

Marc Dapas, Director

**Office of Nuclear Material Safety and
Safeguards (NMSS)
U.S. Nuclear Regulatory Commission**

**March 23, 2018
Phoenix, Arizona**

Low-Level Waste Program Overview

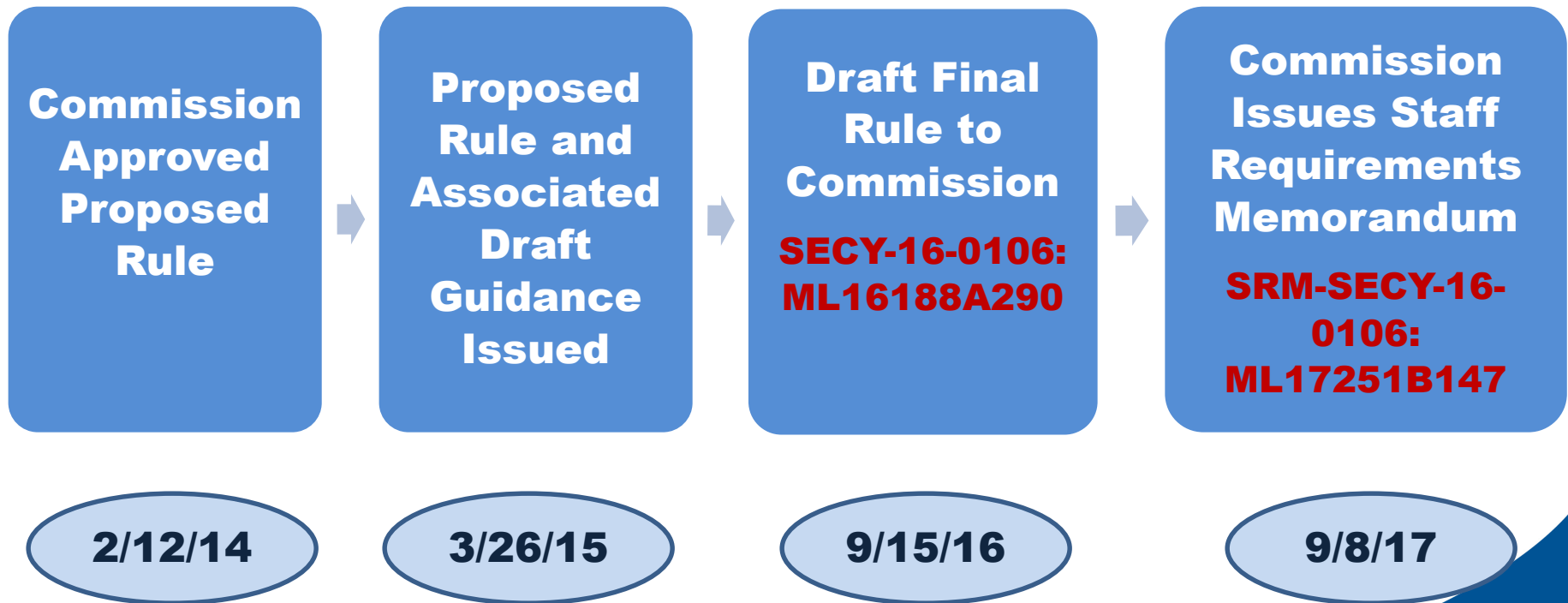
**Stephen Dembek, Senior Project Manager
Low-Level Waste Branch
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Office of Nuclear Material Safety and Safeguards (NMSS)
U.S. Nuclear Regulatory Commission**

**March 23, 2018
Phoenix, Arizona**

Outline

- **Ongoing Part 61 Rulemaking**
- **Alternative Disposal Request guidance revision**
- **Covered Separately:**
 - **Very Low-Level Waste (VLLW) Scoping Study**
 - **Greater-Than Class C Regulatory Basis**

