LLW *notes*

Volume 39 Number 5 September - October 2024

A Message from Dan Shrum, Executive Director

Thanks to everyone who attended and participated in the Reno Forum meeting. Mark your calendars for the Spring Meeting to be held April 9-10, 2025 in Odessa, Texas.

The meeting will include a tour of the URENCO and WCS facilities on April 8, 2025.

Watch for details.

Daniel B. Shrum, Executive Director

Please submit comments, suggestions or articles for the LLW *notes* to margaretllwf@gmail.com

In this Issue...**Find the highlights of the Forum's Fall Meeting, along with compact and regional news.**

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Daniel B. Shrum , Executive Director Email: dshrum@llwforum.org www.llwforum.org

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Margaret Henderson, Editor

About LLW Forum

LLW Forum, established to facilitate state and compact implementation of the Low-Level Radioactive Waste Policy Amendments Act of 1985, promotes the objectives of the low-level radioactive waste regional compacts. LLW Forum provides opportunity for state and compact officials to share information with each other and to exchange views with officials of federal agencies and other interested parties.

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Acronyms Used in **LLW *notes***

CFR	Code of Federal Regulations
CRCPD	Conference of Radiation Control Program Directors
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiation Protection
LLWF	Low-Level Waste Forum
NARM	Naturally occurring and accelerator produced radioactive material
NCRP	National Council on Radiation Protection and Measurements
NORM	Naturally occurring radioactive material
NRC	U.S. Nuclear Regulatory Commission
OAS	Organization of Agreement States
TENORM	Technologically enhanced naturally occurring radioactive material

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Daniel B. Shrum , Executive Director Email: dshrum@llwforum.org www.llwforum.org

Forum Fall Meeting

Welcome and Introductory Remarks
Doug Hansen, LLW Forum Chair

"There is a place for this Forum
and work for us to do.
LLWF's 24th anniversary is in January 2025.
I wonder if the founders thought ahead to 25 years? Think of to whom you are passing the torch.
Think ahead to what is being done relative to dealing with the waste."

Tim Robb, Welcome to Nevada
NWIC Board Member
Director of Strategic Initiatives, Homeland Security, Officer of Governor Joe Lombardo

"The value of this gathering is communication and innovative approaches."

Many thanks to allthe presenters

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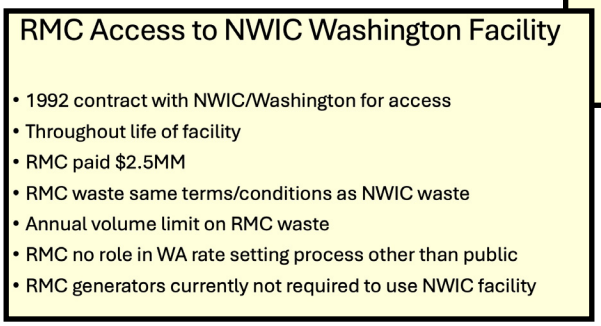
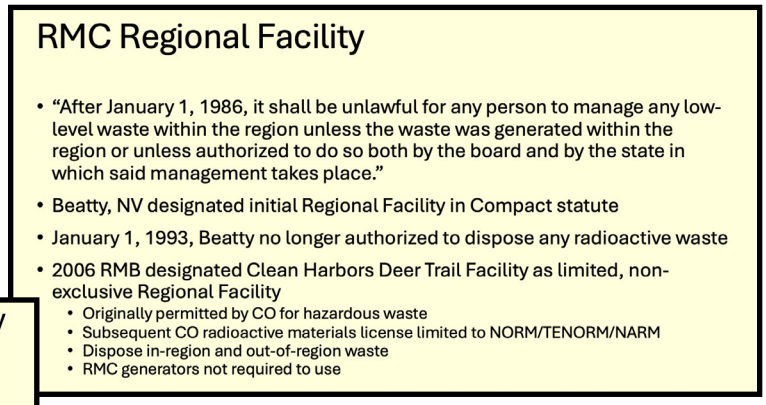
Rocky Mountain Low-Level Radioactive Waste Compact: History and Updates

