

# **NRC Overview and Perspective on Criticality Safety Assessment Needs**

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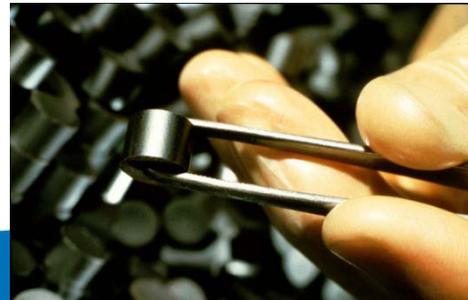
# Overview

- About NRC and NMSS
- Challenges in Criticality Safety
- Conclusions



# NRC – Who We Are

- Mission: Regulate civilian uses of nuclear material
  - Protect public health and safety
  - Promote common defense and security
  - Protect the environment
- Areas: Reactors, Materials, Waste



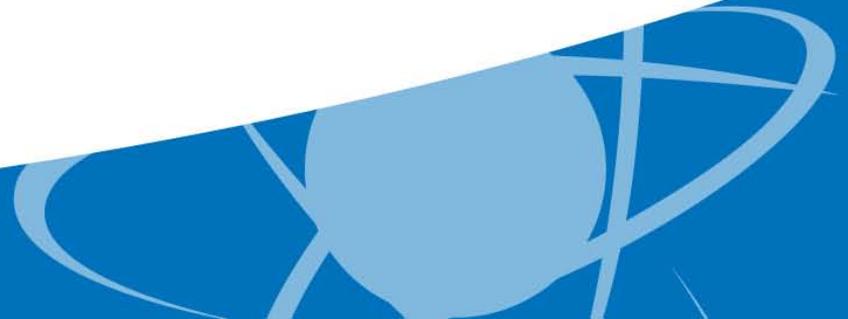
# One of Our Strategic Outcomes

**To prevent the occurrence  
of any inadvertent  
criticality events**



# Regulatory Activities

- Licensing
  - Technical/Safety Reviews
- Inspection and Enforcement
- Rulemaking
- Regulatory Research

