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

March 23, 2018
Phoenix, Arizona

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

Low-Level Waste Program Overview

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U.S. Nuclear Regulatory Commission

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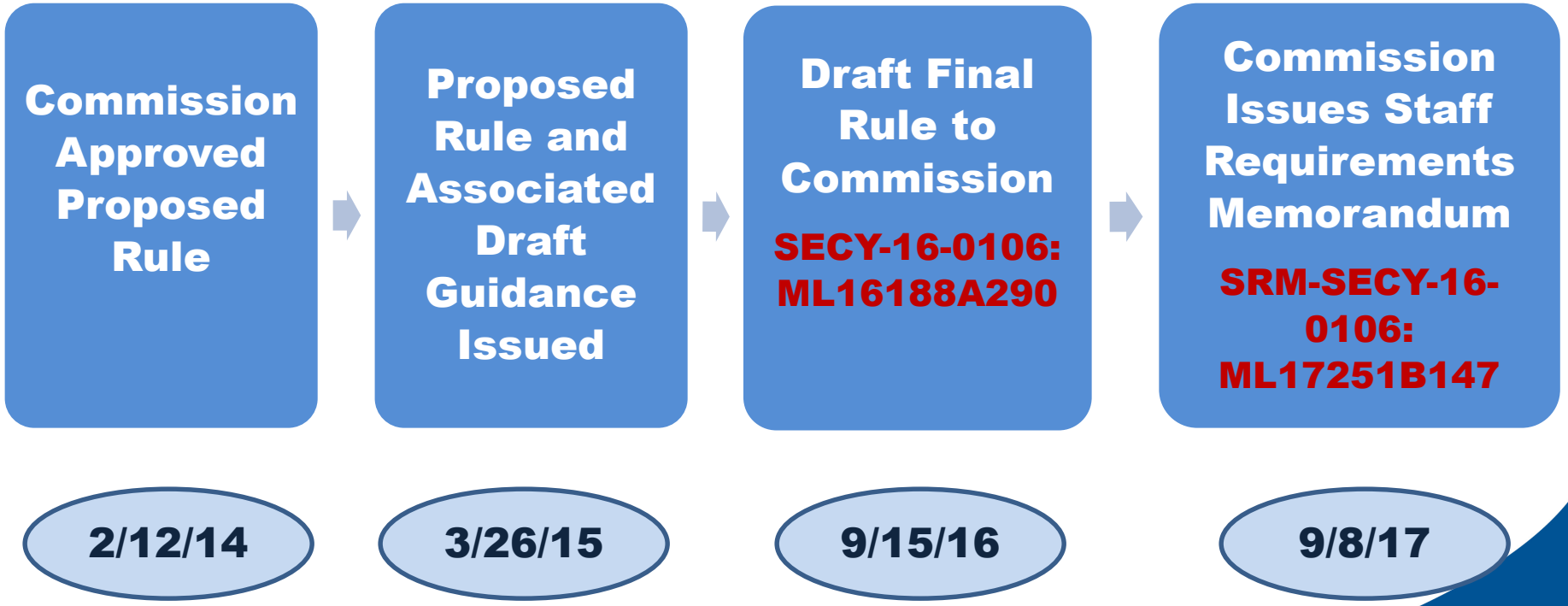
Outline