Leonard C. Slosky, Executive Director, Rocky Mountain Compact





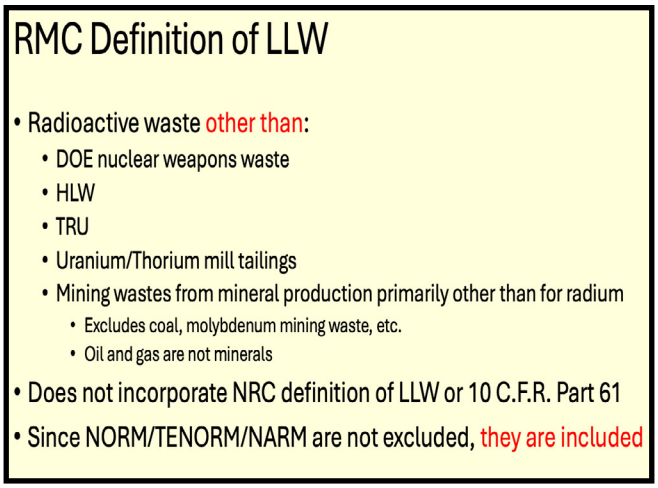
Involved in LLWP Act passage, Leonard Slosky was first involved in 1979, and saw the evolution of the compact system, based on a clause in the U.S. Constitution. The Compacts require Consent of Congress because of their authority over interstate commerce, as well as approval in state laws of each member state, allowing for regional solutions to disposal issues. "Compacts are contracts as well as Federal law, after consent."

Regional Solution to a National Problem

Compacts are state-driven solutions, avoiding creating another federal program and having the federal government choose disposal locations, and were not intended to be identical. The concept was that states would handle low-level radioactive waste in ways that were unique, not necessarily identical, to each compact and NRC's definitions. The Rocky Mountain Compact (RMC) was the second compact ratified (1985) (enacted by member states in 1982 and 1983.)

A Desire to Control the Future

Intentionally, the RMC defined waste to address issues found in Colorado, where mining was a significant industry and radium clean-up was necessary. "There was a long history of people leaving piles around." In particular, Grand Junction, CO, had numerous uranium tailings sites. Designing the proper definition satisfied the desire to control our future."



Export and Import and Civil Penalties

The RMC has authority to regulate export and import so that the permit system tracks radioactive waste. This authority resides in the compact, but is not in the Policy Act. The RMC also has statutory authority for assessing civil penalties and has done so.

The RMC passed numerous Congressional judiciary hearings to become ratified. Over the years, the compact system has faced legal challenges. Compacts have been upheld by the U.S. Supreme Court and 10th Circuit Court of Appeals.

Rocky Mountain Low-Level Radioactive Waste Compact: History and Updates - continued

Question Topics from the Audience

How is oil/gas waste addressed, as a matter of definition which has not been test in court? The dictionary definition is used.

What about flowback water or produced water? This has never come before the compact to date.

What about export costs in rules for various quantities? A sliding scale is used.

Import/export provisions were adopted for control purposes.

How are contracts used rather than merging into a compact? Adding new states to a compact requires states pass identical legislation and must go through the Congressional process which takes significant time. A contract signed by state and chairs of both compacts is an easier method.

What about materials that may be exempt, like smoke detectors? If it is still radioactive, and not excluded by statute, it requires a permit.

NORM and TENORM - is looked at by individual case.

For more information, contact:
Leonard Slosky: lslosky@rmllwb.us

Radioactive Waste Disposal Compacts in the United States

Source: NRC.gov

LLRW Compact System

Daniel B. Shrum, Executive Director,Low-Level Radioactive Waste Forum

Why do we have a compact system?

