for the storage of historical radioactive waste. 4. How is the effectiveness of the cleanup and environmental monitoring efforts are evaluated and reported as follows? • Regular Inspections: Conducted to assess the integrity of storage facilities and the effectiveness of remediation measures. • Radiation Measurements: Including radon emanation and groundwater quality assessments to

Question / Comment	Answer
	detect any potential environmental impacts. • Periodic Reporting: UMICORE provides regular reports to the relevant authorities https://www.umicore.com/en/about/ https://www.umicore.com/en/media/newsroom/exemplary-management-of-historical-radioactive-waste-stored-in-olen/?locale=nl

Question / Comment	Answer
Belgium is commended for achievement of the first part of the national policy for cat B and C disposal. What are the main outcomes of the national debate and what are governments next steps to complement the policy and strategy for disposal development.	The main objective of the public debate was to contribute to the preparation of the second part of the national policy for the long-term management of ILW and HLW. This second part aims to outline the decision-making process for the implementaion of geological disposal, including the site selection process. The results of the debate can be summarised as seven red threads, namely 1) act within an ethical framework; 2) create conditions for ongoing and broad public participation; 3) develop a governance structure with clear and transparent roles and responsibilities; 4) commit not to leave the process in a stand-by mode; 5) define multiple scenarios for geological disposal and evaluate them periodically; 6) launch the siting process; 7) ensure financial provisions to avoid undue burden on future generations. These outcomes are actively taken on board to draft the second part of the national policy with among others, a proposal to create a neutral entity to supervise the public participation and to ensure compliance with the ethical framework. See also question 39142 (China) See JC Report. A. 2.3. Other Developments. Also, see final report (NL, FR) on the Public Consultation via the following link https://www.nuvoormorgen.be/.
Belgium states in the report that disused sealed sources are excluded from the surface disposal facility. Is this because of safety concerns (e.g. for shorter lived nuclides) or due to public acceptance	The disposal of sealed sources would require additional specific safety assessments, mainly related to assessing the impact of scenarios of human intrusion. It would also require modifications to the autorisation of the disposal facility.
It is stated for the SF2 facilities that their intended operating lifetime is 80 years. Will the respective license cover the whole intended lifetime of the facility? How can you provide technical evidence for such long time periods? Is the applied long storage period some kind of learning process from foreign country experiences?	Licences for Class I facilities don't have a predefined duration. However continuation of operation must be confirmed by the FANC in light of the results of the decennial periodic safety review. Sufficient evidence to justify an expected lifetime of 80 years was provided in the safety demonstration files of the SF² installations during their licensing process.
The safety assessment of new facilities includes many items. That is a question on the accident management: How do you intend to proceed in the event of a possible cask leakage?	In such conditions an active confinement system (system for isolation of the cask with necessary filtration) will be placed around the container. The authorisation of the new spent fuel storage facilities requires the necessary equipment for this active confinement system to be operational within 1 day after event detection.

Question / Comment	Answer
It is mentioned that an entry control program and a monitoring program for periodic inspections of the casks shall be approved by FANC and Bel V. Is the programme running and what are the main tasks or what measures are actually being implemented?	The entry control program considers all the applicable criteria that the casks and spent fuel must meet. Furthermore it also stipulates how the criteria are verified or ensured. The entry control program has already been approved by the Safety Authority for the 2 recently licensed spent fuel storage facilities (SF^2 facilities). For the moment no loaded casks are stored in those storage buildings. Periodic inspections of the casks are already executed in the Fuel Container Building and are also foreseen for the SF^2 facilities. In this framework an Ageing Management Program (AMP) has been established to ensure that the ageing effects of casks do no result in a loss of their intended safety functions. This AMP has been approved by the Belgian Safety Authority.
Belgium has many ongoing dismantling projects (EUROCHEMIC, BR3, BMB, etc.), which are not presented in detail in the report. Can Belgium give precisions about the status of facilities undergoing decomissionning (remaining tasks, target date for complete dismantling, end-state, etc.) ?	For the installations mentioned in the question, the decomissionning is in the end phase; ex. Eurochemic: the reprocessing plant is complete dismantled, only for a few tanks this is ongoing. For the NPP's decom should start in the next years and the end is planned between 2039-2047. The end-state is industrial greenfield but will only be reached when the today licensed activities are stopped. In line with decom progress, there may be a declassification of the installation
Belgium forsees both reprocessing and direct disposal in its spent fuel long term management policy. However the national report does not present the long term strategies associated to each of these management policies (reprocessing and/or direct disposal of spent fuel), nor any requiered milestone to achieve these. This could become a potential issue for Belgium since its recent decision on a phase out of the nulcear energy which requires a strategy to be in place very soon in order to manage the spent fuel from the reactors to be closed.	In the deep geological disposal programme the disposal of both scenarios (disposal of spent fuel or disposal of reprocessed waste) is considered. As part of the Phoenix deal between Engie Electrabel and the Belgian State the spent fuel will be transfered to the Belgian State without reprocessing. The status of the spent fuel for disposal will have to be confirmed in a future part of the national policy.
In 2023, the decision has been taken to extend the operation of Doel 4 and Tihange 3 units until 2035. Can Belgium confirm that the recent decision on the extension of operation of Doel and Tihange units until 2035 has been considered in the storage capacity of the new spent fuel facilities?	Sufficient margin capacity is available within the SF^2 dry spent fuel storage facilities at both sites to store the additional assemblies.

