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SNL Document #	SAND2019-nnnn R
Work Breakdown Structure:	1.08.01.03.07 – DR International Disposal Coordination - SNL
Work Package #	SF-19SN01030702
Quality Rigor Level	QRL4
Milestone #	M4SF-19SN010307022
Milestone Title	*Report on the Status of the SFWST Campaign International Activities in Disposal Research at SNL*

The following summaries are provided as fulfillment of milestone M4SF-19SN10307022 and represent international coordination activities in disposal research funded by the US DOE Spent Fuel and Waste Storage and Technologies (SFWST) Campaign during Fiscal Year 2019.

SFWST funded bi-lateral interactions with Taiwan

TECRO-AIT Joint Standing Committee Meeting on Civil Nuclear Cooperation (JSCCNC), Savannah River National Laboratory, November 5-7, 2018.

SNL researcher attended these meetings on behalf of DOE, SFWST. The SNL researcher participated in information exchanges within working group 2, "*Waste Management and Environmental Restoration*", all having to do with the back end of the commercial nuclear fuel cycle.

TECRO appreciates the assistance of AIT. Many of the cooperative items have been progressing successfully. Following detailed discussions, both sides agreed to keep 17 items going.

The following commitments for the 17 items to keep ongoing are were made at the end of the working group meeting:

1. **Licensing of Independent Spent Fuel Storage Installations:** FCMA proposes to invite 2 NRC experts holding a workshop in Oct. 2019.
2. **PCC (Plutonium Canister Counter) for Material Declaration of TRR Spent Fuel:** TECRO will convey the technical details of the project to the IAEA.
3. **Peer Review of National Report of Taiwan for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management:** FCMA is revising the Chinese version of the National Report. It will be finished by the end of 2019.
4. **Safeguards Cooperation on Stabilizing INER Water Boiling Reactor (WBR) fuel:** INER continues to assess BPCC as a candidate method for WBR's safeguards, which may request LANL assistance as appropriate.
5. **Technical Information and Experience Exchange for Spent Nuclear Fuel Disposal:** No planned activity for 2019 but keep open in the event assistance is needed.
6. **Cooperation on Stabilization of Water Boiling Reactor (WBR) fuel stored at INER:** Paul Dickman will provide contact personnel from ANL to TECRO for further information exchange.
7. **Radiological Assessment of High Level Waste and Spent Nuclear Fuel:** AIT and TECRO confirms cooperation on linking RESRAD-OFFSITE and HYDROGEOCHEM codes for radiological assessment of disposal of high level waste and spent nuclear fuel. Prof. Yeh (National Central University (NCU)) will discuss with Dr. Charley Yu about linking these two codes in detail.
8. **Management of Decommissioning Waste:** To facilitate the management of decommissioning waste, FCMA hopes that NRC could consider the possibility to arrange an on-the-job training at certain decommissioning NPPs in 2019.
9. **Information Transfer on Decontamination and Dismantling of Research Nuclear Facilities**: INER begins to perform Dry Storage Pit cleanup engineering in 2019. TRR decommissioning will produce graphite waste. The INER proposes to continue information exchange with ORNL and PNNL on the graphite waste of D&D.
10. **Irradiated Fuels and Materials research Program from 2014 to 2020:** INER expects that a subsequent arrangement of "Irradiated Fuels and Materials Research Program from 2020 to 2026" will be drafted and proposed for approval before the end of the current research program.
11. **Safety approaches for Low Level Radwaste on topics regarding classification, treatment and final disposal:** TPC requests for information on the topics about the management of spent ion-exchange resins (SIR) in U.S., information including but not limited to the treatment, stabilization, interim storage, disposal of SIR and specific container for SIR storage and disposal. TECRO contacted Dr. Yifeng Wang on Oc. 2018 at SNL and are awaiting response. McMahon will follow up with Dr. Wang.
12. **Public Participation:** TPC appreciated to get the report of 2017 survey of public perception of nuclear facilities committed by Kevin McMahon. TPC would like to learn from the DOE any good example of successful public participation which has contributed to the execution of public affairs.
13. **Geological repository Sciences:** TPC and INER will visit Sandia National Laboratories (SNL) in December 2018, to discuss the strategies of integration of numerical models and their applications. SNL accepted with the date of Dec. 4-5, 2018.
14. **Share Experiences and Information on Volume Reduction and Downgrade Technologies for TRU Radwaste:** INER requests to share experience and treatment processes of a pressure excursion that resulted in the breach of the drum lid, which happened on April 11, 2018 in Accelerated Retrieval Project V facility of the Department of Energy's Radioactive Waste Management Complex (RWMC).

15. **Share Experiences and Information on Contaminated Soil Remediation:** INER requests information related to soil remediation at Hanford or the Columbia River from PNNL for activities similar to the remediation needs of INER. Hsien-Ming-Hsiao will provide a detailed request. Dawn Wellman and Hsien-Ming Hsiao were assigned as contact personnel.
16. **Investigate Behavior of UNF storage system:** INER staffs plan to attend the ESCP spring meeting and UFMC in 2019. Ms. Sylvia Saltzstein of SNL is put in contact with Taiwan attendees of ESCP for further and future storage collaboration.
17. **Depleted uranium hexafluoride and Enriched uranium hexafluoride stabilization and disposition:** Coordinator was changed to Alex Burkart, DOS.

The next set of bilateral meetings are planned for December 2019 In Taiwan.