- There were three operating facilities for disposal Beatty, NV; Barnwell, SC; and Richland, WA. In 1979, the governors of the three existing facilities testified in a subcommittee of Congress that they could not bear all the responsibility of LLRW disposal

The federal legislation of 1980 (LLRWPA), and the subsequent Low-Level Radioactive Waste Policy Amendments Act of 1985, were endorsed by the Governors of the 50 states.

The purpose of the LLRWPA was to provide for more LLRW disposal capacity and to distribute obligation for disposal on a state or regional basis.

This legislation gives states the responsibility to provide for disposal of commercial low-level radioactive waste and encourages states to form interstate agreements, or compacts, to cooperatively implement the law.

Regional disposal is safest and most efficient.

State legislatures and U.S. Congress approve of each compact. Each compact is responsible for all the waste generated in their compact and for developing a disposal site. One state volunteers to be the host state for the LLRW disposal facility.

The Commerce Clause gives Congress the authority to regulate interstate commerce — the LLRWPA gave compacts authority to exclude waste from a compact's disposal facility.

Commissions manage the compacts. The authority of licensing and regulation of a facility is given by the NRC to the state.

Regulations are found in Code of Federal Regulations under "Energy" in Chapter 1 of Title 10- Parts 61 and 62. This authority comes from Section 274 of the Atomic Energy Act of 1952- where the NRC gives up portions of its regulatory power to Agreement States.

The EPA, Department of Transportation, and the Department of Health and Human Services also partly regulate LLRW.

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NRC Update

Duane White, Chief, Low-Level Waste and Projects Branch

Agreement States

Mid November:

Uranium Recover Workshop - states may discuss LLW

Radium Program

3 non-military sites remaining requiring remediation.

Monitoring or Staying Informed at 3 National Park Service and 15 Department of Defense sites

Financial Assurance for Disposition of Category 1-3 Sources Rulemaking

Next step: Issue Regulatory Basis for public comment in early 2025

- NRC staff preparing Regulatory Basis to expand decommissioning financial assurance (DFA) requirements for Category 1 & 2 (and possibly Category 3) byproduct material sealed sources
- Current regulations in 10 CFR 30.35 do not require DFA for many licensees who possess these sources
- Regulatory Basis document evaluates several potential regulatory options

Integrated LLWD Rulemaking

Next step: Commission review and vote on proposed rule. There is no timeline on voting. Regulatory activities due to the ADVANCE Act may impact matters in relation to this rulemaking.

ADVANCE Act (Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024)

What it affects

- supporting the recruitment and retention of the NRC workforce
- adding flexibility in the NRC's budgeting process
- enhancing the regulatory framework for advanced reactors and fusion technology
- requiring initiatives to support the NRC's efficient, timely, and predictable reviews of license applications

How NRC will address the Act

- achieve efficient, timely, and predictable license application reviews
- establish an expedited procedure for reviewing qualifying new reactor license applications
- develop a regulatory framework for fusion technology
- implement changes regarding fees
- assess the licensing review process
- develop strategies and guidance for microreactors
- remove certain limitations on foreign ownership of some types of licensed facilities
- continue to support international coordination on nuclear technologies and licensing activities
- implement new requirements relating to nuclear fuel

Reference: https://www.nrc.gov/about-nrc/governing-laws/advance-act/contactus.html

US EPA Program Updates
Dan Schultheisz, EPA

Phosphogypsum

Notice of Pending Approval for Other Use of Phosphogypsum - Seeking public comment on pending approval of a request for a "Small-scale Road Pilot Project on Private Land in Florida" submitted by Mosaic Fertilizer, LLC. See https://www.federalregister.gov/documents/2024/10/09/2024-23294/notice-of-pending-approval-for-other-use-of-phosphogypsum

WIPP Planned Change Request

Modification of the repository design from 10 to 12 Waste Panels

Review in progress with public input being taken

INEX 6

The week of March 18th, 2024, EPA led a multi-agency national tabletop exercise under the NEA International Nuclear Emergency Exercise (INEX) series. Participants in the waste management module covered a broad range of organizations:

Federal agencies (CDC, DHS, DOT, FEMA, USDA)

States (CA, IL, MD, MN, OH, SC, VT, WA)

Local (numerous county or municipal)

Cobalt Magnet 2025 (CM-25)

March 14-21, 2025 - Scenario is a power plant accident in Michigan that impacts Canada. Indiana and Ohio will also be principal players.