Question / Comment	Answer
"Some universities, hospitals and large companies store its own very short-lived radioactive waste in dedicated buildings until its activity has decreased enough for it to be cleared and released as conventional waste". Can Belgium indicate what are the main principles and steps in the management of the very short-lived waste and the related oversight by the regulator?	The management of very short-lived radioactive waste is subject to a structured regulatory framework. Main principles are - classification of waste (based on the half-life and activity level of the radionuclides it contains, facilities can themseves propose their scheme of classification of waste); - storage and isolation (stored in dedicated rooms, building, facilities, these storage places must be designed to provide shielding and prevent release of radiation during the decay period, the waste is kept for a period, depending on the activity level and the decay rate of the isotopes involved); - decay and clearance (after sufficient decay of radioactivility, the waste may be cleared for release as conventional, non/rad/waste, this process is monitored by the safety authorities); - recycling or disposal (the waste can be recycled once cleared).
It is indicated in the report that the inventory of radioactive sources kept by each site is reported to FANC, who informs ONDRAF/NIRAS. However, the total inventory of DSRS is not indicated in the National Report; only the number of sources collected since the previous report is indicated. Only disused sealed sources declared as radioactive waste are considered for deep geological disposal. Can Belgium provide a consolidated inventory of its DSRS, including all orphan and disused sources collected up to now, specifying which ot them are actually declared as RW?	Once cleared, the material can be treated as any other similar non-radioactive waste.
Have you found that the 'Tabloo' centre has changed the attitudes, understanding level as well as the public perception towards radioactive waste and the disposal facility?	Tabloo opened in the spring of 2022. To effectively determine the impact, it is necessary to conduct an impact study. This is planned after five years of operation, earlier is not meaningful. In general, visitors give a positive feedback after their visit of the permanent exhibition.
This section contains very good summaries of the quality management systems for ENGIE Electrabel, SYNATOM and the regulator, however there is no equivalent section for the other significant waste producers, for example SCK CEN. What quality management systems are in place for the other significant waste producers in Belgium?	Similar management systems are in place in the other class I facilities, since - as explained in F3.1- Art. 5 of the Royal Decree of 30 November 2011 (SRNI-2011) requires all class I facilities/licensees to establish, implement, assess, and improve on a continuous basis an integrated management system giving priority to safety. This management system shall cover all the activities and processes which can have an impact on the nuclear safety of the facility, including the activities carried out by the subcontractors or suppliers. These management systems thus also cover the radioactive waste management within their installations. Inspections are held on a regular basis to verifiy the adequacy of the management system of the licensees.

Question / Comment	Answer
"In parallel to the policy development, the production of a generic safety case (i.e., host rock not decided, no specific site) is ongoing and is designed to challenge the methodology implemented by ONDRAF/NIRAS and the regulatory framework developed by FANC. As such, it will support the prelicensing process for deep underground disposal." Question: Please elaborate whether the mentioned methodology implemented by ONDRAF/NIRAS has any specific features distinguishing it from the international long-term safety assessment practices (for example, IAEA SSG-23 or the methodology described in the OECD NEA document Methods for Safety Assessment of Geological Disposal Facilities for Radioactive Waste (NEA No. 6923)).	The methodology implemented to develop the generic and methodological safety case is in line with the international provisions from IAEA and the NEA methods for safety assessment. However, the peculiarity of this exercise consists of being independent of the future site. The main objective of the safety case is to challenge the methodologies developed so far against the regulatory framework without supporting a political decision or request concerning licensing.
Regarding the policy for the management of spent fuel from commercial nuclear power plants, the report lists three reference programmes that change over time. Among them, the latest and current reference programme is direct disposal (i.e., no reprocessing). Please introduce the current comprehensive policy on geological disposal of spent fuel in the country, as well as the specific implementation situation.	Currently, the management policy for spent fuel is the safe storage followed by either reprocessing or direct disposal. There is no comprehensive policy on geological disposal of spent fuel, as stated by the ARTEMIS peer review mission held in December 2023: "The Government should formulate a well-defined policy decision regarding spent fuel management options, specifically addressing the choice between reprocessing and direct disposal. Policy or policies should encompass all nuclear power plants and research reactors." As part of the Phoenix deal between Engie Electrabel and the Belgian State the spent fuel will be transfered to the Belgian State without reprocessing. The status of the spent fuel for disposal will have to be confirmed in a future part of the national policy.
It is mentioned on page 82 that individual dose constraints are implemented for nuclear facilities based on the voluntary principle. What are the specific dose constraint values for different nuclear facilities? Please introduce the national standard regulations related to the dose constraint value.	In art. 20 of the GRR-2001, the principle of dose constraint is mentioned. In practice we see that NPP's used 50% of the yearly limit for occupationally exposed workers (10 instead of 20mSv/12 gliding months). In medical environment they use even stronger values (6 instead of 20mSv/12gm)

Question / Comment	Answer
For the facilities at the Belgoprocess site, the first safety review of Site 1 was completed in 2008, and the second safety review was completed in 2018. What are the results of the first and second security reviews? What are the key points of the two reviews and what are the differences?	The first Periodic Safety Review of Belgoprocess site 1 was performed in 2008. The detailed results of the PSR can be found in the National Report of the 4th Joint Convention (2011). Some of the more important actions that were defined as a result of the periodic safety review for the nuclear installations on site 1 were related to - Emergency preparedness: actions were defined regarding an update of the intervention plans and source terms, training follow-up training for emergency preparedness personnel; - Storage and processing of radioactive waste: Optimization of the ventilation and humidity levels in storage buildings; Development and implementation of a programme for the periodic follow-up of adioactive waste drums in storage buildings; - Development and implementation of preventive maintenance and control programme of safety equipments (building 105X, 121X, and 122X) - Update of safety assessment reports. The PSR 2018 was performed following the IAEA SSG25 methodology, evaluating 14 safety factors related to domains such as the installations, safety analyses, REX, management, radiological impact etc. Points for improvement or shortcomings were identified, leading to an action plan of 61 actions in several domains (e.g. ageing, maintenance and testing, fire safety and instructions/procedures).

Question / Comment	Answer
The report mentioned that a national societal debate on the long-term management of radioactive waste started in 2023 and ran till March 2024.Please describe the specific matters of the national societal debate in detail? What changes have been made to the national policy on long-term management of radioactive wastes after this social debate?	The main objective of the public debate was to contribute to the preparation of the second part of the national policy for the long-term management of ILW and HLW. This second part aims to outline the decision-making process for the implementaion of geological disposal, including the site selection process. The results of the debate can be summarised as seven red threads, namely 1) act within an ethical framework; 2) create conditions for ongoing and broad public participation; 3) develop a governance structure with clear and transparent roles and responsibilities; 4) commit not to leave the process in a stand-by mode; 5) define multiple scenarios for geological disposal and evaluate them periodically; 6) launch the siting process; 7) ensure financial provisions to avoid undue burden on future generations. These outcomes are actively taken on board to draft the second part of the national policy with among others, a proposal to create a neutral entity to supervise the public participation and to ensure compliance with the ethical framework. See JC Report. A. 2.3. Other Developments. Also, see final report (NL, FR) on the Public Consultation via the following link https://www.nuvoormorgen.be/.