Status of 10 CFR Part 61 Rulemaking

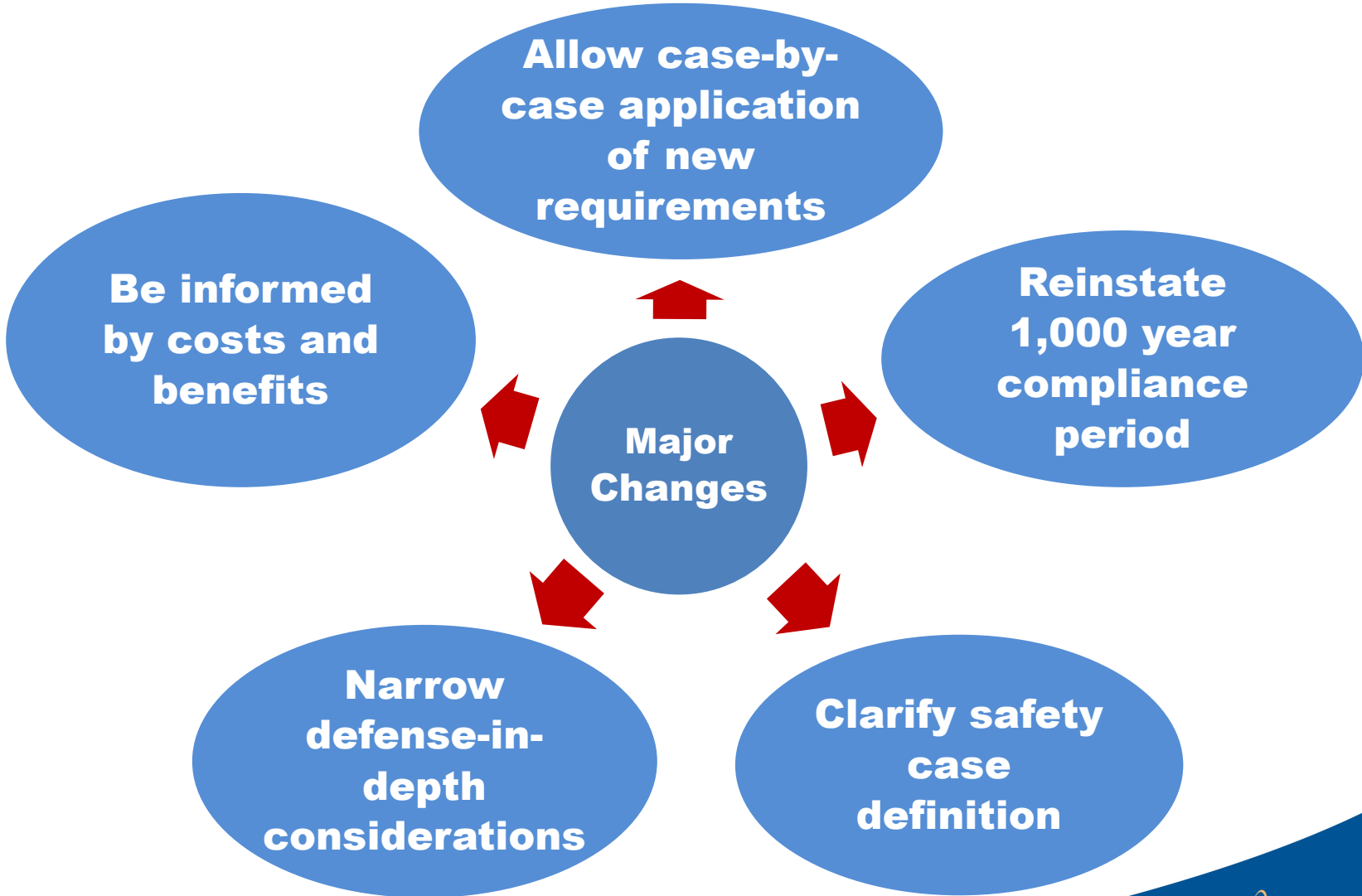


SRM-SECY-16-0106

- Staff Requirements Memorandum (SRM) SECY-16-0106 – Final Rule: Low-Level Radioactive Waste Disposal
- The Commission directed the staff to make substantive revisions and republish as a supplemental proposed rule



