

**WM2026 Theme:  
“Efficient and Innovative Nuclear Materials and Technology Solutions”**

Listed below are the proposed topics for the Waste Management 2026 Symposium (WM2026). The topics are grouped by the 11 primary WM tracks plus a twelfth track for unassigned abstracts. If you can identify the relevant Track but not a specific topic for your subject, assign it to the primary track number as a non-specified abstract (1, 2, 3, 4, etc.). If the primary tracks do not cover your topic or you are unsure of the correct topic assignment, designate it for Topic #12.0. The Program Advisory Committee (PAC) Chair reassigns the abstracts in Topic #12.0 to the most appropriate topic listed in one of the other eleven tracks.

Track 1	Crosscutting Policies and Programs	(CPP)	Page 2
Track 2	High-Level Radioactive Wastes, Spent Nuclear Fuel/Used Nuclear Fuel (SNF/UNF) and Long-Lived Alpha/Transuranic Radioactive Waste	(HLW)	Page 10
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Track 12	Miscellaneous: Unassigned & Late Abstracts, & Non-Paper Posters	(MISC)	Page 46

The topics listed below fall into the following two main categories: Open – (Accepts abstracts from all authors and sources and does not have an “R” prefix) or Restricted – (For topics where only the designated Organizers solicit and pre-designate the abstracts or presenters). These topics are prefixed with an “R” and are not open to all authors. Unless specifically directed by the Lead Organizer or an Organizer of that Topic, do not submit your abstract to a topic number with the prefix “R.”

Abstracts submitted for the topics listed below may result in four different types of sessions: Oral, Poster, Panel or Roundtable. Unless noted otherwise in the topic description or designated by the author, all the abstracts received are considered for an oral session but may be reviewed and assigned to another type of session.

- **Oral sessions** require an accompanying paper and typically include a 20-minute PowerPoint presentation with five additional minutes allotted for questions and answers for a total scheduled time of 25 minutes. Theatre seating with a head table for Co-chairs is the normal room layout.
- **Poster sessions** require an accompanying paper, unless in Track 12, and require a poster displayed for 3-1/2 hours during the session. The author must be present at the poster during two periods, ½ hour period at the front and a 1-hour period at the end.
- **Panel sessions** may or may not require a paper and the presentation type and length is specified by the Lead Organizer. The focus is to convey the latest information and promote discussion and debate among the panelists. Theatre seating with a head table for panelists is the room layout.
- **Roundtable sessions** may or may not require a paper and the presentations type and length is specified by the Lead Organizer. The focus is to promote extensive discussion with the audience and is a smaller audience than that for a panel. Tables forming a U is the room layout.

**Track Co-Chair** – An experienced PAC member determined by PAC policies to co-manage a WM Track. One Co-chair is designated as the “Lead” for that year and communicates with the other Co-Chairs, the Lead Organizers and the PAC Chair on the Track’s status.

**Lead Organizer** - A PAC member who sponsors a Topic. The Lead Organizer provides guidance and direction to the Organizers and assures compliance with all PAC Policies and follows the Topic through to Session formation in September at the Program Development Meeting (PDM).

**Organizer** - A PAC or non-PAC member who receives prior approval of the appropriate Track Co-Chairs and/or PAC Chair to develop a WM Topic and assist in session and program development. The Organizer communicates frequently with the Lead Organizer. When someone accepts the position as Organizer or Lead Organizer for an oral or poster Topic that means that volunteer is agreeing to solicit at least three abstracts for the topic. Organizers and Lead Organizers should remind the author, when submitting their abstract online, to put the Organizer’s name if they were solicited and to submit their abstract by the deadline. WM recognizes the most active Organizers.

For more information on any topic, contact either the relevant Organizers or Track Co-Chairs listed below or:

Gary Benda, WM2025 PAC Chair, V: 803-345-2170, [gbenda@wmsym.org](mailto:gbenda@wmsym.org)

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Acronyms approved for WM2026 abstracts, papers, posters and PowerPoint presentations are listed at the end of this document.

## **1 - CROSSCUTTING POLICIES AND PROGRAMS**

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Ray Clark, Retired EPA (Co-Chair), V: +1 202-329-5683, [197.clark@gmail.com](mailto:197.clark@gmail.com)

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This Track includes overall crosscutting policies and major programs. Similar topics that are not Track crosscutting and thus specific to a single waste type (e.g. HLW, SNF, LLW, etc.) or program (e.g. ER, D&D, etc.) should be submitted to the specific Track for that waste type or program. Presentations of waste management programs and policies at the national, multi-national and international level are particularly encouraged. Other potential crosscutting or general topics include crosscutting regulatory issues, contracting, legal aspects, permitting (licensing) and compliance activities, criteria and standards development, privatization issues, legislation, enforcement agency and state issues (including multiparty agreements), interface, and other high-level crosscutting issues that involve multiple waste types/programs or Tracks.

### **1.00 Crosscutting Policies and Programs - Non-specified Abstracts**

#### **Lead Organizer:**

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### **1.01 (No Poster Session for Track 1)**

Track 1 transfers all abstracts received in this Topic into other Tracks.

#### **Lead Organizer:**

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### **1.02 WM2026 Efficient and Innovative Nuclear Material and Technology Solutions**

This topic accepts abstracts on our featured theme in shaping the future by focusing on efficient and innovative solutions. It also includes the dual focus on pioneering technological innovations and cultivating the next generation of innovative nuclear materials management. The theme aligns with the mission and guiding principles of WM by promoting technical excellence, international collaboration, and education. It also builds on the previous WM2025 theme, extending the conversation into the future of nuclear waste management, remediation, and decommissioning amidst technological advancements and a growing digital world. This theme leads to sessions where experts from various fields share their latest research, technologies, and methodologies aimed at advancing the nuclear industry in ways that are more cost-effective, safer, and environmentally friendly.

#### **Lead Organizer:**

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### **1.03 WM2026 Featured Country- Finland**

This topic accepts abstracts related to our Featured Country - Finland. Finland is now building the world's first deep geological repository for spent fuel in Olkiluoto, Finland. As such, the Onkalo Spent Nuclear Fuel Repository is poised to be a game changer. This topic accepts abstracts on all areas related to Finland's nuclear program.

#### **Lead Organizer:**

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### **1.04 WM2026- Featured US DOE Site - Hanford**

This topic accepts abstracts on the activities of the DOE site Hanford, located in Richland, Washington. Abstracts are solicited that will update the WM attendees on the status of their programs and policies. Abstracts received may be assigned to this or other topics.

#### **Lead Organizer:**

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### **1.05 Worldwide Regulatory and Oversight Programs for Waste Management - Challenges and Solutions\***

This topic accepts abstracts on new and/or updated local and national regulatory, oversight, and guidance programs for the management and/or disposal of all types of radioactive wastes. While waste management and disposal programs are being initiated, in development, or in progress, the various authorities are concerned with developing or amending guidance, standards, and regulations to establish limits or guidelines to limit impacts on humans and the environment from management, treatment and disposal programs. Also included are programs designed to track or project impacts from those programs and improve oversight or regulatory frameworks as well as describing ways countries work together to share knowledge on licensing and regulation of nuclear waste storage and disposal.

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### **1.06 Worldwide Perspectives of Radioactive Waste Management - Challenges and Solutions\***

This topic accepts abstracts on a cross-section of views from national programs for long-term solutions to the management of radioactive waste (HLW, SNF/UNF, TRU waste, and LLW/ILW) from past, current, and future sources including GEN III and GEN IV nuclear power plants. Such solutions may include long-term storage, deep geological disposal, partitioning, transmutation, or maintaining status quo.

#### **Lead Organizer:**

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### **R1.01 Waste Management Symposium 2026 Plenary Session**

The plenary panel focuses on government and industry world leaders speaking on the pressing issues facing radioactive waste management in 2026 and beyond.

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### **R1.02 WM2026 Technical Theme - Efficient and Innovative Nuclear Material and Technology Solutions**

This topic accepts abstracts on our featured theme in shaping the future by focusing on efficient and innovative solutions. It also includes the dual focus on pioneering technological innovations and cultivating the next generation of innovative nuclear materials management. The theme aligns with the mission and guiding principles of WM by promoting technical excellence, international collaboration, and education. It also builds on the previous WM2025 theme, extending the conversation into the future of nuclear waste management, remediation, and decommissioning amidst technological advancements and a growing digital world. This theme leads to sessions where experts from various fields share their latest research, technologies, and methodologies aimed at advancing the nuclear industry in ways that are more cost-effective, safer, and environmentally friendly.

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### **R1.03 a-b DOE EM Initiatives**

These sessions focus on themes and initiatives designated by DOE EM Headquarters.

#### **Lead Organizer:**

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### **R1.04 Hot Topics in US DOE Environmental Management**

This session focuses on Senior US DOE Managers from Washington, D.C. speaking on the pressing issues facing US DOE EM sites.

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### **R1.05 Energy Facility Contractors Group (EFCOG)**

This session focuses on a specific topic selected by EFCOG. EFCOG promotes excellence in all aspects of the operation, management, and integration of US DOE facilities in a safe, environmentally sound, efficient, and cost-effective manner through the ongoing exchange of information on lessons learned. The purpose of this knowledge portal is to provide a vehicle to allow members to keep abreast of the latest news, issues, and events across the US DOE complex; for the sharing of innovative ideas and practices; and to collaborate virtually on the development and implementation of new processes and practices.

#### **Lead Organizer:**

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**R1.06 Roundtable: Waste Management - Energy Facilities Contractor Operating Group (EFCOG WM)**

This session focuses on the WM EFCOG working group and will meet to discuss a variety of issues of importance to US DOE waste management operations. The purpose of the WM EFCOG is to seek out and promote the best management and operating practices, cost effective technologies and disposal options for all waste streams generated at US DOE facilities whether destined for US DOE or commercial facilities. Each site representative will provide a radioactive waste management lessons learned briefing.

**Lead Organizer:**

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**R1.07 International Partnerships on Nuclear Energy & DOE Radwaste Cleanup – Engaging for Success**

This session focused on how the international community is addressing HLW and SNF/UNF while developing new nuclear power plants. It identified any lessons learned and discussed opportunities and international partnerships for municipalities to work together on shared issues. Countries around the world are developing programs for the safe management and disposal of high-level nuclear waste and spent nuclear fuel while also introducing policies and funding to support new nuclear development.

**Lead Organizer:**

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**R1.08 The IAEA Special WM Session for WM2026 - To Be Determined**

This session focuses on the WM2026 Special Session organized by the IAEA.

**Lead Organizer:**

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**R1.09 The IAEA Special ER/D&D Session for WM2026 - To Be Determined**

This session focuses on the WM2026 Special Session organized by the IAEA.

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**R1.10 Strategies to Increase Efficiency, Reduce Cost, Accelerate Work, and Maintain Operational Excellence**

The session focuses on results-based project execution and ways to improve the effectiveness of operations while increasing efficiency and reducing cost. Panelists will discuss best practices and lessons learned from their sites and projects as they work within budgetary, resource and technological constraints. Panelists will include senior leadership from the US, the United Kingdom, and Canada.

**Lead Organizer:**

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**R1.11 Collaboration Across Borders to Deliver Cleanup and Decommissioning Challenges**

This session focuses on the US, UK, Canada, and France to discuss their international collaborative activities. Despite the challenges of the last couple years, joint progress has been made in areas such as sustainability, workforce development, and technology sharing. The panel will detail recent and upcoming collaboration opportunities that connect with the WM2026 theme.

**Lead Organizer:**

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### **R1.12 Integrating Economic Redevelopment and Workforce Transition Into Site Closure Planning**

This session focuses on the need to consider post – closure impacts to the long-term site workforce and communities in DOE's approach to accelerated site cleanup and expedited reduction of long-term financial liabilities. At sites where Cold-War workers shifted from weapons production to the cleanup effort, a more holistic approach to the workforce transition Post-EM cleanup is needed. This holistic approach would include incentives for expedited closure, trade re-training, and a vision for future site commercial activities. The panel will also focus on the importance of the right workforce incentives that includes appropriate training for displaced workers so that they can be integrated into their next job. Another key aspect of this discussion will be to re-assess the current and future land use opportunities related to land re-use concepts. By re-arranging cleanup sequencing is it possible to divest concepts.

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### **R1.13 Panel: PREDIS (PRE-DISposal) European Waste Management Collaboration**

This session focuses on PREDIS (PRE-DISposal) and the multinational activities from over 40 organizations and 18 countries. It covers many areas ranging from treatment of metals and organic wastes through to the automation of waste stores. This session will also highlight other initiatives such as the SHARE decommissioning project.

#### **Lead Organizer:**

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### **R1.14 Progress at Sellafield**

This session focuses on the progress and issues that Sellafield Ltd has faced over the past years since the change from a Parent Body Organization (PBO) to a subsidiary of the NDA. The panel will describe some of the many changes that have occurred such as the cessation of reprocessing and the transition into a conventional “clean up and decommissioning site”. Specific examples will be highlighted included progress in the most hazardous facilities in Europe (commonly known as the legacy ponds and silos) along with broad front decommissioning of some of the original facilities that were built in the 1950'S and 60's. The panel will also describe the investment that has been made in making the site more resilient to adverse events and describe the change in approach to working in partnership with the supply chain for program and project delivery using alternative contractual mechanisms.

#### **Lead Organizer:**

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### **R1.15 Discussion of Arctic Monitoring and Assessment Program**

This session focuses on the Arctic Monitoring and Assessment Program. As impact of global climate changes are observed, the nexus between climate change and radiation monitoring results are better understood, increased awareness is important.

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### **R1.16 The State of EPA Involvement on the DOE NPL Sites**

This session focuses on the perspectives of EPA staff with key roles in overseeing DOE federal facility NPL sites. Federal facility sites currently have about half of the total remedy decisions of entire Superfund program of sites on the National Priorities List (NPL). This is a mature cleanup program, and these sites have complex issues remaining and expensive remedies. Site specific decision making allows for flexibility, but can present consistency challenges. Remedy decisions should be based on risk and anticipated land use, and communities and stakeholders that live around the sites have a voice in the remedy decision.

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### **R1.17 DOE Featured Site- Hanford in Richland, WA**

This session focuses on the accomplishments and developments at the US DOE's Hanford Site in Richland, WA, the WM2026 Featured DOE Site. The session features the various representatives from the DOE Hanford Site including the DOE and its contractors.

#### **Lead Organizer:**

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### **R1.18 Savannah River National Laboratory Regulatory Center of Excellence (RCE)**

This session focuses on the Regulatory Center of Excellence (RCE). RCE is located within the Savannah River National Laboratory and provides innovative strategies to emerging and existing regulatory and communication challenges. The RCE is known for its ability to develop and facilitate collaborative regulatory relationships and effective communication approaches to enhance stakeholder, regulatory, and public engagement. The RCE works on an as-requested basis to address mission critical challenges throughout the DOE complex including providing regulatory assistance to specific technical national laboratory-led projects. Additionally, the RCE with their university partner, the University of Georgia, engages non-STEM students such as those in policy and economics, providing students with regulatory experience and creating a potential employment pipeline for DOE EM. Join our panelists to discuss previous RCE successes and explore how you can harness the RCE's capabilities.

#### **Lead Organizer:**

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### **R1.19 Update on the DOE Portsmouth, OH and Paducah, KY Sites**

This session focuses on the DOE's Portsmouth/Paducah Project Office (PPPO), which is responsible for management and cleanup at the Portsmouth, Ohio and Paducah, Kentucky former Gaseous Diffusion Plant sites. Portsmouth is focused on initial phases of D&D of the plant – principally legacy structures and disposition of process gas equipment. Paducah is focused on soil and groundwater remediation while negotiating the change in operational status of the USEC-leased enrichment facilities and preparing for future D&D. Both sites are ramping up production at their DUF6 conversion plants. DOE recently announced negotiations for potential continued use of selected Paducah facilities and sale of some of its DUF6 inventory.

#### **Lead Organizer:**

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### **R1.20 Update of the DOE EMCBC Sites**

This session focused on the accomplishments and developments at the US DOE's EM sites managed by EMCBC in Cincinnati, OH. The session featured the various representatives from the DOE sites including EM activities at West Valley, NY; EMCBC-NY and SPRU in NY; Nevada Test Site; Moab, UT; ETEC, CA; LBNL and LLNL in CA. Discussion topics will include an overview of site scope and operations, how the sites have utilized EMCBC experts to execute the EM mission, what they are currently executing at their sites, and what they are planning for as they tackle the next phases of their site cleanups. Next phase discussion topics include sustainable solutions for site remediation, working with regulators and stakeholders towards cleanup goals and end state visions, and using risk informed decision making to improve priority setting.

#### **Lead Organizer:**

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### **R1.21 Cleanup Projects that Got It Right: Non-Technical Lessons**

This session focuses on non-technical lessons learned from (DOE and potentially NDA) projects that appear to have it right. This panel will focus on human resources efforts, training, public engagement, public private partnerships, site redevelopment and other non-technical aspects of project and mission success.

#### **Lead Organizer:**

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### **R1.22 Reusing US DOE Sites to Support Mission and Economic Opportunities**

This session focuses on how US DOE's excess or unneeded facilities on EM sites are being used for DOE/NNSA mission and economic

development opportunities around the complex. Reused facilities can serve as an investment towards developing national laboratories, new nuclear projects, clean energy projects, tech transfer incubators, and others. Panelist will also address what DOE-EM can do to foster reuse at these sites.

**Lead Organizer:**

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**R1.23 US Politics of Cleanup – Cleaning Up DOE Sites Through Appropriations, Authorization and Policy Decisions**

This session focuses on the current appropriation priorities, the Administration's Budget Request and how the budget and policy decisions shape the DOE programs as well as focusing on the new policies shaping the EM and other DOE defense and nuclear energy programs.

**Lead Organizer:**

Seth Kirshenberg, ECA, V: +1 202-828-2317, [sethk@energyca.org](mailto:sethk@energyca.org)

**R1.24 Energy Communities Alliance (ECA) – Business Meeting (Invited Only)**

This session focuses on the business activities of the ECA in producing solutions and moving forward with US DOE Cleanup by creating acceptable disposal pathways for all radioactive waste streams.

