

# Strategic Programmatic Overview of the Decommissioning and Low-Level Waste and Nuclear Materials Users Business Lines

Commission Meeting  
January 14, 2025

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NORTH

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UNITED STATES  
NUCLEAR REGULATORY  
COMMISSION

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# Mirela Gavrilas

Executive Director for Operations





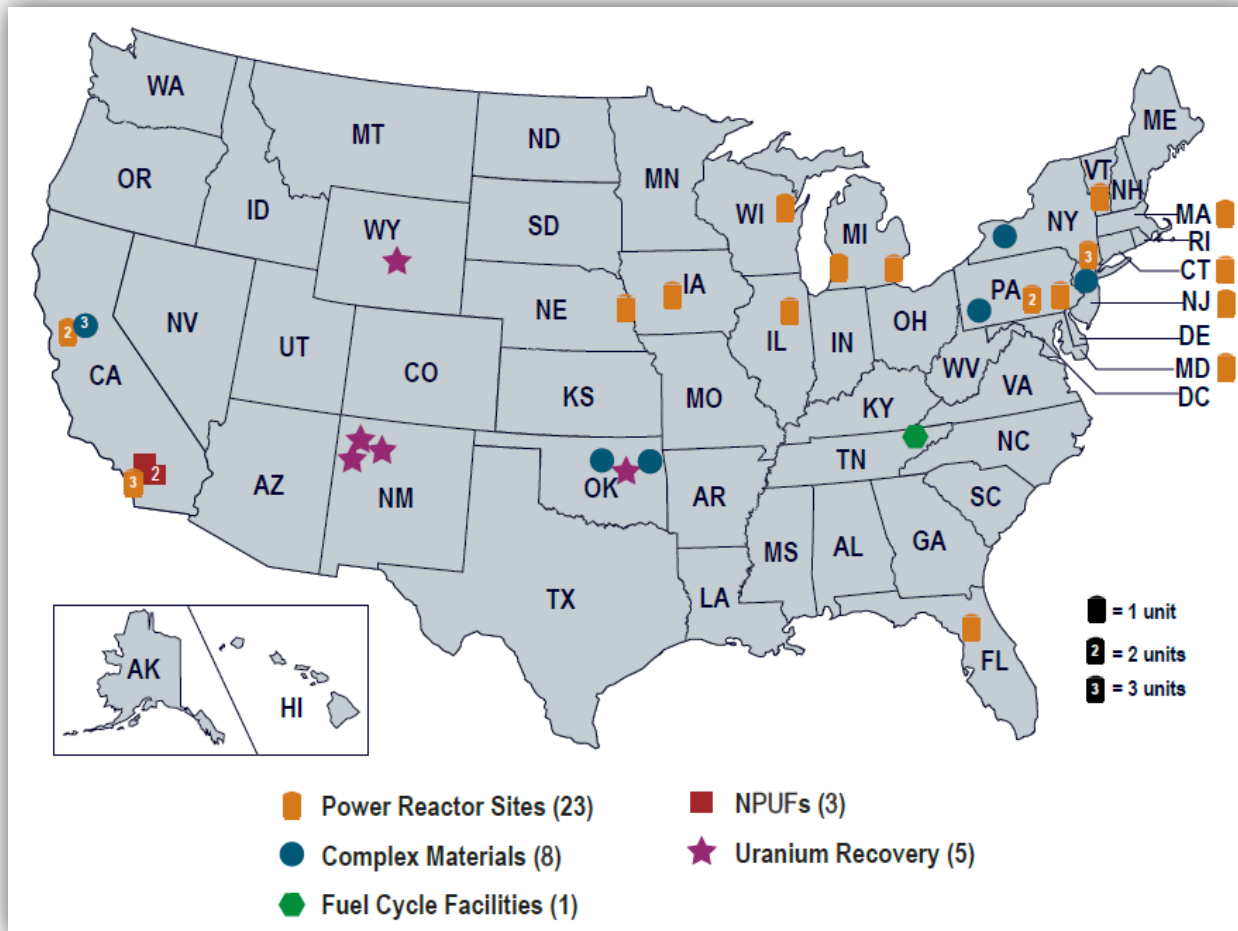
# John Lubinski

Director

Office of Nuclear Material Safety and Safeguards

# Decommissioning and Low-Level Waste Business Line

## Program Overview - Decommissioning



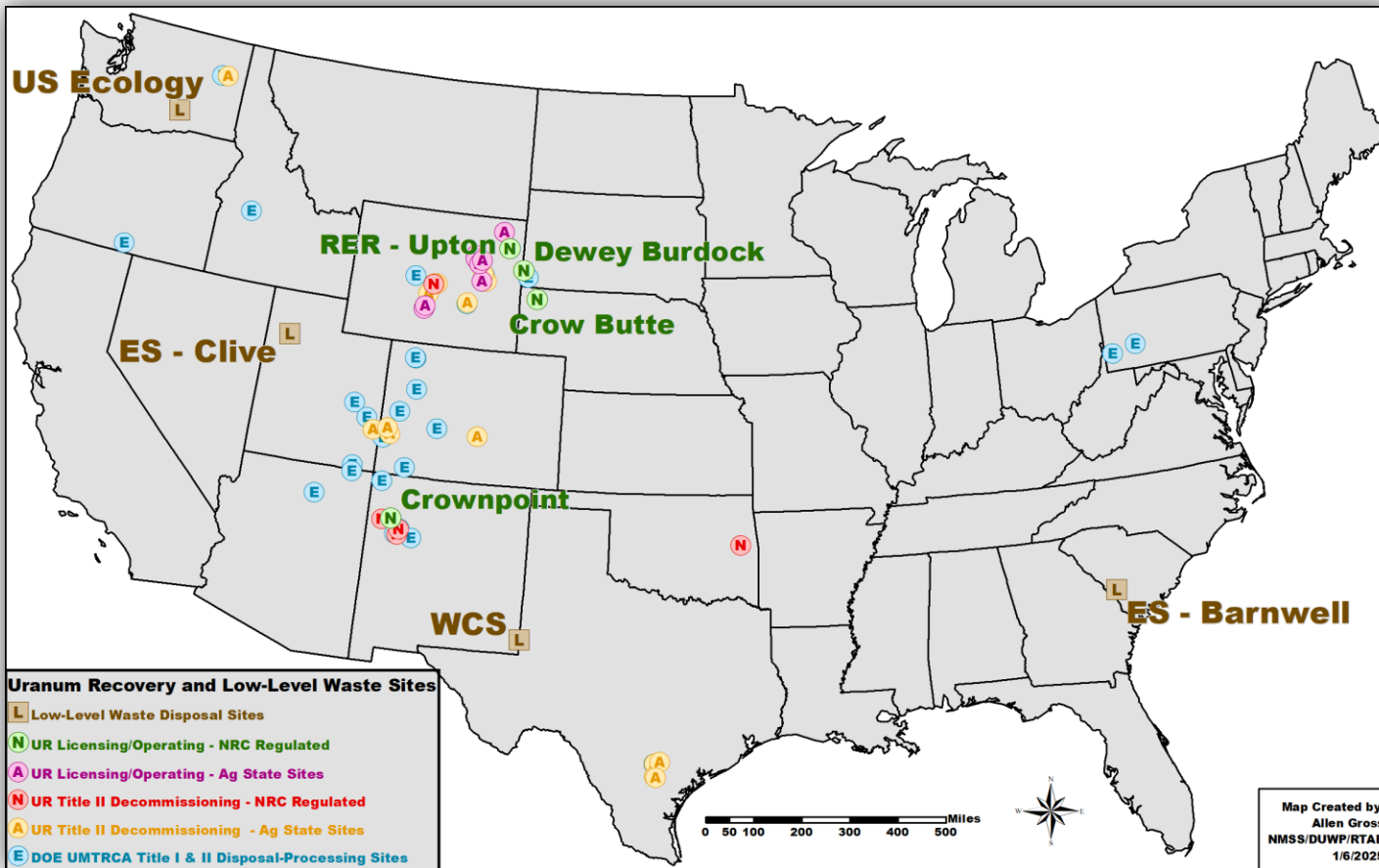
## Decommissioning activities

- 23 power reactors; 3 research and test reactors
- 8 complex materials sites
- 5 uranium recovery sites
- 19 Title I and 7 Uranium Mill Tailings Radiation Control Act (UMTRCA) Title II sites under a general license held by the U.S. Department of Energy (DOE)
- Radium sites (military & non-military)
- Support for DOE/Naval Reactors decommissioning of the nuclear surface ships
- Monitoring of 3 DOE waste incidental to reprocessing (WIR) sites, consulting on 1 additional WIR site



# Decommissioning and Low-Level Waste Business Line

## Program Overview - Uranium Recovery and Low-level Waste



Due to scale, several facilities are obscured on map

NRC regulates:

- 3 uranium recovery licensees
- 1 rare earth licensee
- 1 waste processor (not shown on map)

Agreement States regulate:

- Majority of active uranium recovery licensees
- Majority of waste processors (not shown on map)
- All low-level waste disposal facilities



# Ensuring Safety and Timely Reviews

- Fort Calhoun Key Findings and Risk Assumptions memo
  - Knowledge management
  - Inspection focus on most risk significant aspects of License Termination Plan
- NEI 22-01, "License Termination Process"
  - Consolidates commercial reactor guidance







# Jen Whitman

## Deputy Director

Division of Decommissioning, Uranium Recovery, and Waste Programs

