DEQ's INL Oversight Roles

January 25, 2023

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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DEQ Oversight Activities

- Regulatory Oversight
  - Public Drinking Water Systems
  - Underground Storage Tanks (petroleum)
  - Solid Waste (non-municipal solid waste landfill)
  - Wastewater Ponds
  - Air Quality Permit
  - Hazardous Waste Permits
  - CERCLA Cleanup
- Non-Regulatory Oversight
  - INL Oversight Program (DEQ Idaho Falls Regional Office)
- Idaho Settlement Agreement Oversight

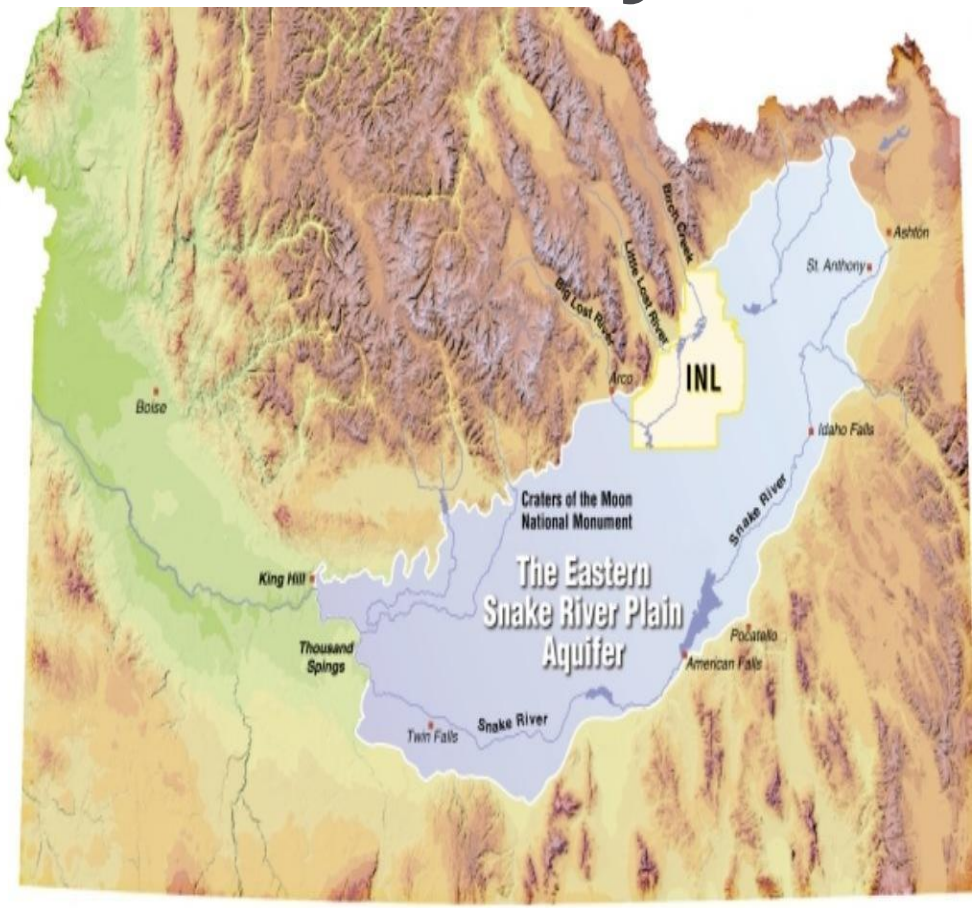
Hazardous Waste Storage & Treatment

- Three areas at INL are permitted for hazardous waste storage and treatment:
  1. Idaho Nuclear Technology and Engineering Center (INTEC)
  2. Materials and Fuels Complex (MFC)
  3. Advanced Mixed Waste Treatment Project (AMWTP) at the Radioactive Waste Management Complex (RWMC)

- Regular Inspections Conducted by DEQ
- >3 Full-Time DEQ Positions Dedicated to INL Haz Waste Work