SRM-SECY-16-0106



10 CFR 20.2002

Alternative Disposal Request Guidance

- Purpose of revising draft guidance
 - Provides more clarity, consistency, and transparency
 - Clarifies the NRC's position regarding disposal, including reuse and recycling
- NRC issued for public comment a revision of its 20.2002 Alternative Disposal Request Guidance entitled, "Guidance for the Reviews of Proposed Disposal Procedures and Transfers of Radioactive Material Under 10 CFR 20.2002 and 10 CFR 40.13(a)"
- Final guidance issuance expected 2018

Questions?



Greater-Than-Class C (GTCC) and Transuranic Waste Disposal

**Chris McKenney, Chief
NMSS/DUWP/PAB**

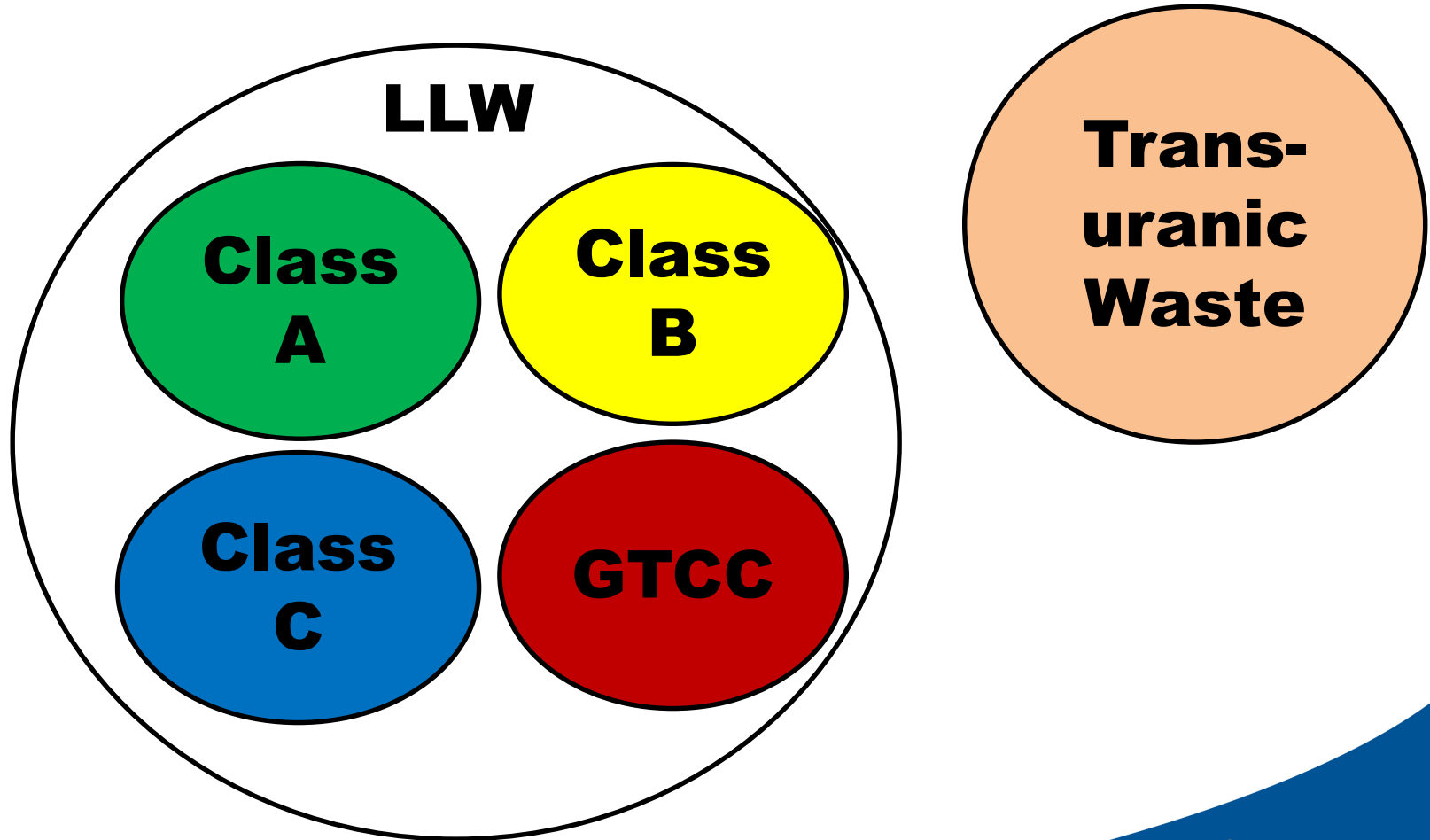
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Email: : Christopher.McKenney@nrc.gov

