Strategic Programmatic Overview of the Fuel Facilities and Spent Fuel Storage and Transportation Business Lines

Commission Meeting
Thursday, May 7, 2026

#NRCForward

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Strategic Programmatic Overview of the Fuel Facilities Business Line

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Opening Remarks and Introductions

Mike King
Executive Director for Operations

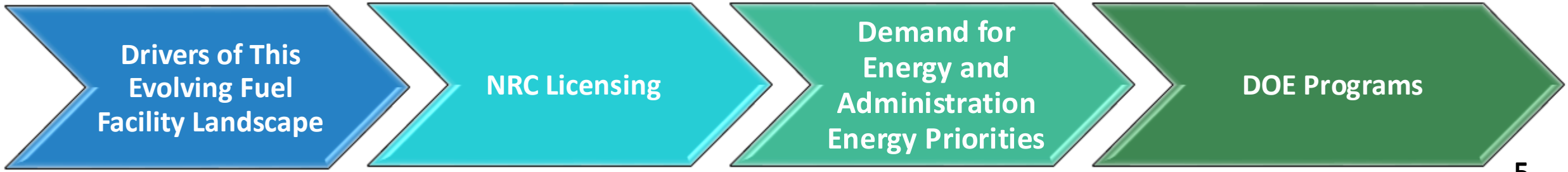
Safely Delivering the Nation's Needs: The Fuel Facilities Business Line Overview

Andrea Kock
Director, NMSS

The Fuel Facility Landscape is Growing Quickly

Licensing Actions Completed Since May 2025	28
Current Licensing Actions	14
Projected Licensing Actions through 2030	102

Category	Current	Projected by 2032
No. of Fuel Facilities	10 1 under construction 1 licensed, but not constructed	17
No. of GTCM Facilities	10	11
Total Number of Operating Facilities	20	28



Core Mission Delivery: We are Responding to the Call to Fuel the Nation's New Reactors

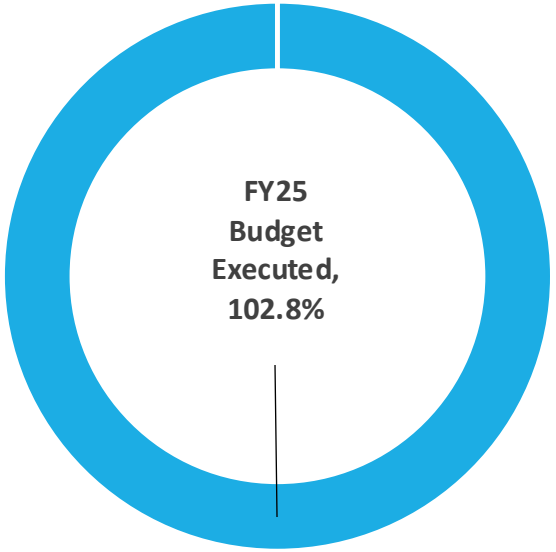
- Setting the Direction and Vision for Efficiently Delivering our Mission.
- Innovating Licensing Approaches
- Building on Previous Experiences
- Making the smarter inspection program even smarter

Preparing Our People Today for Tomorrow

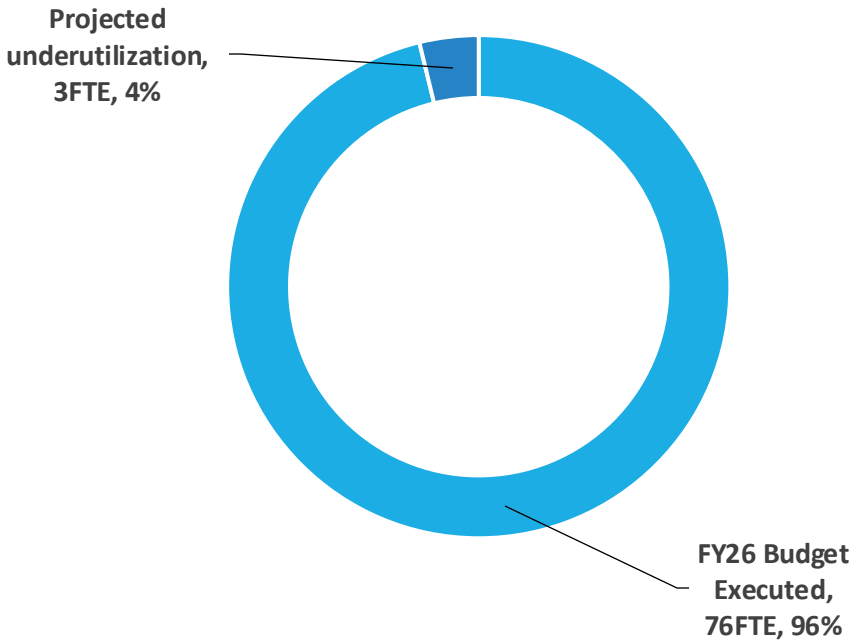
- Strategic Workforce Planning and Staffing
- Shift in Office Culture
- Smartly Managing Workload
- Office Reorganization

A Transparent Look at Budget Execution

FY2025 Budget Execution



FY2026 Budget Execution Projections



Budgeted FTE for FY26: **79**

Projected Utilized FTE for FY26: **76**

Projected Utilization Rate: **96%**

FY2026 Fee Projections

- Fuel Facilities Fee Class – Decreased by ~$1.0M from FY25
- Approximately 4% decrease from FY25

Disclaimer: Execution data is continually updated throughout the fiscal year, and the figures shown here represent the best available estimates at this time. Some values have been rounded or approximated for illustrative purposes.

Staff Accomplishments and Focus Areas/ Implementation of ADVANCE Act and Meeting the Nation's Priorities

Shana Helton

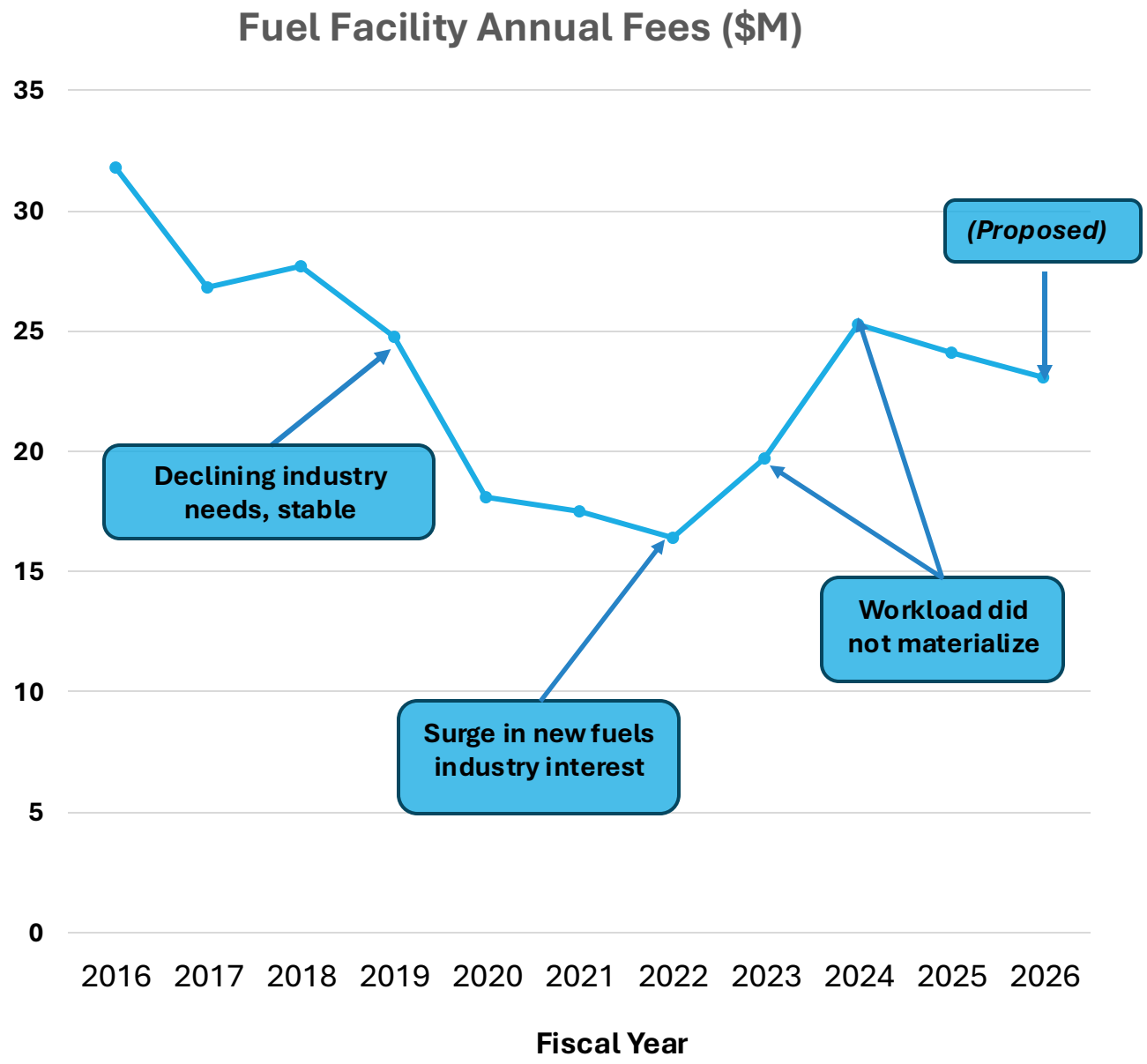
Director, Division of Fuel Management, NMSS