**Lead Organizer:**

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**R1.25a-c WM2026 Featured Country - Finland**

These three sessions are related to our Featured Country - Finland. Finland is now building the world's first deep geological repository for spent fuel in Olkiluoto, Finland. As such, the Onkalo Spent Nuclear Fuel Repository is poised to be a game changer. The three panels are related to Finland's nuclear program.

**Lead Organizer:**

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**R1.50 US DOE OSDBU – Program Updates and Contracting Opportunities**

This session focuses on the US DOE's Office of Small and Disadvantaged Utilization (OSDBU). It will provide an overview of the unique procurement landscape that small businesses encounter when looking to do business with the DOE and will give guidance and resources to increase firms' capacity to perform and compete for prime and/or subcontracts. Organized by the DOE's OSDBU management, this session focuses on reducing barriers to working with the federal government. Session topics include updates from within the Department, best practices for increasing success when competing for awards, contracting opportunities, grant opportunities in research and development for energy innovation, and Opportunity Day outreach initiatives with the DOE national laboratories.

**Lead Organizer:**

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**R1.51 US DOE EM Annual Business Opportunity Forum**

This session focuses on the US DOE voluntary partnering initiative established in 2010 allowing for a collaborative approach between the government and contractors to achieve results. Organized by the US DOE EM Office of Acquisition and Project Management, the Business Opportunity Forum is an outreach event that gives companies the chance to learn the latest news about opportunities and doing business with EM. The goal is ensuring an open dialogue with all those involved in doing business with EM. The forum will review the status of every major EM procurement under way and EM progress in awarding these contracts. It will also outline opportunities for contractors to receive information about upcoming procurements and submit their qualification statements for consideration. Additionally, the forum will discuss the results of recent Reverse Industry Day events hosted by DOE EM.

**Lead Organizer:**

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**R1.52 US DOE Tier 1 End State Contracting and Task Order Implementation Status**

This session focuses on DOE Tier 1 End State Contracts. The panel includes perspectives from federal officials and industry representatives at Idaho, Oak Ridge and Savannah River which are executing DOE's End-State contracting model. This panel will provide an update on DOE's End-State contract model and share successful techniques and methods applied to task order negotiations and implementation, including challenges encountered and lessons learned post contract awards.

**Lead Organizer:**

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**R1.53 DOE Western Site-Specific Procurement and Contracting Opportunities**

This session is focused on DOE and Contractor procurement and contracting opportunities at Hanford, Idaho, LANL and PNNL. Goods and services being considered for these procurements include: decontamination and decommissioning, remediation, transportation and disposal of radioactive waste, health physics, emergency response planning and training, lab services, R&D products, waste treatment, maintenance, A/E and professional consulting.

**Lead Organizer:**

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**R1.54 DOE Eastern Site-Specific Procurement and Contracting Opportunities**

This session focuses on DOE and Contractor procurement and contracting opportunities SRS, Oak Ridge/ETTP, Portsmouth, Paducah, West Valley. Goods and services being considered for these procurements include: decontamination and decommissioning, remediation, transportation and disposal of radioactive waste, health physics, emergency response planning and training, lab services, R&D products, waste treatment, maintenance, A/E and professional consulting.

**Lead Organizer:**

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**R1.55 US DOE NE/ Office of Science - Contracting Opportunities**

This session focuses on US federal contracting opportunities with the DOE Office of Science and Office of Nuclear Energy.

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**R1.56 US DOE NNSA Procurement Activities**

This session focuses on procurement activities with the US DOE NNSA.

**Lead Organizer:**

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**R1.57 Additional Emerging Contracting Opportunities in the US Federal Market Other Than DOE EM**

This session focuses on US federal contracting opportunities outside of the DOE EM market. This session is organized to provide companies the chance to hear about future opportunities and learn how to do business with a number of federal agencies to include NASA, SCMC, EPA, and USACE.

**Lead Organizer:**

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**R1.58 EMCBC - The US DOE EM "Swiss Army Knife"**

This session focuses on the DOE Environmental Management Consolidated Business Center (EMCBC). Select experts will go over the EMCBC's capabilities, with extra focus on acquisition, cost estimating / risk analysis, information and records management, and technology and asset management. Established in 2004, the EMCBC started as a solution to a problem. How do you close down a decades-run nuclear cleanup site while

maintaining the infrastructure, resources, and capabilities needed to do it safely and successfully? Solution: The EMCBC; an integrated services center that executes core business and technical services for all EM small sites and provides additional services to the entire EM Complex.

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**R1.59 Non-US Procurement Opportunities**

This session is focused on procurement activities outside the US, including United Kingdom, Canada, Sweden, France, and Germany.

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**R1.60 Tech Transfer & Commercialization: Innovative Solutions for Domestic and International Opportunities**

This session focuses on the connection between innovative solutions and the various industries looking for more efficient methods, products, and processes in Tech Transfer and Commercialization. This panel has interest across the entire conference base, whether they are encountering a challenge, introducing an innovative solution, or are the host that is trying to get from a pure research / Research, Development, Demonstration, Testing, and Evaluation solution to one that is commercially viable and robust enough for long term and/or high risk deployment scenarios and which will support greater chance of success and positive outcomes. The range of participants US and non-US national lab personnel; the US DOE and its worldwide counterparts; US and non-US participants from academia, industry, private organizations, national, local, State, and tribal governments, representation from several U.S. federal agencies, as well as researchers, students, and entrepreneurs.

**Lead Organizer:**

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**R1.61 US DOE Small Business Matchmaking**

The US DOE is partnering with WM Symposia to host small business outreach matchmaking sessions during WM2025. The sessions will take place on Thursday, March 14 from 8:00 am to 11:30 pm. Sessions will be held in Rooms 232ABC. DOE offices will participate, and major DOE prime contractors will be encouraged to participate in the matchmaking sessions to engage with capable and interested small businesses. Additional information will be distributed in early 2025 prior to the event regarding scheduling details for matchmaking sessions.

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**R1.161 Opportunities for Improvements to Increase Participation of Countries with Less Developed Waste Management Programs**

These countries can find opportunities for partnership in the Conference that can help them to move their programs forward. On the other hand, service providers can be exposed to markets that so far are not well known. This panel will bring together representatives from countries that face challenges in the areas of the back end such as D&D, Clean-up/ER, WM and also NORM management so that they can present their programs and needs. Resources to fund their participation could be mobilized through specific projects with the IAEA under the Technical Cooperation Program. International Organizations such as EBRD, World Bank, African Bank for Redevelopment, etc.

**Lead Organizer:**

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**R1.162 Future Demands on Electricity generation and Capacity**

This panel will focus on future demands for electricity as a result of decarbonization and increases in electrical vehicles.

**Lead Organizer:**

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## **2 - HIGH-LEVEL RADIOACTIVE WASTES (HLW), SPENT/USED NUCLEAR FUEL (SNF/UNF) AND LONG-LIVED ALPHA/TRANSURANIC RADIOACTIVE WASTE (TRU)**

Robert Jubin, Consultant (Lead Co-Chair), V: +1 865-924-1568, [rtjubin1@comcast.net](mailto:rtjubin1@comcast.net)

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Steven Thomson, UKNNL (Co-Chair), V: +44 1946 556622, [steven.thomson@uknnl.com](mailto:steven.thomson@uknnl.com)

This Track covers all long-lived alpha/TRU waste, SNF/UNF and HLW operations from generation and storage through characterization, treatment and disposal. It also covers associated technology development and deployment; recycling/reprocessing strategies and technologies; periodic progress updates oriented to specific achievements in waste removal and disposal activities, and overlapping issues including: interim and final disposition strategies for SNF/UNF and HLW, associated environmental permitting and monitoring of stored waste, waste processing alternatives, waste form, deep geologic disposal and operating facility performance and risk assessment, and the impacts of directly associated regulations and standards.

### **2.00 HLW, SNF/UNF and Long-lived Alpha/TRU Waste - Non-Specified Abstracts**

#### **Lead Organizer:**

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### **2.01 HLW, SNF/UNF and Long-lived Alpha/TRU Waste - Posters**

#### **Lead Organizer:**

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### **2.02 HLW, SNF/UNF and Long-Lived Alpha/TRU Programs and Policies**

This topic accepts abstracts on the disposition of spent/used nuclear fuel (SNF/UNF), HLW, TRU waste, and other long-lived non-LLW that cut across two or more of the major Track 2 categories of storage and retrieval, treatment, and deep geologic disposal. Abstracts may include major programs or policy initiatives that have broad impact on the future direction of waste generation and/or disposition (storage, treatment, and disposal). Abstracts may include characterization, waste acceptance criteria, technology development and/or demonstration, operational lessons learned, and policy and regulations.

#### **Lead Organizer:**

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#### **Additional Organizers:**

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### ***Storage and Retrieval of HLW, SNF/UNF and Long-lived Alpha/TRU***

This category covers the storage of highly radioactive wastes including HLW, TRU, SNF, UNF and other long-lived materials in storage areas or vessels prior to retrieval for processing and treatment, and in interim storage areas prior to transport for disposal. Topic Abstracts for the storage and retrieval category may cover areas of waste characterization, waste acceptance criteria, monitoring and analysis of the integrity of storage systems, waste mixing, mobilization, retrieval, consolidation of wastes, and storage of said wastes prior to transport for further processing or disposal. This category also covers the retrieval of wastes from storage areas. The storage and retrieval category are divided into key topics 2.3 - 2.5 based on waste type.

### **2.03 Storage and Retrieval of Spent/Used Nuclear Fuel\***

This topic accepts abstracts for technical papers on storage and retrieval of Spent/Used Nuclear Fuel.

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### **2.04 Storage and Retrieval of HLW**

This topic accepts abstracts on the storage and retrieval of liquid and solid HLW in tanks or other vessels prior to processing and treatment, including characterization, waste acceptance criteria, and monitoring of the vessels and wastes. The topic also includes interim storage of treated (e.g., immobilized) HLW prior to transport for disposal. This topic also includes abstracts that focus on improvements for evaporator operation, managing the design life for existing tanks, plans for improving infrastructure or plans for building new storage capability.

#### **Lead Organizer:**

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## **2.05 TRU Waste Disposition**

This topic accepts abstract for technical papers on retrieval, storage, characterization, and treatment of TRU Waste prior to transferring the waste to a WIPP Certified Program or TRU and Long-Lived Alpha Waste storage and retrieval issues in other countries. Of particular interest is the comparison of TRU drums from the US DOE LANL and Idaho sites.

### **Lead Organizer:**

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## ***Treatment of HLW, SNF/UNF and Long-lived Alpha/TRU***

This category covers the treatment of SNF/UNF, HLW, TRU waste, and other Long-lived Alpha Wastes enabling recycling of nuclear materials for beneficial use, reducing the toxicity or hazard of nuclear materials, and/or producing waste forms particularly suitable for safe disposal. Abstracts for treatment may cover areas of characterization, in-process monitoring, liquid and sludge transport, process development, scale-up, testing, modeling, design, operational lessons learned and waste form performance. The treatment category is divided into the following key topics 2.6 - 2.9 based on general processing steps used in the nuclear fuel cycle:

## **2.06 Update on Salt and Supernate Tank Waste Processing**

This topic accepts abstracts on salt and supernate processing at the Hanford and Savannah River Sites, where new facilities and tank-side cesium removal processes are being commissioned or tested to enable progress in tank waste treatment.

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Todd Wagon, Hanford Tank Waste Operations & Closure (H2C), V: 509-376-8406, [todd\\_j\\_wagon@rl.gov](mailto:todd_j_wagon@rl.gov)

## **2.07 Current and Future Reprocessing/Recycling and Separation of HLW, SNF/UNF and Long-lived Alpha/TRU**

This topic accepts abstracts on both reprocessing/recycling of SNF/UNF, as well as the pretreatment of stored liquid and solid HLW from previous reprocessing operations. This topic also accepts abstracts on HLW arising from proposed future fuel cycles, and how they can be stored and processed. Separation includes dissolution and/or leaching of SNF/UNF and HLW solids, filtration, ion exchange, solvent extraction, evaporation, or other separation operations required to produce process streams suitable for subsequent recycle for reuse, immobilization into suitable waste forms, or transformation into less hazardous wastes. Process monitoring approaches and technologies necessary to support reprocessing/recycling operations are also included in this topic. Several international programs are now underway to assess alternative recycling flow sheets with their primary objective to improve performance and safety and to reduce waste, while lowering proliferation incidents. Some examples include fuel cycles involving molten salt reactors, high temperature gas-cooled reactors, and the use of accident tolerant fuels.

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## **2.08 Advanced Fuel Cycle and High-Performance Waste Forms**

This topic accepts abstracts on Advanced Fuel Cycle and High-Performance Waste Forms. The next generation of advanced nuclear reactors is currently being developed to enhance the safety, reduce the cost, and increase the efficiency of nuclear power generation. This topic accepts abstracts on re-processing of future fuels and the high-performance waste forms that span multiple reactor classes and disposal environments. This will include research into new and improved recycling and waste management methods that are safe and stable over required timescales taking into account lessons learned across the globe and new technology developments, in order to simplify processes, maintain exemplary safeguard standards, reduce back-end costs, and make nuclear energy a more sustainable option in the future. This topic also includes abstracts on the R&D associated with the recovery and recycle of HALEU materials.

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## **2.09 Stabilization/Immobilization of HLW, SNF/UNF and Long-lived Alpha/TRU**

This topic accepts abstracts on the immobilization of process wastes into suitable waste forms for storage and/or disposal. Stabilization includes processes such as de-watering, calcining, grouting and vitrification, as well as other processes producing waste forms for specific wastes from current and potential future HLW/SNF/UNF processing flow sheets. This topic is also related to 2.06.

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*Disposal and Closure of HLW, SNF/UNF and Long-lived Alpha/TRU* This category with Topics 2.10- 2.15 covers the safe burial or placement of SNF/UNF, HLW, TRU waste and Long-lived Alpha in a subsurface environment. Although disposal means that no retrieval is intended, a common global notion is that some of the disposed waste categories, preferably, should be recoverable, if needed. As follows, for the time being, recoverability and retrievability are integral topics within the disposal component of Track 2. Disposal-system performance, waste acceptance criteria, and risk assessments are integral components of the disposal concepts covered in Track 2, as are the closure of highly radioactive waste storage tanks and ancillary equipment. Albeit both packaging/transportation and safety/safeguards are integral to disposal, they are currently addressed in Tracks 5 and 9, respectively.

## **2.10 Geological Disposal of HLW, SNF/UNF and Long-lived Alpha/TRU**

This topic accepts abstracts on Deep Geologic Disposal of HLW, SNF/UNF and Long-lived Alpha/TRU. Geologic disposal continues as the international standard for long-term isolation of highly radioactive waste from the biosphere. This topic includes demonstrations, waste receipt, and packaging for disposal, waste handling, engineering and natural barriers design and operation of geologic repositories.

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## **2.11 Containment Materials for HLW/SNF/TRU Long-Term Geologic Isolation**

This topic accepts abstracts that focus on formulation, modeling, characterization and performance testing of metals, alloys, and other materials for waste packaging and other engineered barriers.

### **Lead Organizer:**

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### **Additional Organizers:**

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## **2.12 Global Insights into HLW/SNF/TRU Disposal Site Selection**

This topic accepts abstracts on national radioactive waste disposal programs with perspectives, observations, and opinions on regulatory, social and political challenges surrounding the proposed and active siting for radioactive waste repositories. Abstracts are encouraged from local, regional and national authorities and organizations as well as individuals.

### **Lead Organizer:**

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## **2.13 Operational Safety Issues in the Implementation of Deep Geological Repositories (DGR)**

This topic accepts abstracts that focus on the Operational Safety Issues of Deep Geological Repositories (DGR). With the progressive developments of DGR concepts and the submission of licensing files for the construction and implementation of underground facilities for radwaste disposal, there is an increasing interest to operational safety issues. Abstracts are solicited that focus on the functions to be performed by the global disposal system or individual equipment during the operating phase, the main technical options and safety options planned to prevent the various internal and external risks as well as the defense-in-depth levels selected for managing the operations, preventing of accidents, and reducing radiological consequences. The topic will accept abstracts dealing with regulatory requirements – including reversibility, safety guidelines that are directly applicable to the DGR with special emphasis on operational safety.

### **Lead Organizer:**

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### **Additional Organizers:**

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#### **2.14 Recent Developments in Underground Research Laboratory (URL) Activities**

This topic accepts abstracts on the strategy and recent developments of underground research activities in established and new URL programs supporting radioactive waste management programs around the world. The important and multi-faceted roles URLs serve in the development of deep geological repositories for the disposal of radioactive waste will be highlighted, both from a scientific and technological point of view as well as for building public confidence. In addition, this topic will help to illustrate how URLs provide a unique platform for international cooperation and knowledge exchange and transfer and demonstrate the need of well-established data management concepts.

##### **Lead Organizer:**

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#### **2.15 Closure and Monitoring of HLW, SNF/UNF and Long-lived Alpha/TRU Facilities**

This topic accepts abstracts on the closure of HLW, SNF/UNF and Long-lived Alpha/TRU Facilities around the world. This includes the final waste removal, characterization, waste acceptance criteria, stabilization, and closure of facilities such as waste tanks and ancillary equipment used in the processing or storage of HLW, SNF/UNF, TRU/ILW, US DOE tank closure process related to its “waste incidental to reprocessing” process developed between US DOE and US NRC, and other Long-lived Alpha radioactive materials.

##### **Lead Organizer:**

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##### **Additional Organizers:**

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#### **2.16 Infrastructure Improvements in HLW, SNF/UNF and Long-Lived Alpha/TRU Aging Facilities**

This topic accepts abstracts on project management, engineering analysis, funding, and planning for improving infrastructures of aging facilities with extended missions and extended life cycles. Abstracts on the life extension or expansion of the US DOE WIPP site are of particular interest.