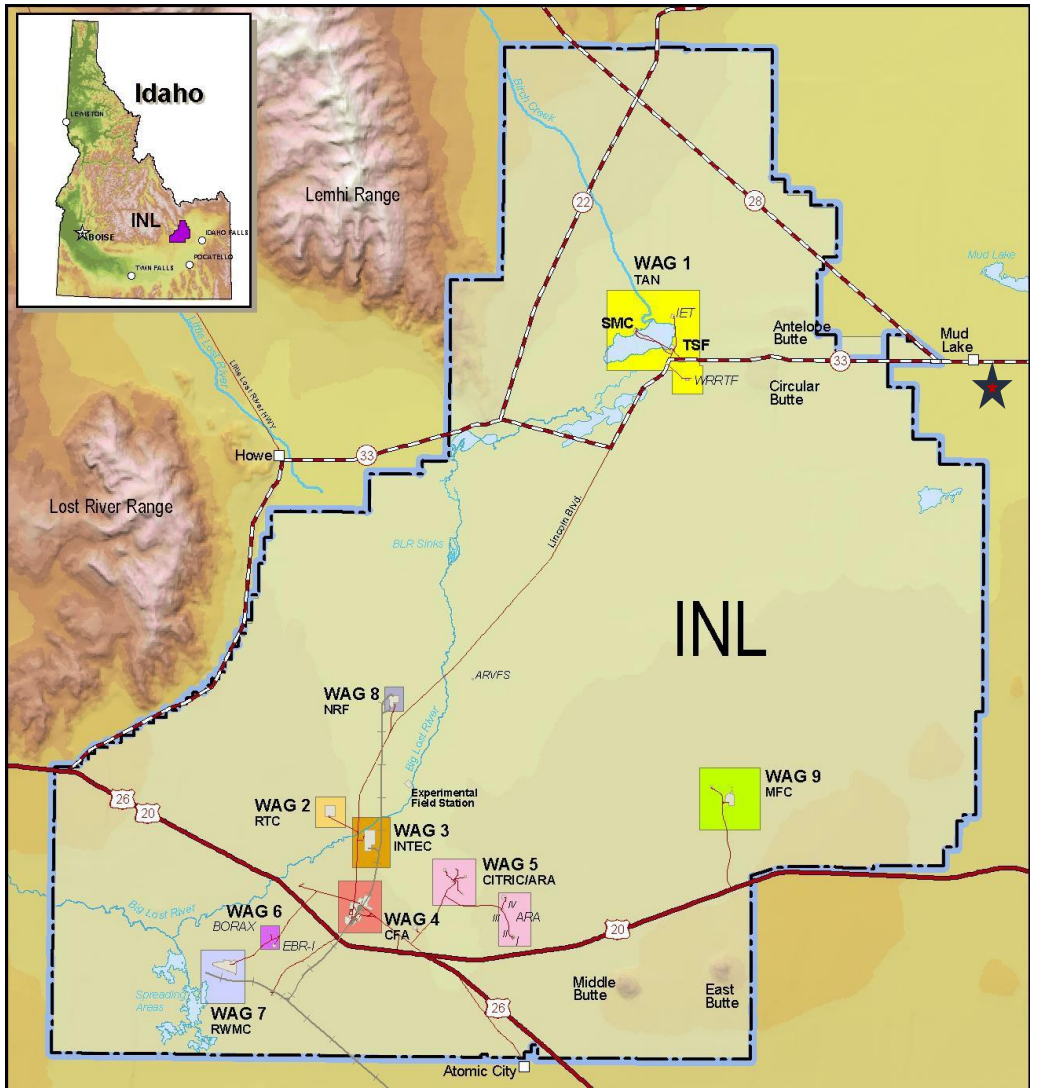
Comprehensive Environmental Response, Compensation & Liability Act

- The INL was placed on the National Priorities List in 1989.
- DOE, EPA, and the State of Idaho signed the FFA/CO and Action Plan in December 1991.
- All 25 Record of Decisions signed, currently implementing cleanup with Remedial Action Objectives.
- Each Waste Area Group (WAG) has actions to restore or protect groundwater in the Snake River Plain Aquifer.



