

**Status of Low-Level Radioactive  
Waste (LLRW) Compacts and Update  
on Commercial LLRW Disposal  
Facilities**

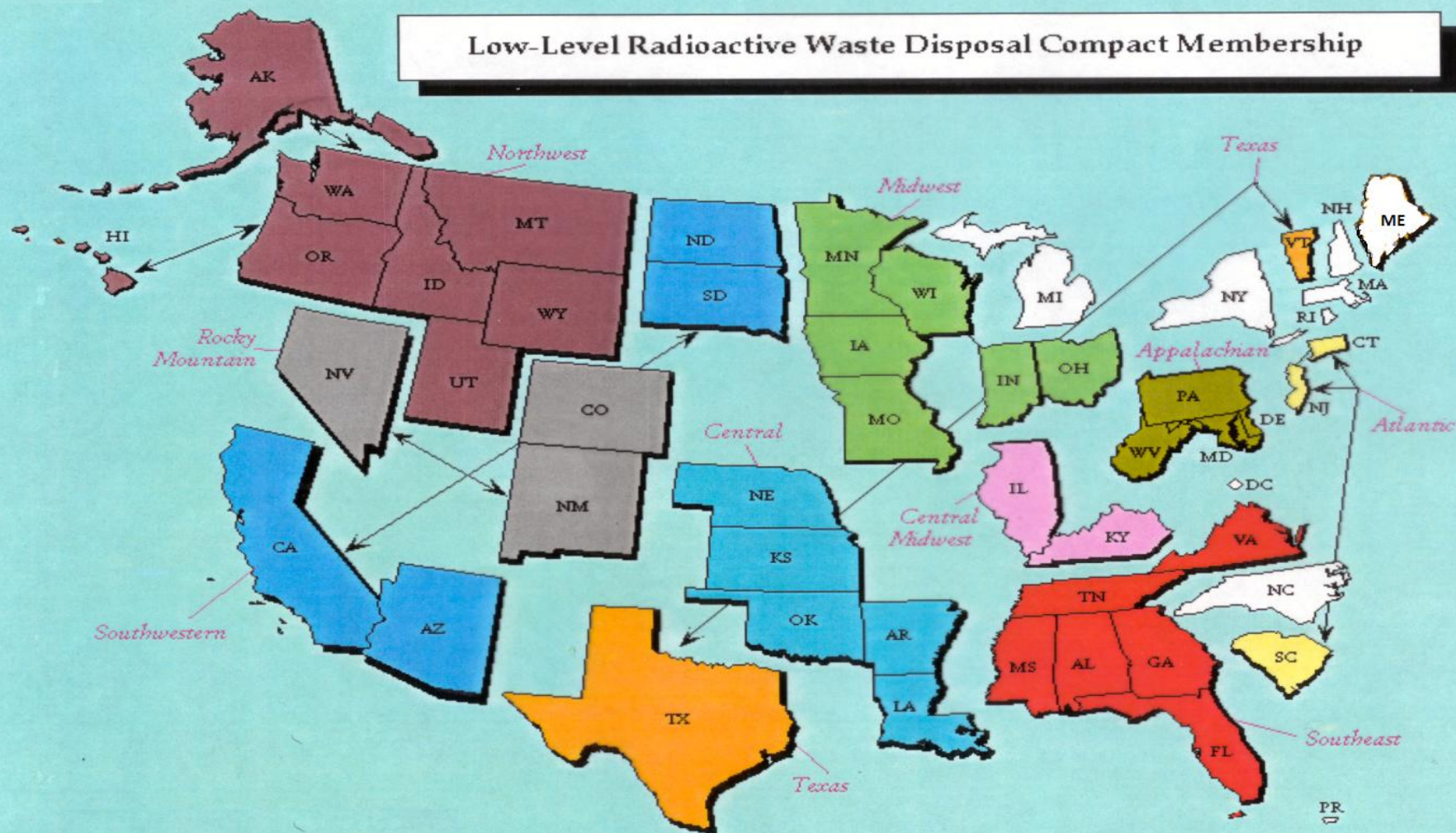
# Background - Federal Legislation

## Federal Low-Level Radioactive Waste Policy Act

- States Responsible
- Compacts Encouraged
- Exclusion of Out-of-Compact Waste

# Status of LLRW Compacts

Low-Level Radioactive Waste Disposal Compact Membership



# Status of Commercial LLRW Disposal Facilities

- **Barnwell Disposal Facility in South Carolina (Regional Facility)**
  - Accepts Class A, B and C wastes from the Atlantic Compact (CT, NJ, SC)
  - Closed to generators outside the Atlantic Compact as of July 1, 2008
  - Current projected closure date is 2038
- **Richland Facility in Washington (Regional Facility)**
  - Accepts Class A, B and C wastes from the Northwest and Rocky Mountain Compacts (11 states in 2 compacts)
  - Accepts NARM waste from states throughout the nation
  - Current projected closure date is 2056
- **Energy Solutions Facility in Utah (not a Regional Facility)**
  - Accepts Class A waste from the entire nation except the Northwest and Rocky Mountain Compacts
  - Provides for disposal of bulk waste, containerized waste, large components, and mixed waste
  - Transports large components such as steam generators for disposal

# Status of Commercial LLRW Disposal Facilities

(EnergySolutions Cont.)