# Improving Licensing Processes and Oversight Programs

- Licensing Processes
  - Incorporate and expand use of Regulatory Audits
  - Explore new approaches to full or partial acceptance of License Termination Plans (LTPs)
- Oversight Programs
  - Completed updates to Uranium Recovery and Byproduct Material Facility Inspection Program
  - Assessed previous recommendations
  - Public meeting to gather external stakeholder feedback

## Ideas Under Consideration

Credit for Sustained Higher Performance

Risk Inform Guidance

Organizational Structure

Leverage Technology

Enforcement Process





# Completion of Legacy Projects



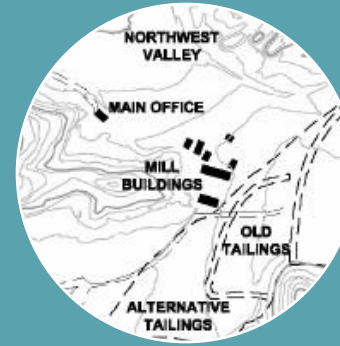
Zion Part 50  
License  
Terminated



Fansteel Site  
Added to  
National  
Priorities List  
(NPL)



Background  
Radiation  
Monitoring  
Locations  
Revised



Split Rock  
Long-Term  
Surveillance  
Plan and Care  
Fee Approved



# Engaging Abroad to Inform Our Decisions



- Nuclear Energy Agency (NEA) Committee on Decommissioning of Nuclear Installations and Legacy Management
- NEA Working Party on the Technical, Environmental, and Safety Aspects of Decommissioning
- Guidance for data logging and unmanned ground and aerial vehicles



# Responding to a Changing National Energy Outlook



- Planned restart of reactor operation at multiple sites
- Ensuring necessary skill-sets are available
  - Partnering with other program offices and OCHCO
  - Updating qualification program
  - Renewed focus on knowledge management activities







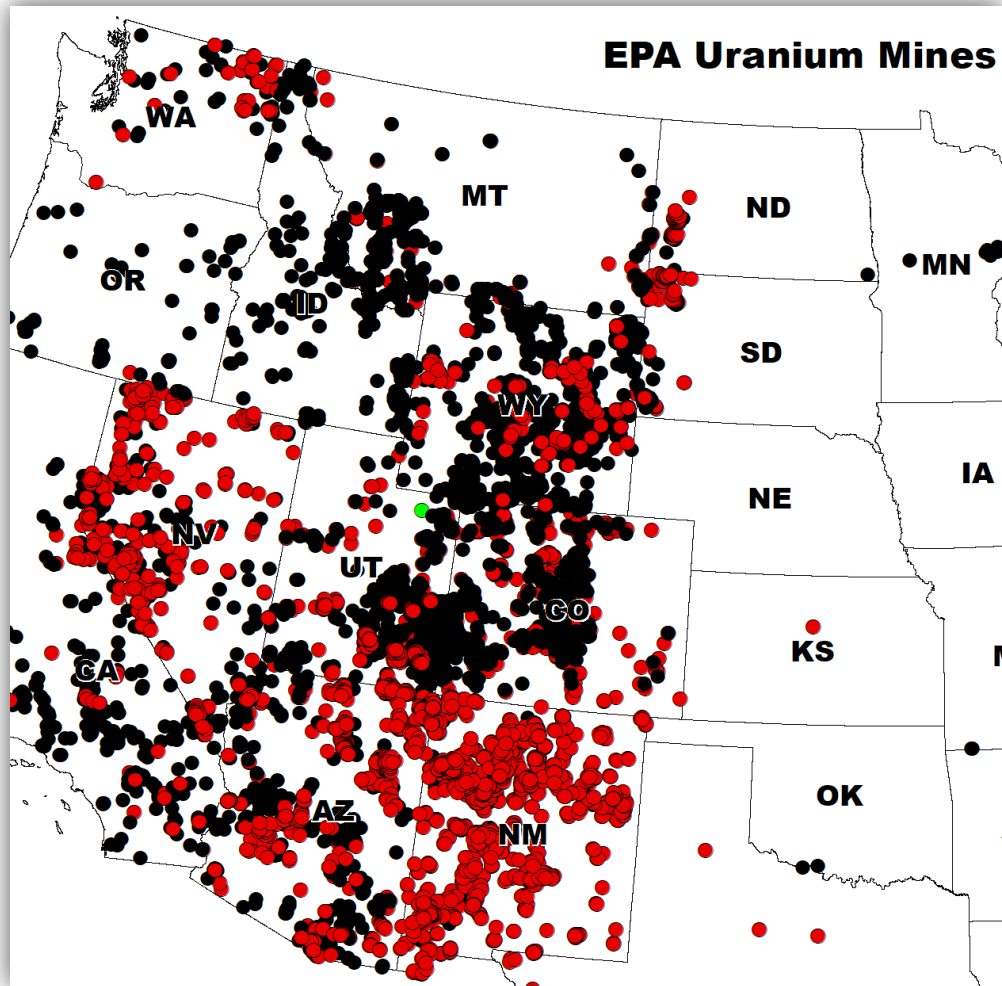
# Douglas Mandeville

## Senior Project Manager

Division of Decommissioning, Uranium Recovery, and Waste Programs



# Licensing Emerging Technologies Used for Remediation of Mine Waste



- Implementing Commission direction in SRM-SECY-23-0055 - Options for Licensing Emerging Technologies Used for Remediation of Mine Waste
- Developing a framework utilizing the service provider licensing approach
- Formed a working group with Agreement State representatives
- Initiated informal outreach, developing schedule for future outreach activities