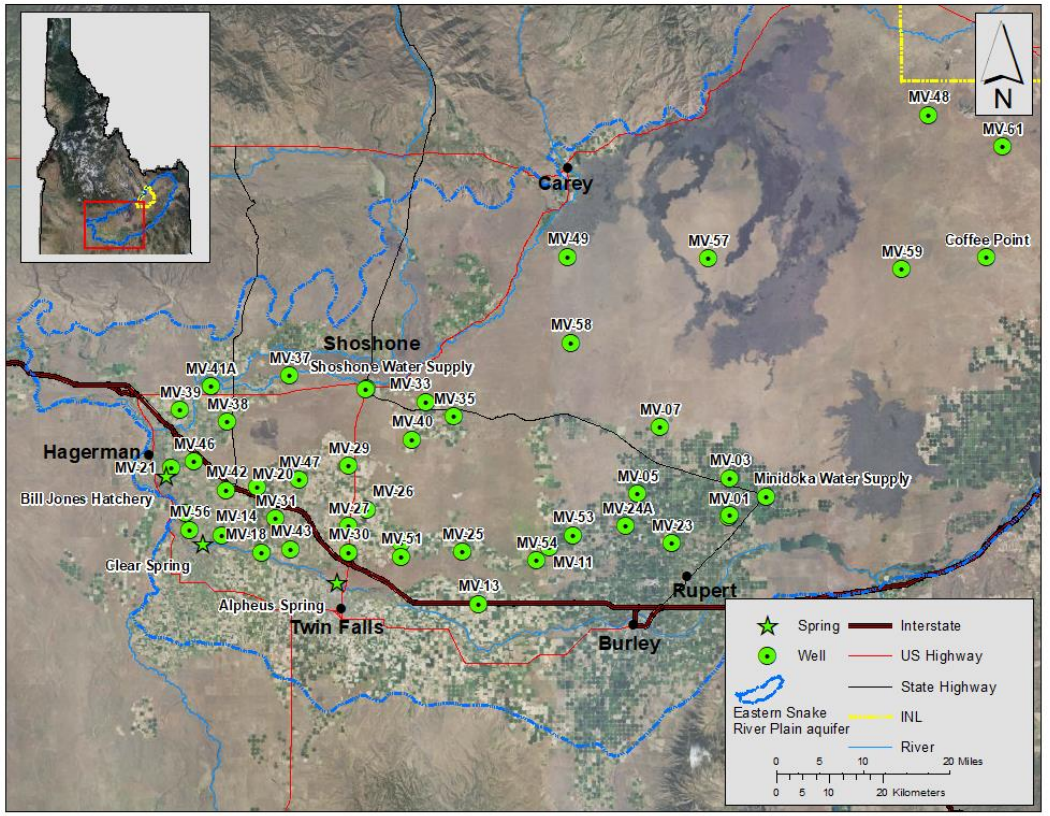
INL CERCLA Background

- The INL was divided into 10 Waste Area Groups (WAGs).
- WAGs 1 to 9 correspond to facilities, WAG 10 incorporates site-wide issues.
- Active remediation is complete at WAGs 2, 4, 5, 6, and 9. DEQ conducts periodic reviews of groundwater monitoring data, institutional controls, and operations & maintenance activities.
- Active remediation at WAG 1, 3 (including INTEC Tank Farm), 7, and 10.
- WAG 8 (NRF) has significant Decontamination & Demolition (D&D) projects (reactor prototypes) within the next 5 years, to be completed as Non-Time Critical Removal Actions.



Non-regulatory Oversight

- INL Oversight Group (Idaho Falls Regional Office)
  - 9 Staff Members
- Environmental Monitoring & Surveillance
  - Air
  - Water
  - Terrestrial (Soil & Milk)



Non-regulatory Oversight (cont.)

- Western Interstate Energy Board
  - Transportation to Waste Isolation Pilot Plant (Carlsbad, NM)
  - Funding for safety and emergency response
    - Idaho State Police
    - Inspections, radiation detection equipment, HAZMAT and emergency response personnel
- Other Radiological Response Support
  - Idaho Office of Emergency Management
- Outreach & Education Services

ISA Presentation Objectives

1995 Idaho Settlement Agreement (ISA):

- Background and key aspects – Why we have the agreement
- Short explanation of how DEQ provides ISA oversight
- Briefly discuss the purpose and a few key aspects of the ISA and five related "agreements" – an overview, not a comprehensive study
  - *Agreement to Implement U.S. District Court Order dated May 25, 2006*
  - *Navy Addendum to 1995 Settlement Agreement*
  - *Memorandum of Agreement Concerning Receipt, Storage, and Handling of Research Quantities of Commercial Spent Nuclear Fuel at the Idaho National Laboratory*
  - *Supplemental Agreement Concerning Conditional Waiver of Sections D.2.e and K1 of 1995 Settlement Agreement*
  - *Agreement Concerning Handling of Spent Nuclear Fuel Generated by the Advanced Test Reactor*