Question / Comment	Answer
The law of 7 November 2021 states that the general rules for the establishment of the waste acceptance criteria have to be fixed by Royal Decree. Please provide information on whether specific waste acceptance criteria have been proposed at this stage? How to determine the waste acceptance criteria?	Since 1999, general rules on the establishement of waste acceptance criteria exist already but fixed by a ministerial lettre. The Royal Decree on the general rules that is currently in preparation should reinforce the regulatory basis for these general rules and should describe the complete process of drafting, consultation with waste producers and operators, review by the nuclear safety authority and formal approval of each document (called ACRIA) containing waste acceptance criteria (WAC) for a specific waste type. At present, eight specific ACRIA's have already been drafted in consultation with waste producers and operators and informally reviewed by the nuclear safety authorities, awaiting the publication of the Royal Decree. These eight WAC cover the main stream of conditioned and unconditioned waste destined for the surface repository located in Dessel. Several other ACRIA's, covering smaller waste streams to the surface repository or waste streams to the geological repository, are currently being set up. A specific Royal Decree on the General Rules and Waste Acceptance Criteria is currently in dveelopment. See also JC Report K.3.1 g National programme, legal framework and ARTEMIS
The law of 2 December 2021 states that if the radioactive waste does not meet the acceptance criteria, the FANC shall immediately inform ONDRAF/NIRAS. Please describe the specific testing process and what is involved in the testing of the waste before acceptance? What are the waste inspection techniques? How to deal with the waste that does not meet the acceptance criteria?	Different inspection techniques are applied depending on what moment in the process, the inspection takes place. For example, before treatment and conditioning administrative documents are checked, radiation and dose rates measurements and contamination measurement are performed. In addition, a sample of the waste batch is inspected in more detail. After treatment and conditioning and during storage, inspections are also performed for example with the use of witness drums. Before the waste will be put in the disposal repository, extra non-destructive and destructive tests will be performed to verify their compliance with the conformity criteria of the disposal faciltiy. Waste that does not meet the criteria won't be allowed to the respository. For these waste drums mitigation measures should be taken. In case of non-conformities NIRAS/ONDRAF can withdraw the qualification.

Question / Comment	Answer
The Royal Decree of 26 June 2024 regulates the qualification of soils contamination experts, by detailing the criteria and the approval procedure. Please describe the specific criteria for radioactive contamination of soil. How to manage and remedy the contaminated soil by radioactive waste? What do the specific soil remediation techniques include?	These experts need specific training and accreditation following a course in radiation protection, measurement techniques, radioactive waste management, site description, regulation and impact assessment. Contaminated soil needs to be characterised by a soil investigation, the risk identified and the description of the appropriate remedial activities . These remedial activities can be the removal of the contamination and its disposal as radioactive waste or NORM residues (in a landfill), restriction in the use of the site, fixation/immobilisation of the pollution, etc., based on a site specific remediation project. Criteria for remediation are set to: 1) impact > 1mSv/y: intervention generally justified, and 2) impact > 3 mSv/y: intervention is necessary http://www.jurion.fanc.fgov.be/jurdb-consult/consultatieLink?wettekstId=34851&appLang=nl&wettekstLang=nl; http://www.jurion.fanc.fgov.be/jurdb-consult/consultatieLink?wettekstId=34851&appLang=nl&wettekstLang=fr
As the report stated, the nuclear construction and operating licence was granted by Royal Decree in April 2023. Please describe the exact start and end dates of the construction period. How long is the operation period? Do you have specific disposal facility closure scheme?	Exact dates for the construction period cannot be given, since this is subject to uncertainties inherent to construction activities, the arising of non-conformities or unforeseen issues etc. At the time of today, construction of the first four modules is planned to start in 2026 and end in 2030. The operational period is divided in three phases, consisting of 100 years of operation in total: 1) filling of the disposal facility with the waste monoliths (50y), 2) putting the protective earthen cover in place and monitoring (45y) ; and 3) the closing phase where the disposal facility will be put in its final passive configuration. The specific closure scheme, the criteria and the necessary tests to be able to move towards the closing of the facility still have to be established and validated on a later date.

Question / Comment	Answer
It is stated that For over 40 years, SCK-CEN and ONDRAF/NIRAS have been studying geological disposal.....In line with the reference scenario of obtaining a licence in 2050 it describes the broad lines of actions needed in the time frame 2021-2050. Why is the geological disposal facility going to be built in the clay? What is the determining factor? In addition, please describe recent and important research progress on the geological disposal.	The first part of the national policy on the long term management of B&C waste defines geological disposal on the Belgian territory on one or more sites as solution, without fixing the host rock. To date, it is thus not yet decided in which host rock the disposal will be built. Currently, with the preparation of the second part of the policy, the decisional proces for the implementation of the geological disposal comprising the site selection process is being developed. Recent progress in the R&D on geological disposal can be found in the special publication related to the 40 year anniversary of the HADES underground laboratory. https://pubs.geoscienceworld.org/gsl/books/edited-volume/2500/Geological-Disposal-of-Radioactive-Waste-in-Deep
In the national report Belgium describes the agreement between the Government and ENGIE. It is said that the agreement sets a financial cap for storage and disposal. Does this agreement limit the polluter pays principle and is Belgium government taking over financial liabilities?	More detailed information on the agreement between the Belgian Governement and Engie and its implementation will be provided in the national presentation of Belgium during the Review meeting. The information will address the question of the polluter pays principes and the tranfer of liabilities. https://economie.fgov.be/fr/themes/energie/sources-et-vecteurs-denergie/nucleaire/prolongation-de-la-duree-de
Is Belgium government foreseeing future spent fuel reprocessing as this is kept as alternative in the national policy?	See JC Report. The ARTEMIS Review Team provided the following recommendations and asuggestions: The Government should formulate a well-defined policy decision regarding spent fuel management options, specifically addressing the choice between reprocessing and direct disposal. Policy or policies should encompass all nuclear power plants and research reactors.
How does Belgium manage transboundary movements of radioactive materials to ensure compliance with international safety standards?	Compliance can be proven by being below the regulatory activity concentration levels or by conducting an impact study.
What are the new policies being considered to manage disused sealed sources in the long term?	Once cleared, the material can be treated as any other similar non-radioactive waste.
Ireland thanks Belgium for its comprehensive national report.	Thank you for the comment