Purpose of Meeting

- Stakeholder participation and involvement
- Identification of various technical issues
- Assist in the development of a regulatory basis for the disposal of GTCC and TRU wastes
- Supports NRC's openness strategies and cumulative effects of regulation initiatives

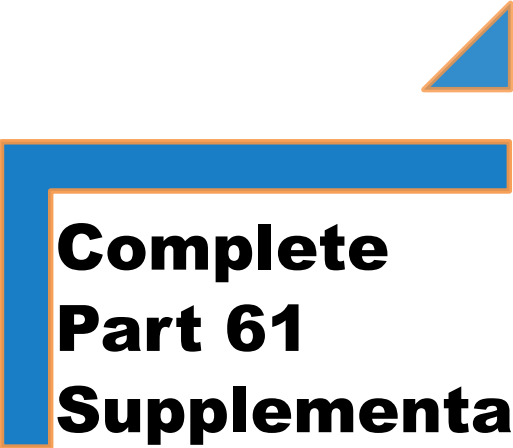
Low-Level Waste (LLW) and Transuranic Waste



Regulatory Basis for GTCC and Transuranic Wastes

- SECY-15-0094 – Texas request for clarification on Agreement State authority to regulate GTCC
- SRM-SECY-15-0094 - prepare a regulatory basis for the disposal of GTCC waste through means other than deep geologic disposal
- Address transuranic waste in 10 CFR 61.2 “Definitions”
- SRM-SECY-16-0106 – due 6 months after publication of Part 61 supplemental proposed rule


Next Steps



**Complete
Part 61
Supplemental
Proposed
Rule**



**Prepare
Regulatory
Basis with
Public
Workshops**



**Potential
Part 61
Rule for
GTCC and
Transuranic
Waste
Disposal**

Draft Technical Analysis

- Assist in the identification of potential hazards, for example
 - inventories
 - security
- Assist public to respond to NRC staff questions

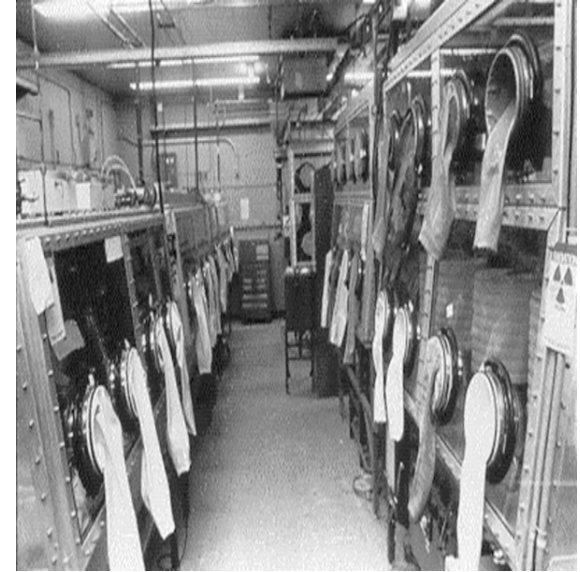
Three categories of GTCC waste: activated metals, sealed sources, and other waste