# Staff Review of License Application to Remediate Abandoned Uranium Mine Waste

December 2024 pre-submission public meeting

January 2025 pre-submission audit of application

Application review



*From EPA's December 2023 final treatability study.  
Photo 21 from Appendix A.*

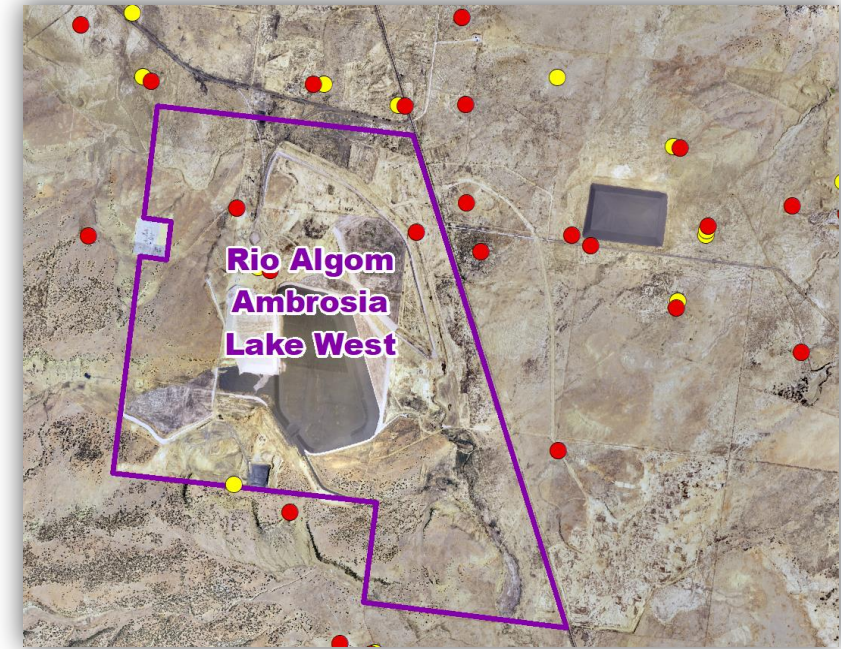


# Engagement with Federal Partners Regarding Uranium Mine Waste Issues



*A&B No. 3 mine*

Photo from <https://www.epa.gov/navajo-nation-uranium-cleanup/western-abandoned-uranium-mine-region>







# Greg Chapman

Senior Health Physicist

Division of Decommissioning, Uranium Recovery, and Waste Programs



# Reviewing Decommissioning Requests Beyond 60 Years

- Regulation – 10 CFR 50.82(a)(3)

“Decommissioning will be completed within 60 years of permanent cessation of operations. Completion of decommissioning beyond 60 years will be approved by the Commission only when necessary to protect public health and safety...”
- SECY-24-0073 “Site-Specific Considerations for Review of Request to Complete Power Reactors Decommissioning Beyond 60 Years from Permanent Cessation of Operations”



# Improving Licensing Throughput

- Approaches to streamline reviews:
  - Pre-submittal audits/licensee requested meetings
  - Documentation of lessons learned meetings/presentations
  - Staff comment and feedback on industry's guidance: NEI 22-01
- Application areas to be improved:
  - Site characterization summary
  - Available technical basis references
  - Validated studies for novel approaches



# Controlling and Addressing Discrete Radioactive Particles in the Environment

- Enhancing the contamination control program
- Potential to complicate and extend license termination
- Research Reports and Guidance developed:
  - Dose Coefficients for DRPs (ML23136A178)
  - Ulceration Threshold Recommendations (ML23136A207)
  - Scan MDAs for DRPs (ML24004A133)
  - IN-2024-01, Minimization and Control of Contamination Involving DRPs (ML23195A074)
  - DRAFT DUWP-ISG-03, “Contamination Control, Radiological Survey, and Dose Modeling Considerations To Support License Termination at Sites with Environmental Discrete Radioactive Particle Contamination” (ML24219A032)

DRPs vary in size ranging from less than visible to small rocks.





# Elise Eve

Team Leader

Division of Radiological Safety and Security, Region I



# Ensuring Oversight of Decommissioning Trust Funds



- Oversight Approach to Decommissioning Trust Funds
  - Coordination between NRC financial analysis staff, project manager, and regional inspectors
  - Inspection Procedure 71801 includes financial assurance review
- Violations identified at four sites
  - 10 CFR 50.82(a)(8)(i) states, in part, decommissioning trust funds may be used by licensees if the withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in § 50.2



# Overseeing Crane Clean Energy Center Restart Efforts

- Collaborative approach between Region I, Region III, and Office of Nuclear Material Safety and Safeguards (NMSS), and Office of Nuclear Reactor Regulation (NRR)
  - Crane Clean Energy Center (Three Mile Island Unit 1) Restart Team modeling Palisades Restart Team
- Consideration for co-located site
  - Unit 2 remains in active decommissioning
- Continuous learning and improvement
  - Consider lessons learned from Palisades and capture key learnings from Crane Clean Energy Center (Three Mile Island Unit 1)
- Stakeholder Engagement
  - Public and governmental stakeholders