TRISO-X License Issuance Signing Ceremony

Brandon Bout, Chad Oelstrom, Anthony Ponko (Left to right)

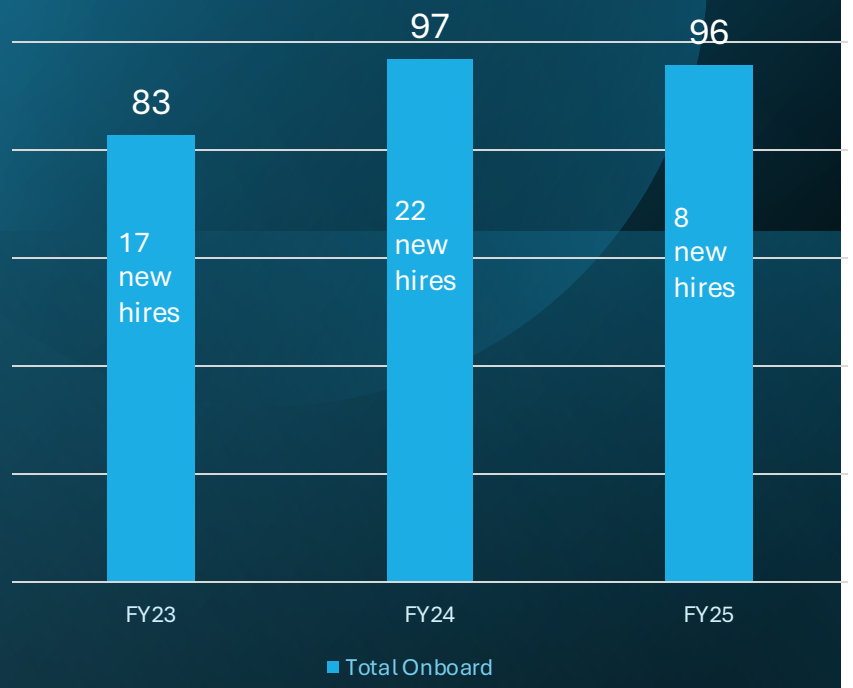
Advancing Licensing and Oversight through Continuous Improvement and Proven Results

Transparent Fees, Mindful Impact



Focus on People:

Division of Fuel Management
A Case Study



~10-15% annual attrition rate

FY 26 Budget: 87 FTE (26 FTE from Fuel Facilities)

14.3 FTE spent on training, mentoring, qualified

22 staff qualified, 7 staff in progress

Critical skillsets

Project management	Structural engineering	Fuel cycle and reprocessing expertise

Strategies to fill gaps

Rotational assignments	Hiring (including Regions)	Cross-training	Enterprise-Wide Contracts

Streamlining Licensing and Oversight to Support Industry Growth – Safely and Securely

FF Page

Improved new applicant experience

- Enhanced preapplication process
- Embracing OEDO-0235 Procedure on communicating, not consulting
- Streamlined environmental review

Accountability

- 50% faster NEIMA milestone schedules
- Leading and lagging indicators for licensing
- New inspection timeliness metrics

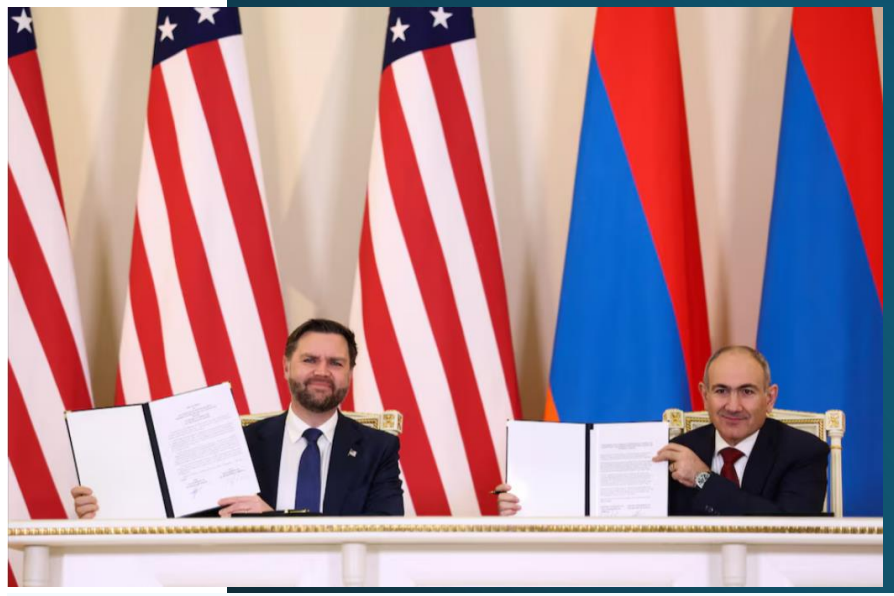
Continuous improvement

- Use AI to draft meeting summaries 60-80% faster
- Leverage precedents to reduce schedules & costs
- Inspection program rebaselining effort

New NRC landing page for prospective fuel facility applicants

Building on Partnerships to Strengthen U.S. Energy Security

- Establish *at least* 20 new agreements, per Executive Order 14299, "Deploying Advanced Nuclear Reactor Technologies for National Security"
- NRC ensures tracking and safeguards obligation, using the Nuclear Materials Management and Safeguards System (NMMSS)
- Accelerated progress
  - ✓ Completed: El Salvador, Armenia, South Africa
  - ❑ In progress: Uzbekistan, Bahrain, Jordan, Kenya, Brazil, Malaysia



"We are creating real prosperity for Armenia and the United States together." -- *Vice President Vance*

Coordination with Department of Energy on Fuel Pilot Line Activities/ Licensing Reprocessing Facilities under 10 CFR Part 70

Samantha Lav, Chief
Fuel Facilities Licensing Branch
Division of Fuel Management, NMSS

Building the Roadmap: Leveraging DOE Authorizations for Predictable Transition to NRC Licensing

DOE Authorization of Pilot Fuel Lines

DOE-NRC Transition Roadmap for Developing NRC License Applications

NRC License for Commercial Operations

OKLO

VALAR ATOMICS

STANDARD NUCLEAR

TRISO

TERRESTRIAL ENERGY

- Map DOE to NRC requirements
- Categorize differences based on impacts
- Identify information needs to resolve gaps

- Leverage DOE authorization to streamline NRC review
- Focus on risk-significant differences and additional information needs
- Make independent safety, security, and environmental findings

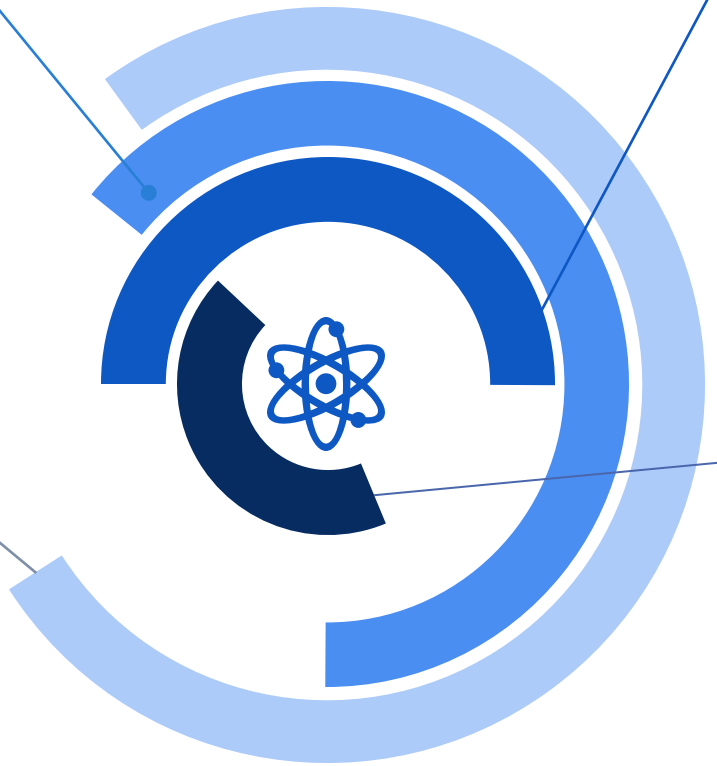
Active NRC Engagement: Observations and Expectations Strengthen Readiness

DOE Authorization Observations

Provide early insight into facility design, safety basis, and operational strategy; and early gap identification

Ongoing Coordination with DOE

Ensures situational awareness of authorization activities and supports resolution of jurisdictional issues