**Reactor
Vessels**



**Sealed
Sources**



Glove Boxes

Activated Metals

- Metal components from nuclear reactors are most significant source
- Surface contamination on metal surfaces
- Activated radionuclides throughout metal
- Short-lived radionuclides generate heat
- Some transuranic radionuclides present in surface contamination

Sealed Sources

- Irradiators typically used in medical applications (e.g., hospitals, universities, research)
 - short lived sources (Cs-137 – 30 year half-life)
 - transuranic radionuclides (e.g., Pu isotopes)
- Fissile radionuclides present (Pu-239)
- Short-lived radionuclides generate heat

'Other' Waste

- Variety of potential sources, for example:
 - potential exhumation of West Valley waste
 - production of radioisotopes for nuclear imaging procedures (e.g., Mo-99 production)
- Fissile radionuclides present from Mo-99 production (e.g., Pu-239)

GTCC Technical Considerations

- Thermal Output
- Gas Generation
- Fissile Material
- Long-lived Daughter (Progeny)

Radionuclides of Potential Interest based on Draft Analysis (**depends on analysis assumptions**)

Hazard	Activated Metals (Commercial Reactors)		Sealed Sources		Other Waste (Mo-99 Production)	
	500 yrs	5,000 yrs	500 yrs	5,000 yrs	500 yrs	5,000 yrs
Off-site Dose	Pu-239	Pu-239	Am-241, Pu-239 Cs-137	Pu-239, Am-241	Pu-239	Pu-239
Thermal Output	Ni-63	None	Am-241	None	None	None
Fissile Material	None	None	Pu-239	Pu-239	U-235	U-235
Gas Generation	Ni-63	None	Am-241	None	None	None
Intruder Dose (shallow)	C-14, Ni-59, Nb-94, Ni-63	C-14, Ni-59, Nb-94, Ni-63	Am-241	Pu-239	Pu-238, Pu-239, Pu-240, Am-241	Pu-239, Pu-240
Intruder Dose (deep)	None	None	Am-241	Pu-239	None	None

Three Questions

- 1) What are the important radionuclides that need to be considered for the disposal of the GTCC and transuranic wastes?
- 2) How might GTCC and transuranic wastes affect the safety and security of a disposal facility during operations (i.e., pre-closure period)?
- 3) How might GTCC and transuranic wastes affect disposal facility design for post-closure safety including protection of an inadvertent intruder?

Stakeholder Outreach and Involvement

- Updated information on GTCC and transuranic wastes found on NRC Website:
<https://www.nrc.gov/waste/llw-disposal/llw-pa/gtcc-transuranic-waste-disposal.html>
- *Federal Register* Notice to Conduct GTCC and Transuranic Waste Scoping Meeting and Request for Comment (83 FR 6475): Feb. 14, 2018

How to Provide Comments

- *Federal Register* notice (83 FR 6475) provides various methods of submitting comments:
 - Federal Rulemaking Website:
Go to <http://www.regulations.gov> and search for Docket ID NRC-2017-0081
 - Email comments: Rulemaking.Comments@nrc.gov
 - Fax comments: 301-415-1101
 - Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff
 - Hand deliver comments: 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 a.m. and 4:15 p.m. (EST) Federal workdays; telephone: 301-415-1677.

Comment period ends April 16, 2018

For Additional Information:

- Federal Rulemaking Website:
Go to <http://www.regulations> and search for Docket ID **NRC-2017-0081**
- NRC's Public Web Site for GTCC:
<https://www.nrc.gov/waste/llw-disposal/llw-pa/gtcc-transuranic-waste-disposal.html>
- NRC Contact:
 - Cardelia Maupin – Sr. Project Manager
301-415-4127; Cardelia.Maupin@nrc.gov

Questions?