Question / Comment	Answer
What progress has been made in implementing the Royal Decree of 28 October 2022 regarding the development of deep geological disposal facilities for Category B&C waste? Could Belgium include details on stakeholder involvement, site selection criteria, and timeline adjustments since the 7th review meeting.	Regarding stakeholder involvement, we refer to the question 39142 from China. Regarding the site selection criteria, we refer to 39147 from China. A second part of national policy on the decisional process for implementation is in preparation and will be submitted to the Federal Government after a national consultation procedure. This process will also define the steps for site selection and the modalities for public participation along the entire process. The R&D roadmap towards a site will be revised accordingly. NIRAS/ See jC Report. A. 2.3. Other Developments. Also, see final report (NL, FR) on the Public Consultation via the following link https://www.nuvoormorgen.be/.
In the report, you have mentioned that transparency is ensured also through events at the communication centre Tabloo. Could you, please, mention how effective Tabloo centre is in its mission? How popular is it among the general public? How many visitors visit this communication centre yearly, for example?	The mission of Tabloo is: 'Tabloo works towards a society in which well-informed citizens actively contribute to the care of radioactive waste'. Tabloo is indeed the most important tool for NIRAS/ONDRAF in 1) Public Understanding due to its informative program (permanent exhibition and accompanying products such as temporary exhibitions, games, workshops, etc.) – 'hence well-informed citizens' - , in 2) Public Interaction as it is a unique, physical realization of participation around the surface disposal project, and in 3) Public Acceptance to create and maintain public support, keep the memory alive, and serve as a home for the local community – hence the care of radioactive waste. The local communities have set an ambition of 40,000 visitors per year. In 2024, Tabloo received about 25,000 visitors in the permanent exhibition & workshops and a total of nearly 54,000 visitors. See also question 44812 (Australia)
In general, what is the role of the local stakeholders and communities when it comes to the selection of the sites? Do local stakeholders possess some kind of veto power, for example?	The fitness of a site will be assessed as part of the review and assessment part of a license application. The license application is submitted to a public enquiry and to the involved municipal authorities for advice, and then to the executive of the involved provinces. However there is no specific siting process prio to the license application

Question / Comment	Answer
Following the adoption of the updated National Emergency Plan (NEP) and lessons from past events, what specific changes or improvements have been implemented to manage emergencies related to nuclear facilities, including transboundary coordination with neighbouring countries?	An "International Unit" has been created that will be o Responsible for transmitting information to international partners and preparing requests for assistance; o Chaired by the NCCN, it includes the FANC, the FPS Foreign Affairs and the National Crisis Centre; o Interacting with the Federal Coordination Committee (COFECO) and other units to harmonise the cross-border response; o Interacting with international bodies to o Ensure early warning and exchange of information with the EU and the IAEA; o If necessary, activate international assistance mechanisms; These improvements enable better management of nuclear crises, by strengthening national response capabilities and cross-border cooperation.
What are the recent advancements in the programme for managing the non-conform conditioned waste (affected by Alkali-Silica Reaction (ASR))? Can Belgium provide details on the methodologies being considered or implemented for its long-term management?	A new storage facility specific for the ASR-affected waste was licensed and constructed by Belgoprocess. This facility should come in operation soon and it is expected that the ASR-affected waste will start to be transferred in this facility this year. The facility is designed to allow a camera inspection of all stored drums, the containment of possible leaks of ASR-gel out of the drums, a safe decontamination of the drums, as well as an appropriate air quality monitoring and control. This facility will thus allow a safe storage of the ASR-affected drums, waiting for a long term solution. Different options for this long term solution are still being investigated by NIRAS/ONDRAF and no choice is made yet.
Can Belgium provide an update on the progress in decommissioning the Doel 3 and Tihange 2 reactors? Could Belgium outline any significant challenges faced and how these are being addressed, especially concerning historical liabilities and the integration of new regulatory and financial mechanisms.	An explanation of the preparation of dismantling of these 2 reactors is provided in section K.3.1.a. Since the publication, discussions have continued around the preparation of the safety files and the decommissioning safety analysis reports. Removal of non-safety related equipement in non-controlled areas is authorised as preparatory works. For instance, turbines have been evacuated from the Turbine halls. The license applications for decommissioning are expected mid-2025. The development of an LTO-program for other units in parallel of the decommissioning preparations has surely slowed-down the preparation for the decommissioning license applications. During this decommissioning preparation phase, FANC has verfied in particular the maintaining of the necessary knowledge and competences within the licensee staff and that staff turnover doesn't have any negative safety impact.