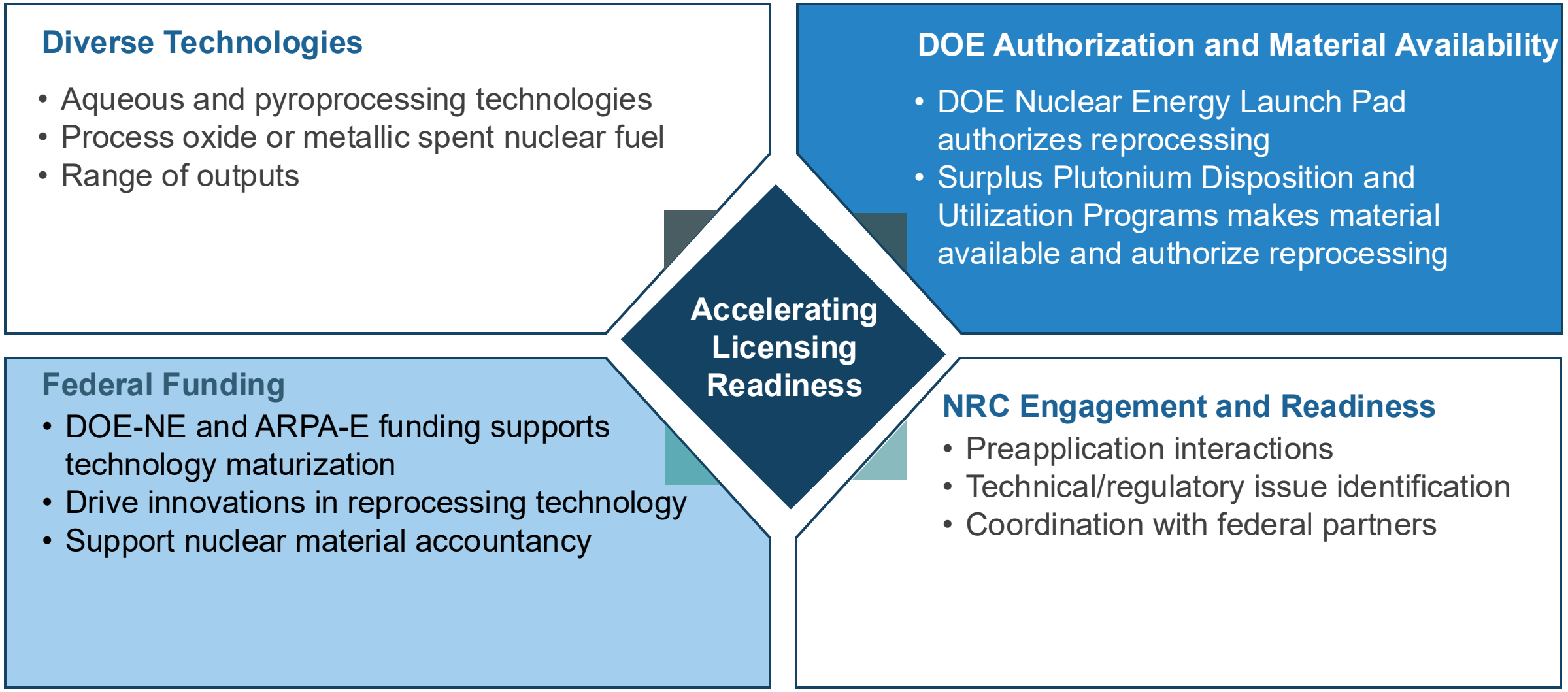
Expectations Memo

Establishes consistent expectations for NRC observations and describes the use of observations as part of pre-application engagement

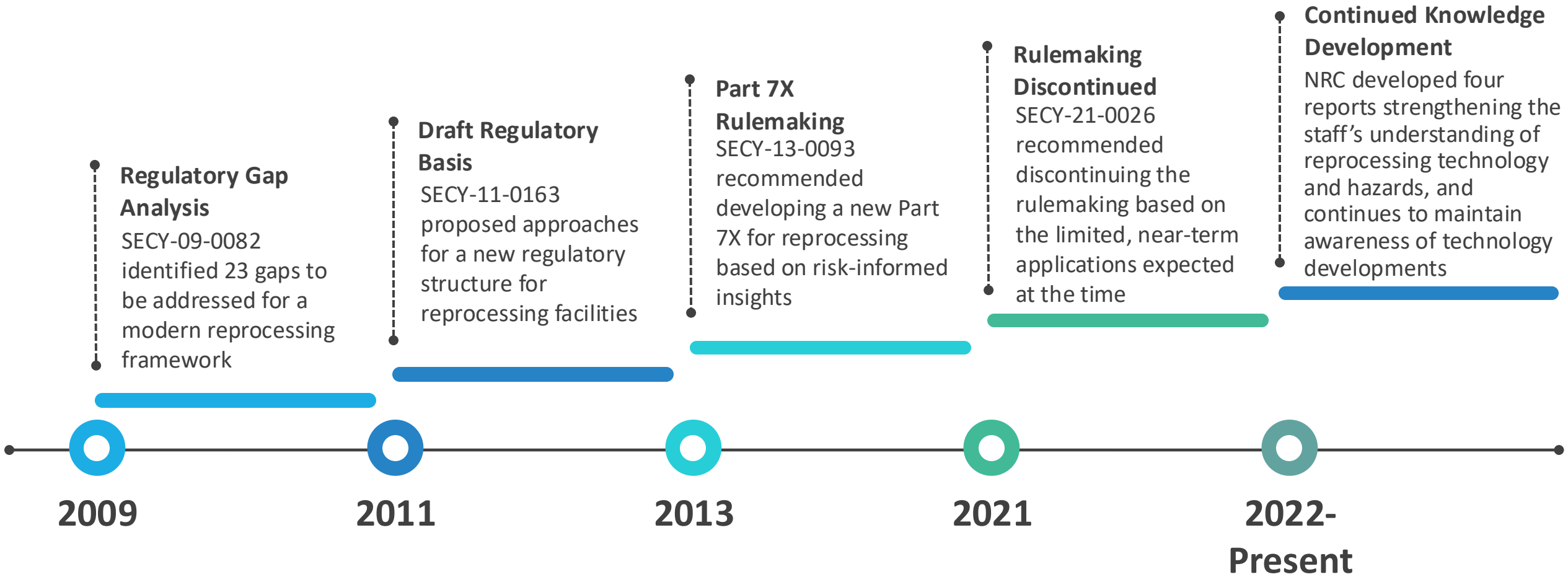
NRC Staff Detailed to DOE

Provide deeper technical insight, help identify gaps with NRC requirements, and strengthen overall readiness

The Landscape: Interest in Reprocessing Is Increasing



NRC Is Prepared to License: Gap Analyses, Framework Development, and Research



Closing Regulatory Gaps with Flexible Approaches

- NRC can license reprocessing facilities under Parts 50 or 70 with tailored exemptions and license conditions
- Part 70 provides streamlined one-step licensing, a risk-informed, technology-neutral framework, and reduced burden
- Flexible approaches being developed to meet Atomic Energy Act requirements for facilities that are also production facilities

Regional Perspectives on Oversight Enhancements/ Smarter Fuel Facilities Construction Oversight

Chad Oelstrom, Fuel Facilities Inspector
Division of Fuels, Radiological Safety, and Security
Region II

