



IGSC Safety Case Symposium 2024
Moving towards the construction of a safe DGR –
Getting real

8-10 October 2024
Optional Site tour: 11 October 2024

Hosted by PURAM

PROVISIONAL AGENDA

Practical information

The Meeting will be taking place in Budapest, Hungary

For further information:

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The symposium webpage:

[Nuclear Energy Agency \(NEA\) - Safety Case Symposium 2024: Moving towards the construction of a safe DGR – Getting real](#)

PROGRAMME

(Please note this programme is subject to change)

Symposium Chairs: IGSC co-Chairs Manuel Capouet (Ondraf/Niras, Belgium) and Ulrich Noseck (GRS, Germany)

MONDAY 7 OCTOBER 2024 17:30-18:30		
MEETING OF THE YOUNG PROFESSIONAL NETWORK REPRESENTATIVES First in-person meeting of nominated young professionals who contributed to symposium planning Chairs: Julie Brown, Lucy Bailey and Sylvie Voinis		
DAY 1 TUESDAY 8 OCTOBER 2024		
SESSION 1 – OPENING REMARKS Chairs: Manuel Capouet and Ulrich Noseck		
8:30	1.1	Welcome from PURAM <i>Managing Director, PURAM</i>
8:40	1.2	Welcome from the NEA <i>William. D. Magwood IV, Director-General, NEA (TBC)</i>
8:50	1.3	Welcome from the Symposium co-chairs and IGSC activities <i>Manuel Capouet and Ulrich Noseck, Symposium co-Chairs</i>
SESSION 2 – KEYNOTE LECTURE: SAFETY CASE DEVELOPMENT IN HUNGARY Chairs: Manuel Capouet and Ulrich Noseck		
9:00	2.1	The role of the safety case in the implementation of the Hungarian national programme <i>Balint Nos, PURAM (Hungary)</i>
SESSION 3 – ROLE & EVOLUTION OF THE SAFETY CASE WHEN MOVING TO IMPLEMENTATION Chairs: Ann-Kathrin Leuz, Thomas Kämpfer Rapporteur: Thomas Kämpfer		
9:30	3.1	Use of the performance assessment at WIPP over time <i>Tom Peake, US-EPA (USA)</i>
9:50	3.2	The safety case at the time of implementation and authorisation of a DGR: experience from Finland <i>Barbara Pastina et al., Posiva Oy (Finland)</i>
10:10	3.3	From construction towards operation – Regulatory perspective to deep geological disposal in Finland <i>Jarkko Kyllönen et al., STUK (Finland)</i>
10:30	COFFEE BREAK (30 min)	
11:00	3.4	Preparing the safety case for technology authorisation and co-existence with site investigations, construction and operation <i>Johannes Johansson & Allan Hedin, SKB (Sweden)</i>
11:20	3.5	Submission of the application for authorisation to create Cigéo the result of “one generation study”: where do we come from? where do we stand?