- Regulatory review for disposal of large quantities of depleted uranium (DU) underway
- Utah granted license variance for disposal of Class A sealed sources  
*Received and managed 41,190 sealed sources between 2013 and 2015 under the CRCPD Source Collection and Threat Reduction (SCATR) Program*
- Approval for disposal of Class A sealed sources has been requested and is part of the permanent license amendment
- Current projected closure date is 2050

# Status of Commercial LLRW Disposal Facilities

## ➤ **WCS Disposal Facility in Texas (Regional Facility)**

— Two facilities: one license

- Compact facility (initially licensed for 2.3 Mft<sup>3</sup> and 3.9 MCi)
- Federal facility for DOE waste (26 Mft<sup>3</sup> and 5.6 MCi)

- Accepts commercial LLRW (Class A, B and C) and federal LLRW and mixed waste
- Annual limit on radioactivity of out-of-compact waste is 275,000 Ci
- No annual limit on volume of out-of-compact waste
- Volume expansion from 2.3 Mft<sup>3</sup> to 9 Mft<sup>3</sup> granted by TCEQ
- Disposal of Depleted Uranium (DU) and Greater-Than-Class C (GTCC) waste is being considered
- Current projected closure date is 2045

TCEQ – Texas Commission on Environmental Quality

# Recent Developments

- DOE issued Final EIS for Disposal of Greater-Than-Class C (GTCC) low-level radioactive waste (DOE/EIS-0375)
- SHINE Medical Technologies receives construction permit from NRC for a medical isotope production facility in Janesville, WI
- NRC releases results of Byproduct Material Financial Scoping Study including recommendations for next step (SECY-16-0046)
- NRC releases final 10 CFR Part 61 rule for Commission approval (SECY-16-0106)

# DOE Issues Final EIS on GTCC Waste Disposal

- In February 2016, DOE issued the final EIS for GTCC LLRW and GTCC-like waste (DOE/EIS-0375D)
- Currently, there is no disposal capability for GTCC waste (420,000 ft<sup>3</sup>, 160 MCi)
- DOE reviewed five alternative options for disposal of GTCC waste
- The preferred alternative is disposal at WIPP and/or land disposal at generic commercial facilities
- DOE will submit a report to the Congress on disposal alternatives and await action by Congress before it issues a Record of Decision

# ➤ SHINE Receives Construction Permit from NRC

- In February 2016, NRC issued a construction permit to SHINE Medical Technologies for a facility (57,000 ft<sup>2</sup>) in Janesville, WI
- The facility will produce molybdenum-99 (Mo-99) through fission of low-enriched uranium (<20%)
- Mo-99 has not been produced for medical use in the U.S. for more than two decades
- SHINE applied for the permit in 2013 and NRC completed its technical review in October 2015 under 10 CFR Part 50
- Construction is expected to begin in early 2017 and SHINE expects to begin commercial sales from the facility in early 2019
- PEC, Inc. has informed NRC of its intention to begin the licensing process for an Mo-99 production facility in Utah

# NRC Releases Results of Byproduct Material Financial Scoping Study

- In April 2016, NRC released the results of Byproduct Material Financial Scoping Study and its recommendations (SECY-16-0046)
- NRC reviewed current regulations and guidance, internal and external reports, and received feedback from the stakeholders
- NRC recommends that financial assurance requirements in Part 30.35 be expanded to include byproduct material Category 1 and 2 sealed sources that are in the NSTS
- NRC staff plans to develop a rulemaking plan SECY paper to the Commission to initiate rulemaking

NSTS – National Source Tracking System

# Categories of Radioactive Sealed Sources

- Category 1: greater than or equal to Category 1 threshold (e.g., for Co-60: 810 Ci) – irradiators, teletherapy machines
- Category 2: less than the Category 1 threshold but equal to or greater than the Category 2 threshold -  $1/100^{\text{th}}$  of Category 1 (e.g., for Co-60: 8.1 Ci) – industrial gamma radiography equipment, well logging gauges
- Category 3: less than the Category 2 threshold but equal to or greater than the Category 3 threshold -  $1/10^{\text{th}}$  of Category 2 (e.g., for Co-60: 0.81 Ci) – industrial gauges, industrial calibration sources
- Category 4: less than the Category 3 threshold but equal or greater than the Category 4 threshold -  $1/100^{\text{th}}$  of Category 3 (e.g., for Co-60: 0.0081 Ci) – thickness gauges, bone densitometers
- Category 5: less than the Category 4 threshold down to \*IAEA exempt quantities – x-ray fluorescence devices, static eliminators

\*IAEA – International Atomic Energy Agency