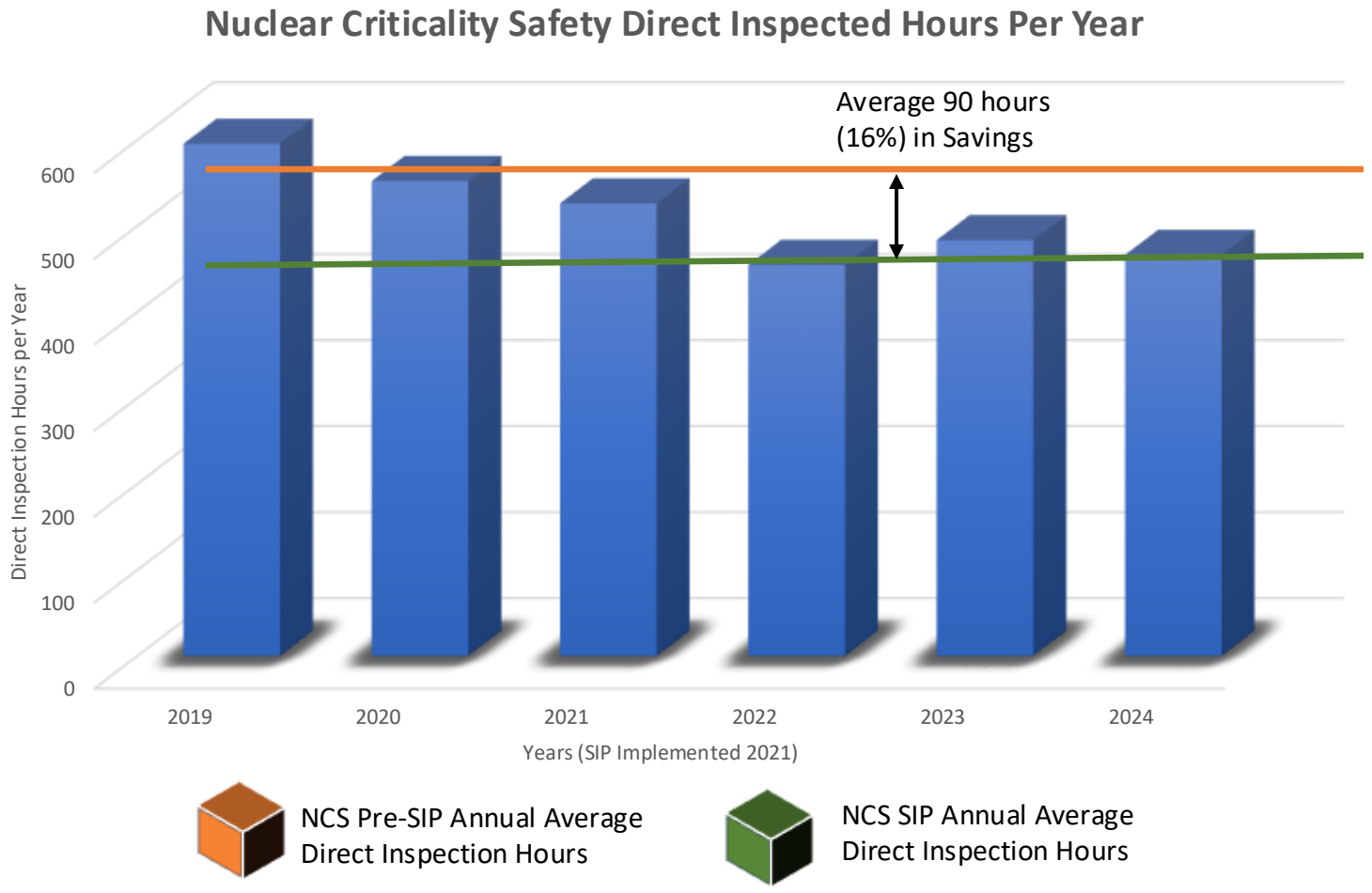
Smarter Fuel Cycle Inspection Program (SIP) a Stronger Foundation for Efficiency & Safety

Three Pillars of SIP

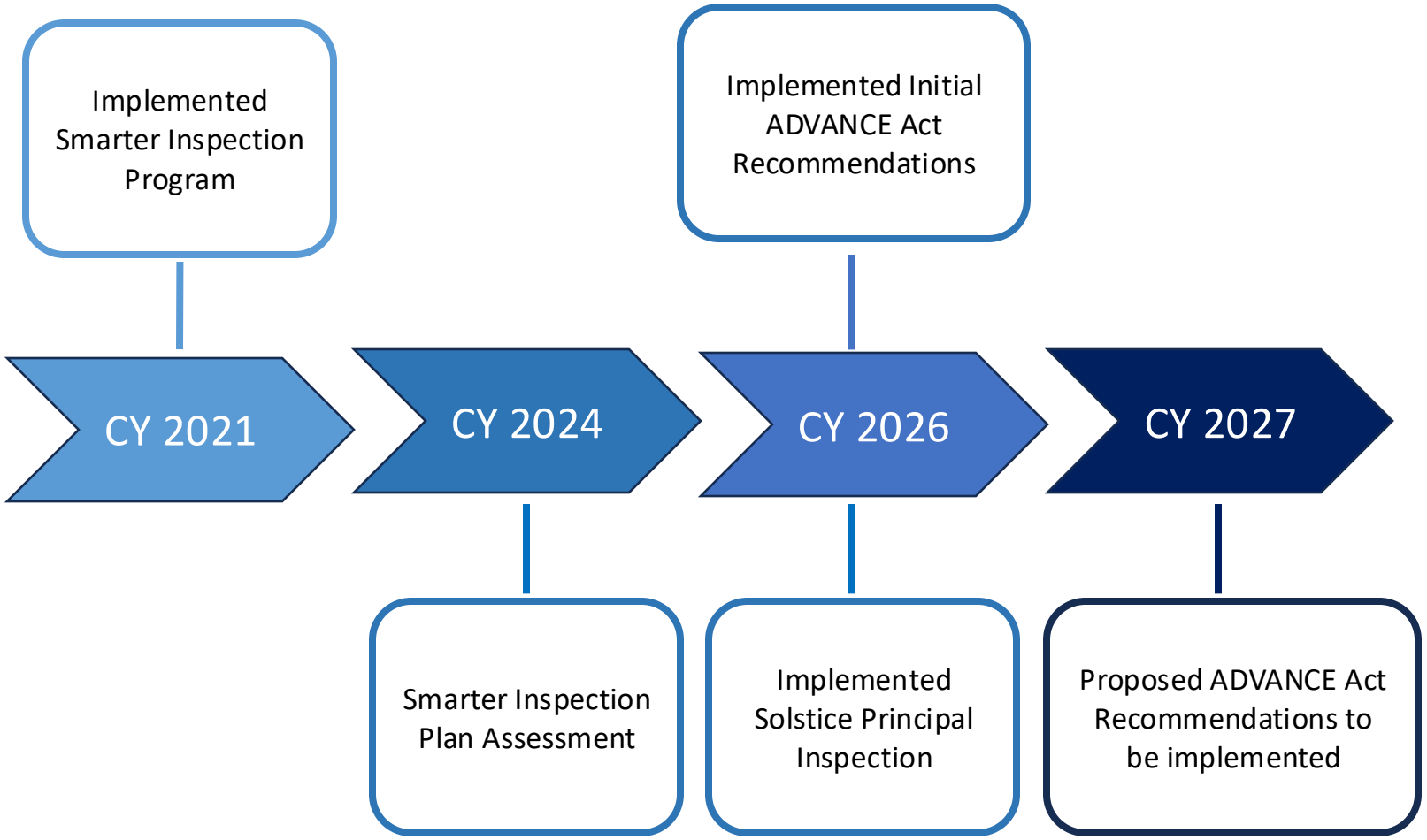
- Optimized inspection frequency and resource use
- Reduced overlap and strengthened guidance
- Programmatic improvements that sharpen regulatory focus

SIP Results

- Average annual savings aligns with SIP goal
- Safety performance remained consistent across facilities
- SIP assessment identified further opportunities in training, guidance, and staffing



Building on SIP Success through ADVANCE Act Enhancements



Solstice Metropolis Works (Photo courtesy of Solstice, Inc. website)

SIP Enhancements Strengthen Fuel Cycle Inspection Program

Qualified inspectors conducting field inspection activities and observations. (Photos Courtesy of Nuclear Fuels, Services, Inc.)

Reinforce the Inspection Program	**Increasing inspector qualifications in specialty areas**
Support Program Office	**Strengthen knowledge sharing, licensing understanding, and overall program quality**
Prepared for New Facilities and Technologies	**Allocate resources for construction oversight**

Modernizing Construction Oversight for New Fuel Facilities and Technologies

- **Modernized Inspection Framework**
- **Risk-Informed**
- **Applying Lessons Learned**
- **Utilizing Existing Resources**

Construction and inspection activities at TRISO-X (Photos courtesy of TRISO-X, LLC)

Tools to Support a Risk-Informed Oversight Approach

- **Applied R+SA Risk Framework to Inspection Planning**
  Prioritized inspections for construction and operational readiness

- **Developed Integrated Tool for Tracking**
  Centralized licensing, construction, and milestone data

- **Support Real-Time Decisions**
  Interactive insights for planning, resources, and oversight

