



## **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)

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

<b>DAY 1</b>		
<b>TUESDAY 9 OCTOBER 2024</b>		
<b>SESSION 1 – OPENING REMARKS</b>		
<b>Chairs: Manuel Capouet and Ulrich Noseck</b>		
8:30	1.1	<b>Welcome from PURAM</b> <i>Managing Director, PURAM</i>
8:40	1.2	<b>Welcome from the NEA</b> <i>William. D. Magwood IV, Director-General, NEA (TBC)</i>
8:50	1.3	<b>Welcome from the Symposium co-chairs and IGSC activities</b> <i>Manuel Capouet &amp; Ulrich Noseck, Symposium co-Chairs</i>
<b>SESSION 2 – KEYNOTE LECTURE: SAFETY CASE DEVELOPMENT IN HUNGARY</b>		
<b>Chairs: Manuel Capouet and Ulrich Noseck</b>		
9:00	2.1	<b>The role of the safety case in the implementation of the Hungarian national programme</b> <i>Balint Nos, PURAM (Hungary)</i>
<b>SESSION 3 – ROLE &amp; EVOLUTION OF THE SAFETY CASE WHEN MOVING TO IMPLEMENTATION</b>		
<b>Chairs: Ann-Kathrin Leuz, ThomasKaempferR</b>		
9:30	3.1	<b>Use of the performance assessment at WIPP over time</b> <i>Tom Peake, US-EPA (USA)</i>
9:50	3.2	<b>The safety case at the time of implementation and authorisation of a DGR: experience from Finland</b> <i>Barbara Pastina et al., Posiva Oy (Finland)</i>
10:10	3.3	<b>From construction towards operation – Regulatory perspective to deep geological disposal in Finland</b> <i>Jarkko Kyllönen et al., STUK (Finland)</i>
10:30	<b>COFFEE BREAK (30 min)</b>	
11:00	3.4	<b>Preparing the safety case for technology authorisation and co-existence with site investigations, construction and operation</b> <i>Johannes Johansson &amp; Allan Hedin, SKB (Sweden)</i>
11:20	3.5	<b>Submission of the application for authorisation to create Cigéo the result of “one generation study”: where do we come from? where do we stand?</b> <i>Sylvie Voinis et al., ANDRA (France)</i>
11:40	3.6	<b>Lessons learned from Cigéo licensing process in France</b> <i>Olivier Lareynie et al., ASN (France)</i>
12:00	3.7	<b>Questions &amp; Answers</b> <i>Audience</i>
12:40	<b>LUNCH BREAK (80 min)</b>	

SESSION 4 – RETURN OF EXPERIENCES FROM NUCLEAR FACILITIES TO DGR		
Chairs: Sylvie Voinis, Philipp Herold		
14:00	4.1	<b>KEYNOTE LECTURE 1</b> <b>TBC</b> <i>Gerard Bruno, IAEA</i>
14:20	4.2	<b>KEYNOTE LECTURE 2</b> <b>Learning from experiences in mining</b> <i>BGE (Germany) (TBC)</i>
14:40	4.3	<b>Development of the safety case for nuclear installations</b> <i>John Nakoski et al. (NEA Division of Nuclear Safety Technology and Regulation)</i>
15:00	4.4	<b>Role of the safety case for the LILW repository in Loviisa, Finland</b> <i>Olli Nummi, Fortum Power &amp; Heat Oy, Espoo (Finland)</i>
15:20	4.5	<b>Study of operational safety designs and assessment: lessons learnt from NUMO safety case</b> <i>Satoru Suzuki et al. NUMO (Japan)</i>
15 :40	4.6	<b>Operational safety and safety assessment – Lessons learnt from the operation of existing facilities</b> <i>Philipp Herold et al. BGE (Germany)</i>
16:00	4.7	<b>Questions &amp; Answers</b> <i>Audience</i>
16:15	<b>COFFEE BREAK (30 min)</b>	
SESSION 5 – YOUNG PROFESSIONAL SESSION		
Chairs: Julie Brown, Lucy Bailey, Sylvie Voinis		
16:45	5.1	<b>Knowledge transfer and career development in the safety case community</b> <i>Lucy Bailey, Lucia Gray, NWS (UK)</i>
17:05	5.2	<b>Lessons learnt on the management of risks and uncertainties in the post-closure safety assessment and the use of FEP's in a top-down approach</b> <i>Nicolas Bruyer et al., Andra (France)</i>
17:25	5.3	<b>Experiences from EURAD ...</b> <i>Seif BEN HADJ HASSINE , EURAD (TBC)</i>
17:45	5.4	<b>Panel</b> <i>Julie Brown, Lucy Bailey, Sylvie Voinis, Christophe Depaus, Seif Ben Hadj Hassine</i>
<b>18:05</b>	<b>END OF DAY 1</b>	
<b>GALA DINNER</b>		