# Mirela Gavrilas

Executive Director for Operations



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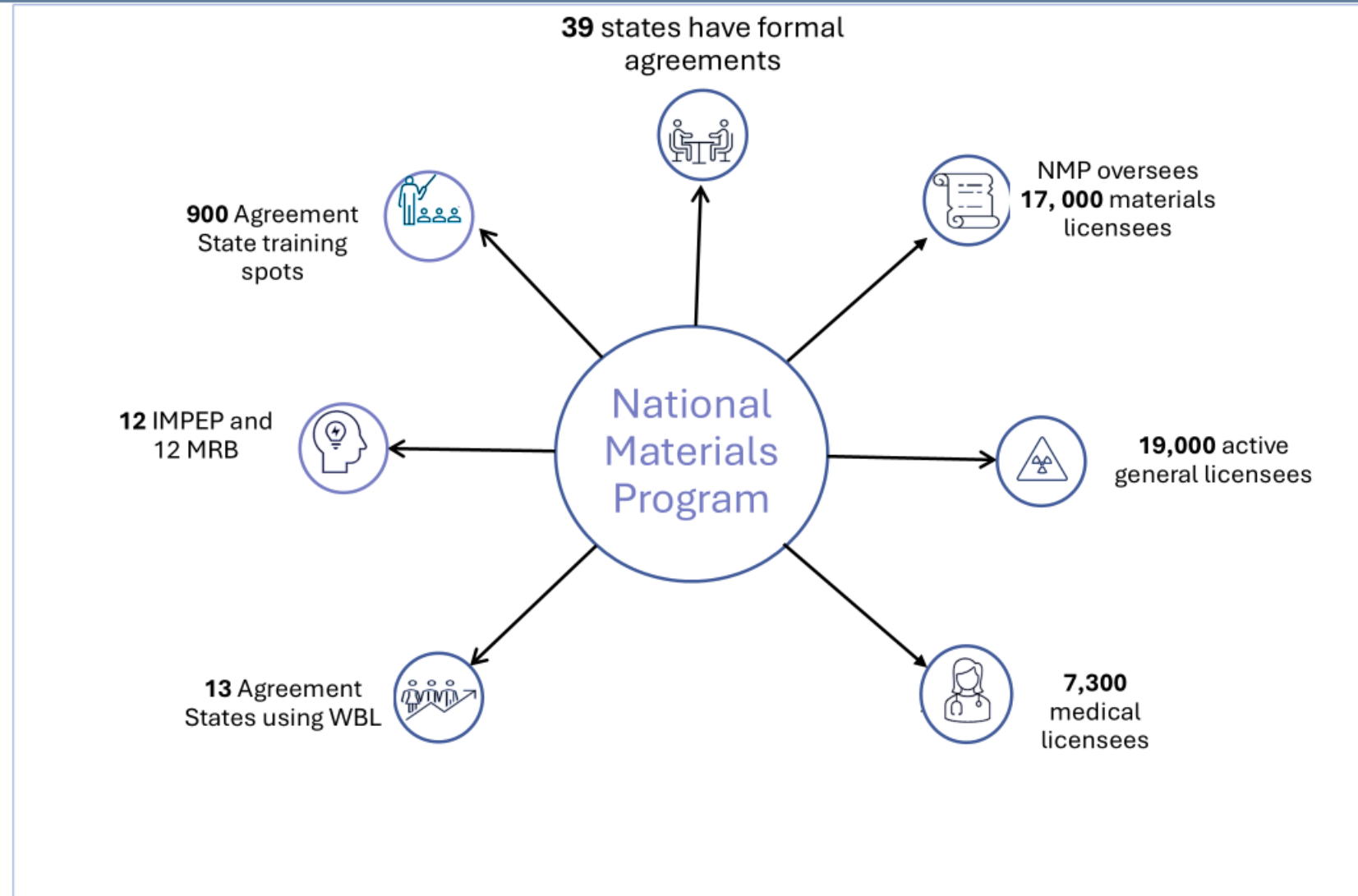


# John Lubinski

Director

Office of Nuclear Material Safety and Safeguards

# Breadth of NMP Activities

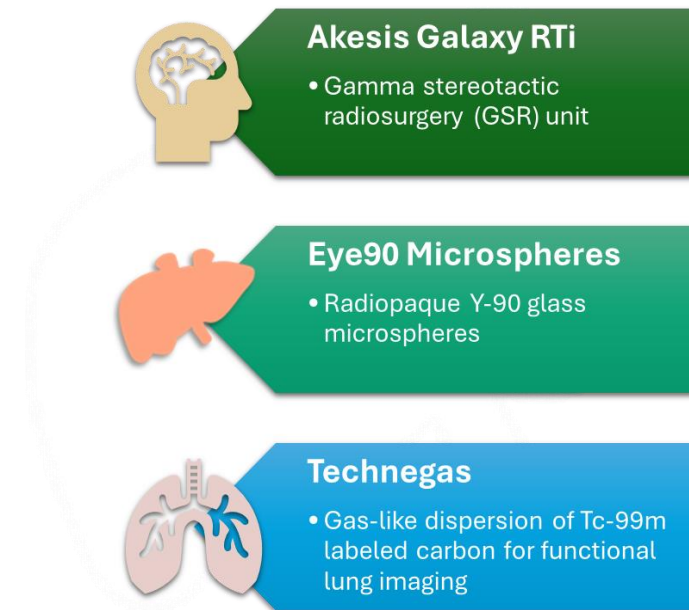




# Ensuring Effective Regulation and Oversight of Radioactive Materials Through a Strong NMU Program

Preparing for the growth in the medical use of byproduct materials

- Evaluate regulatory framework to ensure safe use of new radiopharmaceuticals without delaying patient care
- Develop licensing guidance for clarity and reviews of new questions
- Ongoing development of Licensing Guidance for Emerging Medical Technologies
- Staying engaged with the Agreement States and the medical community to stay informed on advancements