##### **Lead Organizer:**

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##### **Additional Organizers:**

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#### **2.17 R&D to Accelerate High Level Tank Waste Clean-Up**

This topic accepts abstracts relevant to research and development to accelerate DOE’s largest liability – storage, retrieval, processing and disposition of tank waste. This technical session will highlight DOE’s recent investment in R&D addressing Hanford tank waste clean-up, but also encourages abstracts relating to research and development supporting other sites, worldwide, in the disposition of stored tank wastes.

##### **Lead Organizer:**

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##### **Additional Organizers:**

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#### **2.18 Developments in Deep Borehole Disposal Around the World**

This topic accepts abstracts on deep borehole disposal of SNF, HLW, Disused Sealed Radioactive Sources and DOE-managed waste forms, including siting, site characterization, permitting and regulations, operations (e.g., surface handling, down hole canister emplacement), closure (e.g., borehole sealing), and post-closure safety.

##### **Lead Organizer:**

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Sylvia Saltzstein, Sandia National Laboratories, V: +1 505-681-5083, [sjsaltz@sandia.gov](mailto:sjsaltz@sandia.gov)

#### **R2.01 Advanced Reactor Waste Stream Integrated Management and Disposition**

This session focuses on efforts and ideas to reduce the impact of used nuclear fuel (UNF) and other waste streams stemming from the implementation of advanced reactor fuel cycles. Advancing these efforts will facilitate the acceptance and increase the commercialization potential of advanced

reactor fleets. Early consideration of the back end of the fuel cycle in the advanced reactor design process offers a unique opportunity to co-develop technologies with this goal in mind.

**Lead Organizer:**

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**R2.02 High-Level Waste Disposal in the USA: What's Next? Challenges and Opportunities**

This session focuses on the technical, institutional, and broader political issues associated with advancing a US HLW Repository program including programmatic, regulatory, legislative, and funding challenges.

**Lead Organizer:**

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**R2.03 Progress on Deep Repository Programs Around the World**

This session focuses on the progress of deep repository programs, worldwide. While efforts to re-initiate a deep geological repository for SNF/UNF and HLW in the US are continuing, considerable progress is reported around the world and deserve to be recognized. Three European countries are now moving forward, and the current decade would be the one of the industrial deployment of final geological disposal solutions for SNF/UNF and HLW. Panelists from national, multi-national, international repository programs and other organizations will report upon the status and future plans as well as the perceived reasons underlying the success and difficulties of their respective repository program. This panel will present, exchange, and take advantage of, as appropriate, repository progress, challenges, concepts/designs, and other lessons learned around the world, including site characterization, site selection, research and development, licensing, construction, operation, and public acceptance

**Lead Organizer:**

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**R2.04 Challenges in the US DOE HLW Tank Management Program**

This session focuses on the significant progress and remaining challenges of the DOE radioactive tank waste management mission at the Savannah River, Idaho, and Hanford sites. US DOE Field site and contractor management representatives will describe progress and lessons learned with operations at the SRS Salt Waste Processing Facility and Defense Waste Processing Facility; startup and operations of the Direct-Feed Low Activity Waste system at Hanford; and radiological operations of the Integrated Waste Treatment Unit at Idaho. Panelists will also highlight the importance of recent progress in waste treatment on the overall US DOE tank waste treatment mission completion.

**Lead Organizer:**

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**Additional Organizers:**

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**R2.05a Update on the US Waste Isolation Pilot Plant (WIPP)**

This session focuses on an update of the US DOE Carlsbad Field Office, the Waste Isolation Pilot Plant (WIPP), and the National TRU Program.

**Lead Organizer:**

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**R2.05b US Waste Isolation Pilot Plant (WIPP) TRU Waste Generator Sites Perspective**

This session focuses on an update of the US Waste Isolation Pilot Plant (WIPP) TRU Waste Generator Sites Perspective.

**Lead Organizer:**

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## **R2.06 Alternative DOE TRU Waste Management Solutions for Problematic Waste and Small Generators**

The session focuses on DOE NNSA ESH-14 efforts in developing a “brokerage” concept of alternative waste management solutions, one of which will be utilizing the Advanced Mixed Waste Treatment Project (AMWTP) Facility located at the INL and the Idaho Nuclear Technology and Engineering Center (INTEC) hot cells to support the NNSA enterprise. This panel session will highlight the AMWTP Treatment Facility capabilities for managing selected CH TRU material and large items, as well as production waste drums by routing these through the Treatment Facility for processing and size reduction and ultimately through the supercompactor. The management of large items include Plutonium Isentropic Compression Experiments (Pu-ICE), CH TRU contaminated gloveboxes, and PHERMEX spheres, at this time. The INTEC hot cell facilities will be processing RH TRU, to include the K2 material from Mound, and other RH TRU that needs to be processed prior to disposition.

### **Lead Organizer:**

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### **Additional Organizers:**

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## **R2.07 Progress in Closing Future Fuels in the Nuclear Fuel Cycle**

This session focuses on the re-processing of future fuels (AMR, SMR, Gen II Reactors) and associated waste management. This will include research into new and improved recycling and waste management methods taking into account lessons learned and collaborative working across the globe, and new technology developments, in order to simplify processes, reduce costs and make nuclear energy a more sustainable option in the future.

### **Lead Organizer:**

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## **R2.08 Accelerated DOE Savannah River Site SNF Basin De-inventory and Beyond**

This session focuses on the DOE Savannah River Site’s mission to accelerate the L-Basin de-inventory of spent nuclear fuel (SNF). It will delve into critical facets of nuclear material and SNF management and future needs. It will address the complexities, unique challenges and innovative solutions surrounding non-aluminum SNF; DOE’s next-generation nuclear material processing mission needs and capabilities; and future SNF generation and receipts expected to DOE facilities.

### **Lead Organizer:**

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### **Additional Organizers:**

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## **R2.09 Challenges in Addressing the Management of SNF from Non-Water Cooled SMRs**

This session focuses on the International Collaboration, IAEA CRP-COGS, on the Challenges, Gaps and Opportunities for Managing Spent Fuel from SMRs. Discussion will include "Opportunities for the Nuclear Industry" by NEI; Advanced Recycling Approaches by Oklo; Challenges and Gaps for Managing HTGR Spent Fuels by the UK; Challenges and Gaps for Molten Salt and Sodium Cooled Reactors by PNNL; and Integration of Non-Standard SNF Management in the Currently Implemented Programs by Orano, France.

### **Lead Organizer:**

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## **R2.10 (Withdraw) Updates on DOE Implementation of Hanford Tank Waste R&D Roadmap**

## **R2.11 Focusing on US Legacy HLW, SNF, and Consent-Based Siting – Moving the Process Forward**

This session focuses on the re-start of DOE’s consent-based siting initiative, and how to ensure past experiences inform new efforts.

### **Lead Organizer:**

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## **R2.12 US DOE Transuranic Waste Task Force and Associated Technical Advisory Board**

This session focuses on two newly-established US DOE teams – 1) a TRU Waste Stream Task Force and 2) an associated Technical Advisory Board. The teams’ primary objectives are to evaluate waste and recommend a path forward to certify difficult waste across the DOE complex. This has broad application across the DOE EM complex. The TRU Waste Stream Task Force will collate all viable certification options for the Technical Advisory Board. The Technical Advisory Board will strategically evaluate cost, schedule, and risk impacts of all options from the Task Force and recommend a path forward for each waste stream (additional paperwork, treatment, overpacking, etc.) via a decision document presented to the DOE Managers. The panel will discuss progress to date, lessons learned, and next steps. The teams will initially target Idaho’s 39,000 drums of

challenging waste. The multi-disciplined teams are comprised of both federal and contractor individuals from Carlsbad, Idaho, and National Labs. Team members will be exchanged as the other sites' waste is addressed.

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**3 - LOW-LEVEL WASTE (LLW), INTERMEDIATE LEVEL WASTE (ILW), VERY LOW-LEVEL WASTE (VLLW), MIXED WASTE (MW), BY PRODUCT MATERIAL, TENORM, NORM RESIDUES, ENRICHED AND DEPLETED URANIUM (DU)**

Kapila Fernando, Director, WM Symposia, Inc. (Lead Co-Chair), V: +61 414 912 100, [kfernando@wmsym.org](mailto:kfernando@wmsym.org)

Kent Rosenberger, Savannah River Mission Completion (Co-Chair), V: 803-645-2835, [kent.rosenberger@srs.gov](mailto:kent.rosenberger@srs.gov)

Aaron White, US DOE EM (Co-Chair), V: +1 240-306-7467, [aaron.white@em.doe.gov](mailto:aaron.white@em.doe.gov)

This track consists of many waste categories including LLW, ILW, VLLW, MW (radioactive & hazardous), Naturally Occurring Radioactive Material (NORM), Enriched and Depleted Uranium (DU) and Technologically Enhanced NORM (TENORM). The track encompasses: Operations from generation through treatment and disposal; Technology development, demonstration, and deployment; Overlapping issues including waste minimization, waste characterization and analysis, effluent monitoring, waste form and facility performance assessment, regulations and standards; and for all types of facilities from hospitals, accelerators, research reactors, government facilities, disposal sites, etc. This Track covers waste management of uranium or thorium ores as well as US NRC defined "Greater than Class C - LLW", byproducts or tailings, NORM residues and waste, and NRC defined TENORM. This track also includes radioactive materials, articles and consumer products. (NPP operational waste is covered in Track 4. TRU and similar long-lived alpha waste are covered in Track 2.)

**3.00 LLW, ILW, MW, NORM, TENORM and Depleted Uranium - Non-specified Abstracts**

**Lead Organizer:**

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**3.01 LLW, ILW, MW, NORM, TENORM and Depleted Uranium - Posters**

**Lead Organizer:**

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**3.02 Selected Key Topics in US Commercial LLW Management**

This topic accepts abstracts on key issues in commercial LLW management in the US and is the second half of the panel topic R3.1 but as a paper topic. This topic will include the presentation of the Richard S. Hodes Award followed by the awardee's presentation. Next will be two selected papers on key US issues regarding state regulatory and legislative activities, legal developments in states and compacts, federal regulatory and legislative activities, and economic and technical trends in LLW processing.

**Lead Organizer:**

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**Additional Organizers:**

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**3.03 Regulatory Issues and Solutions for LLW/ILW Worldwide**

This topic accepts abstracts on programmatic and regulatory issues and changes that impact VLLW, LLW, ILW, mixed hazardous and LLW/ILW radioactive waste, NORM and TENORM (including uranium and byproduct wastes). Abstracts are solicited on innovative approaches for resolution for these issues, including variances, consent order, or pursuit of regulatory and statutory changes. Abstracts are also solicited to address administrative and engineering methods and approaches for sustainability, re-use, and recycling of these wastes.

**Lead Organizer:**

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**Additional Organizers:**

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**3.04 Waste Generation Issues and Solutions for LLW/ILW Worldwide**

This topic accepts abstracts on operating facilities associated with generating VLLW, LLW, ILW, mixed hazardous and LLW/ILW radioactive waste, NORM and TENORM. Abstracts are solicited to address administrative and engineering methods involving the generation of these wastes. Topics will also be accepted regarding approaches to improve sustainability, re-use, and recycling of these wastes.

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Stephen Halliwell, VJ Group, V: +1 516-768-9776, [shalliwell@vjt.com](mailto:shalliwell@vjt.com)

**3.05 Waste Characterization Methods and Data Analysis for LLW/ILW Worldwide**

This topic accepts abstracts for emerging waste characterization techniques, along with experiences and advances in current techniques for VLLW, LLW, ILW, mixed hazardous and LLW/ILW radioactive waste, NORM and TENORM (including uranium and byproduct wastes). These methods include measurements of nuclear emission from containerized waste, laboratory measurements of samples extracted from potential waste streams, and in-situ measurements of items or structures to determine potential waste classification. Advances in data analysis methods and analysis of data to improve the validity of results and assist in waste classification decision making are also addressed in this topic. This topic also accepts abstracts for all inter-laboratory comparison tests of waste characterization, including non-destructive and destructive analytical technologies and the use of process knowledge and records for waste characterization.

**Lead Organizer:**

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Sasha Philips, Mirion Technologies (Canberra), V: 203-317-1510, [sphilips@mirion.com](mailto:sphilips@mirion.com)

**3.06 Treatment and Processing Experience of LLW/ILW Worldwide**

This topic accepts abstracts on operating experience and issues associated with emerging technologies for treatment, conditioning, processing, and stabilization of VLLW, LLW, ILW, mixed hazardous and LLW/ILW radioactive waste, NORM and TENORM (including uranium and byproduct wastes). Abstracts are solicited on management systems, operating procedures, facility design, and construction. The technologies include physical and chemical processes, stabilization/immobilization (including the use of cementitious materials), thermal and wastewater treatment processes.

**Lead Organizer:**

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**3.07 Storage and Disposal Experiences for LLW/ILW Worldwide**

This topic accepts abstracts on the ability to certify, dispose, and assess long-term performance on near-surface storage and disposal of VLLW, LLW, ILW, mixed hazardous and LLW/ILW radioactive waste, NORM and TENORM (including uranium and byproduct wastes). This can include existing or proposed waste forms and facilities, including site, design, licensing, construction, commissioning, operation, closure, post-closure monitoring, and long-term contaminant fate and transport including research and development supporting these topics.

**Lead Organizer:**

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**3.08 Rad Waste from Fusion and Small Modular Reactors (SMRs)**

This topic addresses anticipated radioactive LLW/ILW to be generated from fusion systems and its support facilities at large, as well as regulatory development and characterization of waste to be generated from fusion, advanced, and micro- reactors. It will focus on activation products from fusion and generated waste classes/categories and volumes as well as storage of radioactive materials at the facilities.

**Lead Organizer:**

Rateb (Boby) Abu Eid, US NRC, V: 301-415-5811, [boby.abu-eid@nrc.gov](mailto:boby.abu-eid@nrc.gov)

**R3.01 Hot Topics in US Commercial LLW Management**

This session focuses on emerging issues in commercial LLW management in the US from the perspective of active members of the Low-Level Radioactive Waste Forum, Inc. State, compact, federal and industry officials will share their views on a variety of timely and significant topics related to low-level radioactive waste management, disposal and related issues.

**Lead Organizer:**

Daniel Shrum, Low-Level Radioactive Waste Forum, V: 801-580-3201, [dshrum@llwforum.org](mailto:dshrum@llwforum.org)

### **R3.02 US DOE LLW Streams and Policies**

This session focuses on DOE radioactive waste streams and policy, primarily LLW. The panel will discuss some of the current “hot ” topics including, but not limited to: NEPA and waste, DOE Order 435.1 revisions and the disposal of PFAS containing waste (e.g., emerging contaminants).

**Lead Organizer:**

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**Additional Organizers:**

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Kent Rosenberger, Savannah River Mission Completion, V: 803-645-2835, [kent.rosenberger@srs.gov](mailto:kent.rosenberger@srs.gov)

### **R3.03 US NRC - Current and Emerging US NRC Regulatory Topics**

This session focuses on several current and emerging NRC regulatory issues impacting the radioactive waste arena. The panelists will provide different perspectives on several key issues including the revision to 10 CFR Part 61 and consolidated interim storage of spent nuclear fuel, among other timely regulatory topics.

**Lead Organizer:**

Rateb (Boby) Abu Eid, US NRC, V: 301-415-5811, [boby.abu-eid@nrc.gov](mailto:boby.abu-eid@nrc.gov)

**Additional Organizers:**

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### **R3.04 US DOE LLW On-Site Disposal: LLW Disposal Facility Federal Review Group**

This session focuses on the review process for technical basis documents including the Performance Assessments that are used to issue the disposal authorization statement. The US DOE Low-Level Waste Disposal Facility Federal Review Group (LFRG) as the regulatory authority for onsite low-level waste disposal facilities and their review process for DOE complex per DOE Order 435.1 will be discussed.

**Lead Organizer:**

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### **R3.05 Low-Level Waste Disposal Facility Cover Design - Worldwide**

This session focuses on the on-going and emerging issues with the design and construction of final cover system of unlined low level disposal facilities (e.g., MDAs, SDAs, burial grounds, and similar historical waste trenches, pits and vaults). The discussion will focus on key technical and regulatory issues as well as lessons learned from years of engineering and construction in the US and around the world.

**Lead Organizer:**

Kapila Fernando, Director, WM Symposia, Inc., V: +61 414 912 100, [kfernando@wmsym.org](mailto:kfernando@wmsym.org)

### **R3.06 Commercial LLW Management: Global Perspective**

This session focuses on opportunities and challenges in providing commercial nuclear waste management services in a global context. The panelists will comment on their approach to establishing new businesses, overcoming communication barriers acquiring / maintaining skills and capabilities, and delivering commercial nuclear waste management projects in a range of regulatory and socio-economic environments. The panel discussion will be followed by a Q&A session with audience participation.

**Lead Organizer:**

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Gabriele Bandt, Vattenfall Europe Nuclear Energy GmbH, V: +49 162 1588206, [gabriele.bandt@vattenfall.de](mailto:gabriele.bandt@vattenfall.de)

### **R3.07 Innovations in Alternative Final Radioactive LLW Forms**

The session focuses on the DOE EM Cementitious Community of Practice (COP) and includes work by the Cementitious Community of Practice and draws on the collective lessons learned for the numerous uses of these important materials. The COP was formed to discuss progress and arising issues related to stabilization of low, intermediate, and TRU waste. Additionally, environmental media treatment and closure technology are also part of this scope. This session will discuss the use of cementitious materials including current practices and technology needs across the DOE complex and international community. Topics in scope for COP include cementitious material utilization for the solidification/stabilization for final disposal, debris encapsulation, tank closure, and environmental media management to accelerate the closure. The long-term performance of waste, structural integrity, and changes in industry practices will also be discussed.

