



NEA Symposium
on
Information, Data and Knowledge Management
for
Radioactive Waste and Geological Disposal
CONCEPT PAPER

7-9 October 2025

Optional site visit to Fukushima (pre-registration required) on 10 October 2025

Venue: Pacifico Yokohama Conference Center, Yokohama, Japan

1. Background

Radioactive waste emerges from a diverse range of sources, spanning the entire nuclear fuel cycle and various applications in industry, medicine, defense, and research. Regardless of whether a nuclear fuel cycle is closed or open, the waste requires interim storage before its ultimate placement in a deep geological repository. Throughout this complex lifecycle, an extensive volume of data and information is generated. Recognizing the challenges of managing this critical information, many countries are now investigating the development of a digital safety case—an innovative approach to comprehensively tracking and documenting radioactive waste management processes.

Nuclear power generation facilities operate over multiple decades, while nuclear waste disposal sites have even more extended timelines. This longevity presents complex challenges that stretch across several generations of workers and technological developments. Maintaining comprehensive and structured records becomes crucial—not just of the waste itself, but also of its packaging, processing, and management strategies. These detailed records serve a critical purpose: they ensure that future decision-makers can effectively manage the hazards associated with nuclear waste throughout its entire lifecycle. Moreover, the nuclear waste management community now recognizes the importance of developing strategies that preserve awareness of waste repositories and disposal facilities over extremely long periods.

Technological advances have simultaneously simplified and complicated this challenge. On one hand, modern technologies enable the generation and querying of vast amounts of data with unprecedented ease, provided the information is appropriately structured. On the other hand, these same technologies introduce new complexities, such as the risk of digital obsolescence, which can threaten long-term information preservation.

The key lies in creating robust, adaptable documentation systems that can withstand technological shifts and generational changes, ensuring critical knowledge about nuclear waste management remains accessible and comprehensible for decades—and potentially centuries—to come.

In 2020, the OECD Nuclear Energy Agency (NEA) established the Working Party on Information, Data and Knowledge Management (WP-IDKM) to coordinate these activities in a more holistic way, considering cross discipline and cognoscente of all timescales of the information cycle. WP-IDKM was established in the footsteps of the former NEA initiative on the Preservation of Records, Knowledge and Memory (RK&M) from 2011-2018.

WP-IDKM is comprised of three Expert Groups covering the structuring of data, information and knowledge when developing a safety case, knowledge management across generations, archiving, and long-term awareness preservation.

In recent years, there have been significant developments in IDKM, both relating specifically to the field of radioactive waste and in other fields. The NEA Symposium on IDKM for Radioactive Waste and Geological Disposal will provide a forum to discuss these advancements, and further develop the holistic vision on IDKM practise for radioactive waste.

It is expected that the Symposium will bring together technical and non-technical staff, policy and decision makers, and interested parties.

2. Objectives

The objectives of this symposium are to:

- Provide a forum for the IDKM working party and its expert groups to present their work;
- Allow member countries to present their internal work and to understand what others are doing;
- Increase the understanding of stakeholder groups and RWMO's in this important topic and allow for dialogue and feedback;
- Bring together IDKM specialists from inside and outside the nuclear field to understand the state of the art and allow horizon scanning;
- Provide an opportunity for networking and knowledge exchange;

- Build an international consensus on IDKM best practices for radioactive waste management and disposal;
- Develop a holistic vision of IDKM across technical and non-technical stakeholders over all timescales; and,
- Identify any outstanding work items and challenges on IDKM which would benefit from future international collaboration.

3. Audience

The symposium will appeal to individuals and organisations interested in how effective IDKM can benefit radioactive waste management and disposal. This includes technical staff in implementing organisations charged with the creation and digitisation of safety cases, data and information management, archiving, knowledge management and stakeholder communication. For individuals not part of a radioactive waste management organisation (RWMO), interested parties could include; policy makers, regulators, IT professionals, national archivists and social scientists involved in communicating information over extended timescales.

Recent experience has indicated significant public interest in long-term awareness preservation and future literacy suggesting *potential* journalist and media interest in the symposium.

In light of this diverse audience, presentations will focus on high-level concepts and their applicability.

4. Programme Committee

Organisation of the symposium will be carried out by a Programme Committee (PC) of 10-15 people, including representatives of the NEA Secretariat, the IDKM Working Party, its Expert Groups, and other NEA groups (e.g. the Forum for Stakeholder Confidence). Members of the Programme Committee are listed in Table 1.

The PC will meet at regular intervals to plan the Symposium and develop the programme, identify speakers and produce the Symposium report.