UKRAINE

- Situation is generally stable.
- All six reactors remain in cold shutdown at Zaporizhzhia NPP.
- Continuing threats from shelling and drones to external power, cooling water, and cooling towers.

DOE Waste Management Update
Amie Robinson, DOE

"Value of strong partnerships..."

New personnel over waste and materials management is Jeff Baron.

Low-Level Waste Disposal Facility Federal Review Group (LFRG) as of 2024

LFRG Members

Program Secretarial Offices

- Office of Environmental Management (EM)
- Office of Environment, Health, Safety, and Security (EHSS)
- Office of Nuclear Energy (NE) Office of Science (SC)
- Office of Legacy Management (LM)
- National Nuclear Security Administration (NNSA)

DOE Sites with LLW Radioactive Waste Sites

- Hanford, Richland, WA
- Idaho National Laboratory, ID
- Los Alamos National Laboratory, New Mexico
- Nevada National Security Site, NV
- Oak Ridge National Laboratory, Oak Ridge, TN
- Paducah, Kentucky and Portsmouth, OH, PPPO Office
- Savannah River Site, SC

WIPP in its 25th year

WIPP has been disposing of legacy transuranic (TRU) waste since 1999, cleaning up 22 generator sites nationwide.

Depleted Uranium Disposal

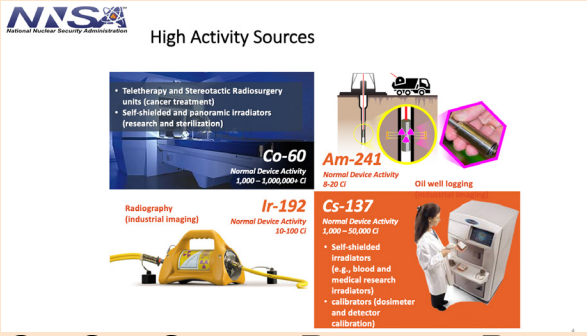
DOE can ship to selected commercial site(s) if the facility is authorized/licensed to receive DU oxide in addition to DOE's Nevada National Security Site:

- Energy*Solutions* near Clive, Utah (licensing application in process meeting regularly with DOE)
- Waste Control Specialists LLC (WCS) Federal Waste Facility (licensed)

ORS Update and Update on DOE Source Recovery Efforts
Sam Meyer, DOE

NSSA Mission

Protect sources
Remove disused sources
Reduce global reliance on high-activity sources



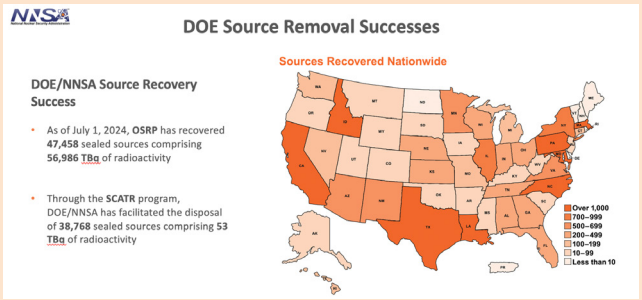
Off-Site Source Recovery Program (OSRP)

ORS recovers disused and unwanted radioactive sealed sources in the interest of national security at no cost to licensees.

Eligible sources should be registered at: http://osrp.lanl.gov/PickUpSources.aspx

Source Collection & Threat Reduction (SCATR)

ORS partners with Conference of Radiation Control Program Directors (CRCPD) to work with state regulators and licensees to round up sources with commercial disposal pathways.