**Lead Organizer:**

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#### **Additional Organizers:**

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Ming Zhu, US DOE, V: 301-903-9240, [ming.zhu@em.doe.gov](mailto:ming.zhu@em.doe.gov)

#### **R3.08 Advancements and Perspectives in Isotopes – What’s Up?**

This session focused on LLW/ILW in radioisotope production. Radioisotopes represent both the cause and the useful diversion of radioactive waste. The panel session will bring together representatives from around radioisotope production to discuss the unique challenges associated with waste produced from radioisotope production as well as the unique opportunity radioisotopes pose as industry demands for certain radioisotopes provide beneficial diversion of material that would otherwise be disposed of as radioactive waste. Understanding that the radioisotope production field relative to radioactive waste is an emerging field that will require significant financial, regulatory, and staffing resources to produce high demand radioisotopes in the years to come, is of paramount importance.

#### **Lead Organizer:**

Benjamin Rothrock, UT-Battelle LLC, V: +1 865-576-9805, [rothrockbg@ornl.gov](mailto:rothrockbg@ornl.gov)

#### **Additional Organizers:**

Susan Walter, Abel Key, V: , [susan@abelkey.com](mailto:susan@abelkey.com)

#### **R3.09 Alternate Disposal Pathways for Radioactive and Hazardous Waste**

This topic accepts abstracts on: 1) disposal of LLW, NORM, and hazardous waste, 2) optimization of disposal assets and capacity by application of a consistent classification framework, 3) disposal of hazardous waste from other functions, and 4) comparison of safety cases and limits for hazardous and radioactive waste

#### **Lead Organizer:**

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#### **Additional Organizers:**

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Gabriele Bandt, Vattenfall Europe Nuclear Energy GmbH, V: +49 162 1588206, [gabriele.bandt@vattenfall.de](mailto:gabriele.bandt@vattenfall.de)

#### **4 - NUCLEAR POWER PLANT (NPP) WASTE MANAGEMENT AND ON-SITE SNF/USF STORAGE**

Andreas Roth, AtkinsRéalis (Lead Co-Chair), V: +49 40 303339606, [andreas.roth@atkinsrealis.com](mailto:andreas.roth@atkinsrealis.com)

Mark Lewis, EnergySolutions (Co-Chair), V: 803-960-3619, [mslewis@energysolutions.com](mailto:mslewis@energysolutions.com)

Mark Kirshe, ReNuke Services, Inc. (Co-Chair), V: 410-991-7628, [mark@renuke.com](mailto:mark@renuke.com)

The Nuclear Power Plant (NPP) Waste Management Track encompasses waste characterization and minimization, treatment, packaging, and management of NPP operational wastes and NPP SNF/UNF storage and management.

#### **4.00 Nuclear Power Plant (NPP) Waste Management and On-Site SNF/USF Storage- Non-specified Abstracts**

#### **Lead Organizer:**

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#### **4.01 Nuclear Power Plant (NPP) Waste Management and On-Site SNF/USF Storage - Posters**

#### **Lead Organizer:**

Andreas Roth, AtkinsRéalis, V: +49 40 303339606, [andreas.roth@atkinsrealis.com](mailto:andreas.roth@atkinsrealis.com)

#### **4.02 Advances in the Management of Nuclear Power Plant Dry Waste from Around the World**

This topic accepts abstracts on minimization, volume reduction and packaging of dry waste at NPPs arising from operation and decommissioning. The topic is open to all experience reports from existing or completed projects, but explicitly also include any new technologies, research, and concept for that waste stream. Early considerations to manage small scale operational wastes from SMR's are welcome as well.

#### **Lead Organizer:**

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#### **Additional Organizers:**

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#### **4.03 Perspectives on Management of Nuclear Power Plant Liquid and Wet Waste**

This topic accepts abstracts on liquid radwaste processing and wet waste packaging experiences at NPPs as well as any new developments and research for those waste streams. Wet waste may include filter cakes, resins, sludge, filters, and other solid wastes that may require liquid removal, characterization or processing from operation and decommissioning. Early considerations to manage small scale operational wastes from SMR's are welcome as well.

**Lead Organizer:**

Mark Lewis, EnergySolutions, V: 803-960-3619, [mslewis@energysolutions.com](mailto:mslewis@energysolutions.com)

**4.04 Nuclear Power Plant Onsite SNF/UNF Storage ISFSIs and Failed Fuel Handling at NPPs**

This topic accepts abstracts on radioactive material characterization and/or on-site SNF/UNF handling and storage at NPPs. Abstracts addressing NPP SNF/UNF storage issues, improvements in storage and handling systems, and advances in storage facility designs are included. This topic also addresses Independent Spent Fuel Storage Installations (ISFSIs) and failed fuel handling at reactor sites.

**Lead Organizer:**

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**Additional Organizers:**

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**4.05 Aging Management of Spent Nuclear Fuel in Extended Storage and Transportation**

This topic accepts abstracts on aging management activities and lessons learned of spent nuclear fuel (SNF) and performance assessment of wet and dry storage systems for extended duration; R&D on aging degradation mechanisms and mitigation of aging effects on structure, system, and components (SSCs) and materials used in extended storage and transportation; R&D on inspection, monitoring and surveillance technologies for storage systems and transport packages.

**Lead Organizer:**

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Tom Brouns, Pacific Northwest National Laboratory, V: 509-372-6265, [tom.brouns@pnnl.gov](mailto:tom.brouns@pnnl.gov)

**4.06 Current and Innovative Treatment Solutions for Spent Resins**

This topic accepts abstracts for treatment methods for spent resins as well as present the various new technologies in which different decomposition and solidification techniques are used and show promising results with respect to volume reduction, cost reduction and stabilization, resulting in a product that meets the increasingly strict criteria for final disposal. Due to their radioactivity and organic content, they need special treatment and precautions during transport, storage, and conditioning. These treatment methods vary worldwide, e.g. the destruction of the organic component to produce an inorganic intermediate product that may or may not be further conditioned for storage and/or disposal, direct immobilization of the spent resins producing a stable waste form for disposal, homogeneous cementation, bituminization, the use of geopolymers, polymerization, etc.

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**Additional Organizers:**

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**R4.01 US Nuclear Power Plant Waste Management - US LLW Disposal Issues**

This session focuses on senior utility managers discussing issues with commercial LLW processors. LLW processors will have an opportunity to update utilities/NPPs on new or different services or technologies being offered to assist in their radioactive waste management goals, changes to their facility license, revisions to their acceptance guidelines, and emerging compliance issues.

**Lead Organizer:**

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**Additional Organizers:**

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**R4.02 Radwaste Shipping Challenges at Operating Nuclear Power Plants**

This session focuses on how operating nuclear power plants are dealing with changes in radwaste operations as well as an evolving regulatory environment. Specifically, operating plants are dealing with a renewed regulatory focus on shipping processes at a time when the industry is experiencing changes to their operating model. Areas of interest include the following: 1) Shipping changes in regulatory environment; 2) Accurate and Efficient Characterization of Waste; 3) LLW disposal site interaction/ concerns; 4) Alternate approaches to Shipping Model.

**Lead Organizer:**

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**Additional Organizers:**

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**R4.03 Advanced Reactor Radioactive Waste Processes**

This session focuses on how advanced nuclear power plants are planning to deal with radwaste operations and how they plan to incorporate lessons

learned from current operating plants. While this panel will not address spent fuel or fuel reprocessing, the discussion will center on processes and designs that minimize or eliminate waste generation and/or handling challenges that the current nuclear fleet struggled historically to address.

**Lead Organizer:**

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**Additional Organizers:**

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**R4.04 Treatment Technologies for LLW and MLW Spent Ion Exchange Resins**

This topic accepts abstracts for treatment methods for spent resins as well as present the various new technologies in which different decomposition and solidification techniques are used and show promising results with respect to volume reduction, cost reduction and stabilization, resulting in a product that meets the increasingly strict criteria for final disposal. Due to their radioactivity and organic content, they need special treatment and precautions during transport, storage, and conditioning. These treatment methods for vary worldwide, e.g. the destruction of the organic component to produce an inorganic intermediate product that may or may not be further conditioned for storage and/or disposal, direct immobilization of the spent resins producing a stable waste form for disposal, homogeneous cementation, bituminization, the use of geopolymers, polymerization, etc.

**Lead Organizer:**

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**Additional Organizers:**

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**5 - PACKAGING AND TRANSPORTATION (PAT)**

Paul Jones, Perma-Fix Environmental Services (Lead Co-Chair), V: 865-591-8632, [pjones@perma-fix.com](mailto:pjones@perma-fix.com)

Anna Wikmark, AB Svafo (Co-Chair), V: +46 70 459 76 08, [anna.wikmark@gmail.com](mailto:anna.wikmark@gmail.com)

Edward Ketusky, Savannah River National Laboratory (CNTR) (Co-Chair), V: +1 803-221-3285, [edward.ketusky@srnl.doe.gov](mailto:edward.ketusky@srnl.doe.gov)

The Packaging and Transportation Track includes all activities and issues related to the safe, secure, and economical packaging and transportation of radioactive materials. This includes HLW, TRU, LLW, ILW and MW; fresh and irradiated nuclear fuel; contaminated media and debris; isotopes and radioactive sources; uranium hexafluoride, etc. Topic areas include international regulatory activities, issues, and initiatives; packaging development and related issues; logistics and transportation operations, including large items from decommissioning; integrated planning and scheduling; status and issues for large shipping campaigns; and stakeholder and public interactions and issues.

**5.00 Packaging and Transportation - Non-Specified Abstracts**

**Lead Organizer:**

Paul Jones, Perma-Fix Environmental Services, V: 865-591-8632, [pjones@perma-fix.com](mailto:pjones@perma-fix.com)

**5.01 Packaging and Transportation - Posters**

**Lead Organizer:**

Paul Jones, Perma-Fix Environmental Services, V: 865-591-8632, [pjones@perma-fix.com](mailto:pjones@perma-fix.com)

**5.02 Experience in Packaging and Transportation of Radioactive Materials Worldwide**

This topic accepts abstracts on worldwide innovation, experiences, and lessons learned in packaging and transportation of radioactive material, radioactive and hazardous waste, and UNF. Abstracts are encouraged from national and international commercial entities (power and research reactors, decommissioning sites, waste and material handling facilities) and government-managed facilities. This topic also accepts abstracts describing the design and licensing phase of package development for transport, storage and disposal. Abstracts are also sought for experiences related to modal-related topics including road, rail, maritime and air transport. In addition, topics on barge, intermodal, heavy-haul, and overweight shipments are encouraged. Topics may also include experience and capabilities to solve current packaging and transportation challenges, technical issues, traffic management and logistics.

**Lead Organizer:**

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Crystal Harrington-Martin, Container Technologies Industries, LLC, V: 4235692800, [charrington@ctifab.com](mailto:charrington@ctifab.com)

**5.03 Radioactive Material Packaging and Transportation Regulatory Issues Worldwide**

This topic accepts abstracts on national and international regulatory and multi-regulatory challenges and issues, including regulatory change and risk-informed regulation (US DOT, US NRC, IAEA, ADR– European Accord on Transportation of Dangerous Materials and other applicable agencies, worldwide). Abstracts are encouraged to share methods for addressing new regulatory requirements (e.g., new security requirements in 10 CFR 37

and 73; IAEA SSR-6), new acceptance criteria for packaging, or new transport requirements. Abstracts are also sought to provide novel or unique approaches to meeting existing regulatory requirements.

**Lead Organizer:**

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**Additional Organizers:**

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Dylan Ward, NAC International Inc, V: +1 404-314-7403, [dylanward188@gmail.com](mailto:dylanward188@gmail.com)

**5.04 Global Advances in Packaging for Interim Storage, Transport and Disposal**

This topic accepts abstracts on national and international experience with packaging development to meet specific challenges associated with interim storage of radioactive materials intended to be transported for reuse or disposal. Abstracts are encouraged which share experiences and solutions to challenging operational issues including storage of UNF and HLW in transportable canisters; Class B and C waste previously packaged for storage. Additional topics including cooperative programs for packaging design and testing worldwide are encouraged.

**Lead Organizer:**

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**Additional Organizers:**

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**5.05 State, Tribal and Regional Groups Perspectives in Resolving Radiological Transportation Issues**

This topic accepts abstracts on how State, Regional and Tribal organizations participate in and influence decisions for safe transportation of radioactive materials and UNF both nationally and internationally. Abstracts are encouraged from these organizations and include interest group objectives, ongoing group activities and policy decision recommendations, related research, strategic approaches, and socioeconomic considerations. Abstracts are sought for topics of interest such as risk management, risk perception, transportation risk, and risk communication. Abstracts may include experience with emergency response and preparedness, including training or regulatory issues.

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**Additional Organizers:**

Laurie Hernandez, CAST Specialty Transportation, Inc., V: 2082411425, [lhernandez@sbtribes.com](mailto:lhernandez@sbtribes.com)

**5.06 Packaging and Design Analysis**

This topic accepts abstracts on transportation activities including multi-modal transport (e.g., road, rail, maritime and air). The topic is intended to provide communication and sharing of experiences to provide opportunities for continuous improvement with transporting radioactive material. Abstracts are encouraged from national, international, and commercial entities (power and research reactors, decommissioning sites, waste and material handling facilities) and government-managed facilities. Abstracts are also sought on incidents and accidents (recent or historical), focusing on outcomes and lessons learned. In addition, abstracts related to potential threats and sabotage of radioactive materials packages in transit will be included in this topic.

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**5.07 Transportation Security Advances and Challenges**

This topic accepts abstracts on all aspects of transportation security advances, challenges and lessons learned from domestic as well as international shipments of radioactive materials (waste as well as fuel).

**Lead Organizer:**

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**Additional Organizers:**

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**5.08 SNF Package Performance Demonstration**

This topic accepts abstracts on all aspects of SNF Transportation Package Performance Demonstration activities, including regulatory testing, demonstration testing, test facilities, definition of unyielding surfaces, external engagement in the context of a Package Performance Demonstration, potential transportation casks to be used in testing, instrumentation, impact testing, thermal testing, deep immersion testing, test videography, and pre- and post-test analysis.

**Lead Organizer:**

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**Additional Organizers:**

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**5.09 Advanced Reactor Fuel Transportation Topics**

This topic will accept abstracts on all aspects of Advanced Reactor Fuel Transportation, including shipment of unirradiated and irradiated fuel advanced reactor fuels, shipment of microreactors containing unirradiated or irradiated fuel, maritime transport of microreactors and small modular reactors, transportation package approvals for microreactors, shipment of molten salt reactor fuel, and external engagement in the context of transporting unirradiated and irradiated advanced reactor fuels by truck, rail, and ship/barge.

**Lead Organizer:**

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**R5.01 Challenges and Lessons learned in Radwaste Packaging, Transportation, Compliance and Receipt**

This session focuses on challenges and lessons learned in radioactive waste packaging, transportation, compliance, and receipt for fabricators of radioactive waste packaging. World-wide companies are urged to participate. Participants will provide their perspectives and suggestions on how to increase efficiencies through eliminating inconsistencies and other requirements to provide products at a reasonable cost and enhance communication to enable better service.

**Lead Organizer:**

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**Additional Organizers:**

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**R5.02 Challenges and Opportunities in Establishing a System for Transportation of SNF/UNF**

This session focuses on updates or status of transportation of SNF/UNF. Panelists will provide updates and information on continuing impacts, risk assessment, equipment (rail cars, handling, securement), possible rail routing, proposed inspection equipment/routing prior to shipments.

**Lead Organizer:**

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Anna Wikmark, AB Svafo, V: +46 70 459 76 08, [anna.wikmark@gmail.com](mailto:anna.wikmark@gmail.com)

**R5.03 Fuel Shipping / Packaging and Transportation of Radioactive Materials Around the World**

This session focuses on the complexities of arranging a transnational radioactive material shipment dealing with the regulatory differences, denials of shipment, permits, and other challenges.

**Lead Organizer:**

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**R5.04 Transport of MicroReactors**

This session focuses on the transport of microreactors, transportable nuclear power plants, halon fuel; package approvals for microreactors, HALEU fuel; and transportation PRAs for microreactors and transportable nuclear power plants.

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**R5.05 Transportation of Radioactive Material and Artificial Intelligence**

This panel will discuss how artificial intelligence might impact the transportation of radioactive materials. Potential areas to be examined are knowledge management, transportation package approval (certification), and the transportation regulatory process.

**Lead Organizer:**

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**6 - DECONTAMINATION AND DECOMMISSIONING (D&D)**

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Rick Demmer, MARCOM (Co-Chair), V: 208-589-4858, [dcondude@gmail.com](mailto:dcondude@gmail.com)

Anthony Banford, UKNNL (Co-Chair), V: +44 7715 043778, [anthony.w.banford@uknnl.com](mailto:anthony.w.banford@uknnl.com)

This track includes all aspects of D&D from shutdown and planning to license termination, Brownfield, and/or Greenfield, including characterization, decontamination, storage/SAFESTOR, deactivation, dismantling, demolition, decommissioning, waste handling, final survey, and associated new technology development for both government and commercial nuclear power and non-power facilities. It also includes D&D technologies and program strategies worldwide, as well as the regulatory aspects.

**6.00 D&D - Non-specified Abstracts****Lead Organizer:**

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**6.01 D&D - Posters****Lead Organizer:**

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**6.02 D&D of Nuclear and Non-Power Generating Facilities Both Large and Small**

This topic accepts abstracts on actual D&D projects of non-power generating contaminated facilities, such as fuel cycle facilities, research reactors including fusion, research laboratories as well as small nuclear facilities such as hospitals, universities, nuclear laundries, radiochemical laboratories etc. Progress and innovative approaches including the application of robotics as well as lessons learned from the completion of major projects will be of particular interest.

**Lead Organizer:**

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Al Freitag, Globalpundits Technology, V: 914-475-1170, [aafreita@aol.com](mailto:aafreita@aol.com)

**6.03 D&D of Nuclear Power Plants**

This topic accepts abstracts on planning, decommissioning, deactivation, execution, and final facility cleanup of NPP decommissioning projects. Funding, contracting and lessons learned from the execution of major decommissioning projects will be also of particular interest.

**Lead Organizer:**

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**6.04 D&D of US DOE Facilities**

This topic accepts abstracts on the project planning, deactivation, and execution of D&D projects at US DOE sites. The topic includes site-wide approaches to footprint reduction, progress and status of US DOE D&D projects, innovative approaches to planning, deactivation, execution of projects (including use of robotics), and lessons learned.