# Progress is Bolstered by Collaboration Both Domestically and Internationally





# Dafna Silberfeld

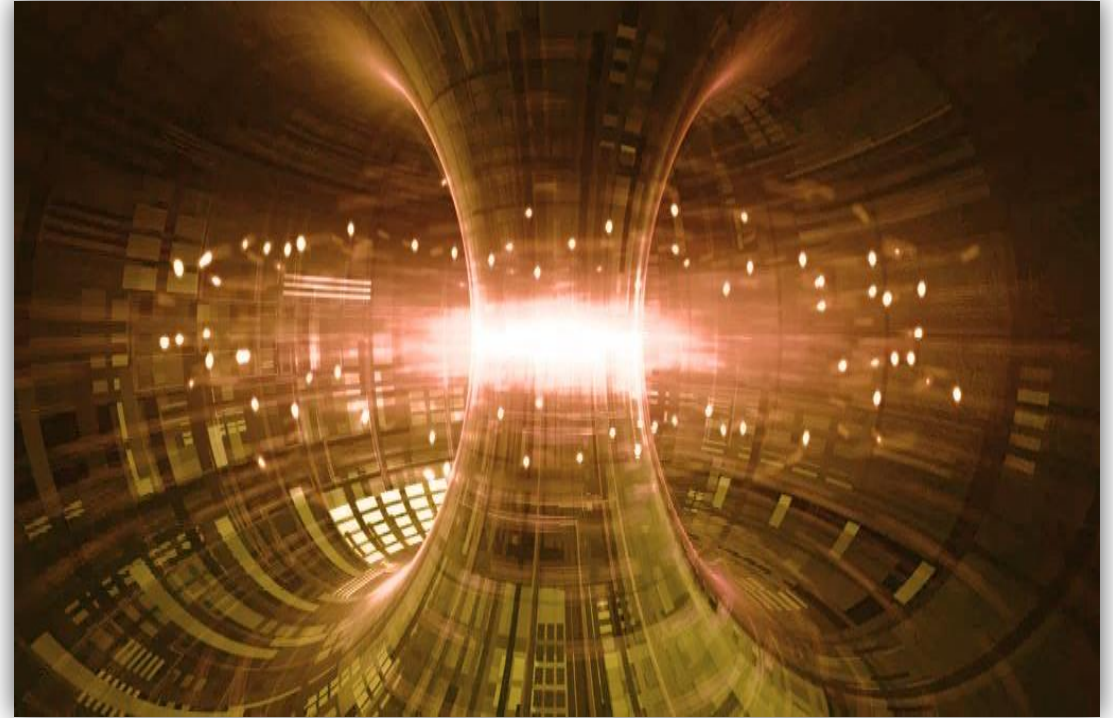
## Deputy Director

Division of Materials Safety, Security, State, and Tribal Programs



# Establishing Regulatory Framework for Fusion

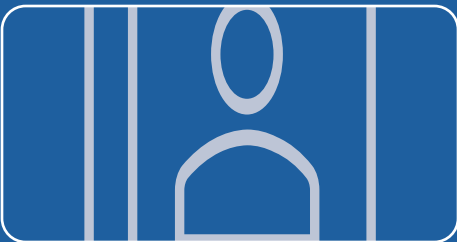
- Draft Rule with Commission – SECY-24-0085
- Public Outreach – 7 public meetings
- Agreement State Outreach - 5 government to government meetings
- Outreach to Tribal Governments - Issuance of 3 State and Tribal Communication letters
- Alignment with the ADVANCE Act - Incorporation of changes brought by the ADVANCE Act
- On schedule to meet NEIMA deadline of December 2027 to implement rule



# Facilitating Agreement State Engagement and Transparency



Improve early identification of performance issues in Radiation Control Programs and facilitate timely corrective actions



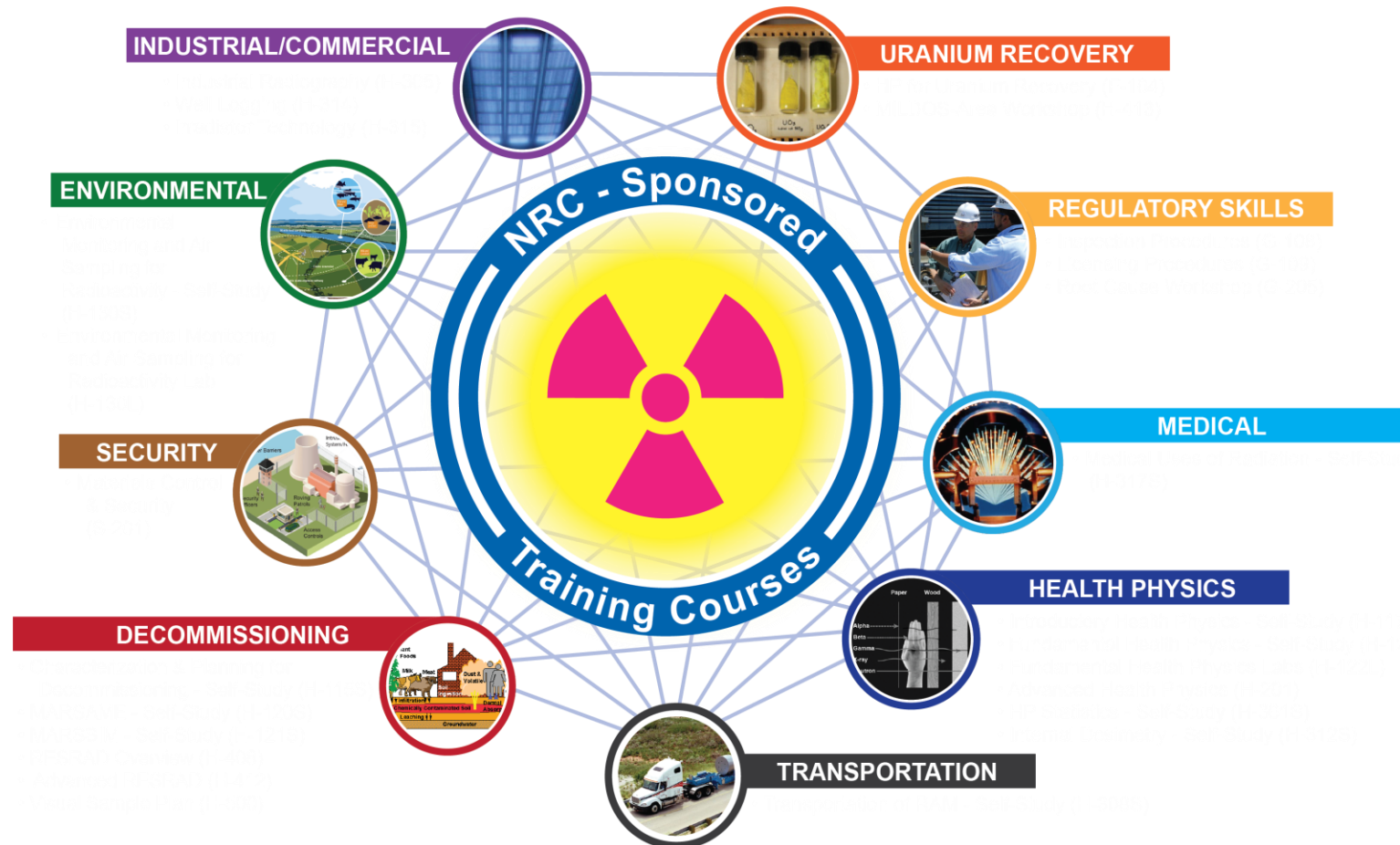
Create clear, efficient pathways for Radiation Control Programs to seek assistance when challenges arise



Improve the consistency and efficiency of Integrated Materials Performance Evaluation Program reviews

# Delivering Training for the NMP

In-person – 48%; Courses available online in the Collaborative Learning Environment (CLE) - 40%;  
Virtual Instructor-Led (VILT) – 12%





# Strengthening Partnerships with Tribal Nations

- Interaction with Tribes can take many different forms. Interactions may occur through verbal or written communications and/or in-person or virtual meetings.
  - Outreach
  - Consultation
  - Training
  - Information Exchanges





# Allyce Bolger

## Intergovernmental Liaison

Division of Materials Safety, Security, State, and Tribal Programs

# Executing Regulatory Certainty for Implementation of Fusion and Assuring Adequate Strategy for Future Expansion

Sustaining Continuity And Consistency Across The National Materials Program (NMP)

Technical readiness for fusion deployment

Adequate staffing across the NMP for expansion of fusion machines

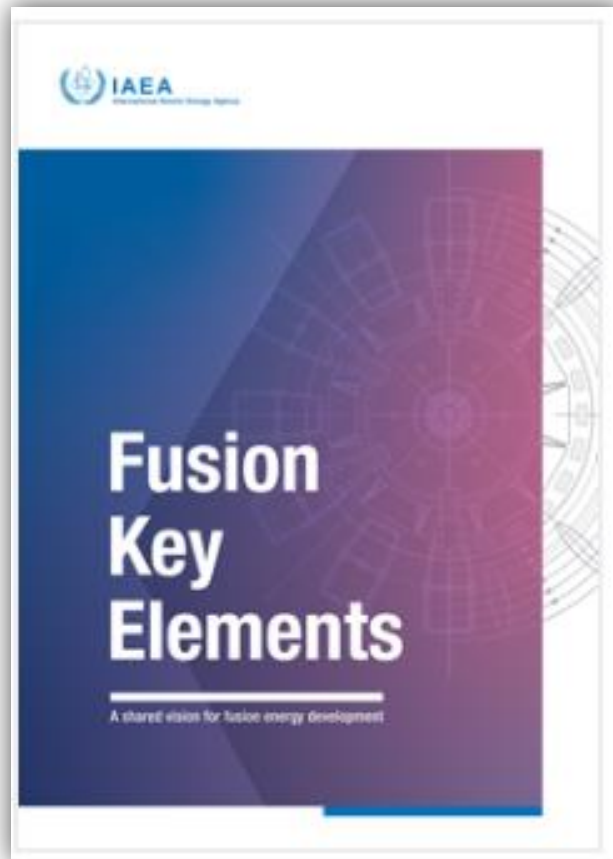
Flexibility in Agreement State adoption of fusion rulemaking requirements and guidance documents