Mobile Source Tracking System

Most incidents are related to mobile sources—stolen or fallen off trucks.

Major Challenge

Law prohibits disposal of foreign origin Am-241. Sources manufactured after 2003 are of foreign origin and have no disposal option.

Low-Level Waste (LLW) Disposal at the Nevada National Security Site (NNSS), Robert Boehlecke, DOE NNSS

EM Nevada Program completed characterization, corrective actions, and closure at more than 2,800 of the nearly 3,000 total legacy sites in Nevada.

LLW disposal at the NNSS supports DOE cleanup and activities at sites across the U.S. involved in historical nuclear research, development, and testing, and ongoing national security and science missions.

NNSS only accepts waste from generators with a DOE nexus or a Department of Defense mission.

Waste Types Accepted

Low-level waste (LLW) is waste that is NOT high-level radioactive waste, transuranic waste, spent fuel, or by-product material.

Mixed low-level waste (MLLW) is a combination of LLW with a hazardous constituent.

Classified non-radioactive (CNR) consists of classified components that have no radioactive or hazardous contamination but must be securely disposed in the interest of national security.

Classified non-radioactive hazardous (CNRH) consists of classified components with no radioactive contamination but that do contain hazardous constituents.

Environmental Management

FY 2024 Disposal Volumes
(volumes in ft³)

Waste Type	1st Quarter Actual	2nd Quarter Actual	3rd Quarter Actual	4th Quarter Actual	Total FY 2024 Volumes
Low-Level Radioactive Waste (LLW)	162,029.85	104,371.94	124,632.85	288,284.61	**679,319.25**
Mixed Low-Level Radioactive Waste (MLLW)	16,135.35	18,266.90	8,751.20	9,155.90	**52,309.35**
Classified Non-Rad Waste	0	2,064.00	18,771.62	5,531.44	**26,367.06**
Classified Non-Rad Hazardous Waste	815.00	326.00	820.60	591.48	**2,553.08**
TOTALS	**178,980.20**	**125,028.84**	**152,976.27**	**303,563.43**	**760,548.74**

- FY24 Preliminary Forecast Total was 724,912.00
- FY24 Mid-Year Forecast Total is 766,763.04

OFFICE OF ENVIRONMENTAL MANAGEMENT NEVADA PROGRAM
www.nnss.gov
safety – performance – cleanup – closure
ID 3406 – 10/09/2024
Log No: EMNP-2024-058
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Updates from Commercial Disposal Facilities in the United States

ENERGY SOLUTIONS

Vern Rogers, Director, Regulatory Affairs

"EXCITING CHANGES ARE HAPPENING IN BUSINESS, SCIENCE, TECHNOLOGY AND REGULATORY REALMS."

CLIVE FACILITY

Regulatory

Utah has hired three new people to be responsive to licensing needs as well as provide a resident inspector at the site.

Capabilities

Class A Low-Level Radioactive Waste

- Containerized Waste
- Large Components
- Bulk Waste

Class A Mixed Waste

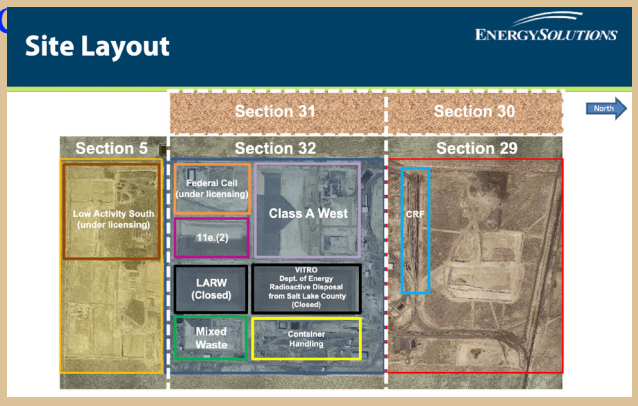
- Stabilization
- Amalgamation
- Macroencapsulation

Thermal Desorption (VTD)

Asbestos

PCBs

11e.(2)



- 3.1 M cubic yards capacity available
- Applying for federal cell for disposal of DU, which Utah is reviewing at this time
- LARW - radioactive waste cell is now closed.