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

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

14:00	6.2.7	<b>Rapporteur + Expert 1 panel parallel session A (Unconventional and legacy waste)</b> <i>Participants: TBC</i>
14:45	7.2.7	<b>Rapporteur + Expert 2 panel parallel session B (Waste from new technologies )</b> <i>Participants: Edward Matteo (SNL), Dave Sassani (SNL), Gordon Petersen (NL), Linus Bettermann (GNS), Timothy Schatz (VTT, TBC)</i>
15:30	<b>COFFEE BREAK (20 min)</b>	
<b>SESSION 8: DERIVATION AND MANAGEMENT OF CRITERIA AND REQUIREMENTS</b> Chairs: Thomas Kämpfer, Klaus J. Röhlig		
15:50	8.1	<b>KEYNOTE LECTURE</b> <b>REQUIREMENT MANAGEMENT SYSTEMS ...</b> <i>TBD</i>
16:20	8.2	<b>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</b> <i>Piet Zuidema, EURAD</i>
16:40	8.3	<b>Nagra's safety argumentation for the general licence application for the Swiss deep geological repository</b> <i>Priska Hunkeler, et al. Nagra (Switzerland)</i>
17:00	8.4	<b>Repository construction and safety assessment – towards a holistic approach. IGSC's MeSA-2 initiative</b> <i>Klaus J. Röhlig et al., TU-Clausthal (Germany)</i>
17:20	8.5	<b>Questions &amp; Answers</b> <i>Audience</i>
<b>SESSION 9 –IDKM</b> Chairs: Alex J. Carter, Doug Ilett		
17:40	9.1	<b>Keynote Lecture</b> <b>Advances in data management technology: transferring the benefits from big tech to the nuclear knowledge management domain</b> <i>James Grover, Solutions Architect, Capgemini</i>
<b>18:10</b>	<b>END OF DAY 2 presentations</b>	
<b>19:00-22:00</b>	<b>Poster Session</b>	

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

POSTER SESSION	
SESSION 4: LEARNING FROM OPERATING DISPOSAL FACILITIES (OPTIMISATION, OPERATIONAL SAFETY )	
P4.1	<b>A study of operational safety countermeasures and risk assessment for the waste transport systems using shaft and straight ramp</b> <i>Tetsuhiro ICHIMURA, et al., NUMO (Japan)</i>
P4.2	<b>Demonstrating long-term environmental safety of on-site disposals: experience from the TRAWSFYNYDD MAGNOX reactor site</b> <i>Christopher M. Herbert, et al., GSL (UK)</i>
P4.3	<b>Activities within the Expert Group on operational safety (EGOS)</b> <i>Philipp Herold et al. BGE (EGOS chair)</i>
P4.4	<b>Operational safety and safety assessment – lessons learnt from the operation of existing facilities</b> <i>Philipp Herold et al. (EGOS Chair)</i>
SESSION 5: YOUNG GENERATION NETWORK	
P5.1	<b>Supporting and developing the next generation of young professionals at Nuclear Waste Service</b> <i>Danielle Jackson &amp; Celia Wighton, NWS (UK)</i>
P5.2	<b>Microbial consumption of geological disposal facility (GDF) in lower strength sedimentary rocks and implications for long-term GDF performance</b> <i>Bethan Payne, NWS (UK)</i>
P.5.3	<b>The management of risks and uncertainties in the post-closure safety assessment and the use of FEP's in a top-down approach</b> <i>Buryer Nicolas, Andra (France)</i>
SESSION 6.1: REGULATOR, IMPLEMENTOR AND STAKEHOLDER DIALOGUE	
P6.1.1	<b>Long-term information preservation and the safety case, a litmus test of the influence of social science on the licencing process?</b> <i>Carl-Henrick Petterson, SSM (Sweden)</i>
P6.1.2	<b>Expert Advisory Panel and its activities in the final site selection process in the Czech Republic</b> <i>Markéta Dohnálková, SÚRAO (Czech Republic)</i>
P6.1.3	<b>Development of new Swedish regulations for nuclear safety and radiation protection in connection with geological disposal of spent nuclear fuel and other radioactive wastes</b> <i>Bo Strömberg, SSM (Sweden)</i>
P6.1.4	<b>Decisional reversibility and technical retrievability for a geological disposal : ethical issues</b> <i>Christophe Depaus, ONDRAF/NIRAS &amp; Céline Kermisch, University of Brussels (Belgium)</i>
P6.1.5	<b>The French summary memory file for the Manche repository: combining stakeholder dialogue and expertise to meet safety related regulatory requirements.</b> <i>Florence. Poidevin, Andra (France)</i>
SESSION 6.3: UPDATES OF NATIONAL PROGRAMMES AND SAFETY CASES	
P6.3.1	<b>Developing a safety case for a low-level radioactive waste disposal facility</b> <i>Robert Kingsbury &amp; Michael Labriola (CNL)</i>
Session 7.1: Safety assessment and research development & demonstration	
P7.1.1	<b>IGSC GeneSiS safety function/concept catalogue</b> <i>Thomas Peake et al., (GeneSiS project)</i>
P7.1.2	<b>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</b> <i>Eva Popelová &amp; Tomáš Vrba SÚRAO (Czech Republic)</i>