- 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

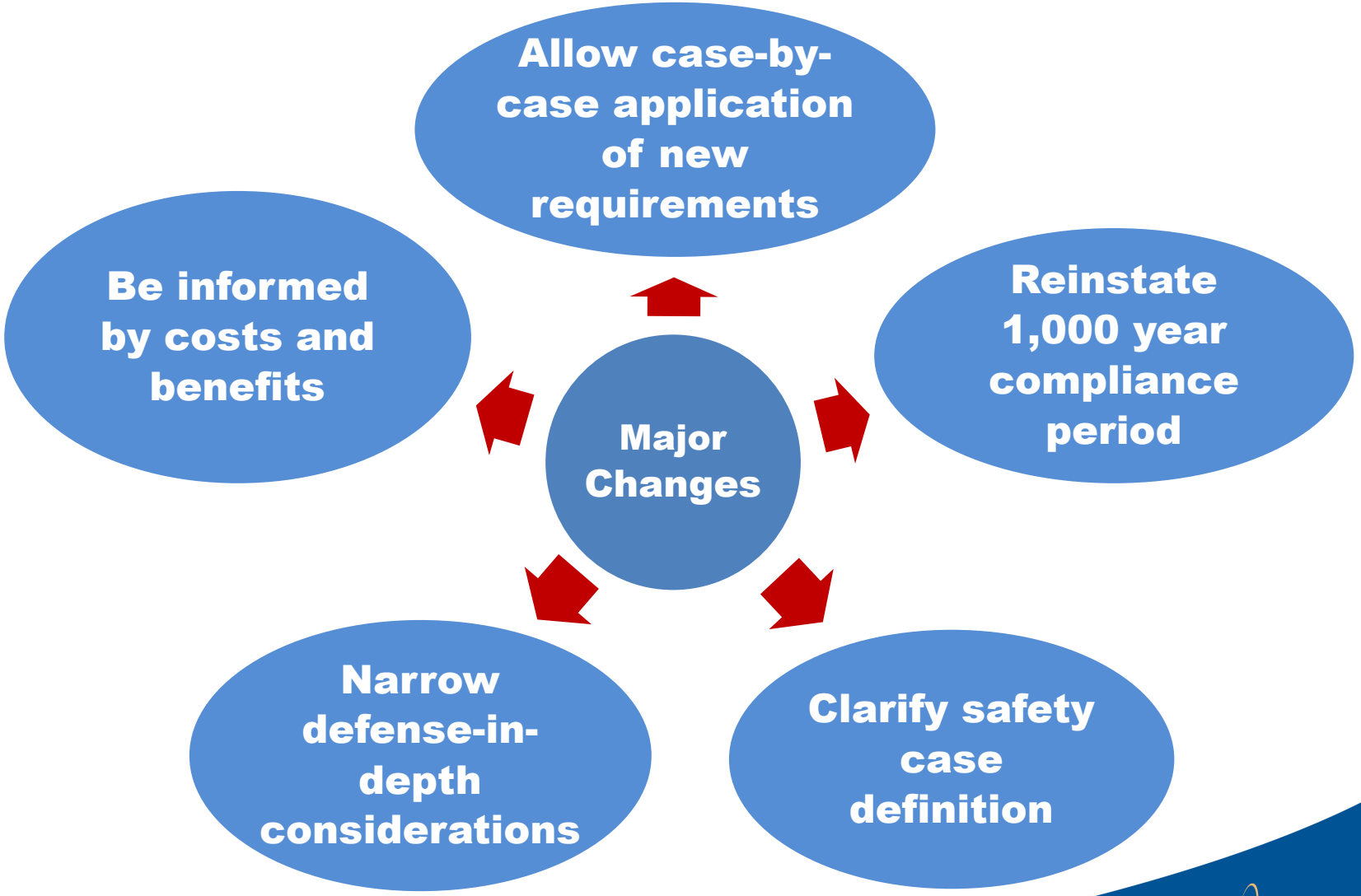


SRM-SECY-16-0106

- 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- Purpose of revising draft guidance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