OECD-NEA Repository Metadata (RepMet) project

OECD Nuclear Energy Agency (NEA) launched the Radioactive Waste Repository Metadata Management initiative (RepMet) in 2014 under the auspices of the Integration Group for the Safety Case (IGSC) technical body. RepMet's goal is to recommend sets of metadata that can be used by national radioactive waste repository programs to manage their data, information, and records thereof, in a way that is both harmonized internationally and suitable for long-term management and utilisation, e.g., in safety cases. Furthermore, the initiative that involves over ten different countries' programs is working on the formulation of a consistent set of guiding principles for capturing and generating metadata, recommending a shortlist of selected relevant standards and guidelines on international good practices.

RepMet developed libraries across three disciplines relevant to radioactive waste management. The libraries are shown in the table below, together with the corresponding disciplines and topics.

Disciplines	RepMet Libraries	Topics
Geoscience	*Site Characterisation Library*	Geological and geophysical characterization of the repository site.
Radioactive Waste Management	*Waste Package Library*	Packaged waste and spent nuclear fuel ready for final disposal at the repository.
Engineering	*Repository Library*	Repository requirements and structure at closure.

NEA Radioactive Waste Management Committee (RWMC) has demonstrated commitment in this area. Under its auspices, the Expert Group on Waste Inventorying and Reporting Methodology (EGIRM), the Radioactive Waste Repository Metadata Management (RepMet) initiative and the Preservation of Records, Knowledge and Memory (RK&M) across Generations initiative have developed valuable products related to Information, Data and Knowledge Management (IDKM) within the field of radioactive waste management (RWM). Following the successful completion of these initial activities, the RWMC is considering the creation of a new working group dedicated to IDKM in the RWM field. This would extend the objectives of the previous groups to holistically cover all RWM phases *from*

cradle to grave while preserving the awareness of disposed wastes and its repository for future generations. To that end, a IDKM workshop took place on 22-24 January 2019 in the NEA offices in Boulogne-Billancourt (Paris), France.

IDKM Workshop Scope:

RWMC organized the IDKM workshop with the following scope:

- to advertise and present publicly the outcomes and results of the EGIRM, RepMet and the RK&M groups;
- to further explore the current needs, expectations and challenges in the IDKM area for radioactive waste management organizations (RWMOs), regulators and other stakeholders;
- to develop recommendations for RWMC in the definition and planning of future NEA activities in the area of IDKM

The workshop was open to IDKM specialists in RWM and non-RWM fields, including engineers and scientists in RWMOs involved with data and information management, and knowledge managers and social scientists involved with knowledge management on extended timescales (up to hundreds of years).

The program committee included:

CARTER, Alexander	RWM (UK)	KWONG, Gloria	NEA
CIAMBRELLA, Massimo	NEA	LEBEDEV, Vladimir	NEA
DUMONT, Jean-Noël	ANDRA (FR)	LI, Jinfeng	NEA
FEKETE, József l.	PURAM (HU)	MCMAHON, Kevin	SNL (US)
GARAMSZEGHY, Mike	NWMO (CA)	TUNBRANT, Sofie	SKB (SE)
JO, Ayoung	NEA	VOLCKAERT, Geert	FANC (BE)

The IDKM workshop was structured into six sessions. Each session had a chair and included time for a summary discussion.

1. Outcomes of recent RWMC initiatives in IDKM
2. IDKM in NEA member countries and international activities
3. Technical aspects of IDKM for RWM: New approaches and technologies
4. Social/human aspects of IDKM for RWM
5. Roadmap for future RWMC activities in IDKM following a holistic approach
6. Conclusions and recommendations for RWMC

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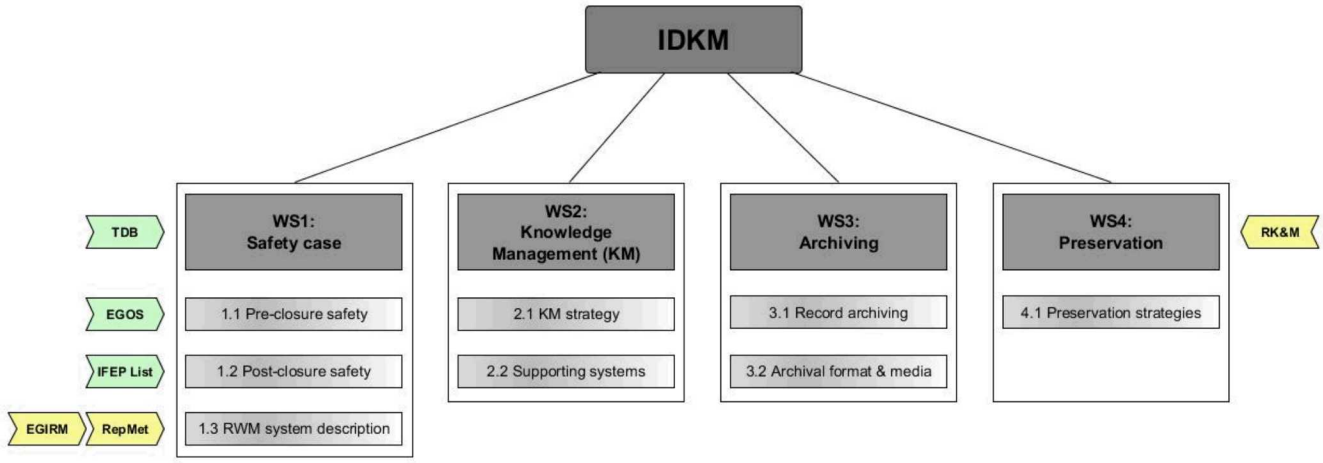
Future efforts in this area are currently being developed, but it is anticipated that IDKM will become a working party under RWMC and address at least four identified areas (as shown below):



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