		<i>Sylvie Voinis et al., ANDRA (France)</i>
11:40	3.6	Lessons learned from Cigéo licensing process in France <i>Olivier Lareynie et al., ASN (France)</i>
12:00	3.7	Questions & Answers <i>Audience</i>
12:40	LUNCH BREAK (80 min)	
SESSION 4 – RETURN OF EXPERIENCES FROM NUCLEAR FACILITIES TO DGR Chairs: Sylvie Voinis, Philipp Herold		
14:00	4.1	KEYNOTE LECTURE 1 -TBC <i>Gerard Bruno, IAEA</i>
14:20	4.2	KEYNOTE LECTURE 2 - Learning from experiences in mining <i>Jonathan Kindlein, BGE (Germany)</i>
14:40	4.3	Development of the safety case for nuclear installations <i>John Nakoski et al. (NEA Division of Nuclear Safety Technology and Regulation)</i>
15:00	4.4	Role of the safety case for the LILW repository in Loviisa, Finland <i>Olli Nummi, Fortum Power & Heat Oy, Espoo (Finland)</i>
15:20	4.5	Study of operational safety designs and assessment: lessons learnt from NUMO safety case <i>Satoru Suzuki et al. NUMO (Japan)</i>
15 :40	4.6	Operational safety and safety assessment – Lessons learnt from the operation of existing facilities <i>Philipp Herold et al. BGE (Germany)</i>
16:00	4.7	Questions & Answers <i>Audience</i>
16:15	COFFEE BREAK (30 min)	
SESSION 5 – YOUNG PROFESSIONAL SESSION Chairs: Julie Brown, Lucy Bailey, Sylvie Voinis		
16:45	5.1	Knowledge transfer and career development in the safety case community <i>Lucy Bailey, Lucia Gray, NWS (UK)</i>
17:05	5.2	Lessons learnt on the management of risks and uncertainties in the post-closure safety assessment and the use of Features Events & Processes (FEPs) in a top-down approach <i>Nicolas Bruyer et al., Andra (France)</i>
17:25	5.3	Lessons learned on competence building from EURAD and looking forward to EURAD2 <i>Niels Belmans , EURAD</i>
17:45	5.4	Panel <i>Julie Brown, Lucy Bailey, Sylvie Voinis, Christophe Depaus, Niels Belmans</i>
18:05 END OF DAY 1		
GALA DINNER		

DAY 2 - WEDNESDAY 9 OCTOBER 2024						
SESSION 6 - PARALLEL SESSIONS						
		SESSION 6.1 – REGULATOR, IMPLEMENTER AND STAKEHOLDER DIALOGUE Chairs: Lucy Bailey, Jens Mibus Rapporteur: TBC	SESSION 6.2 – DISPOSAL OF UNCONVENTIONAL & LEGACY WASTE Chairs: Manuel Capouet, Virginie Wasselin Rapporteur: Peter Molnar	SESSION 6.3 – UPDATES FROM NATIONAL PROGRAMMES AND SAFETY CASES Chairs: Sylvie Voinis, Ulrich Noseck Rapporteur: Joe Rustick		
08:30	6.1-1	Stakeholder interaction: lessons learned by the state regulator of the waste isolation pilot plant <i>Megan McLean, New Mexico Environment Department (USA)</i>	6.2-1	Questions raised by the management of “in-between waste”: challenging issues in application of the graded approach in France <i>Virginie Wasselin, et al., Andra (France)</i>	6.3-1	Development of a site-specific safety case for a Canadian deep geological repository for used fuel <i>Mark Gobien, NWMO (Canada)</i>
08:50	6.1-2	An “out-of-the-box” look into scenarios <i>Jarmo Lehtikoinen, et al., STUK (Finland)</i>	6.2-2	IAEA technical publication on the challenges and options for the disposal of reactor graphite waste <i>Karina Lange, IAEA</i>	6.3-2	Preliminary considerations on integrated safety case development during the construction of Beishan URL in China <i>Xudong LIU, Ju WANG, Beijing Research Institute of Uranium Geology (China)</i>
09:10	6.1-3	The meanings of “safety” <i>Stephan Hotzel & Martin Navarro, BASE (Germany)</i>	6.2-3	UK experience in enabling optimisation of site end-states and radioactive waste management <i>Juliet Long, NDA (UK)</i>	6.3-3	A Dutch rock salt conditional safety & feasibility study <i>Jeroen Bartol, et al., COWRA (Netherlands)</i>
09:30	6.1-4	Optimising the safety case based on input from outside the safety case community – can it work? <i>Klaus J. Röhligh, et al., TU-Clausthal (Germany)</i>	6.2-4	Technical and regulatory considerations in the long-term management of unconventional and legacy radioactive waste <i>David Esh, Christopher McKenney, US NRC (USA)</i>	6.3-4	The status of, and challenges to, developing safety cases for disposal of spent nuclear fuel and high-level radioactive waste in the United States <i>Bret W. Leslie & Chandrika Manepally, U.S. Nuclear Waste Technical Review Board (USA)</i>
09:50	6.1-5	Shaping a generic roadmap for regulator-implementer dialogue in licensing deep geological repositories (DGRs) <i>Julie Brown et al., CNSC (Canada)</i>	6.2-5	Outcomes of the graded approach group <i>Cyril Hemery et al., ANDRA (France)</i>	6.3-5	Post-closure safety in site-evaluation - UK GDF programme <i>Sarah Vines & Kurt Smith NWS (UK)</i>
10:10	6.1-6	Questions & Answers with audience	6.2-6	Questions & Answers with audience	6.3-6	Questions & Answers with audience
10:25	COFFEE BREAK (20 min)					