Background of the 1995 ISA

- Response to concerns the State of Idaho could become the de facto dumping ground for nuclear weapons production waste
- Settled a lawsuit. Idaho is only state with a court order requiring removal of nuclear waste by specified dates
- Address nuclear waste material already on the Idaho National Laboratory (INL), limit future shipments of spent nuclear fuel (SNF) to INL, and cap maximum volumes
- Established INL as the designated DOE lead laboratory for SNF, enabling a viable future for the lab (October 26, 1995)
- Parties/signatories include the Idaho Governor, Idaho Attorney General, DOE, and the USN

DEQ role in Oversight of the ISA

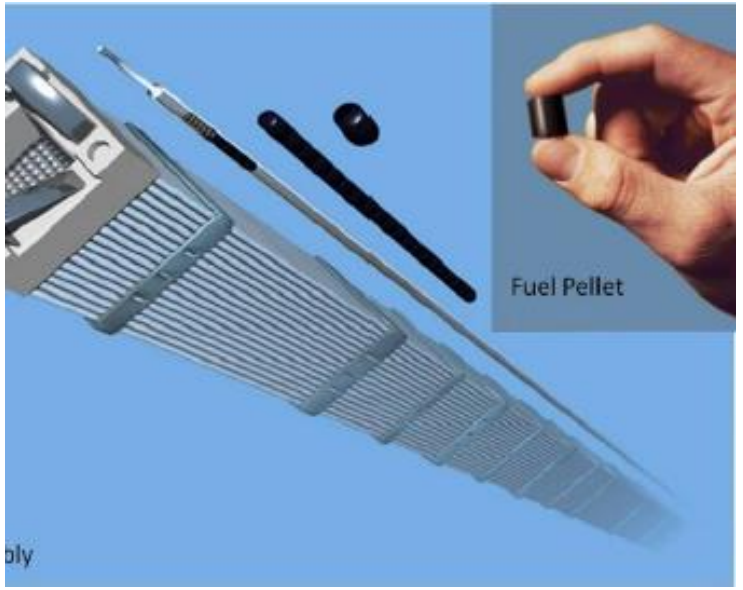
- ISA Coordinator oversight of the ISA is accomplished through:
  - Maintaining open communications with DOE & USN senior managers
  - Coordination with DEQ regulatory program staff on ISA related wastes
  - Periodic on-site observations of various INL facilities
  - Active representation of state interests in ISA related matters at the Federal Facilities Task Force / National Governor's Association (FFTF/NGA)
  - Interaction with representatives of other states which host major DOE nuclear facilities to advance common initiatives
  - Liaison member on the INL Citizens Advisory Board (CAB) to maintain open communications with Tribal members and community representatives

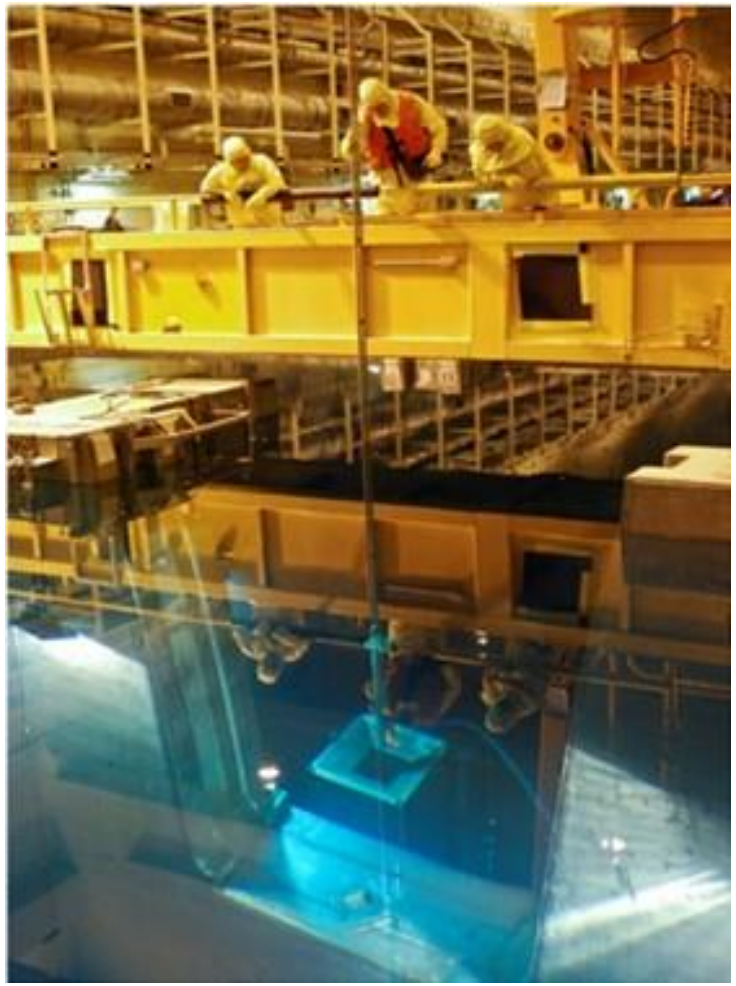
Major INL waste forms addressed by the ISA