Question / Comment	Answer
Ireland considers the regulatory framework improvements that have occurred 2020-2024 as good performance e.g. Law of 2 December 2021 which clarifies the roles and responsibilities between NIRAS and the FANC.	Thank you for the comment
As identified by Belgium the dismantling of the ENGIE Electrabel PWR reactors which have been permanently shut down is a future challenge. However, Belgium has outlined planned measures that will be taken going forward.	Thank you for the comment
How has Belgium addressed the implementation of the new financing mechanisms and responsibilities outlined in the Laws of 7 November 2021 and 12 July 2022. In particular, ensuring compliance with waste acceptance criteria and the sufficiency of financial resources for decommissioning?	The law of 7 November 2021 states that waste producers remain financially responsible for compliance of the waste with the waste acceptance criteria; e.g. in case of evolving waste acceptance criteria for disposal, but it does not introduce a new financing mechanism. The Nuclear Provisions Commissions was assigned significantly more responsibilities by the law of 12 July 2022 such as analyzing the impact of capital decisons of the nuclear operator, more prudent supervision through expanded information obligations by the nuclear operator and the nuclear supply company, and the possibility of imposing sanctions.
Table 3 states that both the long term management policy for spent fuel as well as the policy for radium waste are still to be defined. What is the status (or timeframe) of the definition of these policies? (See also B.3.2, end of page 19 and K.1.1.f) Could you provide more information on the decision-making process regarding the final management strategy for spent fuel? Specifically, what is the expected timeline for selecting between direct disposal or reprocessing?	NIRAS/ONDRAF is responsible for submitting the policy proposal for disposal of the radioactive radiumbearing waste to the Federal Government and has announced this to Government for mid 2025. A first policy decision on deep geological disposal was taken in 2022. A second policy decision on the decisional process for implementation is in preparation and will be submitted to the Federal Government after a national consultation procedure. This process will also define the steps for site selection. In the deep geological disposal programme the disposal of both scenarios (disposal of spent fuel or disposal of reprocessed waste) is considered. As part of the Phoenix deal between Engie Electrabel and the Belgian State the spent fuel will be transfered to the Belgian State without reprocessing. The status of the spent fuel for disposal will have to be confirmed in a future part of the national policy.
A.2.3 states that Hedera will manage the funds for the storage and disposal of radioactive waste and spent fuel. Can you elaborate on what the funds cover (for instance research, public participation, retrievability, etc.)?	The Phoenix law defines the transferred liabilities to Hedera, in addition to its own functionning costs. The financial obligations related to the management of radioactive waste and spent nuclear fuel cover the management stages from the compliance of the radioactive waste package or spent nuclear fuel or the concerned nuclear site with the relevant contractual transfer criteria, including certain ONDRAF costs such as for example transport of radioactive waste packages and spent nuclear fuel packages from nuclear sites to Belgoprocess and research and development costs related to deep geological and surface storage; More detailed information will be provided on this topic in the presentation of Belgium during the review meeting.

Question / Comment	Answer
What is the reason for delegating tasks of the regulatory body to Bel V?	The delegation of tasks from the Belgian Federal Agency for Nuclear Control (FANC) to Bel V primarily stems from the need for specialized technical expertise and operational efficiency. Bel V has as a TSO the specialized expertise to conduct safety assessments, inspections, and evaluations of nuclear installations, allowing FANC to focus on its oversight and regulatory functions as a safety authority. This delegation improves efficiency, ensures objective assessments, and aligns Belgium's nuclear safety practices with international standards.
p. 62 states that FANC participates in research projects. Can you elaborate on the research activities of FANC, as in how are they chosen, how much budget is dedicated to research, etc.?	The FANC is a member of the Mont Terri consortium, which consists of 21 partners (EU countries, the USA, Canada, Japan), including regulatory authorities (e.g. ENSI - Switzerland and BASE - Germany), waste management organizations, and nuclear and non-nuclear research centers. The annual budget invested by the FANC is approximately 170,000 euros out of a total of 3 to 5 million euros for all partners.The FANC coordinates the DR-C thermal gradient migration experiment. One of the missions of the FANC is to investigate dossiers that support decisions regarding the geological disposal of radioactive waste. The sealing system with which the geological disposal will ultimately be closed is essential to ensure safety. The FANC provides co-financing, together with the ASNR (former IRSN), for a study on the hydromechanical behavior of sealing materials consisting of a mixture of swelling clay.
F.4.2 states that there are strict rules concerning the reuse and recycling of VLL solid waste. How is very lowlevel solid waste reused and recycled?	Belgium doesn't follow the IAEA waste classification, but uses cat A/B/C. VLLW can exit the nuclear cycle if its impact is less than 10 µSv/year on the population, including non-nuclear workers and transporters (main criteria). It can be proven by being below the regulatory activity concentration levels or by conducting an impact study. In the case of impact studies, the waste producer can include a recycling stage at a classical or nuclear recycling facility. Once cleared, the material can be treated as any other similar non-radioactive waste. 'Waste' in this case refers to radioactive substances for which no further use is foreseen within the facility or installation where it was used or produced. Apart from transfering these substances/materials to NIRAS/ONDRAF for further management as waste, alternative options include in specific cases reuse or recycling. Reuse examples include the transfer of ownership of old, spare cyclotron parts between cyclotron facilities, or transfer of ownership of no-longer used shielding materials. Recycling examples include the transport of activated metals to foreign nuclear melting facilities (e.g. Cyclife Sweden, Siempelkamp Germany, EnergySolutions USA).

Question / Comment	Answer
K.3.1.g states that there will be a second step in the update of the national programme of 2015. When is this update expected?	The timing of the update of the National Programme will depend on the progress made with the establishment of National Policies for HLW and ILW and for radium-bearing waste. The optimal timing will be assesssed in 2025.
What has been the consideration for international collaboration in spent fuel reprocessing or disposal to reduce costs and risks?	Since 2022, the reference program of Synatom, the owner of the fuel, is indeed to opt for direct disposal. This decision was a a purely financial decision, with a trade-off between the costs associated with reprocessiing and the costs associated with the disposal itself. With the Phoenix agreement, the spent fuel will be transferred to the Belgian State who will decide on its future management.
The policy regarding long-term management of high-level and long-lived radioactive waste (B&C waste), particularly the delay in defining disposal site(s) and implementation details, might be considered non-compliant with the IAEA's principles of timely and safe disposal of such waste. The IAEA encourages early site selection and clear disposal pathways, which are not yet fully defined in the report for Belgium.	A first policy decision on deep geological disposal was taken in 2022. A second policy decision on the decisional process for implementation in in preparation and will be submitted to the Federal Government after a national consultation procedure. This process will also define the steps for site selection. Belgium has the intention to launch the site selection process without delay.
How does Belgium ensure that all facilities involved in managing spent nuclear fuel and radioactive waste comply with the requirements of the Joint Convention, especially those not directly involved in the nuclear fuel cycle but still handling radioactive waste?	See JC Report. Legal and Regulatory Framework: The Law of 11-01-1995 governs the management of radioactive waste and spent nuclear fuel. It requires operators of facilities that handle such waste to ensure that safety standards are met and to report on their activities. SRNI-2011 outlines the specific regulatory measures for the storage and disposal of radioactive waste, including compliance with intenrational conventions like the JC. Licensing and Oversight: see the role and durites of FANC. Facilities involved in handling radioactive waste must obtain a license from FANC. This includes facilities not directly involved in the nuclear fuel cycle (hospitals, universities, ..). FANC additionally conducts inspections of these facilities to ensure that meet national and international safety standards. Waste Managament Plans and Reporting: FANC can require facilities to provide with the waste management plans andradioactive waste inventory, for example. Public Safety and Environemental Protection: EIA is required to assess the potantial impact on public health and the environement. THis is in line with the JC emphasis on protecting human health and the environement from the risks associated with radioactive waste. FANC monitor facilities (environmental monitoring).
How does Belgium ensure that human and financial resources are sufficient to meet the long-term needs of radioactive waste management?	See JC Report. F.2 Article 22 – Human and financial resources. Additionally, the IRRS team considered that the main challenge in Belgium is to identify and ensure the necessary competences and adequate financial resources of the regulatory body due to the evolving nuclear energy policy in the country.