Table 1: Symposium Programme Committee Members

Name	Affiliation
Vincent Maugis	ANDRA, France
Panja Feuker	BGE, Germany
Stephan Hotzel	BASE, Germany

Ulrich Noseck	GRS, Germany
József Fekete	RHK, Hungary
Takeshi Ebashi	NUMO, Japan
Carl-Henrick Pettersson	SSM, Sweden
Pascale Jana Künzi	BFE, Switzerland
Alexander Carter	NWS, United Kingdom
Russell Chris Camphouse	SNL, United States
Alyssa Clark	LANL, United States
Shogo Nishikawa	NEA
Linda Okpala	NEA
Morgan Packer	NEA
Rebecca Tadesse	NEA

5. Format

This symposium will be held in-person at the Pacifico Convention Centre in Yokohama, Japan from 7-9 October 2025 with a site visit held on 10 October 2025 to Fukushima.

The programme will be broken into a number of sessions covering the major themes in IDKM for radioactive waste. There will be a mixture of invited and non-invited presentations, together with panel discussions as outlined in *draft* in Section 6. In addition, a poster session will be included within the programme.

A call for abstracts will be launched by NEA in December 2024 for non-invited posters/presentations with interested parties asked to submit short 300 to 500-word abstracts, together with any preference for session and format (presentation or poster). Abstracts will be reviewed by the PC for the non-invited presentations and those accepted added to the final programme. In addition, the PC will consider making direct invitations for keynote presentations.

Accepted abstract submissions will be asked to submit 3–7-page papers in advance of the Symposium (29 August 2025) for each poster or presentation. These papers will then be collated and published as a record of the Symposium in an NEA publication.

Registration fees

- 350 EUR for general registration
- 175 EUR for early career professionals (under the age of 30 and <5 years experience)

Approximate key dates

- Announcement of the conference (October 2024)
- Registration opens (November 2024)
- Call for abstracts opens (2 December 2024)
- Submission of Abstracts closes (3 March 2025)
- Notification to authors of abstracts for acceptance of presentation/poster (~early April 2025)
- Issue of final programme (May 2025)
- Submission of papers (3-7 pages) for accepted abstracts (29 August 2025)
- End of registration (7 September 2025)
- Conference (7-9 October 2025)
- Symposium Report Published (~Q2 2026)

6. Programme Overview

The conference will be broken into a number of sessions which will be fully developed by the Programme Committee (PC), spanning 3 conference days (7-9 October 2025) with a site visit held to Fukushima Daiichi NPP on the last day, 10 October 2025. Each session will be Chaired (e.g. by members of the PC) and split into 4-5 presentations of 20-30 minutes duration, with time also allocated for clarifying questions from the audience. The working language will be English.

The programme outlined below is intended for *illustration only* and it is emphasised that the PC will develop the final programme.

Day 1

- Registration
- Session 1: Introduction
- Session 2: Keynote lecture on Japanese programme
- Session 3: Stakeholder needs for IDKM, regulatory & policy makers' perspective

- *Who are IDKM stakeholders? How do they differ over time? How can IDKM practices help them? How is evolving technology affecting information exchange?*
- *What do existing policies/regulations say on IDKM? How do we align policy with need? What role can international bodies play? How should long timescales be accommodated?*
- Panel discussion: How can we consider all relevant needs when forming IDKM strategies?

Lunch

- Session 3: Structuring information in a safety case & the digital safety case
 - *How can formal ontologies help to understand and preserve the understanding of information? What is the role of requirement management systems?*
 - *What is a digital safety case and what are its potential benefits? What does the path look like to migrate to a digital SC?*
- World cafe: The role of technology in IDKM
 - *What future technologies are on the horizon and how may they benefit RWMOs? How can AI help preserve nuclear information? Does the advent of more powerful systems and cloud computing change the expectations of a safety case? What can be learned from other industries?*
 - *How should RWMO's adapt to the rapidly changing field of technology?*

Day 2

- Session 6: Keynote lecture
- Session 7: Knowledge management
 - *How to establish strategies to support the sharing and preservation of knowledge across generations of workers?*
 - *How to determine which knowledge is critical to the organisation?*
 - *How to integrate a knowledge management approach with existing organisational processes? How to develop staff practices so that they manage knowledge as an integral part of their activity?*
- Session 8: Archiving
 - *What do archivists wish authors of records had considered? What are the best strategies to treat legacy records? What is the Set of Essential records and why is it important? How do we address digital obsolescence as input data becomes more coupled and complex?*

- Panel discussion: How can IDKM professionals most effectively work in collaboration with RWM staff (e.g. knowledge holders, authors, record creators and owners of safety cases, waste inventory records, site characterization data, operational records, and human aspects)?

Lunch

- Session 9: Futures literacy
 - *What is futures literacy and how can it help RWMO's to develop their long-term IDKM strategies?*
- Session 10: Long-term awareness preservation techniques
 - *What is the awareness preservation toolbox? What role can international institutions play? What can we learn from the past?*
- Panel discussion: how should the future influence decisions taken in the present?
- Session 11: poster session

Day 3

- Session 12: Building a holistic vision for IDKM
- Session 13: The role of technology in IDKM
- Symposium Conclusions

7. Contacts and Related Links

For more information regarding this document, please contact the NEA Secretariat (Morgan.Packer@oecd-nea.org and Linda.Okpala@oecd-nea.org)