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Nuclear Technology

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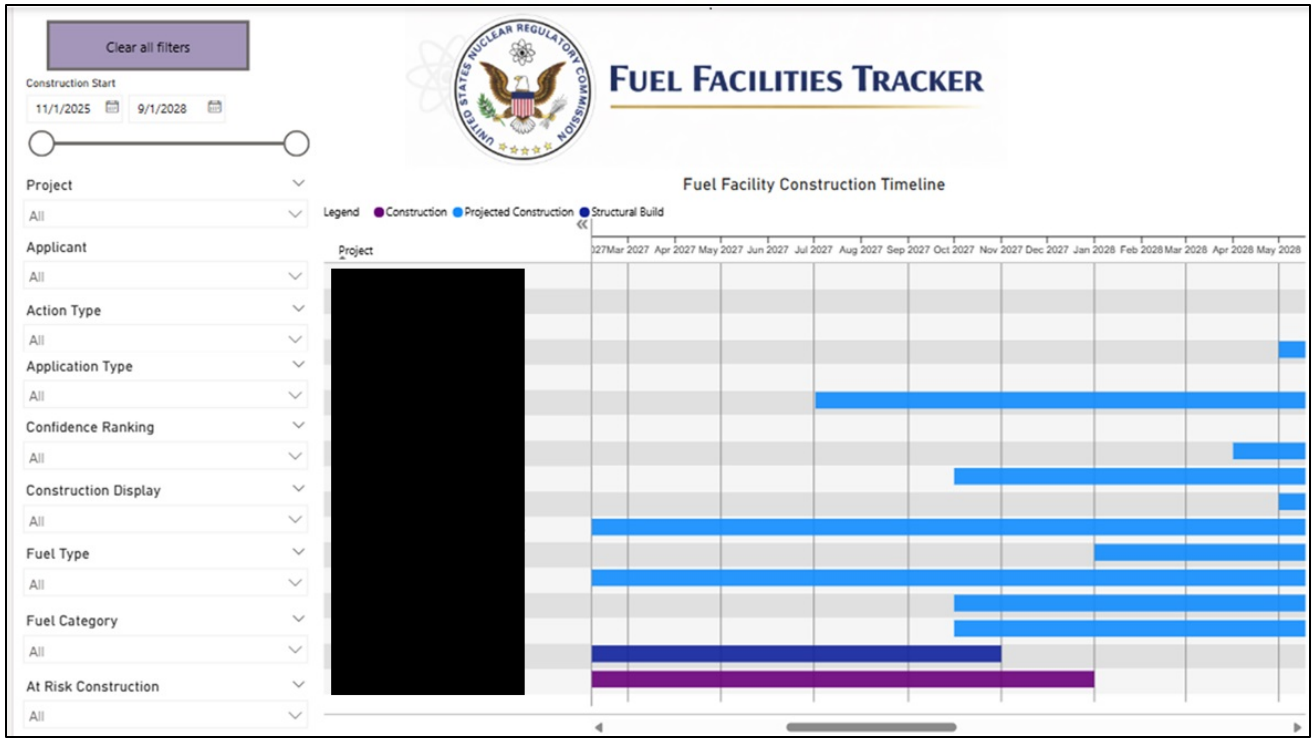
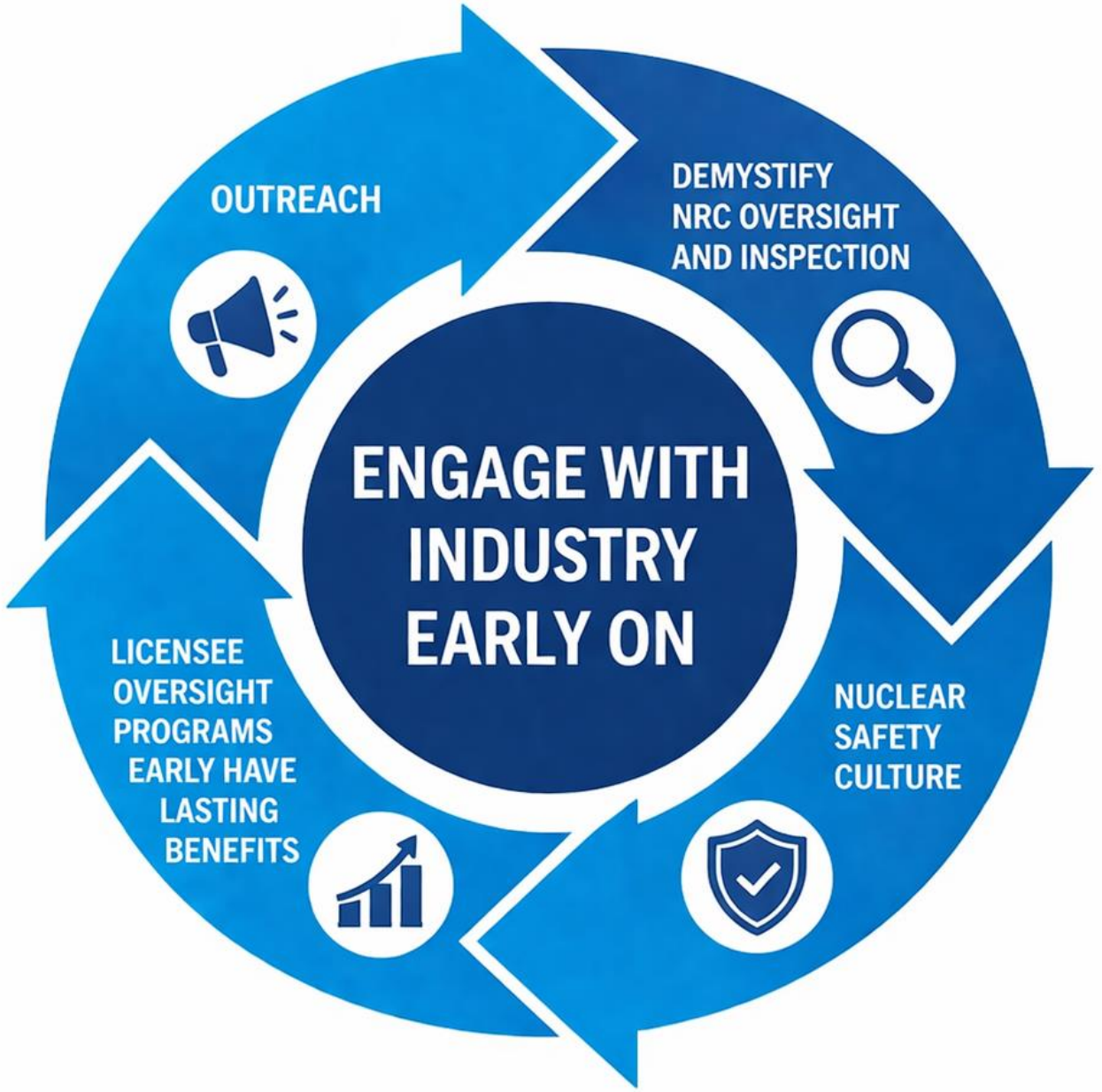
Risk Plus Some Attributes (R + SA): A New Risk-Informed Method for Prioritizing Inspection Activities During New Fuel Facility Construction

Peter Yarsky, Kevin Coyne, Cynthia Taylor & Chad Oelstrom

To cite this article: Peter Yarsky, Kevin Coyne, Cynthia Taylor & Chad Oelstrom (2025) Risk Plus Some Attributes (R + SA): A New Risk-Informed Method for Prioritizing Inspection Activities During New Fuel Facility Construction, Nuclear Technology, 211:2, 358-376, DOI: 10.1080/00295450.2024.2326375



Engaging Industry and New Applicants



Closing Remarks

Mike King
Executive Director for Operations

Strategic Programmatic Overview of the Spent Fuel Storage and Transportation Business Line

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Mike King

Executive Director for Operations

Preparing for the Future: Spent Fuel Storage and Transportation Business Line Overview

Andrea Kock
Director, NMSS

Enabling the Nation's Energy Supply Through Storage and Transport Excellence

82 ISFSIs in 36 States

98 Transportation Packages (Domestic)

50 Transportation Packages (International)

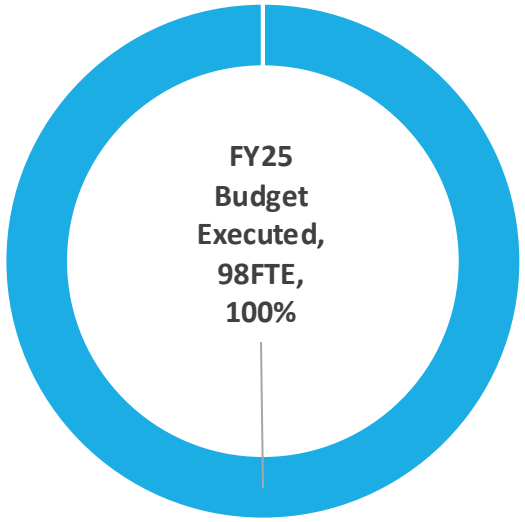
About 80 Licensing Actions per year

30 Completed Licensing Actions to Support the Transportation of New Fuels

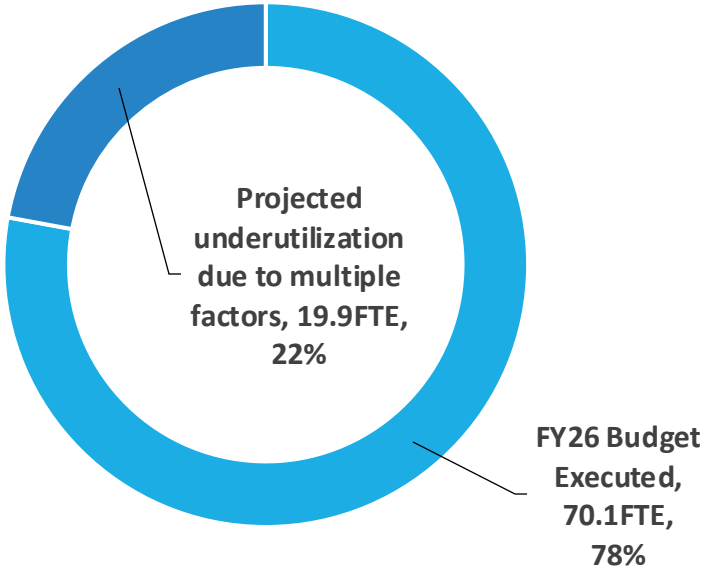
Photo: Marlone Davis and Nathan Audia inspecting at Point Beach

A Transparent Look at Budget Execution

FY2025 Budget Execution



FY2026 Budget Execution Projections



Budgeted FTE for FY26: **90**

Projected Utilized FTE for FY26: **70**

Projected Utilization Rate: **78%**

FY2026 Fee Projections

- Spent Fuel/Reactor Decommissioning Fee – Decreased $0.3M from FY25
- Transportation Fees – Increased $0.4M from FY25

Disclaimer: Execution data is continually updated throughout the fiscal year, and the figures shown here represent the best available estimates at this time. Some values have been rounded or approximated for illustrative purposes.