Question / Comment	Answer
What criteria does Belgium use to determine the suitability of sites for new radioactive waste management facilities?	Although a site selection process does not exist in the current regulatory framework, site-specific aspects are to be addressed during the licensing process of new radioactive waste management facilities. For example, local meteorological, geological and demographic data are required to be included in the license application and are assessed.
Regarding the decommissioning plan, how does Belgium determine the amount of technical liability costs and the expected end-state conditions?	The amount of technical liability costs is not determined by Belgium as such, it is the nuclear operator's responsibility. However, the Nuclear provision Commission is charged to control, every three years, the evaluation of these costs and to assess the calculation methodology as well. During the last control of the Nuclear Provision Commission, the methodology used for the decommissioning of the nuclear facilities was based on probabilistic methods. A liability was derived through the difference between the best estimate and the P50 of the evaluated costs, to wich a Risk and Opportunity derived probability was added. The licensee proposes in his decommissioning plan the intended end-state and measures how to arrive to this end-state. The end-state can be e.g. brown field, green field.
What measures are in place to ensure the continued safe operation of aging facilities in Belgium?	All nuclear operators in Belgium comply to regulatory requirements regarding ageing management by implementing ageing management programs at their sites, to monitor and manage ageing of equipment and installations. FANC and Bel V periodically inspect these programs to ensure their effectiveness. This aspect is also verified during the decennial periodic safety reviews.
Please explain on what "the designation of spent fuel for disposal" means/ consists of. If this process of designation is on-going how the inventory/capacity of the future geological disposal facility is assessed?	Currently, only the spent fuel from the research reactor Thetis is declared as radioactive waste to NIRAS/ONDRAF and conditioned by Belgoprocess. In the deep geological disposal programme both scenarios (disposal of spent fuel or disposal of reprocessed waste) are considered. This indeed has a large influence on the inventory/capacity of the future geological disposal
Page 20, "Until ONDRAF/NIRAS takes charge 15 of spent fuel from commercial nuclear power plants and research reactors in the form of reprocessing waste or as radioactive waste, the spent fuel is managed by its owners16 (figure 4), SYNATOM and SCK CEN respectively..." Could you clarify the role of SYNATOM and SCK CEN After ONDRAF/NIRAS charge of the spent fuel, in regards of ownership of the spent fuel? Is it still SYNATOM and SCK CEN?	In case the spent fuel is declared as waste, there is a transfer of management responsibility towards NIRAS/ONDRAF (see p.52). Similarly, NIRAS/ONDRAF receives the management responsability of the spent fuel in case of acceptance as 'enriched fissile materials, plutonium-bearing materials and irradiated fuel' (see 2nd bullet of The Article 179 of the Law of 8 August 1980 on page 42). The legislative changes described in footnote 4 do not fundamentally change this.

Question / Comment	Answer
How often are local authorities and the public involved in periodic off-site emergency drills?	The annual schedule of nuclear exercises provides for one large-scale exercise per year, during which the local authorities are fully involved. The communication with the public is tested as regularly as possible, in particular by sending out Be Alert messages and ensuring that the authorities' messages and recommendations are properly understood. Involving the public has been a major focus for a number of years in the organisation of nuclear emergency exercises and we are considering how to involve them even more in future exercises.
Is there an update to the implementation of the contractual and legislative dispositions of the agreement between the Belgian Government and the NPP operator, ENGIE Electrabel?	The general information on the agreement between the Belgian government and the NPP operator Engie Electrabel can be found in the report. More detailed information on the implementation and the reformation of the nuclear lanscape in Belgium following the law of 26 April 2024 will be provided during the national presentation on the review meeting
"In 2019-2020, ONDRAF/NIRAS produced a roadmap of the programme for geological disposal of the B&C waste. In line with the reference scenario of obtaining a licence in 2050 it describes the broad lines of actions needed in the time frame 2021-2050. Exact timings will depend on different milestones that typically coincide with decisions that need to be taken by the government." "The current disposal programme of ONDRAF/NIRAS for high-level and long-lived waste and spent fuel is a programme of methodological research and development. Its prime aim is to investigate whether it is feasible, both technically and financially, to design and build on Belgian territory a deep geological disposal facility for the considered waste that is safe, without prejudgment on the site where such a solution would actually be implemented. The actual siting of such a disposal facility will become a central element of a next phase of the disposal programme, after the necessary policy decisions for geological disposal (the first one was adopted in 2022 and sets forth that geological disposal is the final solution for B&C waste, without fixing any site). Proposed disposal facilities for these kinds of waste are thus in a R&D stage of development, and not yet in siting nor licensing phase. The definition of schedules, for RD&D and for the post-closure phase itself, is premature. However, according to ONDRAF/NIRAS provisional plan, the license for construction and operation of the GDF is assumed to be granted in 2050 and the operational and closure phases should last 85 years." How and when is the site selection process of a geolocial disposal facility of the B&C waste defined? What kind of milestones are foreseen until license for a construction	Hedera has to provision for all the costs under its responsibility. Therefore they will become responsible for a part of the nuclear provisions that were under Synatom's responsibility (costs for the site after 2050, including the spent fuel management). In addition, in case they become responsible for the state's Nuclear liabilities, they would also become responsible for the provisions related to the cost to complete for the dismantling of the nuclear site and for the waste inventory related to these liabilities. As a member of the Commission for Nuclear Provision with a consultative voice, and as a safety authority, FANC will provide the Commission with an advice during the review of Hedera's provision by the Commission. A first policy decision on deep geological disposal was taken in 2022. A second policy decision on the decisional process for implementation is in preparation and will be submitted to the Federal Government after a national consultation procedure. This process will also define the steps for site selection and the modalities for public participation along the entire process.