# Executing Regulatory Certainty for Implementation of Fusion and Assuring Adequate Strategy for Future Expansion

Engaging with International Stakeholders



- Commitment to cooperation with international regulatory counterparts
- Insights from ongoing engagement
  - IAEA World Fusion Energy Group
    - “Fusion Key Elements”
  - Trilateral meetings with the United Kingdom and Canada



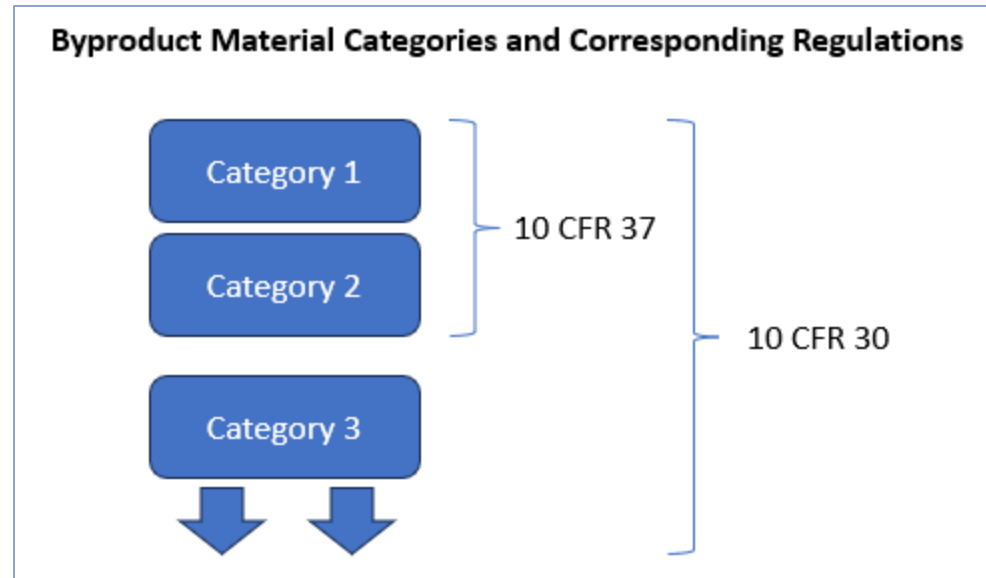
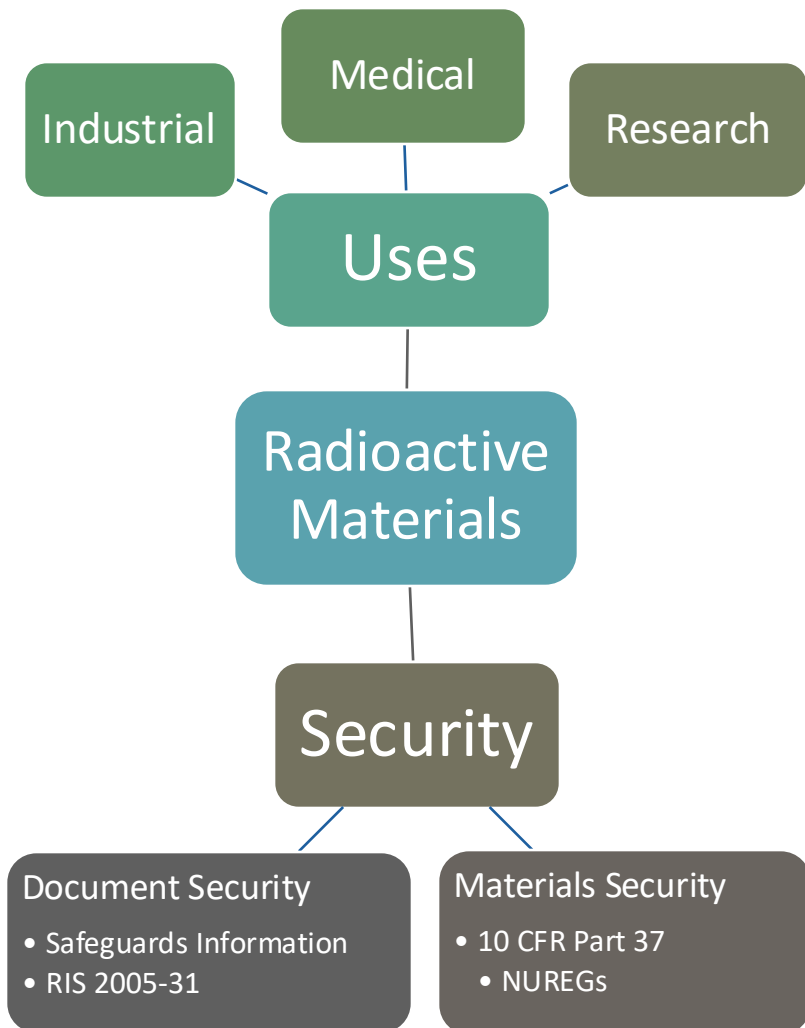


# Matthew Barrett

## Project Manager

Division of Materials Safety, Security, State, and Tribal Programs

# Providing Effective Regulatory Oversight of Radioactive Materials Security



## Activities to Address Financial Assurance for Disposition of Sealed Sources Rulemaking

- Rulemaking to expand 10 CFR 30.35 decommissioning financial assurance
- This rulemaking will encourage disposal of disused sources





# Ensuring Strong Federal and State Partnerships Through Safe and Secure Use of Radioactive Sources

The NRC-led Task Force, is comprised of 14 Federal agencies and the Organization of Agreement States

- Strong collaborative interactions have resulted in completion of 36 recommendations
  - Remaining six under evaluation for closure in the 2026 report
- NRC rulemaking under 10 CFR Part 61 supports two open Task Force recommendations for Greater-than-Class-C (GTCC) waste disposal and unwanted cesium chloride source management
- Task Force report is due in August 2026