**Lead Organizer:**

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**6.05 Plans for and Experience in Transitioning from Operations to Decommissioning**

This topic accepts abstracts that provide information on the selected decommissioning models, preparation and planning necessary to transition operating nuclear facilities into decommissioning. The session will focus on the commercial and regulatory aspects in making the decision for

decommissioning prior to license expiration. Also included will be information on decommissioning costs/funding, scheduling, work force transition, legacy retired large components/waste, regulatory requirements for decommissioning, full system chemical decontamination, plant security changes, and system re-categorization. What if there are still operational reactors at the same site? How will that affect the decommissioning?

**Lead Organizer:**

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**6.06 International Experience in Waste Optimization/Minimization, Recycling and Clearance from D&D**

This topic accepts abstracts on worldwide perspectives on waste optimization/minimization efforts before and during D&D, clearance, or other methods. NPP projects involving replacement and removal of large components and waste optimization/minimization is also included. Experiences from implementation of clearance levels from the point of view of regulators and users are welcome. The author may also consider the complementary topic 3.4, Improvement of Sustainability, Re-use, and Recycling in Management of LLW/ILW Worldwide.

**Lead Organizer:**

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**6.07 Application of Innovative D&D Technologies Including Application of Virtual Reality**

This topic accepts abstracts on the successful application of innovative D&D technologies brought into use from both the commercial and government sectors. Technologies, which make D&D less costly, safer, and more efficient, are sought in all areas of D&D, including robotics, decontamination, characterization; size and volume reduction; disposition; and recycling/recovery.

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**6.08 Fast Track D&D Technology Development and Demonstration**

This topic accepts abstracts on the approaches and frameworks to accelerate the development of D&D technology, from research to deployment. Case studies from NPPs and non-power generating facilities are also welcome.

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**6.09 Decommissioning Design and Disposition of Advanced Reactors**

This topic accepts abstracts on how future decommissioning has been included in the design of Advanced Reactors (SMRs, microreactors, etc.), for example in the choice of structural material, coolant, as well as fuel. Other aspects of decommissioning of SMRs are the possibilities of recycling of materials as well as practical issues such as dose rates during decommissioning.

**Lead Organizer:**

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**6.10 Use of Fixatives in Decontamination and Decommissioning**

This topic accepts abstracts covering the use of fixatives in D&D projects, with an emphasis on mercury vapor abatement.

**Lead Organizer:**

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**R6.01 (WITHDRAWN) Decommissioning, Issues and Possibilities/ Opportunities**

This panel focuses on decommissioning projects in Sweden, UK, US and other selected countries. This interactive discussion between the audience and panelists will include, but is not limited to the following topics: logistics (from cradle to grave); organizational aspects of decommissioning; regulatory aspects and issues; definition of the back-end with regard to packages and Waste Acceptance Criteria (WACs); Identification and management of difficult-to-handle D&D waste (e.g. damaged fuel, legacy/forgotten waste inside Nuclear Power Plants, etc. )

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**R6.02a-b The Latest Information on Japan's Fukushima Daiichi Decommissioning Update**

These two sessions focus on updating the activities at Fukushima Daiichi NPS, such as internal investigations and fuel debris retrieval. Proposed panelists include Japanese representatives from TEPCO HD, the University of Tokyo, JAEA, and invited representatives of US and non-US government agencies.

**Lead Organizer:**

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**R6.03 Robots/ remote technology/ IT, AI and DX and Waste Treatment Technology in Japan's Fukushima Daiichi Decommissioning Work**

This session focuses on the activities at Fukushima Daiichi NPS and the experiences and expectation of robotics, remote and IT/AI/DX technologies, as well as waste management. Proposed panelists include engineers from TEPCO HD, JAEA, Decom.Tech, Hitachi GE, Kajima, IHI, and US and non-US companies participating in the Fukushima Daiichi decommissioning.

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**R6.04 (WITHDRAWN) Decision Making Processes for Nuclear Facilities Awaiting Decommissioning and Decontamination**

This session focuses on the decision-making processes of Owners, Regulators, Government Bodies, and Stakeholders on what to do for reactors, reactor complexes, and facilities that are awaiting decommissioning, decontamination, demolition, and disposition.

**Lead Organizer:**

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**R6.05 (Deferred to WM2027) Open Air Building Demolition at US DOE Nuclear Facilities**

**R6.06 South Korean Progress on Nuclear Reactor D&D and LLW Disposal**

This session focuses on radioactive waste and D&D issues and R&D programs in South Korea. Various topics will be discussed in this session, including D&D and management of radioactive waste in Korea, historic waste treatment and disposal in South Korea, operation and design of disposal facility in South Korea, management and analysis of radioactive waste from research facility, etc.

**Lead Organizer:**

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**R6.07 (Deferred to 2027) Opportunities for Safe, Cost-effective, Accelerated and Sustainable Liability Reduction Using In-Situ Decommissioning/Disposal (ISD)**

This session focuses on the implementation benefits of In Situ Decommissioning/Disposal (ISD) and why ISD should be considered a more ubiquitous approach to D&D than simply 'entombment of damaged facilities. The session will consist of D&D practitioners from UK Nuclear Decommissioning Authority, US DOE EM and Atomic Energy Canada Ltd, all of whom are proposing the use of ISD as part of their legacy site cleanup strategy. Discussion will include why ISD is the D&D strategy of choice in certain circumstances, and the underpinning process that needs to be applied to ensure successful implementation from a safety, regulatory, technical and engineering perspective. Other aspects to be discussed will include the barriers, political constraints and stakeholder challenges that need to be addressed in order for the industry to successfully implement the planned approach.

**Lead Organizer:**

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**7 - ENVIRONMENTAL REMEDIATION (ER)**

Margaret MacDonell, Argonne National Laboratory (Lead Co-Chair), V: +1 630-252-3243, [macdonell@anl.gov](mailto:macdonell@anl.gov)

Kurt Gerdes, WM Symposia, Inc. (Co-Chair), V: +3013301457, [kgerdes@wmsym.org](mailto:kgerdes@wmsym.org)

Vicky Freedman, Sealaska (Co-Chair), V: +1 509-546-1679, [vicky.freedman@sealaska.com](mailto:vicky.freedman@sealaska.com)

This track includes activities associated with the assessment, cleanup, and closure of contaminated radioactive, hazardous and mixed waste sites. Also included is the remediation of uranium or thorium ores, byproducts or tailings, NORM residues and NRC defined TENORM. The topics will explore how to restore and protect human health and the environment through investigation, cleanup, closure, and long-term site management. The focus is on above and below ground remedial actions and cleanup activities including site inspection, characterization and evaluation; sampling and analysis; compliance monitoring; resolving regulatory issues that impact cleanup; aquifer and soil remediation; managing waste resulting from cleanup activities; remedial design and implementation; accelerating cleanup through technological or process improvements; closure; sustainable green remediation processes and legacy management/ long-term stewardship.

**7.00 Environmental Remediation - Non-specified Abstracts****Lead Organizer:**

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**7.01 Environmental Remediation - Posters****Lead Organizer:**

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**7.02 Alternative Strategies to Achieve Environmental Remediation Progress**

Sites may require alternative cleanup strategies when technical constraints limit meeting remedial action goals. A phased remediation approach is an example of how key implementation issues (fiscal, technical, and social-political) can be resolved while still achieving progress toward remedy completion. Abstracts are encouraged that have experienced oversight or implementation challenges and/or have adapted remediation strategies to advance site cleanup using laboratory- and field studies, mathematical modeling, or other management tools.

**Lead Organizer:**

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**7.03 Technical Innovations in Environmental Remediation and Site Closure**

This topic accepts abstracts on new technologies and new processes that enable risk reduction, accelerate remediation schedules, streamline cleanup, and reduce maintenance and security cost at high-risk or high-cost sites. Abstracts are solicited to describe specific new technical solutions using existing and innovative technologies that have assisted sites to achieve closure goals and milestones, and/or replaced or improved baseline technologies by providing efficient, cost-effective solutions. Abstracts are also encouraged on in-situ isolation technologies as well as permanent barrier design and construction. Of particular interest are lessons learned on the application of technologies or processes used to treat contaminated surface soils, buried waste tanks or ground water, including case studies, including those from other sites.

**Lead Organizer:**

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**7.04 Innovative Field Monitoring for Environmental Remediation**

This topic accepts abstracts on the monitoring of contaminated sites and its role to assess efficacy of containment and cleanup strategies. Abstracts are solicited on strategies and technologies for environmental monitoring of air, water, soil, and biota via the development and deployment of remote-sensing and drone technologies, in-situ or portable field instruments and integrative approaches for site and waste characterization, remediation process monitoring, and long-term stewardship. Abstracts are also solicited on minimally or non-invasive approaches based on new detection methods or concepts, improved sampling strategies, and the acquisition and interpretation of field-test data.

**Lead Organizer:**

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**Additional Organizers:**

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**7.05 ER Post Closure Challenges and Long-Term Stewardship/Legacy Management**

This topic accepts abstracts on post-closure progress and results in monitoring end states (future land use) for sites contaminated with radioactive or hazardous materials. Abstracts are solicited that discuss implementation of long-term stewardship that highlight inclusion of stakeholder management, legacy management plans and associated responsibilities. This topic includes abstracts discussing the processes used to identify what contaminants will remain on a site, the results of risk assessments that demonstrated the potential hazard of leaving these materials on site, as well as the required long-term stewardship activities.

**Lead Organizer:**

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**7.06 Formerly Utilized Sites Remedial Action Program (FUSRAP) and US Army Corps of Engineers Projects**

This topic accepts abstracts on the US Army Corps of Engineers and the FUSRAP program. Abstracts for this topic are solicited to update program achievement and site accomplishments, waste characterization and waste volume issues, health physics approaches, long-term stewardship issues, excavation methodologies, technology deployment, and disposal requirements. In addition, this topic accepts abstracts on closed FUSRAP sites transitioning to the US DOE for legacy management, including planning and process, issues and challenges, success stories, lessons learned, the state of affairs related to assets transferred and findings, and costs.

**Lead Organizer:**

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**Additional Organizers:**

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**7.07 In-situ Stabilization and Containment**

This topic accepts abstracts on technologies and methodologies for the in-situ stabilization of metal and radioactive contaminants. This session focuses on empirical, synthesis, and modeling studies addressing the stabilization and change in subsurface contaminants with respect to sequestration capacity, transformation, and transport. Abstracts addressing all aspects of the study area are encouraged, including chemical and biological approaches along with the quantitative evaluation of long-term stability of these materials.

**Lead Organizer:**

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**Additional Organizers:**

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**7.08 Conceptual Site Models: Improvements in Development and Application**

This topic accepts abstracts that describe the on-going development of conceptual site models (CSMs) and their support of scientific and technical decisions for the site. The CSM integrates technical information from various sources, identifying contaminant releases, contaminant migration, as well as data gaps that guide additional data collection. This session will provide a platform to discuss advancements and challenges in the occurrence, transport, transformation, and remediation of contaminant and welcomes laboratory-scale, field-scale, and mathematical modeling that support CSM development in both groundwater and the vadose zone.

**Lead Organizer:**

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**7.09 Environmental Remediation in Urban and Suburban Environments**

This topic accepts abstracts on all aspects of the challenges of ER of sites that are associated with urban and suburban areas. Several sites were previously located in undeveloped or rural areas, but due to development, are now surrounded by urban, suburban, or industrial/commercial areas. Remediation of urban and suburban radiologically and chemically contaminated sites present special challenges including protection of the public, limited working space, and communication and involvement with stakeholders, and planning for future use and/or redevelopment of the site.

**Lead Organizer:**

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#### **7.10 Environmental Remediation of Abandoned Uranium Mines and Mills**

This topic accepts abstracts on all aspects associated with the environmental remediation of abandoned uranium mines and mills world-wide, including field surveys and investigation techniques, sample collection and analysis, risk or dose assessment, remedial design and remedial experiences, long-term operation and maintenance of remedies, and modeling. In addition, abstracts are welcomed that include challenges associated with cultural and societal aspects, interaction with local, state, tribal, and federal agencies, returning sites to beneficial reuse, and site closure experiences.

#### **Lead Organizer:**

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#### **7.11 Modeling Applications and Flow/Transport Analysis in Environmental Remediation**

This topic accepts abstracts from around the world on all aspects of modeling or calculations used for environmental applications, including flow and transport modeling to support monitoring and remedy evaluations, with conceptual site models as the foundation. Aspects to be discussed include data analysis and integration, uncertainty analyses and decision support, and the use of simulations to study physical and bio-geochemical phenomena to support site decisions and engineering design.

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#### **7.12 Emerging Contaminant Issues**

This topic accepts abstracts that bring to light the emerging contaminants around the world such as perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), plastics and microplastics. The issues and growing worldwide awareness of these pervasive contaminants that may be found on nuclear waste sites (operating and in phases of closure) are of interest. Topics covered will include contaminant discovery, site investigation, remediation, risks, regulations, and stakeholder concerns.

#### **Lead Organizer:**

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#### **7.13 Risk/Dose Analysis in Environmental Remediation**

This topic accepts abstracts on all aspects of quantitative risk and dose assessments used to inform human and ecological risk/dose decisions on chemical and radiological exposure. The multistep procedure used to evaluate risk/dose, including data selection, model selection, statistical linkage, parameter estimation, quality evaluation, model sensitivity, and software tool development are topics relevant to the characterization of dose-response relationships and exposure estimates that guide regulatory decision-making.

#### **Lead Organizer:**

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#### **7.14 Approaches to Overcome Challenges in Environmental Data Management, Access, and Analysis**

This topic accepts abstracts that discuss approaches to overcome challenges associated with the access, analysis, and management of environmental data. Environmental information and data are heterogenous and highly distributed in both space and time. Topics may include cloud access, cataloging, storing, retrieving, and managing data, as well as innovations in methods, GIS, and software tools that provide critical analyses that support environmental restoration, long-term stewardship, and site closure.

#### **Lead Organizer:**

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### **7.15 Challenges in Meeting Regulatory Requirements Associated with Changes in Environmental Cleanup Decisions and Site Management**

This topic accepts abstracts that focus on meeting regulatory requirements associated with shifts in environmental remediation strategies or site transition to a different agency. Environmental remediation activities may be executed under one or more different regulations, including the Resource Conservation and Recovery Act, Comprehensive Environmental Recovery and Compensation Liability Act, National Environmental Policy Act, or state-specific regulations, with evolving requirements associated with different stages of remedial progress. Specifically, abstracts are solicited that describe lessons-learned, opportunities for improvement in project planning, implementation, and regulator interactions that help achieve managing these shifts in a technically sound, cost-effective, and compliant manner.

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### **R7.01 Risk-Based Approaches to Environmental Remediation and Adaptive Site Management**

This session focuses on the remediation of legacy trench sites, discussing challenges associated with site characterization, risk evaluation, and remedial approaches using adaptive and iterative approaches needed to manage these difficult-to-remediate sites. The discussion will also include international case studies, highlighting the importance of end state selection and the benefits of including interested parties in the decision-making process.

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### **R7.02 Vertical Delineation of Groundwater Contamination and Aquifer Properties at DOE Sites**

This session focuses on cost and benefits of vertical delineation of groundwater contamination and aquifer properties for supporting remedial actions such as monitoring, groundwater extraction, and in-situ treatment. Discussion will focus on DOE sites and issues such as technologies available for vertical characterization, regulatory requirements and policy, vertical data usage, technical and non-technical constraints and barriers, and cost.

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### **R7.03 Radiological Modeling for Input for Cleanup of Sites**

This session focusses on an inter-agency panel on use of radiological modeling for the purpose of demonstrating protection of the public and environment for nuclear reactor environmental remediation and cleanup of government sites.

#### **Lead Organizer:**

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### **R7.04 Radiological Surveying and Remediation in Ukraine**

This session focuses on the likely remediation activities in the Ukraine. The invasion in Ukraine in 2022 and subsequent military activities in that country is having a pronounced impact on its environment. Regardless of when and how the hostilities end, a large-scale program of radiological surveying and eventual remediation will be needed. Some work on the surveying has already been documented and this session will bring together experts to present the latest information.

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### **R7.05 Panel: Performance of Cell Caps & Covers for Long-Term Stewardship of Residual Radioactive Materials**

This session focuses on caps and covers for earthen disposal cells aims to address critical objectives within the realm of long-term performance, and environmental protection. Firstly, it seeks to provide a comprehensive understanding of the latest monitoring and maintaining effective caps and covers for earthen disposal cells to prevent the release of hazardous substances into the environment. Secondly, the session will foster discussions on best practices, innovative technologies, and case studies to promote knowledge sharing and collaboration among experts in the field. Furthermore, it

will underscore the significance of long-term stewardship, with a focus on sustainability, to ensure the safe containment and management of residual radioactive material. Ultimately, this session will equip participants with the knowledge and tools necessary to tackle the complex challenges associated with the capping of earthen disposal cells, safeguarding ecosystems, and public health.

**Lead Organizer:**

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**R7.06 Emerging Contaminants and Technologies**

This session focuses on emerging contaminants and technologies. Emerging contaminants (e.g., PFAS, micro- and nano-plastics, engineered nanomaterials, pharmaceuticals, etc.) are potentially toxic, mobile, and create monitoring and treatment challenges in subsurface environments. This panel will discuss recent advancements, challenges, and opportunities on the environmental fate and transport, characterization technologies, remediation, and disposal approaches of emerging contaminants.

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**R7.07 (Withdrawn) Integrating Sustainability and Circularity in Environmental Remediation: Bridging the Gap Between Implementers and Regulators**

**R7.08 The Basis For implementation of Environmental Remediation in a Broader International Perspective**

Despite the existence of international standards on the topic, such as those issued by the IAEA, the approaches used are not in line with these standards. Decisions and implementation of these programs need to follow specificities that pertain to the cultural and political domain of each country. But it is also clear that a contradiction exists. The panel examines this paradox, find commonalities that are faced by the countries challenged with remediating affected sites and opportunities. Such that adopted principles and approaches can be given a fresh look. This would include a holistic thinking, considerations about the cost-effectiveness of some adopted solutions, risk informed decision making that might, altogether, lead to the implementation of more sustainable remediation approaches, considering the economic, social and environmental dimensions.