Question / Comment	Answer
and operation of a geolocial disposal facility of the B&C waste? How will be the public involved in the siting process?	

Question / Comment	Answer
"Herewith, a public body "Hedera" will be created to manage the 15 billion Euros that ENGIE will pay to the Belgian state to cover the costs of nuclear waste management (the "cap"). The nuclear operator will, after the transfer of the waste to Belgian state under the condition of conformity of the radioactive waste and spent fuel with the applicable transfer criteria, be completely and definitively (although under certain conditions) exempted from obligations relating to the management of radioactive waste and spent nuclear fuel and will no longer be financially responsible for these obligations. The financial obligations would be from that moment the responsibility of the Belgian state. In addition, the funds to cover the clean-up of the historical (before 1988) nuclear liabilities of the Belgoprocess, SCK CEN and IRE sites will be transferred to Hedera. Every five years, starting in 2024, ONDRAF/NIRAS will have to submit a plan to Hedera for approval, detailing the activities, resources and investments required, and their costs. Prior to approval of the plan, advice has to be asked to the Nuclear Provisions Commission (CPN). Within this five-year plan, a detailed annual plan from ONDRAF/NIRAS for the following calendar year will also need to be submitted to Hedera and approved, under a similar scheme." What is the Nuclear Provisions Commission reviewing for Hedera and how is FANC involved in this process?	The Nuclear Provisions Commission is responsible for monitoring the establishment of adequate provisions for the costs to be borne by the organism as a result of the transferred financial obligations, as well as the existence, management, adequacy and availability of the assets intended to cover these costs. The Director General of the FANC or his delegate may attend in an advisory capacity. Art.59 of the Law of 26 April 2024 ("Hedera"-law) Law of 12 July 2022 related to the strengthening the framework applicable to provisions made for the decommissioning of nuclear power plants and the management of spent fuel
Has all the spent fuel from Belgium that was stored on the La Hague site been returned to Belgium?	Related to the contract of the reprocessing of the spent fuel from the commercial NPPs everything is returned to Belgium. For BR2 reprocessing waste corresponding with ~4 ton fuel has been returned to Belgium.
Are there additional requirements for the packages with respect to aging coming from the storage facilities?	All nuclear operators in Belgium comply to regulatory requirements regarding ageing management by implementing ageing management programs at their sites, to monitor and manage ageing of equipment and installations. In addition, there is a license condition for the SF^2 dry spent fuel storage facilities requiring that the ageing management programme covers also the spent fuel casks.
What is the intension of the 9 free positions to assure mitigation actions? Are there any prepared documents and is this area a part of the storage hall?	After an accidental event, safety functions may be affected. Remedial measures may be necessary to return to a state where these safety functions are again guaranteed. This requirement for 9 free positions allows for recovering the casks and to return to a state where these safety functions are once again guaranteed. The measures are described in operational procedures on site. This area is part of the storage hall.

Question / Comment	Answer
Belgium has excellent and exemplary waste management and treatment facilities. Still, there is no (deep geological) repository, as suitable space in Belgium is limited: Are there any plans to cooperate with other countries to dispose spent fuel? Please specify.	No, there are no active plans for cooperation with another country. However, following the public debate, Belgium has been asked to participate more actively in the ERDO project in order to promote cooperation on multinational repositories. For the sake of completeness, it should also be mentioned that an international agreement already exists between Belgium and the Grand Duchy of Luxembourg for the disposal of waste in Belgium (but no spent fuel).
What strategies does Belgium have to increase public acceptance of nuclear waste management projects?	Public acceptance is gained by using effective participation. This is for example put in practice by the establishement of local partnerships for the category A project, crucial for maintaining local support for the surface disposal and the national debate in preparation of the second part of the national policy on the long-term management of B&C - waste. Also the communication centre Tabloo plays a central in this effective participation.
Could Belgium provide a more consolidated inventory of its spent fuel (incl. reprocessed fuel) for the entire country, including details on quantities and storage locations? In the current report this information appears to be dispersed, presented with varying levels of detail and formatted in different formats.	1) Spent fuel from commercial NPP: Total: 4904 tHM including 66 tHM MOX fuel; 672 tHM of this total has been reprocessed in the past; stored at the site of the NPPs in wet and dry storage facilities 2) Spent fuel from research reactors: BR1: 29 tHM; still in the reactor at SCK CEN BR2:+-2500 assemblies; will be reprocessed (already partly the case) BR3: 2,4 tHM (in storage at Belgoprocess, awaiting long-term management policy) Venus fuel in storage at SCK CEN Thetis: conditioned and stored at Belgoprocess in 7 400L drums
We understand that Royal Decrees are being prepared, including one on the general rules for establishing waste acceptance criteria and another on the modalities of the waste acceptance system. Could you provide a timeline for these developments? Will other countries also be engaged in the context of possible future cooperation?	The draft Royal Decree on the general rules for establishing waste acceptance criteria will be submitted to the Federal Government for final approval in 2025. The timeline for the Royal Decree on the modalities of the waste acceptance system is not yet determined, because of the priority given to the transfer system for the radioactive waste and spent fuel from the Nuclear Power Plants (Phoenix deal and law). The waste acceptance system is currently solely linked to national waste management facilities, but in case of possible future collaborations the engagement of other countries for integrating national waste acceptance systems will have to be planned.