Licensing Changes throughout the Years

- Capacity Limitation (amendment 26)
- Sealed Source disposal (amendment 27)
- New Low Activity Waste Cell (amendment under review)
- Federal Cell Facility for depleted uranium and federally-generated low level radioactive waste (license application under review)
- License and Permit Renewals

Capacity, once a volume limit is now science based.

D&D projects are significant.

CUSTOMER CONFERENCE 2025

Partners Across the Nuclear Lifecycle

https://www.energysolutions.com

WASTE CONTROL SPECIALISTS

DAVID CARLSON

Highlights

Large site of 14,000 acres

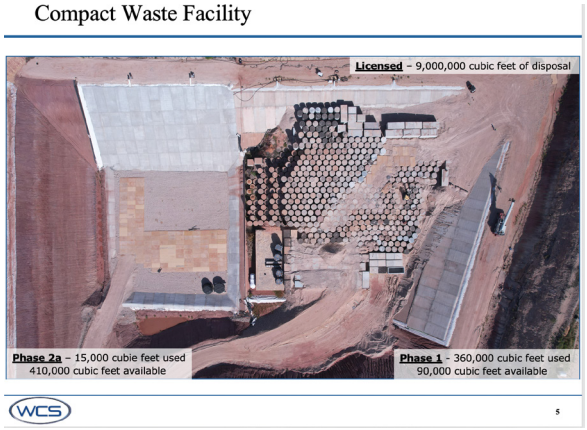
$170 M bond to close the compact facility

Federal DOE or nexus program waste

Byproduct – Fernald waste

Treatment facility – full service

Capacity



9 M cubic feet licensed for disposal

Used 4% of capacity in last decade

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Updates from Commercial Disposal Facilities in the United States - continued

WASTE CONTROL SPECIALISTS - CONTINUED

Phase 2 is the new cell in use although there is capacity left in the previous cell. This allows optimizing the use of space due to configurations of containers.

Financial Impact

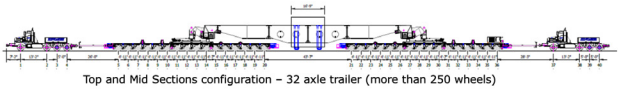
WSC Surcharges Paid to State and County - Approximately $100 M over the last decade

Crystal River 3 (CR3) Reactor Vessel Disposal

- Cutting, transport and disposal, involving Class C and Class A wastes
- Major transport on a path from gulf to land
- 25 and 10 mph
- Numerous stops
- 900 miles
- 30 person crew accompanying
- Bridges had to have engineering analysis

CR3 Reactor Vessel – Road Transport

- Shipments were all oversize and overweight
- Routes and transportation parameters were predetermined by TXDOT
- Avoids major roads and cities
- Head and Bottom Section required about 4 days each (~700-mile route)
- Top and Mid Sections required over 30 days each (~900-mile route)



Top and Mid Sections configuration – 32 axle trailer (more than 250 wheels)

WCS 16

RICHLAND LLW SITE

Douglas Frenette, General Manager
Republic Services Richland

Serves 11 states NW and RMC

- Richland is the designated host LLRW Disposal Facility for the Northwest Compact (8 States)
- Richland also serves the Rocky Mountain Compact through agreement (3 States)

Republic Services Richland

- Part 61 LLRW Facility – 1 of 4 in United States
- Located on 100 acres within the DOE Hanford Reservation in Richland, WA
- Originally Licensed in 1965 by AEC
- Serves the NW and Rocky Mountain Compacts
- Operates through sublease agreement with State of WA
- Rate-regulated by WA Utility & Transportation Commission