- Spent Nuclear Fuel (SNF)
  - Used nuclear fuel no longer capable of sustaining a useful fission level
- Transuranic Waste (TRU)
  - Generated mostly from nuclear weapons production outside Idaho (materials containing alpha-emitting radionuclides with half-lives greater than 20 years and atomic numbers greater than 92, in concentrations above 100 nCi/g)
- Sodium Bearing Waste (SBW)
  - Liquid high-level radioactive waste containing sodium from SNF reprocessing
- Calcine
  - Dry granular highly radioactive hazardous waste produced by the treatment of liquids from reprocessing SNF at INL

Spent Nuclear Fuel (SNF)

Dry and wet storage, fuel assembly, rods, pellets





Transuranic Waste (TRU)

Above and below grade, transportation

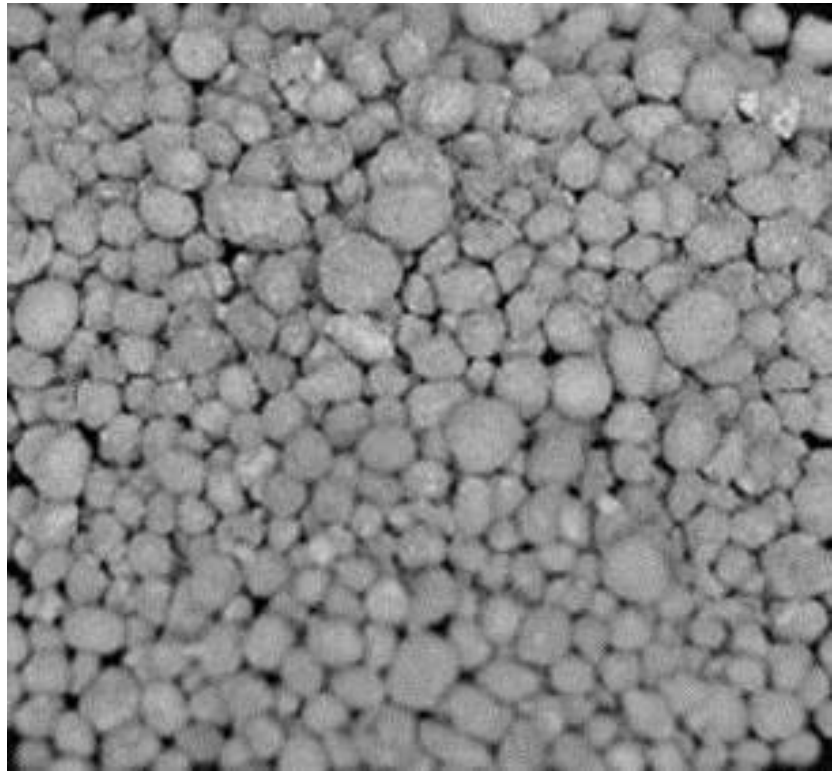
Sodium Bearing Waste (SBW)

Integrated Waste Treatment Unit Facility (IWTU)

& historic tank construction

Calcine Waste

Dry granular solids, stored in “bin-sets”.