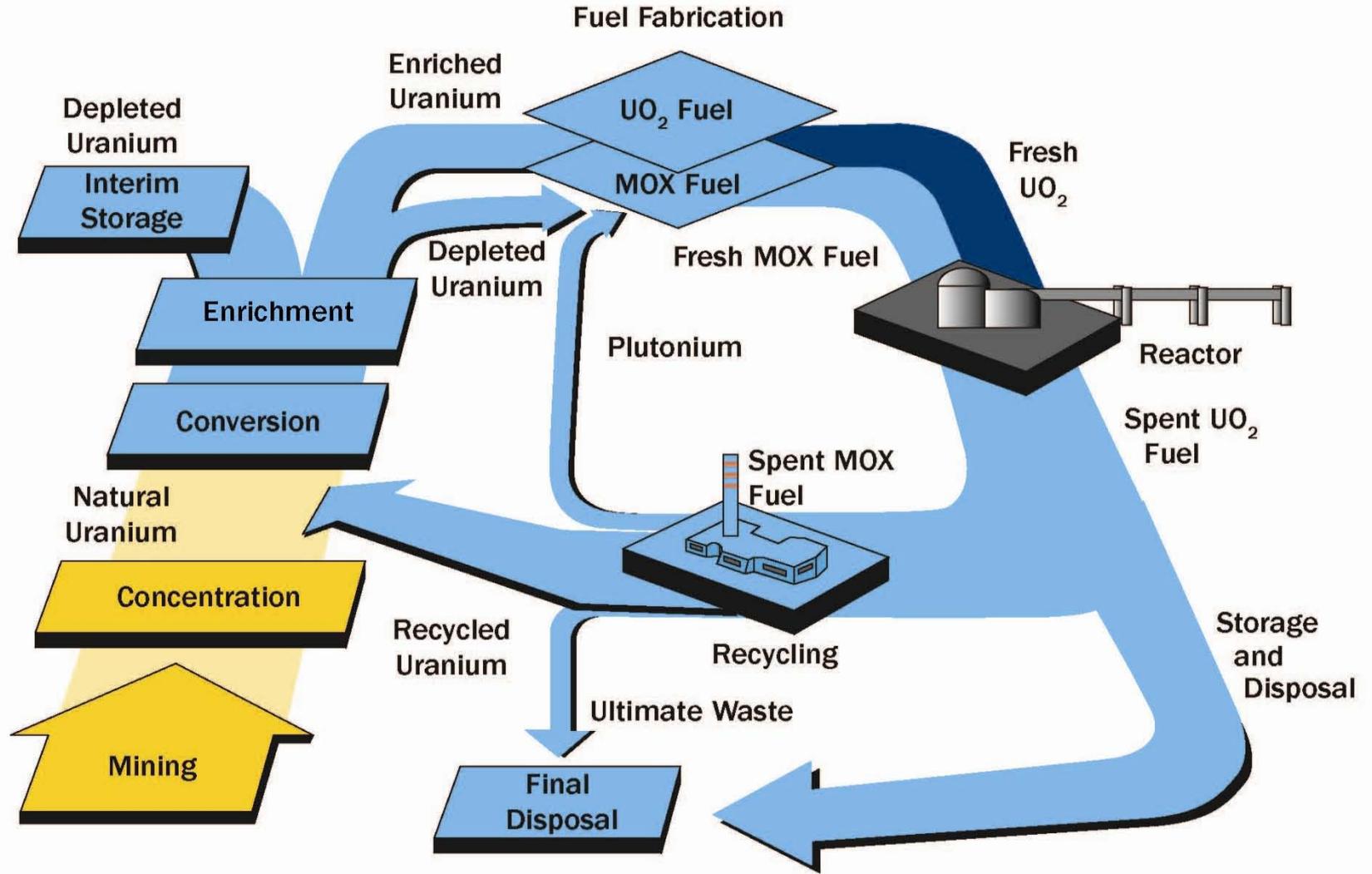


# NMSS – Regulating the Nuclear Fuel Cycle

- Conversion
- Enrichment
- Fuel Fabrication
- Transportation
- Storage
- Disposal
- Reprocessing

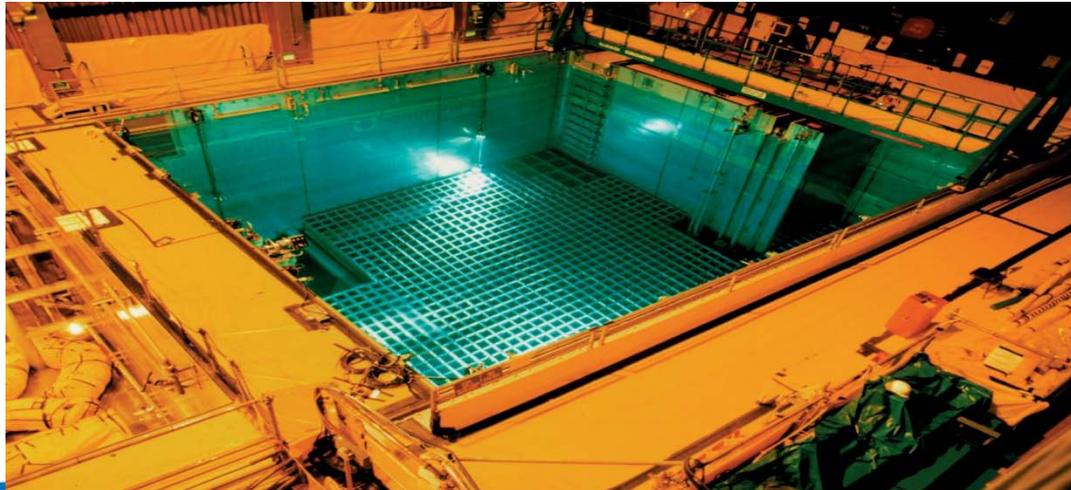


# The Nuclear Fuel Cycle



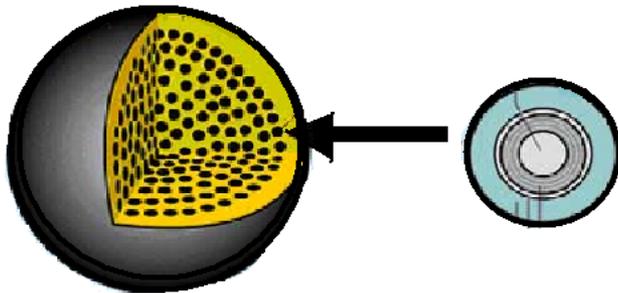
# Current Challenges

- Demonstration that current benchmarks adequately validate codes used in licensing
  - Fission product data for burnup credit, especially for integrated and mixed systems