# Enhancing Efficiency and Modernizing Licensing

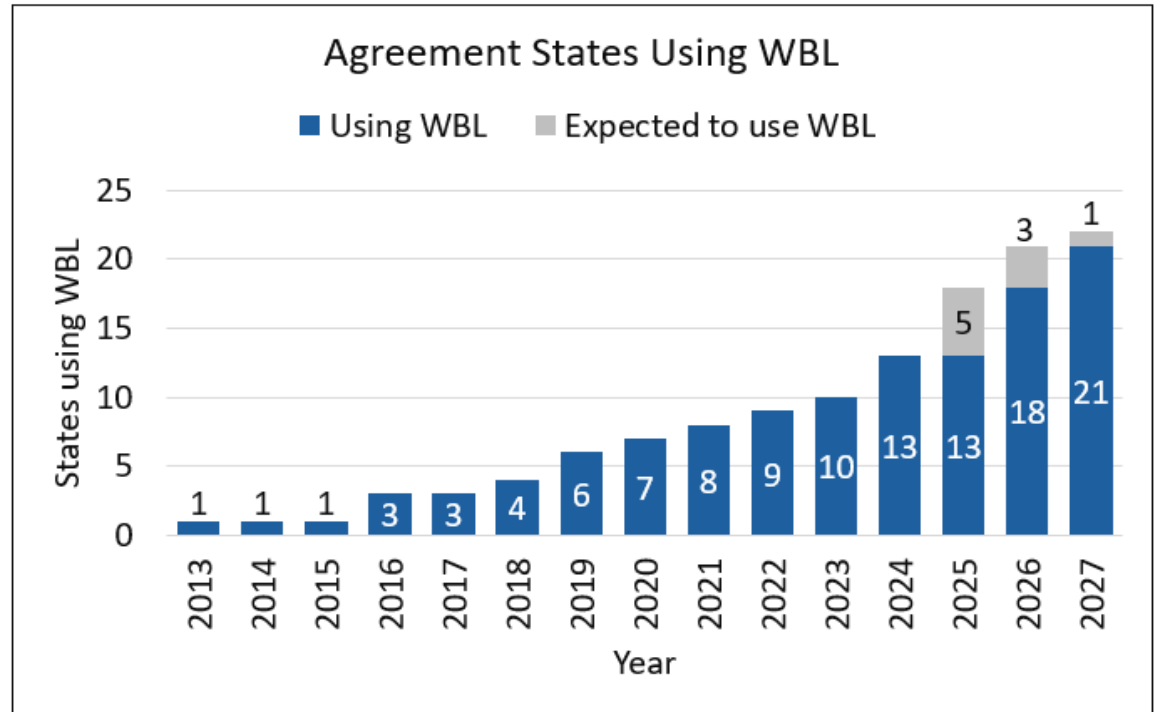
Continuous enhancements to the Web-Based Licensing (WBL) system streamline operations, reduce administrative burden, and ensure accurate, up-to-date data for the safety and security of radioactive materials

- New functionalities will allow external users to submit license applications directly into the system
- Integration with the National Source Tracking System (NSTS) will enhance data consistency and reduces redundancy



# Enhancing the National Materials Program through Web Based Licensing (WBL)

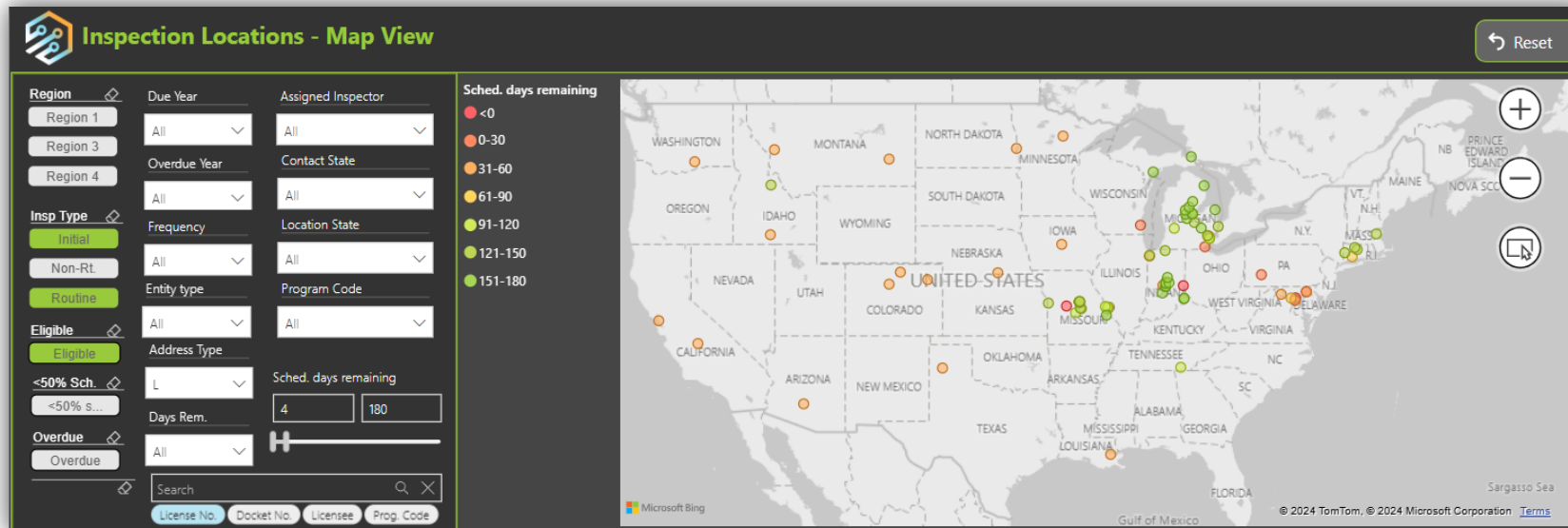
- Continued collaboration between the Agreement States and the NRC through WBL:
  - In 2024, three Agreement States—Nevada, South Carolina, and Arkansas—joined WBL, bringing the total to 13 states
  - Six additional states, including Maine, New York, Ohio and Virginia, are transitioning to WBL
  - By 2027, we anticipate half of the Agreement States will use WBL as their primary platform for licensing and inspection





# Optimizing Inspection Scheduling and Resource Allocation

- Developed and implemented a cutting-edge visualization tool that enables decision-makers to optimize inspection scheduling
  - Yields a high return on investment by streamlining scheduling and reducing planning time by approximately 90%.
  - Optimizes travel resources by mapping inspection priorities, locations, and due dates.
  - Can facilitate identification of alternative licensee sites due to unforeseen cancellations or delays.
  - Enables quick identification of sites potentially affected by natural disasters for timely post-disaster inspections.



