

# U.S. Nuclear Regulatory Commission



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

***U.S. Nuclear Regulatory Commission  
Perspectives: Remediation Challenges  
Over the Next Decade***

***Session 2: Advancing New Remediation  
Technologies***

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**U.S. Nuclear Regulatory Commission**

FRTR Spring 2021 Webinar and Meeting


May 26, 2021

1

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## NRC's Advanced Remediation Technologies: Scope, Application & Needs

- Dismantling & Decontamination of facility components and structures at nuclear power plants and spent fuel facilities to protect the public and environment.
- Remediation/Cleanup of soils, subsurface media & groundwater for [decommissioning](#) of complex and uranium recovery sites.
- Enhanced and efficient characterization methods and surveys before, during, and after remediation for demonstration of compliance with regulatory safety and environmental criteria.



**Phases of Decommissioning**

**TRANSITION FROM OPERATION TO DECOMMISSIONING**

1. Permanent Cessation of Operations
2. Certification of Permanent Cessation of Operations
3. Certification of Permanent Fuel Removal

**MAJOR DECOMMISSIONING MILESTONES**

4. Post Shutdown Decommissioning Activity Report (PSDAR) Submission
5. PSDAR Public Meeting
6. Major Decommissioning Activities
  - Preparations for Storage and Dismantment
  - SAUSTOR
  - DECON

**LICENSE TERMINATION ACTIVITIES**

7. License Termination Plan (LTP) Submission
8. LTP Public Meeting
9. Final Status Survey
10. License Termination

**Timeline:** 0-2 years (Fuel Removal, Decommissioning Plan to NRC), up to 60 years (Design, Construction, Operation, License Termination - the removal of public or other use).

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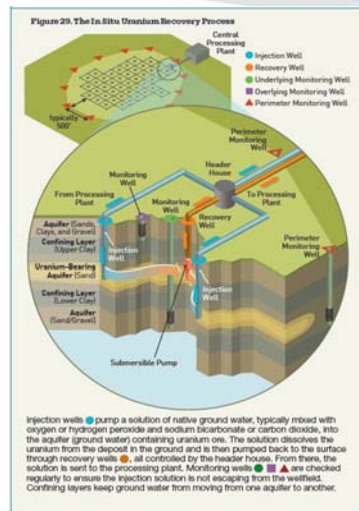
May 26, 2021

2

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### NRC's Advanced Remediation Technologies: Scope, Application & Needs (continued)

- Advanced technologies for characterization and survey of radiological contamination, particularly in the subsurface.
- Use of [risk-informed approaches](#) and guidance to demonstrate compliance with NRC safety and environmental criteria.
- Obtain real-world knowledge of accomplished site remediation to support [risk-informed decision-making](#) and training.



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### Challenges

- Knowledge transfer of innovative technologies via [FRTR](#) & [CLU-IN](#) websites to the remediation community and regulators.
- Accessibility to new technologies and their cost efficiencies.
- Coordination of regulatory updates, guidance, and good practices for robotic surveillance and application of new technologies.
- Awareness of Federally-funded academic and research institutions of new and innovative remediation technologies and their application.
- Transitioning of advanced technologies from laboratory/pilot scale to field implementation.

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### Suggestions

- Enhanced communication and technical exchanges at FRTR meetings.
- Program to test and evaluate innovative technologies for transitioning from experimental/pilot scale to field-scale applications.
- Initiate discussions on regulatory updates, guidance, and good practices to incorporate new and innovative technologies.
- Virtual workshops to explain and demonstrate advanced technologies and their transitioning to field implementation.
- Coordination with academic and research institutions to showcase new and innovative remediation technologies funded by Federal agencies.

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### Concluding Remarks

- Appreciate the good collaborative work of the FRTR to date.
- Endorse focusing on innovative technologies for remediation of [radiological](#) contamination.
- Anticipate further collaboration on innovation, technology transfer and risks assessment for decommissioning and environmental assessments.

FRTR Spring 2021 Webinar and Meeting May 26, 2021 6

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Nicholson, Thomas, 4/26/2021