Optimus L-Package for HALEU (Image from NAC)

Core Mission Delivery: We are Boldly Responding to the Nation's Clean Energy Needs

- Use of risk insights and processing efficiencies
- Modernizing Regulatory Approaches
- Continuously improving the inspection program

Preparing our People Today for Tomorrow

- Crosstraining staff
- Building agility to support the advanced fuel landscape ahead

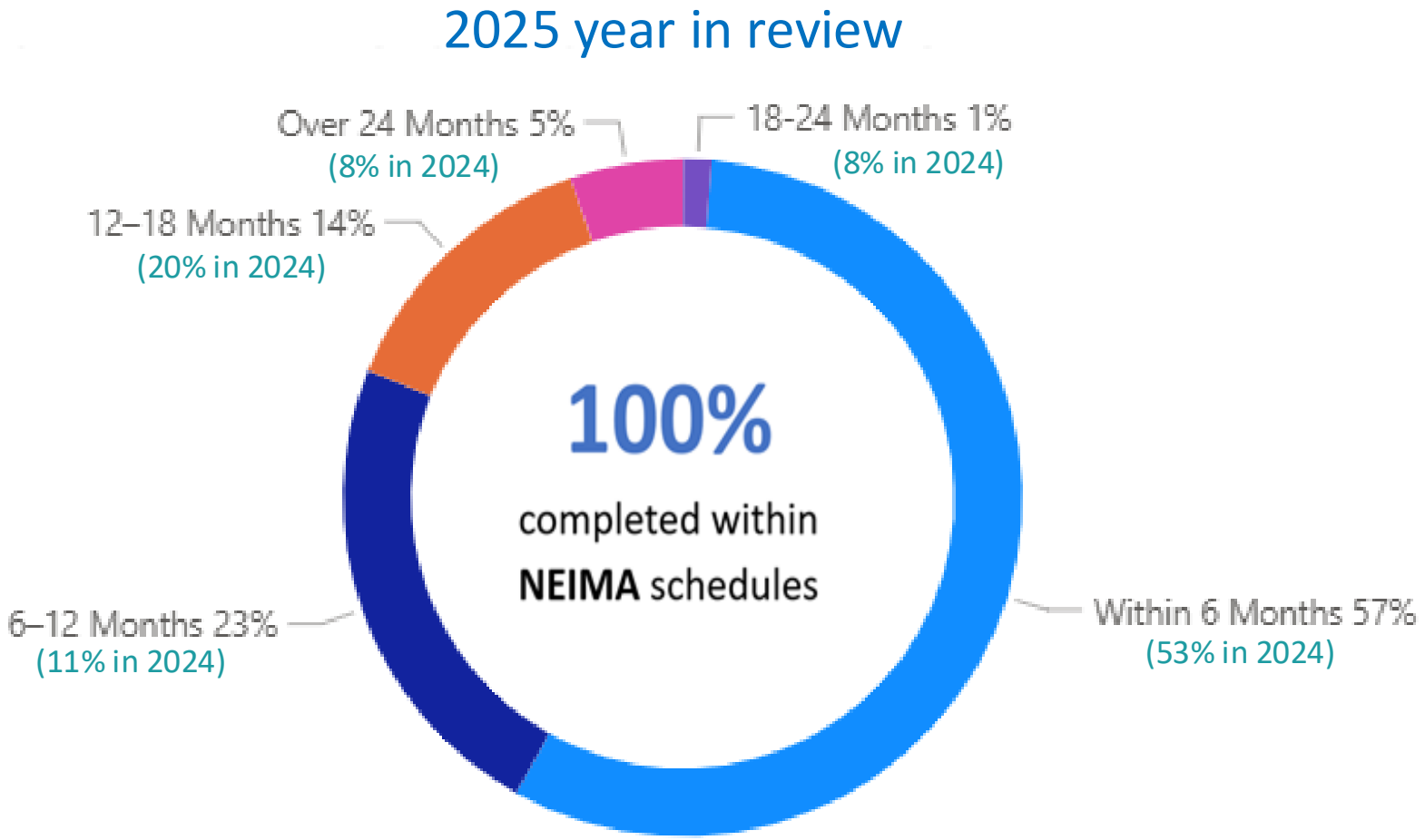
Staff Accomplishments and Focus Areas/Implementation of ADVANCE Act and Continued Progress on Risk-Informing Licensing and Oversight/Microreactor Transportation

Cinthya Roman-Cuevas
Deputy Director, Division of Fuel Management, NMSS

Delivering Results Today While Reinforcing Accountability for the Future

82
Licensing Actions Completed*

62
Tracked Under NEIMA**



*3 Licensing actions were completed under the new EO 14300 metrics
**Nuclear Energy Innovation and Modernization Act

Future Outlook: Preparing for the Next Wave of Nuclear Growth

Growing Demand, Growing Opportunities

→ Modernize regulatory tools and methods

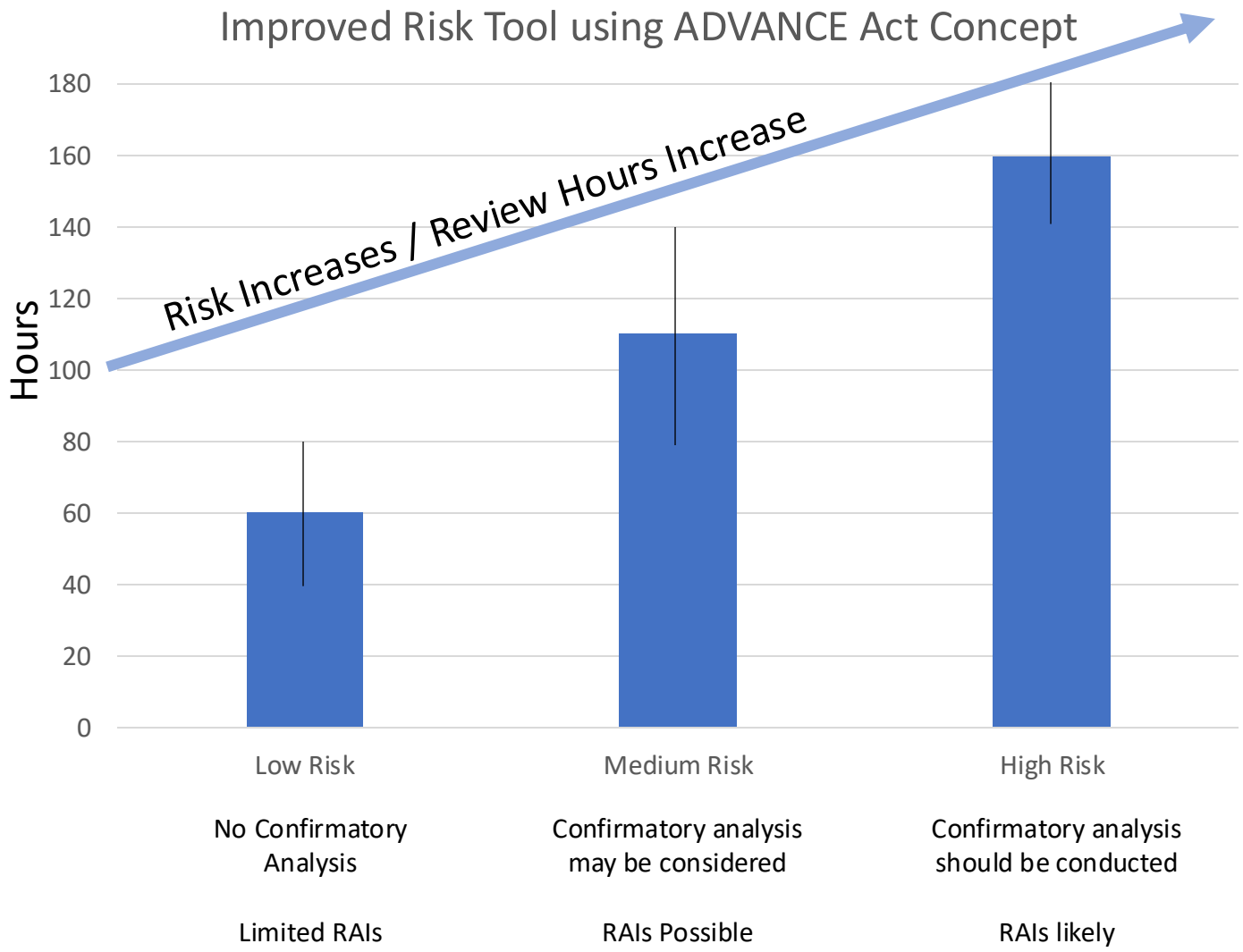
→ Build the technical skills needed for today and the future