Question / Comment	Answer
Could you clarify the responsibilities of ONDRAF/NIRAS, NPPs, SYNATOM, SCK CEN and Hedera regarding the management of spent fuel? Maybe a more detailed figure 2 (including the names of the parties, also of Hedera), could enhance clarity. Is it correct that Synatom is owner of the spent fuel of NPPs and is responsible for the management and safe storage of spent fuel, but is not the license holder for the storage of spent fuel (see B.4.2.b and figure 8)?	Currently Synatom is the owner of the SF of the commercial NPP's and SCK CEN is the owner of the spent nucldear fuel from the research reactors. Synatom is responsable for the safe storage and the conditioning of the fuel. Engie Electrabel is the operator/licensee for both the commercial NPPs and the storage buildings where the SF is stored awaiting further management. In case the spent fuel is declared as waste, there is a transfer of management responsability to NIRAS/ONDRAF. With the law of 26 April 2024 the nucleair landscape in Belgium is changed, more information on this will be provided in the presentation of Belgium during the review meeting. See also question 34504 (Netherlands) and 33449 (Switzerland)
The National Report states that the SF2 buildings are the first facilities designed on the basis of technical guidance from the Federal Agency for Nuclear Control from 2017, which then became a technical regulation document in 2021. Please elaborate on the specific changes/additions made from 2017 to 2021 in the transition from guidance to regulation. In addition, please explain what the design extension accidents A and B are (i.e., new safety objective defined in EC directive 2014/87/Euratom).	The technical regulation is largely similar to the preceeding guidance. The main changes that were implemented are: 1) a slight modification to quantified safety objective nr.2 to make it conistent with the emergency intervention definition from which it is derived and 2) allowing for a recategorization of external hazard graded approach category 4 to 3 on the basis of a less conservative analysis since this is consistent with the typical practises for design extention conditions. DEC-A are accidents more severe than design basis accidents for which fuel damage, or more generally large source term mobilisation, can be prevented. DEC-B are severe accidents for which fuel damage is postulated. These relate to respectively the "prevention of progression" and "mitigation of consequences" that together form art. 8b 1.(e) introduced by EC directive 2014/87/Euratom. A more extensive discussion on DEC-A and DEC-B is available in the WENRA RHWG guidance on issue F.
The National Report states, "In May 2018 SRNI-2011 was extended to include a chapter 4 on the specific safety requirements for spent nuclear fuel and radioactive waste storage facilities." In what/which area was improvement needed and what changes were made to the safety requirements?	This Royal Decree aims at introducing an additional chapter entitled “Specific safety requirements for waste and spent fuel storage facilities” in the SRNI-2011. This Decrees transposes quite literally the safety reference levels of the WENRA's Working Group on Waste and Decommissioning (WGWD) related to waste and spent fuel storage into the Belgian regulations. The scope of this royal decree is however larger than the WENRA reference levels as it is not limited to storage of conditioned waste

Question / Comment	Answer
Are ONDRAF/NIREX and FANC involved in qualification of conditioned waste packages resulted from treatment and conditioning process/ still under R&D/R&I status (i.e. not industrial demonstrated, yet)? On what their involvement in these preliminary steps before industrial deployment consists of? Furthermore, in case of alternative treatment and conditioning methods for same waste stream are researched is Ondraf/Nirex involved in decision process for the best technically available technology vith the view of disposal?	Qualification of conditioning processes is the responsibility of NIRAS/ONDRAF. Qualification is based on acceptance criteria that are established by NIRAS/ONDRAF, on the basis of the established 'General Rules'. FANC, by law is responsible to provide its advice on the proposals for General Rules and new or revised acceptance criteria (see art. 15quater and art. 15quinquies of the FANC Law of 15 april 1994). FANC and NIRAS/ONDRAF have regular meetings to inform each other on the status and planning of the acceptance criteria , and of new waste treatment processes that are envisaged. NIRAS/ONDRAF only grants qualifications to treatment and conditioning processes for which its operators demonstrated that the resulting conditioned waste packages fully comply with the waste acceptance criteria drawn-up by NIRAS/ONDRAF. The operator has to demonstrate this compliance on basis of a fully operational treatment and processing facility. This so called Industrial Demonstration Phase is an integral part of this qualification process. When developing a new treatment and conditioning process, waste producers involve NIRAS/ONDRAF in the decision making process at a very early stage. This involvement allows all stakeholders to anticipate the compliance of the resulting conditioned waste packages with the waste acceptance criteria. The qualification process consists of the following main stages: a. Introduction of a formal request for a qualification, issued by the waste producer. This request also includes the qualification file. Baseline of this qualification file is a comprehensive demonstration that the resulting waste packages will fully comply with the waste acceptance criteria. b. Analysis of the qualification file, carried out by NIRAS/ONDRAF. The results of this analysis are documented by NIRAS/ONDRAF in a formal report that will be send to the waste producer. If the analysis is satisfactory, NIRAS/ONDRAF will send a formal letter of approval to the waste producer. This letter informs the waste producer that the following stage of the qualification process, i.e. an inspection, will be initiated. c. Inspection, carried out by NIRAS/ONDRAF, of the process described in the qualification file. This inspection may be carried out in the presence of the FANC which then acts as an observer. NIRAS/ONDRAF will document the results of the inspection in a formal report which will be send to the waste producer. This inspection must lead to a satisfactory result before the last stage of the qualification process is initiated. d. Granting of the qualification.

Question / Comment	Answer
In what way the reprocessing of spent fuel from power reactors is still under consideration/ supported in Belgium, including from financing mechanism point of view? What were the factors influencing the decision for only disposal of spent fuel in Belgium mentioned in G8 ?	Since 2022, the reference program of Synatom, the owner of the fuel, is indeed direct disposal. This decision was financially driven, with a trade-off between the costs associated with reprocesssing and the costs associated with the disposal itself. With the Phoenix agreement, the spent fuel will be transferred to the Belgian State at the latest in 2050 who will decide on its future management. FANC Law, Law of 15 April 1994 NIRAS Law, artikel 179 of the Law of 8 August 1980