The Office of Materials and Chemical Technologies and NE-43 Programs Stewardship

FY24 CINR FOA Webinar

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U.S. DEPARTMENT OF ENERGY

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NE-1/2

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Dr. Kathryn Huff, Assistant Secretary

Dr. Mike Goff, Principal Deputy Assistant Secretary

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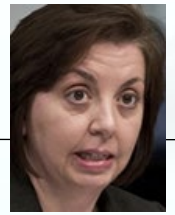

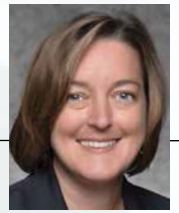

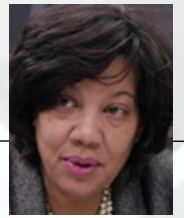

NE-20
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Dennis Miotla

- Office of Budget & Planning — *Patrick Edgerton*
- Office of Human Capital & Business Services — *Deborah Sharpe*
- Office of Communications and Engagement — *Alisa Trunzo*

NE-3
DAS for Nuclear Infrastructure Programs
Tracey Bishop

- Office of Nuclear Facilities Management — *Vacant*
- Office of Nuclear Materials Production, Management & Protection — *Jon Higdon*

NE-4
DAS for Nuclear Fuel Cycle and Supply Chain
Jon Carmack

- Office of Advanced Fuels Technologies — *Bill McCaughey*
- Office of Materials and Chemical Technologies — *Stephen Kung*

NE-5
DAS for Reactor Fleet and Advanced Reactor Deployment
Alice Caponiti

- Office of Nuclear Energy Technologies — *Suibel Schuppner*
- Office of Nuclear Reactor Deployment — *Alison Hahn*

NE-6
DAS for International Nuclear Energy Policy and Cooperation
Aleshia Duncan

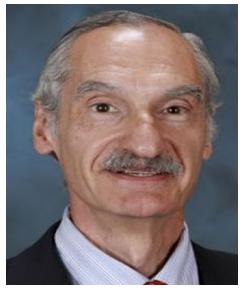
- Office of Bilateral, Multilateral and Commercial Cooperation — *Vacant*
- Office of International Nuclear Safety — *Vacant*

Manager
Idaho Operations Office
Lance LaCroix

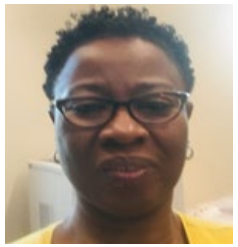
NE-8
DAS for Spent Fuel & Waste Disposition
Vacant

- Office of Spent Fuel and Waste Science and Technology — *William Boyle*
- Office of Integrated Waste Management — *Erica Bickford*

Office of Materials and Chemical Technologies (NE-43) Staff & Program Responsibilities



Dr. Bill Del Cul
Aqueous Separations
Vapor Phase Separations
Hybrid ZIRCEX



Ms. Kimberly Gray
Off-Gas Captures and Immobilization
Advanced Waste Form Development

Dr. Stephen Kung
Office Director

Ms. Sue Lesica
Materials Coordination,
NE-5 ART and LWRS Materials R&D

Ms. Tansel Selekler
Materials Protection, Accounting & Control Technology
EBR-II for HALEU Production

Dr. Ming Tang
Innovative Nuclear Materials

Dr. Jim Willit
Pyroprocessing
Molten Salt Chemistry
Salt Fuels

NE-43 Program Stewardship
(I) Materials Recovery & Waste Form Development (MRWFD)

Mission – Develop advanced fuel recycle technologies to improve resource utilization, reduce repository burden, limit proliferation risk and improve economics.

Implementation Strategies:

- Demonstrate recycling technologies to produce HALEU materials for advanced reactor fuel-fabrication R&D needs;
- Address nuclear materials separation and recovery challenges for various advanced reactor designs;
- Develop efficient and economical technologies for commercially viable future industrial deployment;
- Steward and expand the capabilities and knowledge in nuclear chemistry for a broad range of nuclear applications.

NE-43 Program Stewardship
(II) Materials Protection, Accounting & Control Technologies (MPACT)

Mission – Supports the U.S. advanced fuel cycles technology developers to effectively and economically address nuclear materials control and accounting (MC&A) requirements.

Implementation Strategies:

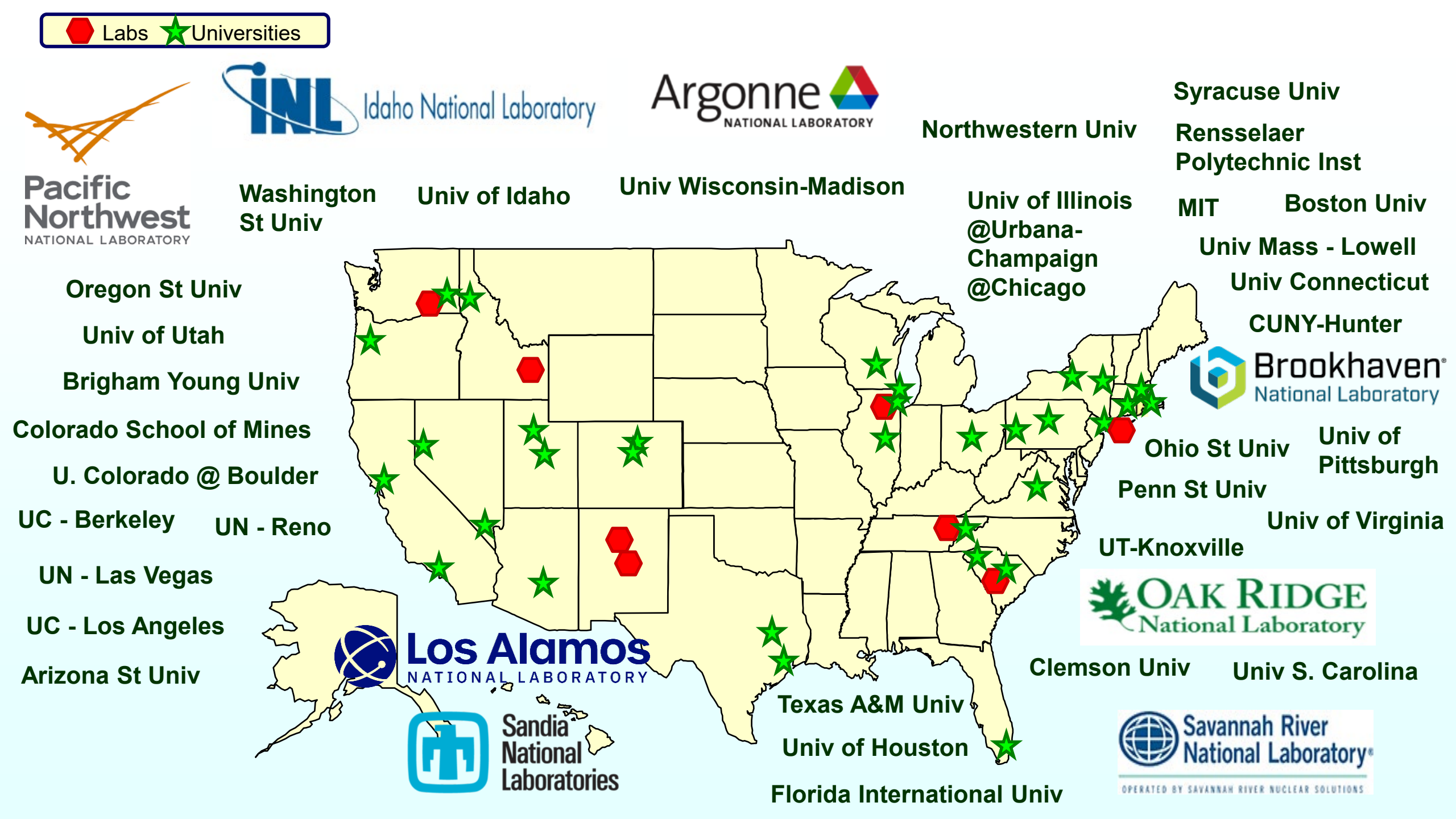
- Develop innovative real (or near-real) time technologies, analysis tools, and advanced integration methods to improve to enable U.S. domestic nuclear materials management and safeguards for emerging nuclear fuel cycles;
- Engage with government and industry stakeholders early in the technology development process to enable a cost-effective implementation of safeguards by design for both front end and back- end stages of the fuel cycle.

NE-43 Program Stewardship
(III) Innovative Nuclear Materials

Missions – **(1)** Develop next generation fuel cladding and in-core materials and (2) address nuclear materials recycling and reuse with emphasis on maintaining long-term nuclear materials sustainability.

Implementation Strategies:

- Establish robust nuclear materials core competencies and R&D capabilities at national labs and universities;
- Support nuclear materials research community to train broad-based next generation expertise;
- Capitalize on recent breakthroughs in computational modeling, simulation, data science, advanced characterization, instrumentation, radiation methods, manufacturing and processing capabilities to accelerate new cladding materials discovery and to enhance nuclear materials recycling / reuse capabilities;
- Provide a technical basis for supporting the U.S. industries' goal for commercialization of advanced nuclear technologies.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Savannah River National Laboratory
OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

FY24 CINR FOA Topics Under NE-43 Program Areas

Topic Area 4 — Nuclear Fuel Recycle Technologies — Develop advanced fuel recycling technologies and address fundamental materials separations and recovery challenges:

- Innovative Aqueous Separation (Bill Del Cul)
- Advanced Vol-oxidation and Vapor Phase Separations (Bill Del Cul)
- Molten Salt Processes and Salt Chemistry (Jim Willit)

Topic Area 5 — Fuels

- Molten Salt Fuels (Jim Willit)

Topic Area 10 — Licensing, Safety, and Security

- MC&A Methods and Tools for Fuel Recycling Processes (Tansel Selekler)

Topic Area 11 — Advanced Nuclear Materials

- Innovative Cladding Materials (Ming Tang)
- New Materials for Off-gas Capture and Waste Form Materials (Kim Gray)