High Return on Investment Research & Partnerships

→ DOE/NRC Criticality Safety for Commercial-Scale HALEU Fuel Cycles and Transportation (DNCSH)

→ International Partnerships

Continuing Progress toward More Risk-Informed, Efficient Reviews through the ADVANCE Act



ADVANCE Act concepts are being considered in EO14300 Rulemakings

- Part 72 - Storage
- Part 71 – Transport
- Part 61 –Low Level Waste
- Part 57 – Microreactors

Safe Transport Considerations for Microreactors

Part 71 testing requirements: Design-specific analyses can complement the conservative testing framework in 10 CFR Part 71, reflecting real transport conditions (e.g., heavy haul)

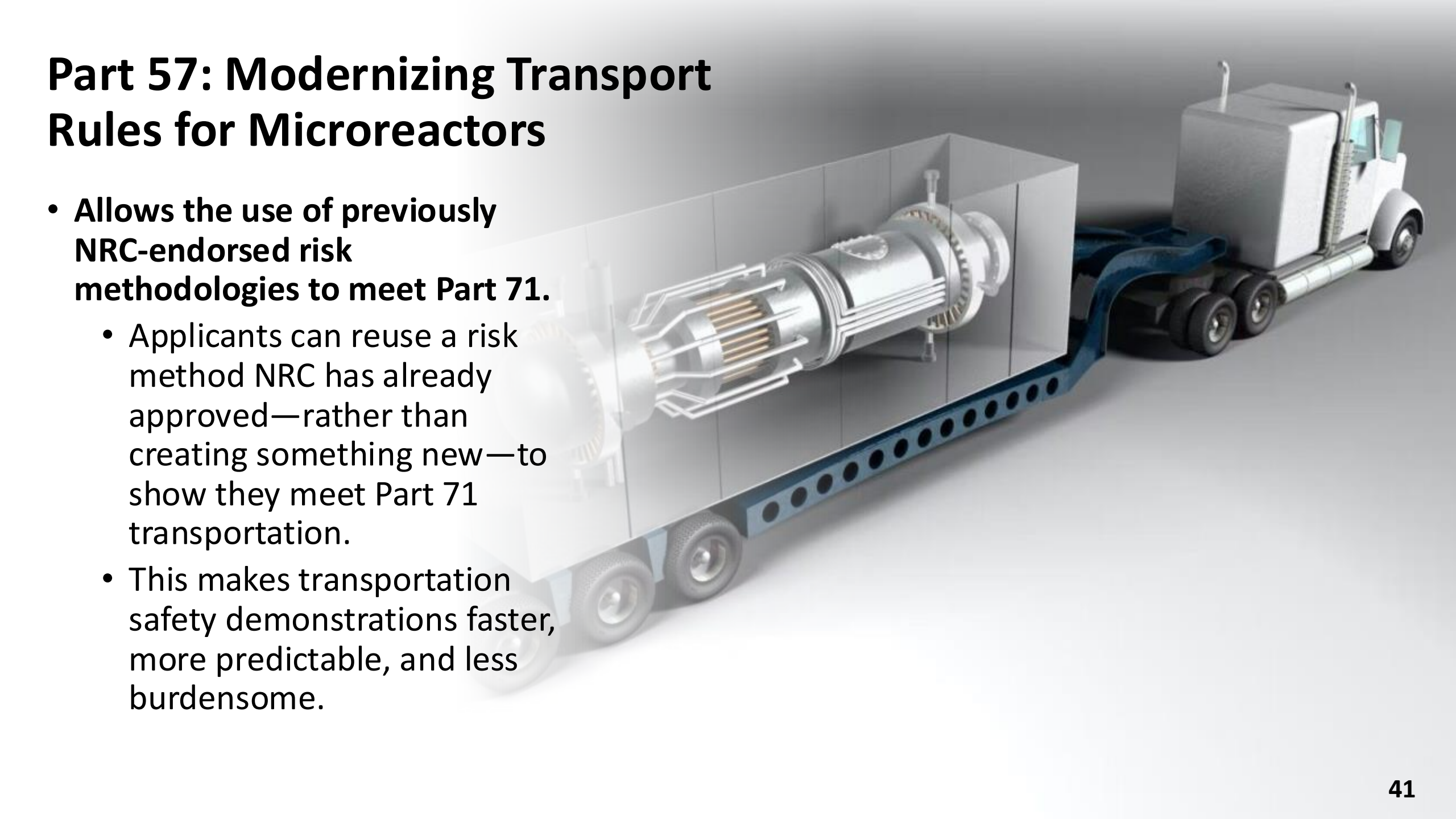
Cooling time flexibility: Some designs—especially for emergency use—may require shorter cooling periods, increasing the need for effective shielding

Weight & infrastructure: Heavier systems may face road, rail, and bridge limits, requiring early planning

Design integration: Transport considerations are best addressed early in the design, supporting safe and flexible deployment

Part 57: Modernizing Transport Rules for Microreactors

- **Allows the use of previously NRC-endorsed risk methodologies to meet Part 71.**
  - Applicants can reuse a risk method NRC has already approved—rather than creating something new—to show they meet Part 71 transportation.
  - This makes transportation safety demonstrations faster, more predictable, and less burdensome.



Ongoing Considerations for Safe Transport of Microreactors

Public dose impacts during transport

Evaluating how dose rates change with different fuel cooling times

Assessing real-world scenarios (traffic, stops, public proximity)

Results show microreactors can be transported safely, even when dose rates are higher, under defined conditions.

Understanding shielding needs for irradiated microreactors

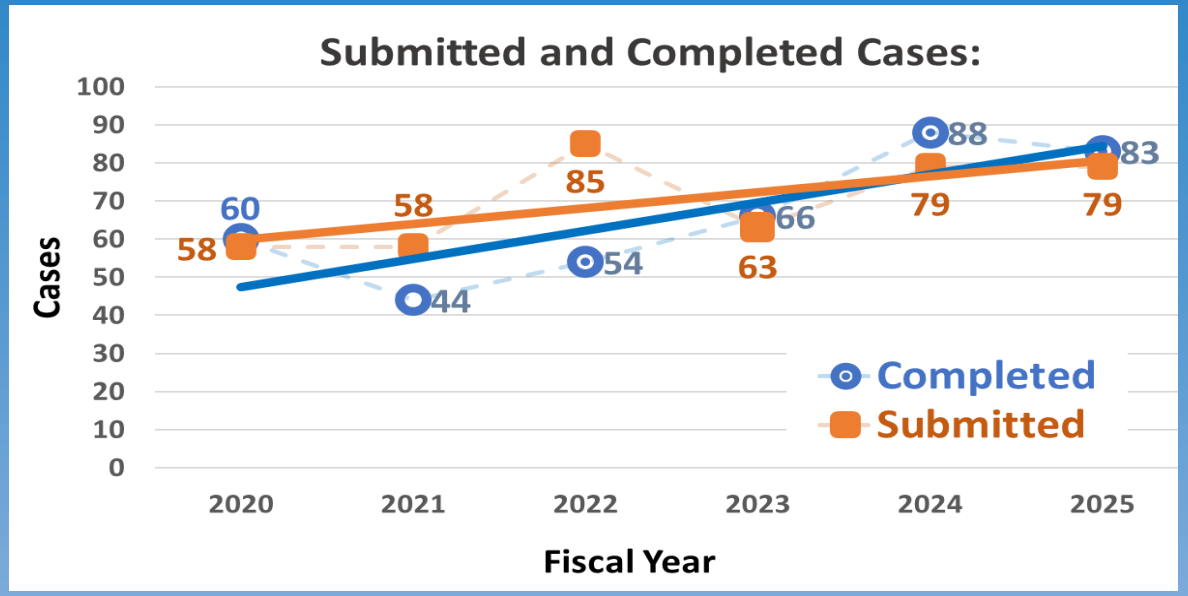
Comparing shielding effectiveness at various cooling stages

Engagement and Inputs Shaping the Future of Transportable Microreactors

- Continued interaction with applicants
- Outreach to stakeholders such as Tribes and States
- Coordination with the Department of Transportation (DOT)

Ongoing Storage and Transportation Licensing/Aligning Storage and Transportation Licensing with Fuel Supply Goals