**Lead Organizer:**

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**8 - COMMUNICATION AND WORKFORCE MANAGEMENT (CWM)**

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Jeannette Hyatt, Triad National Security, LLC (Co-Chair), V: +1 505-695-8478, [jhyatt@lanl.gov](mailto:jhyatt@lanl.gov)

This track covers communications, stakeholders & indigenous engagement, and workforce management issues and programs in the nuclear industry.

**8.00 Communications and Workforce Modernization - Non-Specified Abstracts**

**Lead Organizer:**

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**8.01 Communications and Workforce Modernization - Posters**

**Lead Organizer:**

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**8.02 Leveraging AI and Data Visualization for Effective Decision-Making and Communication Support in Radioactive Waste Management: Worldwide Experiences**

This topic accepts abstracts showcasing practical applications of artificial intelligence and related technologies in the field of radioactive waste management. It encompasses areas such as environment, safety, health, quality, and other essential services. The goal is to gather insights from experiences that have proven successful, with the potential for replication by waste management practitioners, policy makers, regulators, and the public. The focus is on sharing methodologies that have been effective in navigating and communicating complex and often contentious issues related to radioactive waste management. This interdisciplinary discussion aims to draw from diverse perspectives to enhance the field's approach to managing radioactive waste.

**Lead Organizer:**

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### **8.03 Community and Inter-Governmental Perspectives on Nuclear Waste Cleanup**

This topic accepts abstracts focused on cleanup issues that will have a direct and lasting impact on the future of our worldwide nuclear program initiatives. Decisions on SNF storage and the waste from HLW processing facilities will all be affected by the involvement of local community and government partners to ensure that perspectives are understood and considered in decisions facing our world.

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### **8.04 Decision-making Tools and Frameworks that Enhance Communication for Cleanup Programs**

This topic accepts abstracts on information, communication and knowledge-management technologies and techniques to organize, share, maintain, and track/trend data for sites and facilities with contamination issues and preparedness for incident response. The emphasis is on innovative approaches for efficient and effective frameworks to access, interpret, and communicate information that addresses broad stakeholder concerns and workforce transitions to the next generation of nuclear leadership. The overall aim is to improve external and internal interactions, and streamline sharing of routine and incident-specific information.

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Evelyn Dawson, RSI, V: 480-212-3768, [edawson@rsienv.com](mailto:edawson@rsienv.com)

### **8.05 Innovations and Solutions to Workforce Modernization**

This topic accepts abstracts on effective organizational management practices to meet multiple objectives including safety, technology utilization, and organizational performance measures of all types. Abstracts are welcome on lessons learned about integrating the efforts of individuals, teams, technologies and coordinating performance across multiple departments or organizations including improving management practices, implementing change, and streamlining management communications.

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### **8.06 Revolutionizing Workforce Development in the Nuclear Industry**

This topic accepts abstracts on the multifaceted global challenges of addressing current labor shortages and the strategies being employed to meet the evolving needs of the nuclear-environmental and radioactive waste industries. As the global nuclear industry continues to evolve and expand, workforce development has emerged as a critical imperative to ensure sustainability and growth. Approaches being employed by government agencies, private industry, and others to assist in attracting and retaining the work force needed for the future are requested.

#### **Lead Organizer:**

Susan A. Walter, WM Symposia, Inc., V: 865-208-9714, [swalter@wmsym.org](mailto:swalter@wmsym.org)

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### **8.07 Strategies for Capturing Institutional Knowledge and Succession Planning**

This topic invites abstracts that delve into comprehensive strategies and best practices for effectively capturing and retaining institutional knowledge within organizations and developing effective succession planning to build organizational bench strength. Participants are encouraged to submit abstracts outlining initiatives that demonstrate successful knowledge management enhancements. This includes descriptions of formal training programs (both electronic and onsite), practical workplace experiences that have proven effective in knowledge retention, and innovative approaches that ensure valuable organizational knowledge is preserved and utilized. By exploring various approaches and methodologies, this topic seeks to foster a deeper understanding of how organizations can systematically capture, store, and leverage their accumulated expertise.

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**8.08 Public Engagement through Social Sciences, Technology, and Communications**

This topic accepts abstracts on best practices and lessons learned about communications tools for nuclear facilities and cleanup efforts.

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**R8.01 Best Practices in Risk Communications**

This session focuses on a sustainable, holistic, and integrated approach to structure nuclear waste management, disposal, and remediation decisions. This panel will have participation from internal and external stakeholders and demonstrate the use of tools and techniques to effectively communicate factors that inform decisions. The desired outcome is to effectively communicate how risk is evaluated at complex sites, highlight holistic site level approaches that are protective of human health and the environment, and incorporate policy and technical concerns related to achieving alternative end points. This discussion will include existing decision-making tools in conjunction with case studies.

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Jeremy Latta, Atomic Energy of Canada Limited, V: +1 613-794-4936, [jlatta@aecl.ca](mailto:jlatta@aecl.ca)

**R8.02 Stakeholder Involvement in Transportation of Nuclear Waste**

The panel will discuss elements needed for success in engaging various stakeholders to safely and successfully transport nuclear waste.

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**R8.03 A Human Resource Perspective on Challenges & Opportunity in Workforce Management**

This session focuses on the critical issue of aging workforce and knowledge management in nuclear waste management globally. This panel includes issues, challenges, and opportunities from a Human Resource management perspective.

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**R8.04 Indigenous Perspectives on Risk Assessment**

This session focuses on the perspectives of Indigenous societies (e.g., Indian Tribes (US), First Nations (Canada) related to risk assessment of environmental remediation challenges, including deep geological disposal of HLW and ILW, near-surface disposal of LLW and in-situ entombment of nuclear reactor components, and environmental remediation of abandoned uranium mines and historic wastes. Standard risk assessment assumptions often do not adequately address the cultural and spiritual values that may be unique to indigenous societies. Factoring those into a risk assessment that still meets regulatory requirements and policies such as reasonably anticipated land use at US EPA CERCLA sites can be challenging but has the potential to lead to a site or facility approach that is more accepted.

**Lead Organizer:**

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### **R8.05 Successes and Challenges with Preserving the Atomic Legacy**

This session focuses on museums, visitor centers, National Parks, interpretive centers, to preserve the nuclear legacy.

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### **R8.06 ECA/EFCOG DOE EM Workforce Initiative – Creating Solutions**

This session focuses on ECA, EFCOG, and DOE-EM on workforce development challenges across the DOE complex, and how communities, contractors and DOE can best work together to meet shared needs and goals.

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### **R8.07 Revolutionizing Workforce Development in the Nuclear Industry**

This session focuses on the multifaceted global challenges of addressing current labor shortages and the strategies being employed to meet the evolving needs of the nuclear-environmental and radioactive waste industries. As the global nuclear industry continues to evolve and expand, workforce development has emerged as a critical imperative to ensure sustainability and growth. Approaches being employed by government agencies, private industry, and others to assist in attracting and retaining the work force needed for the future are requested.

**Lead Organizer:**

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### **R8.08 Role of Community Groups and Advisory Committees in Nuclear Waste Clean-up**

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## **9 - SPECIAL TOPICS AND MULTI-TRACK CROSS CUTTING TECHNOLOGY TOPICS**

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Ming Zhu, US DOE (Co-Chair), V: 301-903-9240, [ming.zhu@em.doe.gov](mailto:ming.zhu@em.doe.gov)

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This Track includes all Special Topics including the aspects of US and non-US International Safety, Security, and Safeguards and US Homeland security issues. It also includes technical track crosscutting topics or special WM topics on programs associated with orphan and sealed sources, Integrated Risk Management and decision support analysis in support of Program Management & Project Management inclusive of but not limited to modeling, compliance activities, criteria and standards development, Natural Resource Damage Assessment (NRDA); Technology Deployment and Technical Risk Management; instruments, filtration, advanced technologies, extreme environment operations enabling technologies, technology driven program implications and drivers, and/or other technical crosscutting issues that involve multiple waste forms or radioactive materials and/or risk management.

### **9.00 Special Topics and Track Cross Cutting Technology Topics - Non-specified Abstracts**

**Lead Organizer:**

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### **9.01 Special Topics and Track Cross Cutting Technology Topics - Posters**

**Lead Organizer:**

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## **9.02 Crosscutting Subsurface Mass Transport and Environmental Assessment In Support of Decision Analyses of Geological Disposal Systems**

This topic accepts abstracts that crosscut other tracks related to environmental and/or risk assessment of geological radioactive waste disposal systems that consider hydrological, mechanical, thermal and chemical/biochemical effects. Complementary topics 2.11 and 3.07 focus on track-specific performance assessment but all topics, including related topic 9.04, will exchange abstracts in developing the Technical Program. Abstracts are requested on advances in methodologies and technologies associated with characterization and evaluation of the fluid flow, diffusion and/or dispersion, chemical and geochemical processes including consideration of their evolution, model development, model application and validation, parameter acquisition and evaluation techniques and integrated process assessment.

### **Lead Organizer:**

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## **9.03 Risk-Informed Performance Based Decision Analysis for Site Closure**

This topic accepts abstracts on highlighting the progress made on the development of technical methods or approaches relative to closure of complex sites. Complex issues include those of a technical or regulatory nature. Technical topics include chemical, physical and biological approaches to in-situ sequestration of contaminants and methods to monitor both performance and long-term effectiveness to ensure reduction of risks to human health and the environment.

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## **9.04 Integrated Performance and Risk Assessments, Decision Analyses, and Risk Management**

This topic accepts abstracts from the US and International communities on: 1) New approaches for performance assessments, multimedia risk assessments, and multi-attribute decision analyses in support of remedy selection for environmental cleanup and closure projects. 2) Developments in methodologies and tools for multimedia environmental modeling, particularly data management and visualization, (conceptual model and data) uncertainty quantification, and dose calculations. 3) Integration of performance/risk assessment models into life cycle cost analyses. 4) Integration of monitoring and modeling approaches for validating multimedia environmental models and optimizing environmental monitoring.

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## **9.05 Global Perspectives on Advances in Nuclear Safety Management**

This topic accepts abstracts on the full range of nuclear safety management with an emphasis on methods and processes to improve safety performance, prevent accidents, provide improved emergency response, and reduce the overall risk of injuries, exposure, damage, or shutdowns for both the commercial and governmental activities and programs involving nuclear materials. Abstracts are encouraged to discuss alternative methods of maintaining a high awareness of safety as well as approaches to maintaining a strong safety culture and enhanced human safety performance a highly incentivized workforce. Additionally, discussions of changes in safety standards and measurement methods could be presented under this topic.

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## **9.06 Radioactive Containment Ventilation**

This topic accepts abstracts on issues associated with containment ventilation. It will include presentations on difficult problems/novel solutions associated with waste processing, facility decontamination, maintenance, site remediation, and filters developed for design basis conditions. Lessons learned from various containment ventilation systems are anticipated. Abstracts are particularly solicited that address issues associated with cleanup of the Fukushima Daiichi tsunami, upgrades at WIPP, and status of waste treatment facilities at US DOE Idaho and Hanford, as well as other facilities worldwide. Abstracts are also sought for changes in US and international codes allowing qualification of filters for use under design basis conditions facilitating safety in design as well as gas absorbers.

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**9.07 Project Management Improvements-Planning through Completion-Scope, Cost, & Schedule Control**

This topic accepts abstracts on the latest developments in project management systems and methods and their application to waste management projects. Subjects could include planning approaches to ensure that the scope is clear and achievable, cost estimates are complete and realistic, and schedules include time estimates for both the direct project activities and the administrative and regulatory activities required to allow project implementation. Abstracts that discuss the use of planning tools, such as Critical Path Method (CPM), and control tools, such as the Earned Value Management (EVM), will be encouraged. In addition, abstracts that discuss methods used for effective integrated planning across multiple sites and programs and the coordination/inclusion of the key participants required for success – client, workers, regulators, public, etc. will be encouraged.

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**9.08 Artificial Intelligence (AI) and Machine Learning (ML) Applications in Radioactive WM**

This topic accepts abstracts related to all aspects of applying artificial intelligence, machine learning (AI/ML), deep learning and complex data analytics to the complex problems that are faced in deactivation and decommissioning (D&D), environmental remediation, waste disposal, and long-term stewardship of contaminated sites and facilities. Abstracts are encouraged that discuss applications that support finding optimal solutions to the types of complex problems listed above using AI/ML and other methods. This could include structured decision making, sensitivity/uncertainty analysis, and model building in general, and might be applied to optimizing remediation strategies, reducing long-term monitoring costs, optimizing sensor networks, integrating data from multiple sources (e.g., in situ sensors, drone/satellite-based remote sensing, reactive transport modeling, etc.), scaling data/models for different purposes, and providing actionable information from vast datasets.

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**9.09 Modular Solutions for Radioactive Waste and Nuclear Materials Processing, Environmental Operations**

This topic accepts abstracts related to small modular platforms, skids, and other integrated solutions as alternatives to large and complex permanent facilities for radioactive and radiochemical solid/liquid waste handling and retrieval, processing, treatment, stabilization, immobilization, and packaging. The key feature is modularity in design whereby systems and subsystems can be independently created, modified, replaced, or exchanged with other modules or among different integrated systems. Other features and capabilities may also include portability and mobility; rapid deployment to compensate for the temporary loss of a mission-critical capability; and response to off-normal events, operational emergencies, and natural disasters.

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**9.10 Advancing Fixative Technologies for Extreme Environments: Innovations and Challenges TBD****Lead Organizer:**

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**9.11 Unmanned Ground Vehicle (UGV) Use at Nuclear and Industrial Facilities and Cleanup Sites**

This topic accepts abstracts on Unmanned Ground Vehicle (UGV) Use at Nuclear and Industrial Facilities and Cleanup Sites. This topic covers the use of tracked, wheeled, legged, and marsupial unmanned ground vehicle (UGV) solutions to support nuclear and industrial facility operations; environmental cleanup and post-closure stewardship; radioactive waste treatment, storage, and disposal facilities; and nuclear materials and spent nuclear fuel stewardship and disposition. Abstracts are encouraged that discuss technology maturation, hardware and software integration, radiation hardening, ruggedizing, testing and evaluation, verification and validation, technology transfer, best practices and lessons learned, operational and deployment challenges, and other related topics. Use case studies are welcomed in, but not limited to, surveillance and monitoring, inspection, disposition, physical security, task performance, and off-normal and emergency response.

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**9.12 Unmanned Aerial System (UAS) Use at Nuclear and Industrial Facilities and**

This topic accepts abstracts on the use of unmanned aerial systems (UAS) and unmanned aerial vehicles (UAV) (also referred as remotely piloted aircraft systems (RPAS) and drones) to support nuclear and industrial facility operations; environmental cleanup and post-closure stewardship; radioactive waste treatment, storage, and disposal facilities; and nuclear materials and spent nuclear fuel stewardship and disposition. Abstracts are encouraged that discuss technology maturation, hardware and software integration, radiation hardening, ruggedizing, testing and evaluation, verification and validation, technology transfer, best practices and lessons learned, operational and deployment challenges, and other related topics. Use case studies are welcomed in, but not limited to, surveillance and monitoring, inspection, disposition, physical security, task performance, off-normal and emergency response, and counter-/anti-UAS/UAV.

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**9.13 Wearable Robot Use at Nuclear and Industrial Facilities and Cleanup Sites**

This topic accepts abstracts related to use of exoskeletons, exosuits and other wearable robotic devices used for accomplishing repetitive, dull, dirty, dangerous tasks more safely. Abstracts are encouraged that discuss technology maturation, hardware and software integration, ruggedizing, testing and evaluation, verification and validation, technology transfer, best practices and lessons learned, operational and deployment challenges, and other related topics. Use case studies are welcomed, but not limited to ergonomic studies, task performance studies, and off-normal and emergency response

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**9.14 Industrial and Specialty Robot Use at Nuclear and Industrial Facilities and Cleanup**

This topic accepts abstracts related to use of industrial robots, including articulated robots, Cartesian robots, pipe crawler robots, snake robots, delta robots, polar robots, collaborative robots, and selective compliance assembly robot arm (SCARA) robots; aquatic and submersible robots; marsupial and hybrid robots; and other specialty robotic devices, remote systems, and stand-off systems used for accomplishing tasks. Abstracts are encouraged that discuss technology maturation, hardware and software integration, radiation hardening, ruggedizing, testing and evaluation, verification and validation, technology transfer, best practices and lessons learned, operational and deployment challenges, and other related topics. Use case studies are welcomed in, but not limited to, surveillance and monitoring, inspection, disposition, physical security, task performance, radiation hardening and off-normal and emergency response.

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**9.15 Alternative Reality Technologies Use at Nuclear and Industrial Facilities and Cleanup Sites**

This topic accepts abstracts related to the use of alternative reality technologies, including non-immersive, fully immersive, semi-immersive, and collaborative virtual realities; augmented reality; mixed reality; extended reality; and hybrid reality. Case studies and use examples of alternative reality technologies to be discussed in this topic include, but are not limited to, technology maturation; engineering design; work quality improvements; work process simulations; troubleshooting, post-event, and forensic simulations; investigation worker efficiency and productivity; and worker training and proficiency.

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### **9.16 The Connected Worker: Integrating Workers and Technology in the Work**

This topic covers connective technologies, sensor technologies, mapping technologies and smart technologies that are used to “connect” the worker with assistive data-exchange devices in the workspace to enhance real-time situational awareness; enable continual real-time self-awareness; provide immediate and on-demand access to real-time information; enhance collaboration among workers who are not co-located; enable more informed decision-making when responding to off-normal events; and other use scenarios that allow workers to perform tasks safer, more efficiently and produce quality results by becoming integrated with technology in the immediate work space and work environment.