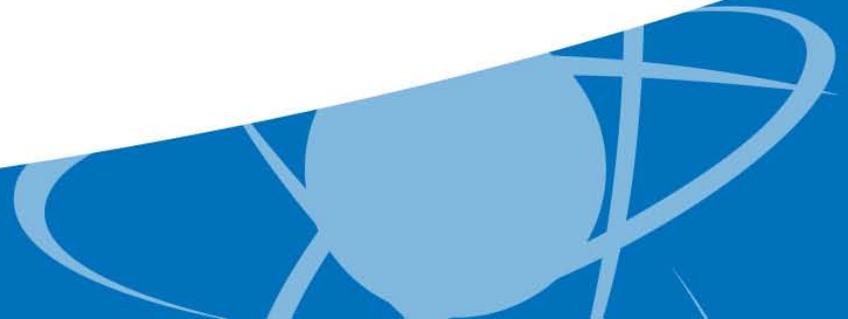
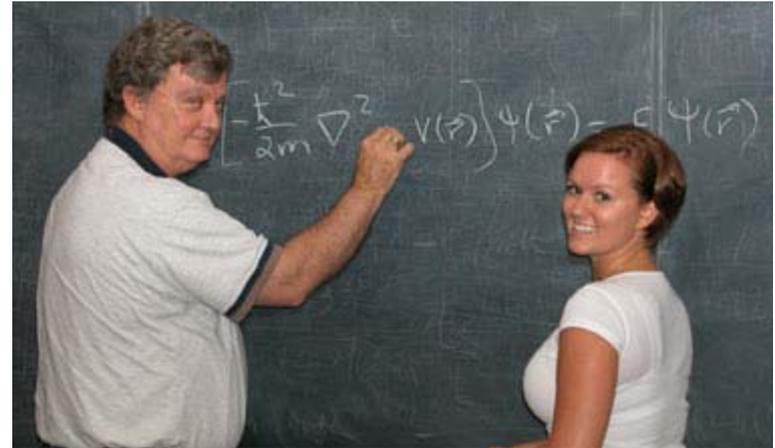
# Potential Future Challenges or Research Needs

- Demonstration that codes are adequately validated for:
  - Enrichments above 5wt%
  - Reprocessing
  - New Fuel Designs
  - New Types of Neutron Absorbers



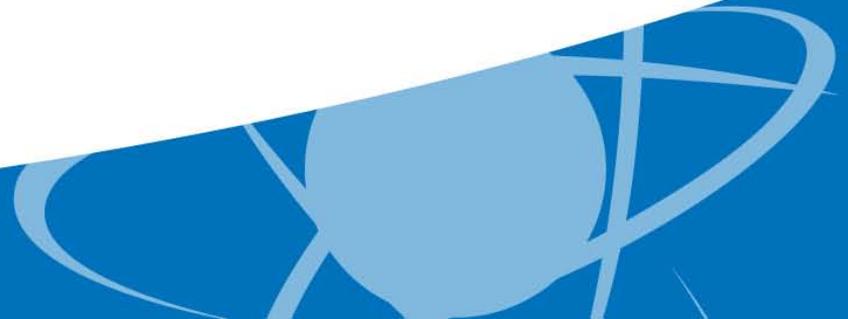
# Human Resource Challenges

- Attrition
- Limited training or educational opportunities
- Limited pool of experts
- Knowledge Transfer



# Conclusions

- Codes should be validated to the applications
- Benchmarks should represent the system of application
- Need to maintain, develop and enhance criticality skill set



# Questions