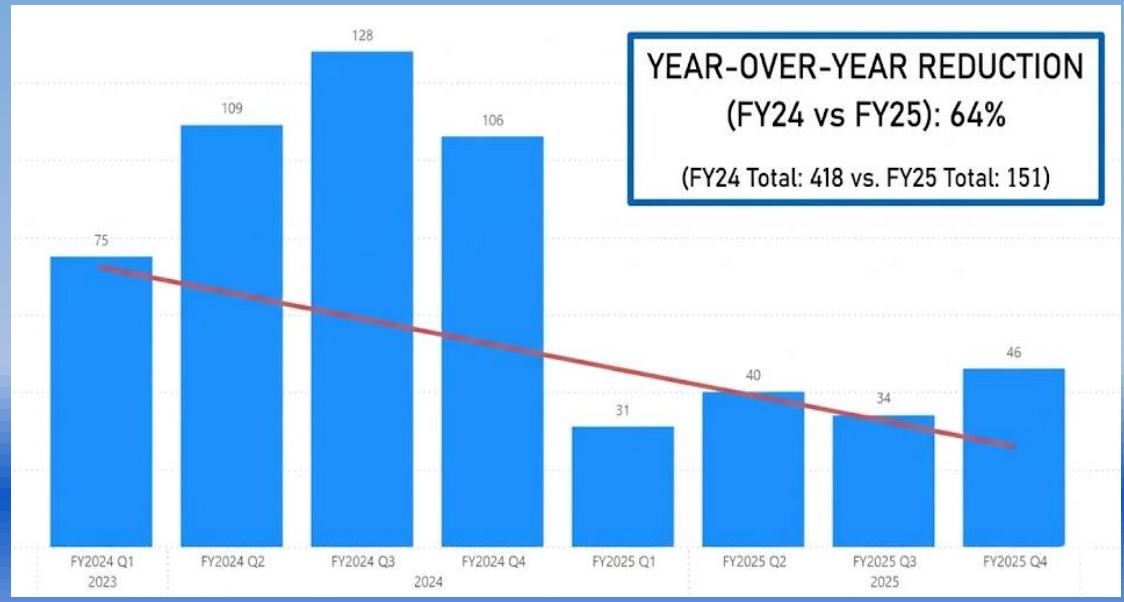
Yoira Diaz-Sanabria
Chief, Storage and Transportation Licensing Branch
Division of Fuel Management, NMSS



Keeping Storage and Transportation Licensing Ontrack

Timely completion with an increasing caseload with new levels of complexity

Driving early resolution of issues reduces the number of RAIs



Advancing Fuel Management Through Effective Execution

Regulatory Agility: Enabling early Part 71 design work by allowing use of an approved Part 50 Quality Assurance Program

Rapid Re-engagement: Amendment review completed in 3-weeks enabling faster delivery of medical radiopharmaceuticals for cancer patients.

Supporting High Burnup Research: Approved CoC revision for DOE/EPRI HBU cask transport ahead of schedule and under budget.

Supporting National Security Missions: Approved a CoC in less than a year to safely transport a wide range of radioactive materials.

June 2025: Signing of Volunteer Transportation Certificate of Compliance Supporting National Security Missions.
Record Time NRC Approval (< one-year).

Strengthening Safety and Efficiency through Risk Insights

Early alignment on safety significance criterion: concrete overpack code-alternative (2-months vs. 6-months review)

Early CoC approval enabling high-burnup research data: reducing uncertainties to strengthen technical foundations

Risk-Informed Showcase: alignment with industry on primary focus areas

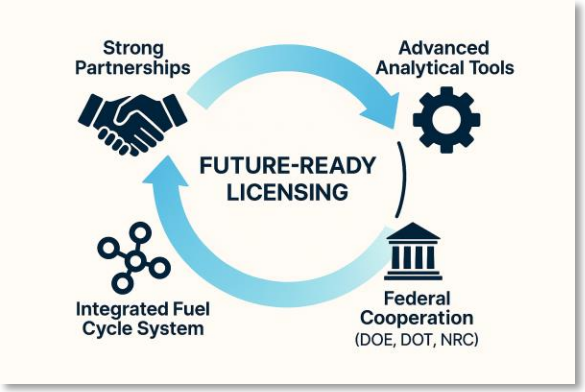
Forward looking: EPRI Gross Rupture criteria that will support risk-informed reviews

HBU Demo Storage Cask at North Anna

Ensuring Readiness for What's Next: Through Our People and Partnerships

- Strengthening technical skills through continuous licensing experience and targeted expert input.
- Strengthening workforce resilience with collaborative onboarding and clear guidance.
- Maintaining consistent, high-quality reviews through clarified roles and cross-training.
- Using team caucuses to resolve issues early and apply risk-informed solutions.
- Advancing expertise through international engagement and strong NRC-DOE–DOT partnerships to keep the fuel cycle predictable, secure, and "designed to ship."

March 2026 IAEA Safe and Secure Transport of Nuclear and Radioactive Material.
From left to right: Majid Qureshi (Pakistan), David Pstrak (NRC), Nishka Devaser (NRC), Ryan Vierling (DOT)



Regional Perspectives on Oversight and Trends of Storage and Transportation Issues/Insight on Inspection Resources, Training, and Retention

Bill Lin
Sr. Health Physics Inspector,
Division of Radiological Safety & Security
Region III

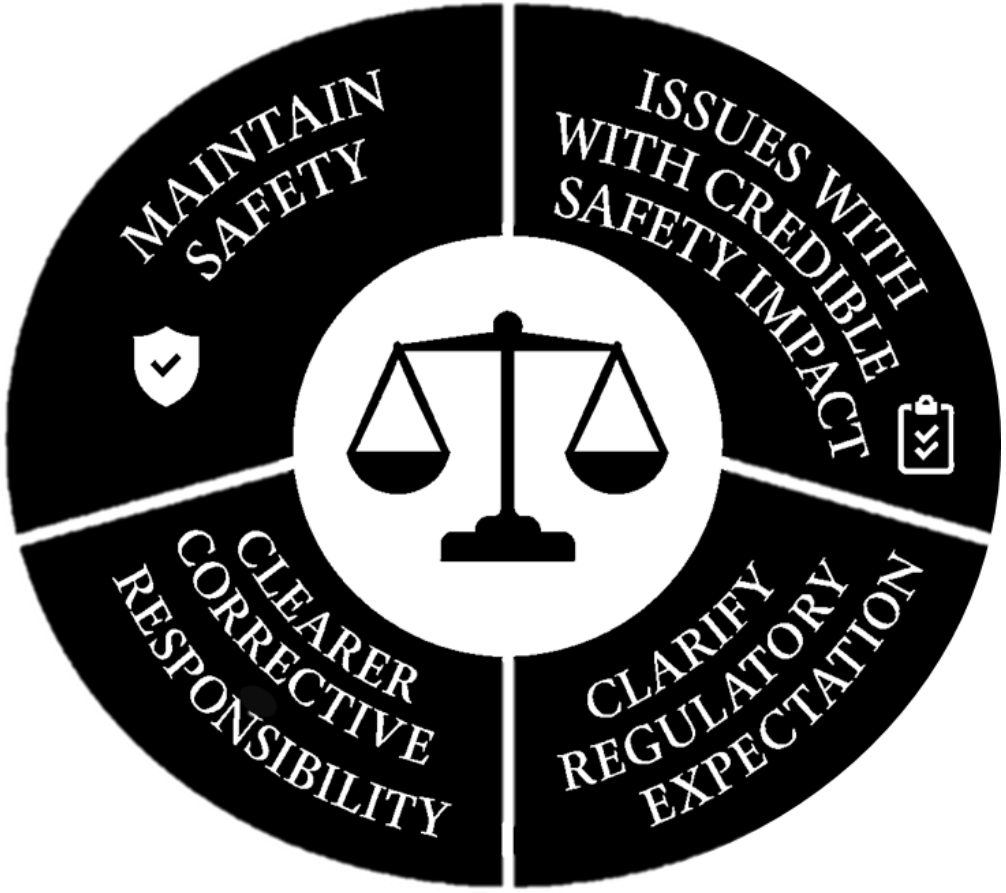
More Efficient Oversight Achieved by Leveraging Risk-Insights

- Independent Spent Fuel Storage Installation (ISFSI) Enhancement Initiative
  - Risk-informed, performance-based inspection program
  - Inspection Manual Chapter (IMC 2690) Overhaul

- Advance Act Section 507-Improving Oversight and Inspection Program
  - NRC Report to Congress (ML 25077A251)

- Focusing on Safety
  - Graded approach to important to safety (ITS) structures, systems, and components (SSCs)
  - Operating experience

Communication Strengthens Nuclear Safety



- Interim Enforcement Policy (IEP) 9.4
  - "Enforcement Discretion for General Licensee Adoption of Certificate of Compliance Holder-Generated Changes" (ML25224A182)
  - Clarifies Overlapping Responsibilities
  - Focuses Enforcement on Entity Best Positioned to Act

Procedures Guide Us, But Training Prepares Us When Conditions Change

Photo: Nathan Audia, Andres Rowe, and Jake Davis inspecting at Davis-Besse, accompanied by Mohammed Shuaibi

- Emphasizes Field Experiences-Focus on Safety Significant Activities
- Expand Cross-Qualification to Increase ISFSI Bench Strength
- Very Low Safety Significance Issue Resolution (VLSSIR) Tool Available for Inspectors-Promote Inspection Completion Timeliness
- Reorganization Allows for Potential Inspection Schedule Flexibility to Meet Work Surges and Staff Retention
- SFST Management and Staff Trained and Implemented New Metrics to Keep the Organization Accountable and Focus on Safety

Closing Remarks

Mike King
Executive Director for Operations