SESSION 7 - PARALLEL SESSIONS						
	SESSION 7.1 – SAFETY ASSESSMENT AND RESEARCH DEVELOPMENT & DEMONSTRATION Chairs: Manuel Capouet Rapporteur: Johan Anderson		SESSION 7.2 – WASTE FROM NEXT GENERATION REACTORS Chairs: Tom Peake, Ulrich Noseck Rapporteur: Emily Stein		SESSION 7.3 – SAFETY CASE: MOVING FORWARD IN THE FACE OF UNCERTAINTY Chairs: Frederic Bernier, Doug Ilett	
10:45	7.1-1	Regulatory research on copper corrosion processes in the context of a Canadian used fuel canister design, for deep geological disposal <i>Colleen O. Harper, et al., CNSC (Canada)</i>	7.2-1	Overview presentation on TRISO, metallic fuel and their wastes, molten salt <i>Edward Matteo, SNL (USA)</i>	7.3-1	A systematic approach to scenario development for long-term safety assessments for a high-level waste (HLW) repository concept in German crystalline rock <i>Andree Lommerzheim et al., BGE-Tec(Germany)</i>
11:05	7.1-2	Containment performance analysis for the surface repository at Dessel, Belgium <i>Elise Vermariën et al. , ONDRAF/NIRAS (Belgium)</i>	7.2-2	Potential packaging options for advanced reactor spent nuclear fuel <i>Gordon Petersen, INL (USA)</i>	7.3-2	Methodology of scenario development for risk assessment of a deep geological repository for high-level radioactive waste in Korea <i>Jaehyeon Yang, et al., KHU (Korea)</i>
11:25	7.1-3	EURAD-GAS: Overview of knowledge gained on gas transport in clayey materials <i>Severine Levasseur et al., EURAD</i>	7.2-3	The assessment of disposability of GenIV reactor waste to the Finnish HLW repository ONKALO and brief overview on EURAD activities <i>Paula Keto et al., VTT (Finland)</i>	7.3-3	Analysis of safety attributes of potential host rocks for geological disposal of ILW and HLW <i>Christoph Depaus & Hervé Van Baelen, ONDRAF-NIRAS (Belgium)</i>
11:45	7.1-4	Development of an integrated realistic radionuclide migration model for the entire geological disposal system <i>Keisuke Ishida, et al. NUMO (Japan)</i>	7.2-4	Approaches being used in SFWST to evaluate the back-end of the fuel cycle aspects for the potential advanced reactor SNF <i>Dave Sassani, SNL (USA)</i>	7.3-4	Sensitivity analyses in safety assessments for geologic disposal facilities: an international collaboration <i>Emily Stein, et al., SNL (USA)</i>
12:05	7.1-5	Study of hydrological conditions at the geosphere-biosphere interface and development of alternative models for biosphere assessment – a regulatory perspective <i>Shulan Xu, et al., Xu Environmental Consulting AB (Sweden)</i>	7.2-5	Dry Storage of spent TRISO fuel – 30 years of experience <i>Linus Bettermann, GNS (Germany)</i>	7.3-5	GeneSiS: Moving from generic to site-specific safety cases <i>Lucia Gray et al. NWS (UK)</i>
12:25	7.1-6	Questions & Answers with audience	7.2-6	Questions & Answers with audience	7.3-6	Questions & Answers with audience
12:40	LUNCH BREAK (80 min)					