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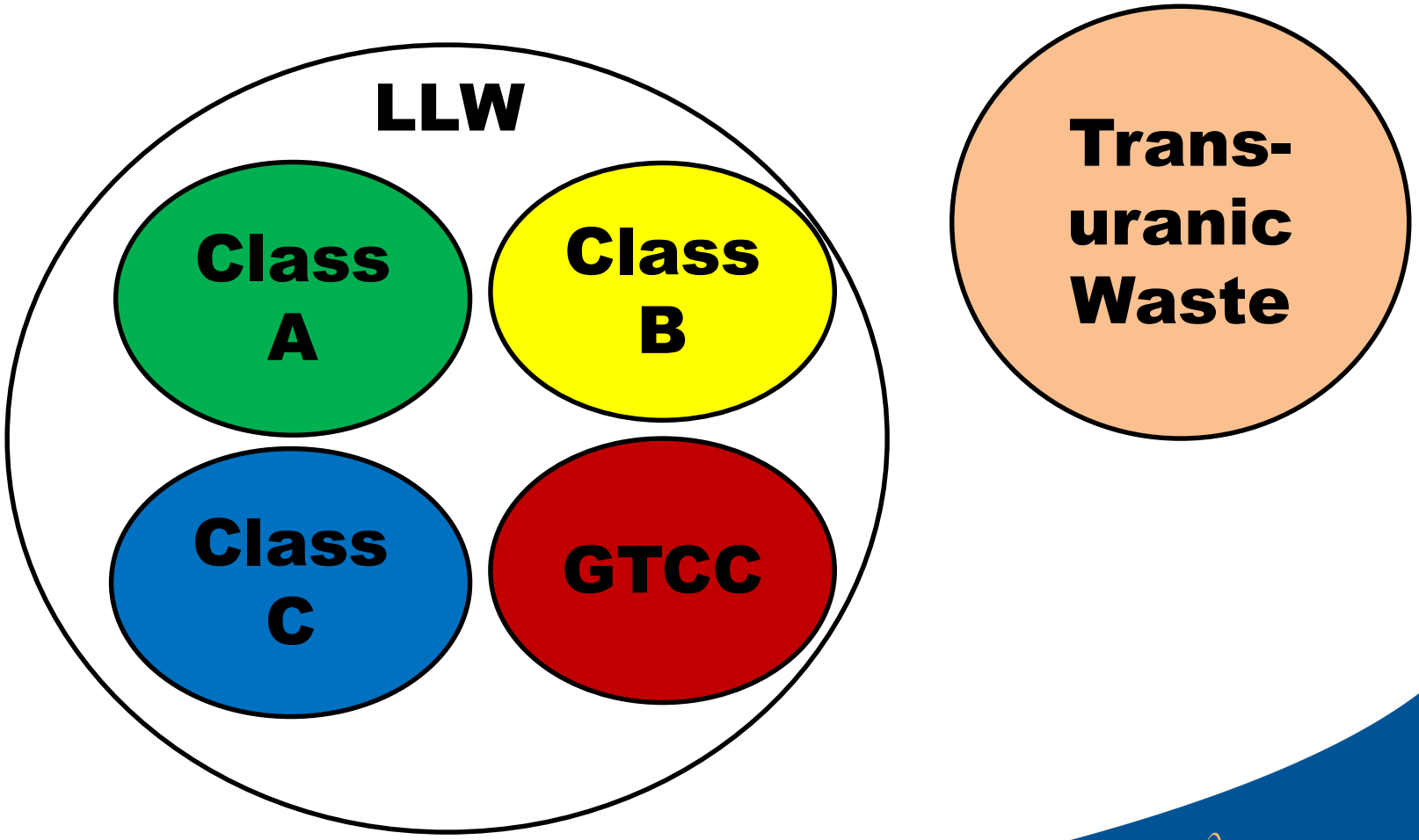
Purpose of Meeting

- 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

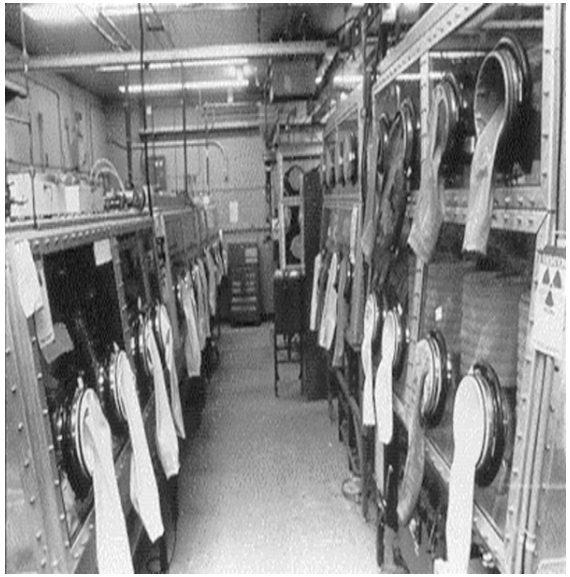
- Assist in the identification of potential hazards, for example
  - inventories
  - security

- 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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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?