Very Low-Level Waste Scoping Study

**March 23, 2018
NRC Public Meeting
Phoenix, AZ**

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Email: Kellee.Jamerson@nrc.gov**

Overview



LLW Programmatic Assessment

- Strategic Assessment - 2007 ([SECY-07-0180](#))
 - Coordinate with other agencies on consistency in regulating low activity waste disposal
 - Develop guidance that summarizes disposition options for low-end materials and waste
 - Promulgate rule for disposal of low-activity waste (now termed very low-level waste)
- Programmatic Assessment – 2016 ([SECY-16-0118](#))
 - Perform LAW Scoping Study (renamed VLLW Scoping Study)
 - 20.2002 guidance document revision to improve alternate disposal request process

Why Perform a Very Low-Level Waste Scoping Study?

- Increase in priority
 - Changes in timing of decommissioning
- Recognize the potential opportunity to improve regulatory efficiency and effectiveness
- Consider alignment with international standards and practices

VLLW Scoping Study

PURPOSE:

- Identify possible options to improve and strengthen the NRC's regulatory framework for very low-level waste (VLLW) disposal

VLLW Scoping Study Considers Available Information

- National Academy of Sciences
- Electric Power Research Institute
- U.S. Environmental Protection Agency
- Health Physics Society
- International Atomic Energy Agency



VLLW Scoping Study is Not...

- Below Regulatory Concern
- Controlling the Disposition of Solid Material
- **ONLY** considers disposal of waste as defined by 10 CFR Part 61

VLLW Scoping Study

Possible Outcomes

- Rulemaking
- Guidance documents
- Coordination with other agencies
- Further analysis
- No action

Notice of VLLW Scoping Study and Request for Comment

- NRC published in the *Federal Register*, on February 14, 2018 (83 FR 6619), notice of the VLLW Scoping Study and request for comment
- Respondents were asked to consider specific questions posed by the NRC staff

***Federal Register* Notice Questions**

1. Regulatory definition of VLLW?
2. New waste category for VLLW?
3. Guidance document?
4. NRC Agreement State compatibility issues?
5. Regional compact authority?

***Federal Register* Notice Questions**

6. Waste analysis requirements?
7. Unintended consequences?
8. Analytical methods to assess risk?
9. Economic factors?

Stakeholder Outreach and Involvement

- Updated information on VLLW found on NRC Website:
<https://www.nrc.gov/waste/llw-disposal.html>
- *Federal Register* Notice to Conduct VLLW Scoping Study and Request for Comment (83 FR 6619): Feb. 14, 2018
- VLLW Scoping Study Public Comment Period:
Feb. 14, 2018 – May 15, 2018
- Public Meetings:
Feb. 22, 2018 (NRC) and March 23, 2018 (Phoenix, AZ)

How to Provide Comments

- Federal Rulemaking Website:
Go to <https://www.regulations.gov> and search for Docket ID **NRC-2018-0026**
- Email comments to (reference Docket ID **NRC-2018-0026** in the subject line):
VLLW_ScopingStudy@nrc.gov
- Mail comments to (reference Docket ID **NRC-2018-0026** in subject line):
May Ma
Office of Administration
Mail Stop: OWFN-2-A13
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Comment period ends May 15, 2018

For Additional Information:

- Federal Rulemaking Website:
Go to <https://www.regulations> and search for Docket ID **NRC-2018-0026**
- NRC's Public Web Site for VLLW:
<https://www.nrc.gov/waste/llw-disposal.html>
- NRC Contacts:
 - Maurice Heath – LLW Project Manager
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 - Kellee Jamerson – LLW Project Manager
301-415-7408; Kellee.Jamerson@nrc.gov

Comments? Questions?