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### **R9.01 Operational Excellence in Safety: Back to the Basics**

This session focuses on exploring current trends in building a strong operational culture and will include safety culture best practices from industry, DOE, and NRC. Safety culture is the foundation of strong operational performance. The panel will also review tools being used to measure and evaluate safety culture programs.

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### **R9.02 Perspectives (US and Non-US) on the Use of Risk and Dose Assessment Tools**

This session focuses on various dose and risk assessment tools for assessments, Deactivation and Decommissioning, remediation, and closure of sites of chemical and radioactive wastes. Representatives from the US (DOE, EPA, NRC), non-US countries and their representative regulatory bodies or authorities, as well as performance/risk assessment practitioners will compare and contrast the various guidance from regulatory agencies and authorities on how tools such as the Preliminary Remediation Goals (PRG) calculator, the Dose Compliance Concentrations (DCC) calculator, and RESidual RADioactivity (RESRAD) should be used in support of analyses and decisions for environmental cleanup activities.

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### **R9.03 Interagency Community of Practice in Risk and Performance Assessment**

This session focuses on the status of the Inter-agency Performance & Risk Assessment Community of Practice (P&RA COP). Representatives from the P&RA COP and subject matter experts will discuss lessons learned and provide feedback on building the P&RA COP to support risk-informed environmental decision making.

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### **R9.04 Nuclear and Industrial Robotics, Remote Systems and Emerging Technologies**

This session focuses on the use, challenges and deployment aspects of information technology, artificial intelligence in advanced deployment of robotics, remote systems and tools used in the nuclear industry, including needs, problem statements, research and development in an ever-evolving digital world both within universities, private enterprises, and governmental organizations.

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### **R9.05 (Withdrawn) Issues & Recent Developments in Security of Nuclear Sector**

### **R9.06 Digital Engineering – Transforming the Way We Design, Deliver, and Manage Projects**

This session focuses on Digital Engineering (DE), an integrated digital approach that uses authoritative sources of system data and models as a continuum across disciplines to support lifecycle activities from concept through disposal. Megaproject construction challenges have common traits

with many active projects failing to meet cost and schedule efforts by significant margins. In addition, due to the desire to reduce schedule and avoid escalation, construction is often begun prior to full design maturity. DE embodies a deliberate transformational approach to the way systems are designed, engineered, constructed, operated, maintained, and retired. Abstracts are solicited in any, or all, of the five areas of DE.

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**R9.07 Advancement of HEPA Filters at US DOE Sites**

This session will discuss the advancement of HEPA filters at the DOE Sites. Panelists will discuss the recent Southwest Research Institute analysis on the need for independent testing of HEPA filters used at DOE sites, the cooperative agreement with Mississippi State University, current research and development efforts and implications for DOE sites, recent changes to handbooks and standards regarding HEPA filters, integration of DOE guidance into existing industry consensus codes and standards (such as ASME AG-1), and DOE Program office insights on challenges and lessons learned associated with HEPA filters.

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**R9.08 Systems Thinking for Decision Analysis in D&D And Legacy Site Cleanup**

This session focuses on the following: 1) System approaches for integrating & optimizing end state, 2) Processes and decommissioning strategies, 3) Decision analysis processes for legacy facilities, 4) Bringing together diverse inputs from different site functions and operations, 5) Considering environmental risks and other factors and risks in decommissioning and end state processes, and 6) Systems models and decision processes for complex sites.

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**R9.10 (Deferred to WM2027) Distributed Ledger Technology Improving Efficiencies**

This session focuses on Distributed Ledger Technology (DLT). In nuclear waste management today, the record keeping processes often require significant effort involving spreadsheets, manual querying and updating information in dispersed data silos, and coordination of multiple entities. DLT has been proven to address these challenges while improving efficiency and trust across the waste handling and compliance supply chain. DLT solves supply chain challenges by getting information to the correct people when needed while assuring trust in the right data through attestation to improve efficiency, security, and oversight organizations. The panel will discuss a digital solution that would: 1) Provide global waste asset visibility; 2) Ensure compliance with waste acceptance criteria; 3) Deliver continuous information assurance with accessibility, security, and resilience; and 4) Result in cost savings and process improvements

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**R9.11 OECD NEA Holistic Process for Decision Making on Decommissioning & Management of Complex Sites (WITHDRAWN)**

**R9.12 DOE EM Testbeds: A Path to Deployment for Safe and Effective Cleanup**

This session focuses on the DOE EM Test Bed Program. The DOE-EM Technology Development Office (EM-TDO) is advocating the EM site Testbed Program (TBP) to facilitate the use of EM's unique environments, constructed facilities, and virtual platforms to evaluate innovative research and development and deployment, advance technologies that facilitate, safely accelerate, and cost effectively conduct the EM cleanup work. The TBP can assist commercial product developers, academic investigators, and EM's laboratories and contractors to mature products and research while enhancing EM missions and leveraging resources. Thus, the envisioned testbeds may be grouped into five categories: 1) EM Testbeds, 2) National Laboratory Testbeds, 3) University-based Testbeds, 4) Interagency Testbeds, and 5) Centers of Excellence within DOE. In support of the EM TBP, this panel session intends to bring together stakeholders from across various sectors of the DOE-EM community to share perspectives, planning,

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**R9.13 Panel: Operational Excellence -- Creating and Maintaining a Psychologically Safe Work Environment**

This session focuses on creating and promoting a psychologically safe work environment at nuclear cleanup sites. A key enabler of high-performance is fostering a work atmosphere in which people fearlessly engage, ask for help, share suggestions, and challenge the status quo without fear of negative consequences. This roundtable discussion features senior leaders from DOE and contractors at national and international sites, exchanging ideas, best practices, and lessons learned on ways to promote a psychologically safe work environment to support innovation, diversity, and adaptability. The conversation will focus on the definition of a safe work environment, the broad application of safety culture concepts, unlocking the benefits of diversity, red flags to watch for, and potential approaches to achieving operational excellence.

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**R9.14 (Withdrawn) DOE Environmental Management Chief Engineer Technical Challenges at DOE EM Field Sites**

**R9.15 The Role of National Laboratories in Delivering Value Through National Missions**

This session focuses on the US and Non-US National Laboratories and their role in delivering benefit to the sector and society more broadly. The panel shared their approaches in supporting nationally critical missions ranging from Environmental Restoration to Clean Energy, including how they are building skills and critical nuclear infrastructure for the future.

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**R9.16 Updates on DOE NNLEMS in Support of EM and LM Missions**

This session highlights the status of the DOE Network of National Laboratories for Environmental Management and Stewardship (NNLEMS)'s recent efforts to support EM and LM sites, including development of DOE Sites' climate vulnerability assessment plans, independent review of groundwater remediation and monitoring strategies, and high-risk site assessments. Implementation of the NNLEMS work is highlighted in Tracks 2 and 7.

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**R9.17 (Withdrawn) Nuclear Material Accounting and Measurements for Radioactive Waste at Bulk Handling Facilities under IAEA Safeguards**

**Lead Organizer:**

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**R9.18 (Withdrawn) The Use of Business Intelligence (BI) to Manage the Complexities of DOE Task Order Based Contracts**

**Lead Organizer:**

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**R9.19 DOE EM Nuclear Safety Oversight Panel**

This session focuses on the DOE Office of Safety, Security, and Quality Assurance in providing nuclear and facility safety oversight for the EM field sites. Oversight activities are driven by requirements, observed trends, areas of concern and triggering events. In FY20, EM adjusted its oversight strategy to improve alignment with requirements and ensure timely and effective oversight of safety, security, and quality assurance throughout the EM Complex. The EM Central Technical Authority (CTA) is responsible for maintaining operational awareness of the implementation of nuclear safety requirements and the staffing resources to fulfill nuclear safety responsibilities. This panel will discuss the lessons learned from CTA safety reviews performed in FY21-FY22, lessons learned from these reviews, and the strategy for future reviews.

**Lead Organizer:**

Amanda Anderson, US DOE, V: 240-702-5556, [amanda.anderson@em.doe.gov](mailto:amanda.anderson@em.doe.gov)

## **R9.20 concepts of sustainability and circularity in the Back-end of the nuclear cycle that would include Consideration of Sustainability and Circularity in Decommissioning, Environmental Remediation and Waste Management in the Back-End of the Nuclear Cycle**

Efforts are being made to promote the concepts of sustainability and circularity in different areas of the nuclear cycle. Particularly in the Back-end of the nuclear cycle that would include consideration of sustainability and circularity in the scope of Decommissioning, Environmental Remediation and Waste Management. As it can be seen, both sustainability and circularity are clearly cross cutting topics. So far the focus has been on ER and NORM but it is clear that these concepts need to be discussed in a broader perspective. There are good examples to be shared and also the need of clarification about these concepts. It has been demonstrated that investments in sustainability and circularity can be very profitable – under economic consideration – something that is not clearly perceived. This idea aligns with the approach going beyond of “turning legacies into assets”. The panel will collect and share experiences and steer the discussions towards actions that might be needed to unlock this potential in different areas.

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## **10 - LEVERAGING EDUCATION PROGRAMS FOR THE FUTURE**

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Judith Connell, Fluor (Co-Chair), V: +509-531-4484, [judy.connell@fluorgov.com](mailto:judy.connell@fluorgov.com)

Ann Riedesel, Fluor Mission Solutions (Co-Chair), V: +1 208-569-6320, [ann.riedesel@fluorgov.com](mailto:ann.riedesel@fluorgov.com)

This track is dedicated to education programs that will produce the next generation of professionals who will support the nuclear/waste management industry. Panels and sessions will focus on education essentials and best practices in both US and non-US settings. Topics will include: (a) defining future US and global workforce needs; (b) addressing the imminent gap in a qualified workforce; (c) educating and preparing the potential talent pool; (d) developing and deploying applications and tools to prepare students for careers in the nuclear and adjacent industry; (e) supporting education programs through outreach to academics and teachers; and (f) the importance of education in technical solutions for worldwide problem solving. For clarification, track 10 is focused on education initiatives that help fill the pipeline to create our industry’s workforce (grade school, undergraduate, graduate, trade, etc.); once they join the workforce, any additional education initiatives are part of Track 8 topics (workforce management and professional development type topics).

### **10.0 Leveraging Education Programs for the Future Topics - Non-specified Abstracts**

#### **Lead Organizer:**

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### **10.01 Leveraging Education Programs in the Future Topics - Posters**

#### **Lead Organizer:**

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### **10.02 Pathway to the Future’s Workforce**

This topic accepts abstracts that highlight activities of individuals, companies, agencies, and governments in the radioactive waste management industry, and ancillary disciplines, which are supporting post-secondary education that will help create and sustain a qualified future workforce. Individuals and companies from US and non-US are encouraged to share their understanding of education needs and their approaches, experiences, successes, and shortcomings experienced along the various pathways leading to education excellence and strengthening a future workforce for our industry.

#### **Lead Organizer:**

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### **10.03 Programs and Initiatives that Foster K-12 STEM Learning**

This topic accepts abstracts on proactive and novel programs and initiatives for engaging K-12 students in STEM-disciplines with a view to developing a future workforce prepared to work in and forward in the nuclear industry and related energy sectors. This topic explores all aspects of educational programs and outreach – from classroom curricula to summer camps, isolated events, newsletters, and webcasts – that pique the curiosity of young students and attract them to STEM-based careers. The objective is to capture various perspectives from administrative and in-classroom educators, technical subject matter experts, project and community-relations personnel, and technical organizations with active public-information/educational programs. This topic highlights approaches that have been both successful and can be applied by others.

#### **Lead Organizer:**

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### **10.04 Student Poster Competition: Future Industry Leaders**

This topic accepts abstracts on all subjects that the annual WM Conference addresses, but as a non-paper student poster session. The goal of the topic is to expose the industry to the next generation of young professionals that will lead us in the future. Students will have the opportunity to discuss

their work and career goals with professionals in the industry. Students are encouraged to submit a full paper to the conference, though a summary is acceptable. The topic will be judged separately from other poster topics and awards for the best student posters will be conferred.

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**R10.01 Global Education Initiatives that Foster the Future Nuclear Industry Workforce**

This session focuses on exploring educational perspectives as well as initiatives that support evolving missions. An educated workforce has always been a key foundation to a successful nuclear industry.

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**R10.02 DOE National Laboratories and Academia Successful Partnerships in the Development & Training of a STEM Workforce**

This session focuses on successful partnerships between the US DOE National Labs and academic institutions in the development of the 21st Century STEM workforce. Invited panel members will describe the various models used for the training of STEM students, research partnership with national labs and transition students onto the DOE/National labs workforce. Other professional training programs will also be showcased and presented.

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Rick Demmer, MARCOM, V: 208-589-4858, [dcondude@gmail.com](mailto:dcondude@gmail.com)

**R10.03 Building a Sustainable Workforce: An EM-MSIPP Student's Perspective**

This session focuses on the US DOE Minority Serving Institution Partnership Program (MSIPP). MSIPP is designed to build a sustainable pipeline between the DOE sites/labs and minority-serving institutions in STEM disciplines and bring a heightened awareness of the DOE Office of Environmental Management mission to institutions with a common interest in STEM research fields. Currently, MSIPP supports 7 programs including competitive research awards, summer internships, the Savannah River Environmental Services Field Station program, a post-doctoral research program, a graduate fellowship program, and grant opportunities through the EM/MSI shared interest research partnership program and technology curriculum and professional development program. These opportunities bring together institutions that share interests in STEM research areas and who can utilize the facilities and technology available at DOE labs and sites.

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**R10.04 Graduating Students and New Engineers- Wants and Needs –Are Companies Even Listening?**

This session focuses on new hires, graduating scientists and engineers having open lines of communication with employers. Considering the projected shortfalls in the workforce, effective communication of wants-and-needs of both the employer and employee must exist. Do these needs differ between industries and/or generations? Currently, it seems that both sides must work harder to achieve this level of communication. With this new approach, both sides can express their wants and needs for a more satisfied workforce and a better work environment.

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**R10.05 Young Professionals in Nuclear Science and Engineering an International Perspective**

This session focuses on young professionals and covers views on radioactive waste management from young persons' perspective from all around the world. An informal panel will enable the future leaders of our industry to share ideas and experiences, and of course, develop contacts within their peer group on a truly international level. By selecting this format, it is hoped that the topic will be interactive, stimulating valuable discussion among the participants and the audience. The panel will be led by young professionals who will actively encourage participation from all those attending including a discussion of mentoring. The aim is to encourage fresh thinking and provide an opportunity for an open and frank discussion on issues.

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**R10.06 Former WMS Scholarship Winners Now Leading Our Industry**

This session focuses on past scholarship winners now in the industry. The Roy Post Foundation has awarded scholarships for over 30 years and the panel is intended to provide a forum for 6-8 past scholarship winners to discuss their experiences.

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**R10.07 Future Workforce – Employment Opportunities for Students**

This session focuses on facilitating employment opportunities for students attending WM2025. The selected DOE contractors will provide “real” employment opportunities and guidance to the students.

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**R10.08 Best Practices to Develop and Attract People in the Nuclear Industry**

This session explores best practices for attracting and training individuals from parallel sectors that might be interested in new careers in the nuclear industry. This approach leverages STEM concepts from individual’s previous work experience with additional focus in the nuclear sector. The session will consist of a facilitated discussion exploring various initiatives and lessons learned and include international perspectives.

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**R10.10 DOE-EM Minority Serving Institutions Partnership Program (MSIPP) Posters**

This invited poster session focuses on students and interns in the DOE-EM Minority Serving Institutions Partnership Program (MSIPP).

**Lead Organizer:**

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**R10.11 Intern Research Posters Featuring US DOE Savannah River National Laboratory**

This invited poster session focuses on the research projects that the Savannah River National Laboratory Interns supported and/or contributed for SRS.

**Lead Organizer:**

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**R10.12 Roy G. Post WM2026 Scholarship Awardee's Poster Display**

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## **11 - ADVANCED NUCLEAR REACTORS FOR ELECTRICAL POWER AND OTHER APPLICATIONS (ANR)**

Tjalle (Chuck) Vandergraaf, Consultant (Lead Co-Chair), V: 2047538402, [tveive@mts.net](mailto:tveive@mts.net)

Robert Miklos, Veolia (Co-Chair), V: +1 208-881-8042, [bob.miklos@vnsfs.com](mailto:bob.miklos@vnsfs.com)

Myron Kaczmarzky, Holtec Government Services (Co-Chair), V: +1 856-797-0900 ext. 3657, [m.kaczmarzky@holtec.com](mailto:m.kaczmarzky@holtec.com)

This track includes advanced nuclear reactors for electrical power and other applications. Other applications could include seawater desalination, district Heating, hydrogen gas production, industrial process heat & power supply, fuel synthesis, etc.. The Track includes advancements in research, development, and deployment of advanced reactor technologies and programs addressing safety, technical, economics, security, regulations, socio-political and environmental needs. Potential sessions focused on recognizing technical barriers, technology development needs, regulatory barriers, and expanding designs to create improvements in current existing reactor designs. Specific advanced reactor concepts discussed include the traditional base load large reactors, Small Modular Light Water Reactors (SMRs), Liquid Metal Cooled Fast Reactors (LMFR), High Temperature Gas-Cooled Reactors (HTGR), Molten Salt Reactors (MSR) microreactors and fusion. It also includes "Net Zero" and optimizing the economics by reducing costs from fabrication through construction to operations to D&D/ Used Nuclear Fuel and waste disposal.

### **11.00 Advanced Nuclear Reactors for Electrical Power and Other Applications - Non-specified Abstracts**

#### **Lead Organizer:**

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### **11.01 Advanced Nuclear Reactors for Electrical Power and Other Applications - Posters**

#### **Lead Organizer:**

Tjalle (Chuck) Vandergraaf, Consultant, V: 2047538402, [tveive@mts.net](mailto:tveive@mts.net)

### **11.02 Advanced Nuclear Reactors for Electrical Power Production**

This topic accepts abstracts on advanced nuclear reactor designs and concepts for electrical power production. It includes advancements in research, development, and deployment of advanced reactor technologies and programs addressing safety, technical, economics, security, and licensing and regulation. Specific advanced reactor concepts discussed include the traditional base load electrical power reactors.