14:00	6.2.7	Rapporteur + Expert 1 panel parallel session A (Unconventional and legacy waste) <i>Participants: TBC</i>
14:45	7.2.7	Rapporteur + Expert 2 panel parallel session B (Waste from new technologies) <i>Participants: Edward Matteo (SNL), Dave Sassani (SNL), Gordon Petersen (NL), Linus Bettermann (GNS), Timothy Schatz (VTT, TBC)</i>
15:30	COFFEE BREAK (20 min)	
SESSION 8: DERIVATION AND MANAGEMENT OF CRITERIA AND REQUIREMENTS Chairs: Thomas Kämpfer, Klaus J. Röhlig		
15:50	8.1	Keynote Lecture - Interaction between safety analysis and technical requirements <i>Jonathan Kindlein, Matthias Mohlfeld, BGE mbH (Germany)</i>
16:20	8.2	Importance of the interaction between developing the safety case and requirements management in the 'design for safety' process for disposal solutions – a summary of work performed within EURAD, taking advantage of the collaboration with the NEA / IGSC <i>Piet Zuidema, EURAD</i>
16:40	8.3	Nagra's safety argumentation for the general licence application for the Swiss deep geological repository <i>Priska Hunkeler, et al. Nagra (Switzerland)</i>
17:00	8.4	Repository construction and safety assessment – towards a holistic approach. IGSC's MeSA-2 initiative <i>Klaus J. Röhlig et al., TU-Clausthal (Germany)</i>
17:20	8.5	Questions & Answers <i>Audience</i>
SESSION 9 –IDKM Chairs: Alex J. Carter, Doug Ilett Rapporteur: Stephan Hotzel, TBC		
17:40	9.1	Keynote Lecture Advances in data management technology: transferring the benefits from big tech to the nuclear knowledge management domain <i>James Grover, Solutions Architect, Capgemini</i>
18:10	END OF DAY 2 presentations	
18:10-21:10	Poster Session & Reception	

DAY 3		
THURSDAY 10 OCTOBER 2024		
SESSION 9 – IDKM (continued)		
Chairs: Alex J. Carter, Doug Illett		
08:30	9.2	The IDKM Working Party <i>Alexander J. Carter (IDKM WP Chair)</i>
08:50	9.3	Experiences on the preservation of essential information, data and knowledge gathered throughout repository implementation and operation <i>Ulrich Noseck, et al. (EGAR)</i>
09:10	9.4	Digital Safety Cases: Digital approaches to managing safety case documents, data, and models <i>Alexander J. Carter et al. NWS (UK)</i>
09:30	9.5	Designing a knowledge management approach for the French DGR project “Cigéo” to be integrate’ with Andra’s organisational strategy for the preservation and transmission of key knowledge over time <i>Vincent. Maugis, et al.,. Andra (France)</i>
09:50	9.6	The Children of Atom – using terrestrial or extraterrestrial legacy arks as part of multi-modal semiotic strategy to communicate with the future <i>Muhammad Haroon Bilal Ali Khan, Leiden University (Netherlands)</i>
10:10	9.7	Questions & Answers <i>Audience</i>
10:30	COFFEE BREAK (20 min)	
SESSION 10 – WRAP-UP AND CLOSING OF SYMPOSIUM		
Symposium co-Chairs: Manuel Capouet and Ulrich Noseck		
10:50	10.1	Feedback from Parallel Session rapporteurs (6 x 7,5 minutes per Session Rapporteur) <i>Session Rapporteurs</i>
11:50	10.2	Feedback from young professionals <i>Rapporteurs from young professionals network</i>
12:10	10.3	Final Discussion <i>Audience</i>
12:30	10.4	Closing Remarks of the Symposium co-Chairs
12h40 SYMPOSIUM ADJOURN		