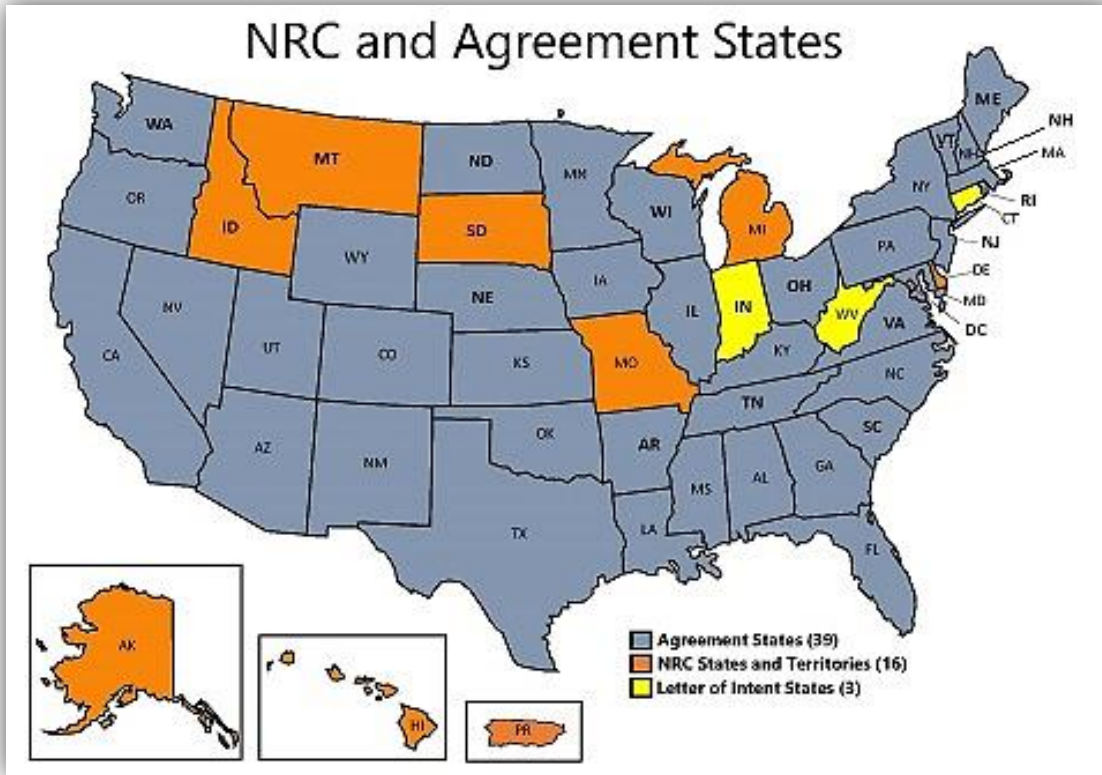


# Jackie Cook

Regional State Agreements Officer

Division of Radiological Safety and Security, Region IV

# Responsibilities and Roles of the Regional State Agreements Officer (RSAO)



- Across the National Materials Program (NMP) - 5 RSAOs
  - Region I – 2 RSAOs (covering 17 Agreement States)
  - Region III – 1 RSAO (covering 5 Agreement States)
  - Region IV – 2 RSAOs (covering 17 Agreement States)
- Plan, coordinate, and facilitate
- Advise and assist
- Ensure a coordinated and comprehensive Agreement State program
- Serve
- Disseminate



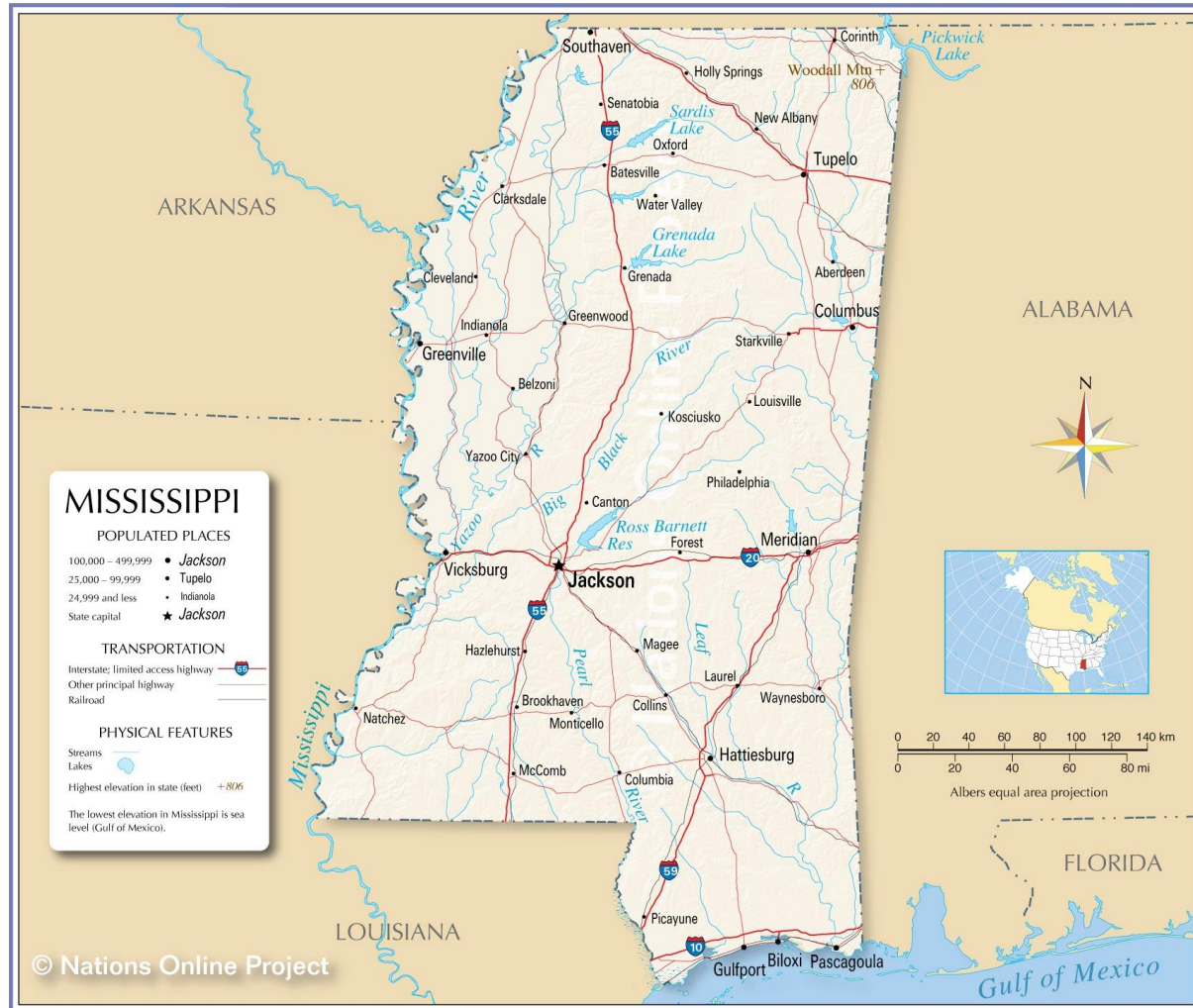


# Engaging Agreement States on the Health of Their Programs and Alignment Across the NMP

- Health of the NMP
  - IMPEP
  - Periodic meetings
- Long term interactions
  - Rulemaking and guidance development
  - Government to Government meetings: Engages and collaborates with the 39 Agreement States and 11 non-Agreement State agencies
- Addressing emergent issues and programmatic challenges
  - Champions Chat: Emerging issue or hot topic
  - Identifies, evaluates, and addresses pressing concerns effectively
  - Technical assistance
- Support and coordination



# A Success Story - The State of Mississippi



- Recovery from probation
- Measures to mitigate programmatic risks
- Enhanced communication
- Program assessment





# Mirela Gavrilas

Executive Director for Operations