1995 Idaho Settlement Agreement (ISA)

- Purpose – see previous slide
- Key aspects (partial list):
  - Complete calcination of SBW by 12/31/2012
  - Transfer SNF from wet to dry storage by 12/31/2023
  - All SNF shipped out of Idaho by 01/01/2035
  - Limits shipments of SNF to INL, and sets cap of 55 MTHM (DOE & USN)
  - No shipments of commercial power SNF to INL (research quantities fall under other agreements)
  - High Level Wastes (HLW) treated for removal by target date of 2035
  - Ship min running average of 2,000 M^3/year of TRU waste out of Idaho
  - TRU waste out of Idaho by 12/31/2018 (see Agreement to Implement)

Agreement to Implement U.S. District Court Order dated May 25, 2006

- Purpose: Resolve dispute between the State of Idaho and DOE regarding TRU waste addressed by the 1995 ISA
- Key aspects:
  - Excavation and retrieval of a specified “targeted waste” from at least 5.69 identified acres
  - Shipment of at least 7,485 cubic meters of targeted waste (as packaged) out of Idaho
  - Waste retrieved prior to December 31, 2017, must be shipped out by December 31, 2018, and subsequent retrieved waste must be shipped out within 1 year of packaging

Navy Addendum to the 1995 Settlement Agreement (signed in 2008)

- Purpose: To ensure the ongoing mission capability of the US Navy Nuclear Propulsion Program in support of national defense, while providing commitments to the State of Idaho with respect to safe compliant storage of SNF
- Key aspects:
  - Pre-2017 SNF must all be transferred from wet to dry storage by 2023
  - After 2017 SNF is limited to a wet storage period of 6 years or less
  - After 2035 the total SNF volume in storage must be necessary for national security and not exceed 9 MTHM, plus 750 kg archival storage to support fuel designs under development or in use in the USN fleet
  - After 2035 annual SNF shipment limits will continue

Memorandum of Agreement Concerning Receipt, Storage, and Handling of Research Quantities of Commercial Spent Nuclear Fuel at the Idaho National Laboratory (signed in 2011)

- Purpose: To provide development of research capability at INL to support next generation reactor fuels, while ensuring Idaho does not become a de facto repository for commercial power plant SNF
- Key aspects:
  - Grants a conditional waiver for small quantities of commercial fuel for research purposes, as allowed under the ISA, terminable “at will” by Idaho
  - Limits research testing material receipt to 400 kg MTHM or less per year
  - Subject to overall maximum limit of 55 MTHM
  - Removed from Idaho by 2035, with exception for some materials from testing
  - Allows for a research material “library” of not more than 10 kg

Supplemental Agreement Concerning Conditional Waiver of Sections D.2.e and K1 of 1995 Settlement Agreement (signed in 2019)

- Purpose: Maintain Idaho position with respect to treatment of liquid SBW and establish commitments for removal of TRU waste from the state, while providing INL the conditional ability to responsibly conduct mission oriented commercial SNF research activities.
- Key aspects:
  - Among other requirements, Idaho is allocated 55% of all TRU shipments received by the Waste Isolation Pilot Plan (WIPP), based on a 3-year running average, with conditional priority status for use of unallocated shipments
  - DOE receives one-time conditional waiver to receive 25 SNF rods for research upon achieving radioactive operations of the Integrated Waste Treatment Unit (IWTU) and the successful treatment resulting in one full cannister of dry solid sodium-bearing HLW. Potential reinstatement of 2011 MOA if stipulated requirements defining sustained IWTU operations are met

Agreement Concerning Handling of Spent Nuclear Fuel Generated by the Advanced Test Reactor (signed in 2020)

- Purpose: To provide for ongoing mission capability of the INL Advanced Test Reactor (ATR) while preserving the ISA commitment to the safe temporary storage of SNF
- Key aspects:
  - Supports the ongoing ATR mission beyond 2035 through implementation of safe and reliable SNF controls, while continuing to support the ISA commitment to eliminating wet storage facilities
  - Ensures ATR SNF is transferred out of the canal into dry storage as rapidly as practicable following thermal cooling, not to exceed a six-year period
  - Requires ongoing technical assessments of the ATR fuel canal to verify integrity
  - After 2035, all ATR SNF placed into dry storage must be removed from Idaho within 12 months

Questions?

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