POSTER SESSION	
SESSION 4: LEARNING FROM OPERATING DISPOSAL FACILITIES (OPTIMISATION, OPERATIONAL SAFETY)	
P4.1	A study of operational safety countermeasures and risk assessment for the waste transport systems using shaft and straight ramp <i>Tetsuhiro ICHIMURA, et al., NUMO (Japan)</i>
P4.2	Demonstrating long-term environmental safety of on-site disposals: experience from the TRAWSFYNYDD MAGNOX reactor site <i>Christopher M. Herbert, et al., GSL (UK)</i>
P4.3	Activities within the Expert Group on operational safety (EGOS) <i>Philipp Herold et al. BGE (EGOS chair)</i>
SESSION 5: YOUNG GENERATION NETWORK	
P5.1	Supporting and developing the next generation of young professionals at Nuclear Waste Service <i>Danielle Jackson & Celia Wighton, NWS (UK)</i>
P5.2	Microbial consumption of geological disposal facility (GDF) in lower strength sedimentary rocks and implications for long-term GDF performance <i>Bethan Payne, NWS (UK)</i>
P.5.3	The management of risks and uncertainties in the post-closure safety assessment and the use of FEP's in a top-down approach <i>Buryer Nicolas, Andra (France)</i>
SESSION 6.1: REGULATOR, IMPLEMENTOR AND STAKEHOLDER DIALOGUE	
P6.1.1	Long-term information preservation and the safety case, a litmus test of the influence of social science on the licencing process? <i>Carl-Henrick Petterson, SSM (Sweden)</i>
P6.1.2	Expert Advisory Panel and its activities in the final site selection process in the Czech Republic <i>Markéta Dohnálková, SÚRAO (Czechia)</i>
P6.1.3	Development of new Swedish regulations for nuclear safety and radiation protection in connection with geological disposal of spent nuclear fuel and other radioactive wastes <i>Bo Strömberg, SSM (Sweden)</i>
P6.1.4	Decisional reversibility and technical retrievability for a geological disposal : ethical issues <i>Christophe Depaus, ONDRAF/NIRAS & Céline Kermisch, University of Brussels (Belgium)</i>
P6.1.5	The French summary memory file for the Manche repository: combining stakeholder dialogue and expertise to meet safety related regulatory requirements <i>Florence. Poidevin, Andra (France)</i>
SESSION 6.3: UPDATES OF NATIONAL PROGRAMMES AND SAFETY CASES	
P6.3.1	Developing a safety case for a low-level radioactive waste disposal facility <i>Robert Kingsbury & Michael Labriola, CNL (Canada)</i>
SESSION 7.1: SAFETY ASSESSMENT AND RESEARCH DEVELOPMENT & DEMONSTRATION	
P7.1.1	IGSC GeneSiS safety function/concept catalogue <i>Tom Peake et al., (GeneSiS project)</i>
P7.1.2	Updating of the safety case for surface and near-surface radioactive waste repositories in operation (Richard, Bratrství and Dukovany) - part of the safety assessments, partial outputs 2022-2024 <i>Milan Touš et al. SÚRAO (Czechia)</i>
P7.1.3	Performance assessment for the Czech concept of a spent fuel waste disposal package <i>Zdena Lahodová, et al., SÚRAO (Czechia)</i>
P7.1.4	Geologic disposal safety assessment (GDSA) framework: an open-source software toolkit <i>Heeho Park & David Fukuyama, US-DOE (USA)</i>
P7.1.5	An alternative conceptual model for radiolysis effects on chemical conditions in salt repositories <i>Anderson Ward, US-DOE (USA)</i>
P7.1.6	Quality assurance methods in safety assessment <i>Slimane Doudou, Mark Crawford, GSL (UK) and Manuel Capouet, Ondraf/Niras (Belgium)</i>