P7.1.3	<b>Performance assessment for the Czech concept of a spent fuel waste disposal package</b> <i>Zdena Lahodová, et al., SÚRAO (Czech Republic)</i>
P7.1.4	<b>Geologic disposal safety assessment (GDSA) framework: an open-source software toolkit</b> <i>Heeho Park &amp; David Fukuyama, US-DOE (USA)</i>
P7.1.5	<b>An alternative conceptual model for radiolysis effects on chemical conditions in salt repositories</b> <i>Anderson Ward, US-DOE (USA)</i>
P7.1.6	<b>Quality assurance methods in safety assessment</b> <i>Slimane Doudou, et al., GSL (UK),</i>
P7.1.7	<b>IGSC MeSA-2 results: Process view and evolution along a disposal programme</b> <i>Lucy Bailey, (MeSA 2-project)</i>
P7.1.8	<b>Actinide sorption on iron: considerations for safety cases in salt repositories</b> <i>Jay Santillan, US-DOE &amp; Janet Schramke, BSC&amp;A Arlington (USA)</i>
P7.1.9	<b>Overview of Canada's independent and strategic regulatory research on geological disposal</b> <i>Jeremy Rimando et al., CNSC, (Canada)</i>
P7.1.10	<b>Is illitization a safety concern for bentonite backfilled Engineered Barrier System for a repository of high-level radioactive waste?</b> <i>Liang Zheng US-DOE (USA)</i>
P7.1.11	<b>Semi-probabilistic radiological consequence analysis</b> <i>László Molnár, et al., PURAM (Hungary)</i>
P7.1.12	<b>Geosphere model calibration in safety assessment based on detailed site-specific data</b> <i>Gyola Danko et al. PURAM (Hungary)</i>
P7.1.13	<b>Application of machine learning for a systematic simplification process of realistic 3D radionuclide migration model for post-closure safety assessment</b> <i>Takafumi Hamamoto NUMO(Japan)</i>
<b>SESSION 7.3: SAFETY CASE: MOVING FORWARD IN THE FACE OF UNCERTAINTY</b>	
P7.3.1	<b>The role of a probabilistic uncertainty and sensitivity analysis in the Safety case for the Loviisa LILW repository 2018</b> <i>Frans Jansson, Fortum Power &amp; Heat Oy, Espoo, (Finland)</i>
P7.3.2	<b>From generic to site-specific safety cases: development of topic specific guidance</b> <i>Ulrich Noseck, et al. (GeneSiS project)</i>
P7.3.3	<b>Reducing key safety case uncertainties in a multibarrier system with poorly indurated clay and concrete</b> <i>Erika Neeft, et al., SCK-CEN (Belgium)</i>
P7.3.4	<b>Human intrusion scenarios in the safety case: comparing and contrasting repositories in crystalline rock versus sedimentary basins</b> <i>Jonathan Major, US-DOE (USA)</i>
P7.3.5	<b>Scenario Development: A systematic approach to scenario development and assessment</b> <i>Oliver Hall et al., NWS (UK)</i>
P7.3.6	<b>GeneSiS and EGSSC: developing a safety case ontology</b> <i>Lucia Gray (NWS), et al. (GeneSiS project chair)</i>
P7.3.7	<b>RPPCR PA based sensitivity calculation – sampling of uncertain parameters</b> <i>Xinyue Tong &amp; Tom Peake, US-EPA (USA)</i>
P7.3.8	<b>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</b> <i>Hajar El Fatihi et al. RWTH-Aachen (Germany)</i>
P7.3.9	<b>Inadvertent human intrusion: Applying the HIDRA methodology</b> <i>Oliver Hall (NWS), Tim Hicks (GSL), Sally Scourfield (GSL), Slimane Doudou (GSL) and Lucy Bailey (NWS)</i>
<b>SESSION 8: DERIVATION AND MANAGEMENT OF CRITERIA AND REQUIREMENTS</b>	

P8.1	<b>An integrated approach to environment, safety, security and safeguards (E3S) and the role of requirements in safety led design</b> <i>Tom Jackson-Burton et al. NWS (UK)</i>
P8.2	<b>IGSC MeSA-2 results: Information flow when producing a safety case and design requirements</b> <i>Jonathan Kindlein et al., BGE (Germany)</i>
P8.3	<b>Hierarchical safety function system to derive design criteria</b> <i>Zoltán Bóthi, WSP Hungary Consulting Zrt.(Hungary)</i>
<b>SESSION 9: IDKM</b>	
P9.1	<b>Set of Essential Records (SER) - A mechanism to preserve essential information about a repository to future generations</b> <i>Jozsef Fekete et al. (EGAR)</i>