#### **Lead Organizer:**

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#### **Additional Organizers:**

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### **11.03 Applications of Advanced Nuclear Reactors Including Fusion to Non-Power Production**

This topic accepts abstracts on advanced nuclear reactors (including Fusion technology) for applications other than power production such as seawater desalination, district heating, hydrogen gas production, industrial process heat and power supply, fuel synthesis, nuclear batteries, etc. It includes advancements in research, development, and deployment of advanced reactor technologies and programs addressing safety, technical, economics, security, licensing, and regulation.

#### **Lead Organizer:**

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### **11.04 Advanced Micro-Reactors and Mobile/ Barge/ Ship Reactors - Electrical Power and Other Applications**

This topic accepts abstracts on micro and other tiny reactors for electrical power and other applications. It includes advancements in research, development, and deployment of advanced reactor technologies and programs addressing safety, technical, economics, and environmental needs. Potential sessions focused on recognizing technical barriers and expanding designs to provide clean (green) energy and other reactor applications. It also includes optimizing the economics by reducing costs from fabrication through construction to operations to D&D/ Used Nuclear Fuel and waste disposal.

#### **Lead Organizer:**

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### **R11.01 Advancements in Advanced Reactor Concepts - A Vendor's Perspective**

This session focuses on advancements in research, development, and deployment of advanced reactor technologies and programs addressing safety, technical, economics, and environmental needs. Panelist discussion will focus on addressing technical barriers and expanding clean energy production through innovative design improvements. Panelists from reactor vendors and key supply chain industries will share their experiences of the benefits and challenges of advanced technologies, including improved economics from fabrication to operations.

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**R11.02 Advanced Nuclear Reactors for Electrical Power and Other Applications Around the World**

This session focuses on bringing together national regulators from countries adopting, or thinking of adopting, advanced nuclear technologies, together with representatives of the IAEA and NEA. Advanced nuclear technologies bring many safety benefits over their larger more conventional counterparts, but it is recognized that current regulations and licensing approaches may need to be adapted and become more risk informed and better fit for purpose. Further licensing challenges may arise if reactors are exported from one jurisdiction to another. Other topics for discussion will include non-proliferation, fuel leasing, fuel cycle issues etc. Of particular interest will be developments in the IAEA's Initiative on Regulatory and Industrial Harmonization.

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**R11.03 The Fusion Breakthrough**

This session focuses on recent breakthroughs and progress in bringing nuclear Fusion to reality. Fusion is a currently a highly published topic in our industry. The world has a very publicized interest in energy technologies that are efficient and clean. A panel of global experts will focus on the recent progress and the challenges ahead with insights into the key factors and timelines.

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**R11.04 Commercial Advancements in Fusion Energy**

This session focused on recent breakthroughs and progress in bringing nuclear Fusion to reality by commercial enterprises. Fusion is a currently highly published topic in our industry. The world has a very publicized interest in energy technologies that are efficient and clean. A panel of experts focused on the recent progress and the challenges ahead with insights into the key factors and timelines.

**Lead Organizer:**

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**R11.05 Industry Progress on the US DOE Advanced Reactor Demonstration Program (Tiers 1, 2, 3)**

This session focuses on the projects awarded by the DOE's Advanced Reactor Demonstration Program (ARDP) and currently being executed on a cost shared basis with federal funding with scope defined to meet two distinct objectives. The objectives are for demonstration projects to prove advanced reactor technologies are suitable for commercial application and for risk reduction projects to mature advanced reactor technology designs for future demonstrations. Panelist from the reactor vendors will discuss the scope of these projects, the status of technical and licensing progress, and innovative design improvements to accelerate commercial deployment of advanced reactor technologies addressing safety, manufacturing, licensing, economic, and environmental needs.

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**R11.06 Demonstrating Advanced Reactors at the DOE Idaho National Laboratory Site**

This session focuses on advancements in research, development, demonstration, and deployment of advanced reactor technologies and programs at the Idaho National Laboratory Site addressing safety, technical, economics, and environmental needs. Panelist associated with the DOE's National Reactor Innovation Center (NRIC) and advanced reactor technology suppliers will discuss the test programs and their advanced reactor research and demonstration objectives including their approach to addressing technical barriers and expanding clean energy production through innovative design improvements. Panelists associated with NRIC and reactor vendors will also share their experiences of the benefits and challenges of advanced technologies, including improved economics from fabrication to operations.

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**12 - MISCELLANEOUS: UNASSIGNED & LATE ABSTRACTS, & NON-PAPER POSTERS**

This track serves two independent miscellaneous functions (MISC). First, authors unsure of the best topic number can assign their abstract to Track 12 where it will be reviewed and reassigned by the WM PAC Chair to the appropriate topic. The second function is to assimilate late abstracts for the only WM poster topic (12.1) besides the Student Poster topic (1.2) that doesn't require a full paper. It will also accept abstracts where the authors do not want to prepare a paper or are delinquent in meeting the deadlines. **All other poster topics will require an accompanying paper.**

**12.00 Miscellaneous and Non-specified Abstracts Pending Topic or Track Assignment**

This topic is for authors unsure of the best topic number. They can assign their abstract to Track 12.0 where it will be reviewed and reassigned by the WM PAC Chair to the appropriate topic.

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**12.01 Non-Paper Poster Topic for Emerging Issues and Late Abstracts**

This topic accepts abstracts for the non-paper, poster topic held on Wednesday afternoon and on Thursday morning of the WM Conference. Authors must clearly mark the abstract as a "non-paper, poster topic" or the abstract will be assigned to one of the other eleven tracks' poster topics. Abstracts will be accepted in topic 12.01 until Friday, January 17, 2025. Any abstract or paper in the other eleven tracks where the author may have missed the delivery deadlines may also be re-assigned to this non-paper, poster topic at the discretion of the affected Lead Organizer.

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**Attached Are Approved Acronyms That Can Be Used For WM2025 Abstracts, Papers, Posters And PowerPoint Presentations.**

**\* Acronyms are US unless noted otherwise**

**\*\* (Commonly Used by WMS Attendees and Acceptable for Use in Presentation Titles Without Spelling Out)**

**A**

**ACRS** Advisory Committee on Reactor Safety  
**ADA** Americans with Disabilities Act  
**APDAS** Associate Principal Deputy Assistant Secretary  
**AEA** Atomic Energy Agency or the Atomic Energy Act of 1954  
**\*\*AECL** Atomic Energy of Canada Limited\*  
**AFCEE** Airforce Center for Environmental Excellence  
**AFR** Away-From-Reactor Storage  
**\*\*ALARA** As Low As Reasonably Achievable  
**\*\*ANDRA** Agence nationale pour la gestion des déchets radioactifs (French National Radioactive Waste Management Agency) \*  
**\*\*ANL** Argonne National Laboratory  
**\*\*ANS** American Nuclear Society  
**\*\*ANSTO** Australian Nuclear Science and Technology Organization\*  
**ARM** Accelerator-Produced Radioactive Material  
**\*\*ASME** American Society of Mechanical Engineers  
**ASTM** American Society for Testing Materials

**B**

**Bfs** Bundesamt für Strahlenschutz (German Federal Office of Radiation Protection) \*  
**\*\*BNL** Brookhaven National Laboratory  
**BRC** Below Regulatory Concern or Blue-Ribbon Commission on America's Nuclear Future  
**BTP** NRC Branch Technical Position  
**\*\*BWR** Boiling Water Reactor

**C**

**\*\*CEA** Commissariat à l'Énergie Atomique (French Atomic Energy Commission) \*  
**\*\*CERCLA** Comprehensive Environmental Response, Compensation and Liability Act  
**CEU** Continuing Education Unit  
**CFR** Code of Federal Regulations (US)  
**\*\*CH-TRU** Contact-Handled Transuranic Radioactive Waste  
**\*\*CNL** Canadian Nuclear Laboratories\*  
**CNSC** Canadian Nuclear Safety Commission\*  
**COVRA** Dutch Nuclear Waste Storage Facility\*  
**CPP** Crosscutting Policies & Programs  
**\*\*CPCCo** Central Plateau Cleanup Company  
**CSW** Communications, Stakeholder & Indigenous Engagement and Workforce Management

**D**

**\*\*D&D** Decontamination & Decommissioning  
**DAS** Deputy Assistant Secretary  
**\*\*DAW** Dry Activated Waste  
**DBE** DBE TECHNOLOGY GmbH  
**DCS** Dry Container Storage  
**DNFSB** Defense Nuclear Facility Safety Board  
**\*\*DOD** US Department of Defense  
**\*\*DOE** US Department of Energy  
**\*\*DOT** US Department of Transportation  
**DGR** Deep Geological Repository  
**DRUM** Defense Related Uranium Mines  
**\*\*DU** Depleted Uranium  
**\*\*DWPF** Defense Waste Processing Facility

**E**

**\*\*EC** European Commission\*  
**\*\*EDF** Electricité de France (France Nuclear Utility)\*

**EDRAM** International Association for Environmentally Safe Disposal of Radioactive Materials  
**EFCOG** Energy Facilities Contractors Group  
**EIA** U.S. Energy Information Administration  
**\*\*EIS** Environmental Impact Statement  
**\*\*EM** Environmental Management  
**ENEA** National Agency for New Technologies, Energy and Environment (Italy)\*  
**ENRESA** Empresa Nacional de Residuos Radiactivos (Spain) \*  
**\*\*EPA** US Environmental Protection Agency  
**\*\*EPRI** Electric Power Research Institute  
**\*\*ER** Environmental Remediation  
**\*\*EU** European Union\*  
**\*\*ES&H** Environment, Safety & Health

**F/G**

**\*\*FUSRAP** Formerly Utilized Sites Remedial Action Program  
**\*\*GAO** United States Government Accountability Office  
**GIS** Geographical Information System  
**GNEP** Global Nuclear Energy Partnership  
**\*\*GOCO** Government Owned/Contractor Operated  
**GTCC** Greater Than Class C Low-Level Radioactive Waste

**H**

**\*\*H&S** Health and Safety  
**\*\*HEPA** High Efficiency Particulate Air (Filter)  
**\*\*HEU** Highly Enriched Uranium  
**\*\*HLW** High-Level Radioactive Waste

**I**

**\*\*IAEA** International Atomic Energy Agency (Austria)\*  
**\*\*ICRP** International Commission on Radiological Protection  
**\*\*IFNEC** International Framework for Nuclear Energy Cooperation \*  
**\*\*ILW** Intermediate Level Radioactive Waste  
**\*\*INL** Idaho National Laboratory  
**\*\*IPAC** International Program Advisory Committee  
**IPSN** Institut de Protection et de Sureté (Institute for Protection and Nuclear Safety - France) \*  
**ISFSI** Independent Spent Fuel Storage installation  
**ITRC** Interstate Technology Roundtable Commission  
**IWTU** Integrated Waste Treatment Unit

**J/K**

**\*\*JAEA** Japan Atomic Energy Agency\*  
**\*\*KAERI** Korea Atomic Energy Research Institute\*

**L**

**\*\*LAW** Low-Activity Radioactive Waste  
**\*\*LANL** Los Alamos National Laboratory  
**\*\*LBNL** Lawrence Berkeley National Laboratory  
**LCA** Life-cycle Assessment  
**LFRG US DOE** Low-Level Waste Disposal Facility Federal Review Group  
**\*\*LEU** Low Enriched Uranium  
**\*\*LL/ILW** Low- and Intermediate-Level Radioactive Waste  
**\*\*LLNL** Lawrence Livermore National Laboratory  
**\*\*LLRW/LLW** Low-Level Radioactive Waste  
**\*\*LM** Office of Legacy Management, US DOE  
**\*\*LSA** Low Specific Radioactive Activity  
**LTM** Long Term Monitoring  
**\*\*LWR** Light-Water Reactor

## M

**METI** Ministry of Economy, Trade and Industry (Japan)\*  
**M&I** Management & Integration  
**M&O** Management & Operation  
**\*\*MRS** Monitored Retrievable Storage  
**\*\*MW** Mixed Hazardous and Radioactive Wastes  
**MSIPP** DOE Minority Serving Institution Partnership Program

## N

**\*\*NAGRA** National Cooperative for the Disposal of Radioactive Waste (Switzerland)\*  
**\*\*NCRP** National Council on Radiation Protection  
**\*\*NDA** Nuclear Decommissioning Authority  
**NDAA** National Defense Authorization Act of 2005  
**NDF** Nuclear Damage Compensation and Decommissioning Facilitation Corporation of Japan\*  
**\*\*NEA** Nuclear Energy Agency (France)\*  
**\*\*NEI** Nuclear Energy Institute  
**\*\*NEPA** National Environmental Policy Act of 1969  
**NFDI** National Facility Disposition Initiative  
**\*\*NNL** National Nuclear Laboratory (UK)\*  
**NNLEMS** DOE Network of National Laboratories for Environmental Management and Stewardship  
**\*\*NNSA** National Nuclear Security Administration  
**\*\*NNS** Nevada National Security Site  
**\*\*NORM** Naturally Occurring Radioactive Material  
**\*\*NPP** Nuclear Power Plant  
**NRC** US Nuclear Regulatory Commission  
**NUMO** Nuclear Waste Management Organization of Japan\*  
**NWMO** Nuclear Waste Management Organization (Canada)\*  
**NWPA** Nuclear Waste Policy Act of 1982  
**NWPAA** Nuclear Waste Policy Amendments Act of 1987  
**NWTRB** Nuclear Waste Technical Review Board

## O

**\*\*OECD** Organization for Economic Cooperation & Development (France)\*  
**OPG** Ontario Power Generation Inc.\*  
**\*\*ORNL** Oak Ridge National Laboratory

## P

**\*\*P&T** Partitioning and Transmutation  
**PA** Performance Assessment  
**PAC** Program Advisory Committee  
**PAT** Packaging and Transportation  
**PBO** Parent Body Organization for Sellafield Ltd\*  
**PCC** Phoenix Convention Center  
**PDH** Professional Development Hour  
**PPF** Plutonium Finishing Plant  
**PHAI** Port Hope Area Initiative (Canada)\*  
**\*\*PNNL** Pacific Northwest National Laboratory  
**PM** Particulate Matter or Project Manager  
**PRA** Probabilistic Risk Analysis  
**PREDIS** PRE-DISposal (Europe)\*  
**\*\*PRG** Preliminary Remediation Goal  
**PROC** People's Republic of China\*  
**PURAM** Public Limited Company for Radioactive Waste Management (Hungary)\*  
**\*\*PWR** Pressurized Water Reactor

## Q/R

**\*\*QA** Quality Assurance  
**QAPP** Quality Assurance Program Plan  
**QC** Quality Control  
**\*\*R&D** Research and Development

**RATA** Lithuania State Enterprise Radioactive Waste Management Agency\*  
**RAWRA** Czech Radioactive Waste Repository Authority\*  
**\*\*RCRA** Resource Conservation and Recovery Act of 1976  
**RDD** Radiological Dispersion Devices  
**\*\*R, D&D** Research, Development and Demonstration  
**\*\*RESRAD** RESidual RADioactivity  
**\*\*RH-TRU** Remote-Handled Transuranic Radioactive Waste  
**RI/FS** Remedial Investigation/Feasibility Study  
**\*\*RK&M** Records, Knowledge and Memory  
**ROK** Republic of Korea\*  
**RPV** Reactor Pressure Vessel

## S

**SAR** Safety Analysis Report  
**SARP** Safety Analysis Reports for Packaging  
**\*\*SFEN** Société Française d'Énergie Nucléaire (French Nuclear Society) \*  
**SKB** Swedish Nuclear Fuel and Waste Mgmt. Co\*  
**SLC** Site License Companies -UK  
**\*\*SMRs** Small Modular Reactors  
**\*\*SNF** Spent Nuclear Fuel  
**\*\*SNL** Sandia National Laboratories  
**\*\*SNM** Special Nuclear Material  
**SOGIN** - Società Gestione Impianti Nucleari (Italian National Radioactive Waste Management Agency)\*  
**SPAs** Special Packaging Authorizations  
**SPRU** US DOE Separations Process Research Unit  
**\*\*SRMC** Savannah River Mission Completion  
**\*\*SRNL** Savannah River National Laboratory  
**\*\*SRNS** Savannah River Nuclear Solutions  
**SRW** Solid Radioactive Waste  
**ST** Special Topics including Security, Safety & Safeguards  
**\*\*STEM** Science, Technology, Engineering, Math  
**SVE** Soil Vapor Extraction

## T

**\*\*TENORM** Technologically Enhanced Naturally Occurring Radioactive Material  
**TER** – US NRC Technical Evaluation Report  
**TEPCO** Tokyo Electric Power Company\*  
**\*\*TRU** Transuranic (elements with atomic number > than 92)  
**\*\*TRUPACT** Transuranic Waste Package Transporter  
**TSD** Treatment Storage and Disposal

## U/V

**\*\*UK** United Kingdom  
**ULP** Uranium Leasing Program  
**\*\*US/USA** United States of America  
**\*\*USACE** US Army Corps of Engineers  
**USAF** US Air Force  
**\*\*US DOD** US Department of Defense  
**\*\*US DOE** US Department of Energy  
**\*\*US DOT** US Department of Transportation  
**\*\*US EPA** US Environmental Protection Agency  
**\*\*US NRC** US Nuclear Regulatory Commission  
**\*\*UNF** Used Nuclear Fuel  
**\*\*VLLW** Very Low-Level Waste

## W/Y

**\*\*WAC** Waste Acceptance Criteria  
**WD** Waste Determination  
**WERC** Waste-Management Education & Research Consortium  
**\*\*WIPP** Waste Isolation Pilot Plant  
**WIR** Waste Incidental to Reprocessing  
**\*\*WM** Waste Management  
**\*\*WMS** Waste Management Symposia, Inc.

**WRAP** Waste Receiving and Processing  
**WS** Wet Storage  
**WTP** Waste Treatment Plant at Hanford

**WVDP** West Valley Demonstration Project  
**YM** Yucca Mountain.