P7.1.7	IGSC MeSA-2 results: Process view and evolution along a disposal programme <i>Lucy Bailey, (MeSA 2-project)</i>
P7.1.8	Actinide sorption on iron: considerations for safety cases in salt repositories <i>Jay Santillan, US-DOE & Janet Schramke, BSC&A Arlington (USA)</i>
P7.1.9	Overview of Canada's independent and strategic regulatory research on geological disposal <i>Jeremy Rimando et al., CNSC, (Canada)</i>
P7.1.10	Is illitization a safety concern for bentonite backfilled Engineered Barrier System for a repository of high-level radioactive waste? <i>Liange Zheng US-DOE (USA)</i>
P7.1.11	Semi-probabilistic radiological consequence analysis <i>László Molnár, et al., PURAM (Hungary)</i>
P7.1.12	Geosphere model calibration in safety assessment based on detailed site-specific data <i>Gyola Danko et al. PURAM (Hungary)</i>
P7.1.13	Application of machine learning for a systematic simplification process of realistic 3D radionuclide migration model for post-closure safety assessment <i>Takafumi Hamamoto NUMO (Japan)</i>
SESSION 7.3: SAFETY CASE: MOVING FORWARD IN THE FACE OF UNCERTAINTY	
P7.3.1	The role of a probabilistic uncertainty and sensitivity analysis in the Safety case for the Loviisa LILW repository 2018 <i>Frans Jansson, Fortum Power & Heat Oy, Espoo, (Finland)</i>
P7.3.2	From generic to site-specific safety cases: development of topic specific guidance <i>Ulrich Noseck, et al. (GeneSiS project)</i>
P7.3.3	Reducing key safety case uncertainties in a multibarrier system with poorly indurated clay and concrete <i>Erika Neeft, et al., COVRA (Netherlands)</i>
P7.3.4	Human intrusion scenarios in the safety case: comparing and contrasting repositories in crystalline rock versus sedimentary basins <i>Jonathan Major, US-DOE (USA)</i>
P7.3.5	Scenario Development: A systematic approach to scenario development and assessment <i>Oliver Hall et al., NWS (UK)</i>
P7.3.6	GeneSiS and EGSSC: developing a safety case ontology <i>Lucia Gray (NWS), et al. (GeneSiS project chair)</i>
P7.3.7	RPPCR PA based sensitivity calculation – sampling of uncertain parameters <i>Xinyue Tong &, Tom Peake, US-EPA (USA)</i>
P7.3.8	Enhancing decision-making in the site selection process for a deep geological repository in Germany: An application of the Analytic Network Process (ANP) decision technique <i>Hajar El Fatihi et al. RWTH-Aachen (Germany)</i>
P7.3.9	Inadvertent human intrusion: Applying the HIDRA methodology <i>Oliver Hall (NWS), Tim Hicks (GSL), Sally Scourfield (GSL), Slimane Doudou (GSL) and Lucy Bailey (NWS)</i>
P7.3.10	Human reliability in the German site selection for a nuclear waste repository <i>Fabian Fritsch, Oliver Sträter, University of Kassel (Germany)</i>
SESSION 8: DERIVATION AND MANAGEMENT OF CRITERIA AND REQUIREMENTS	
P8.1	An integrated approach to environment, safety, security and safeguards (E3S) and the role of requirements in safety led design <i>Tom Jackson-Burton et al. NWS (UK)</i>
P8.2	IGSC MeSA-2 results: Information flow when producing a safety case and design requirements <i>Jonathan Kindlein et al., BGE (Germany)</i>
P8.3	Hierarchical safety function system to derive design criteria <i>Zoltán Bóthi, WSP Hungary Consulting Zrt.(Hungary)</i>
SESSION 9: IDKM	
P9.1	Set of Essential Records (SER) - A mechanism to preserve essential information about a repository to future generations <i>Jozsef Fekete et al. (EGAR)</i>