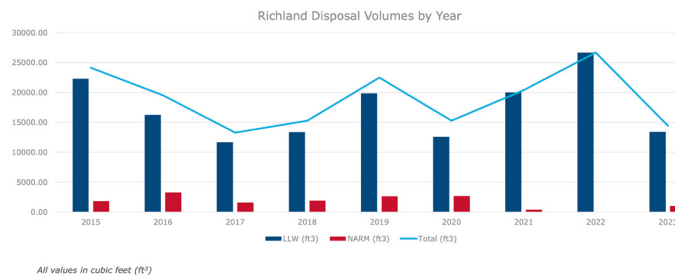
LLW Forum Fall 2024 REPUBLIC SERVICES

Total Site Volume Disposed
~14.5M cubic feet
Includes LLRW & NARM

Total Site Source Term
~3.7M Curies
~1.6M Curies from Co-60 alone (~43%)
600+ manifested radionuclides
Not decay corrected

Richland Historical Volumes

- Washington Facility has received an annual average volume of ~20,200 ft³ (2013-2023)
- Approximately 50% of volume is generated at Energy Northwest Columbia Generating Station
- Prior to LLRWPA of 1985, annual average volumes were much larger: ex. 1981, 1,440,000 ft³
- Ample capacity remains to support generator needs through 2056 (planned closure)



All values in cubic feet (ft³)

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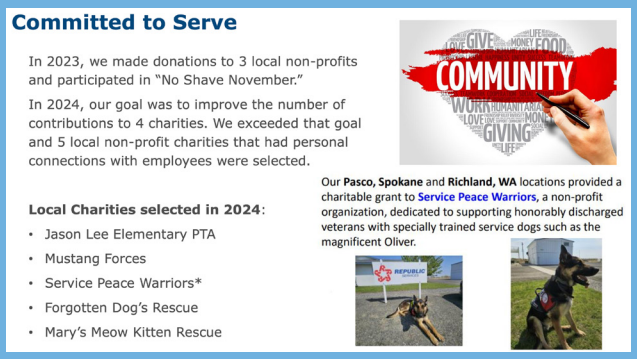
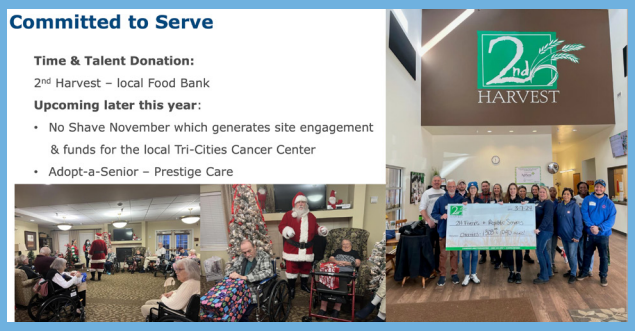
Updates from Commercial Disposal Facilities in the United States - continued

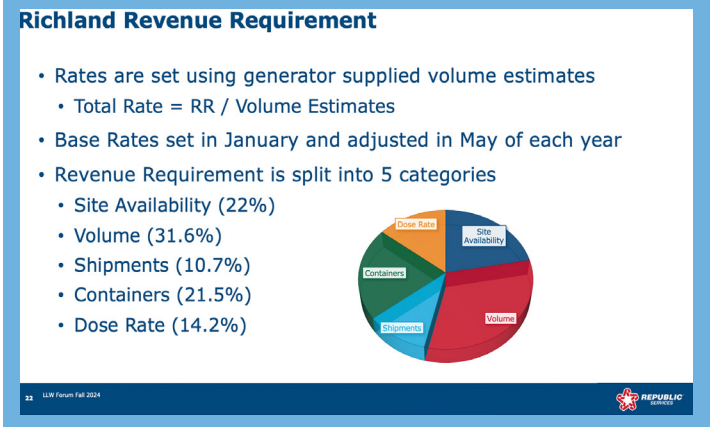
Richland LLW Site - continued

Community Outreach and Service





Revenue



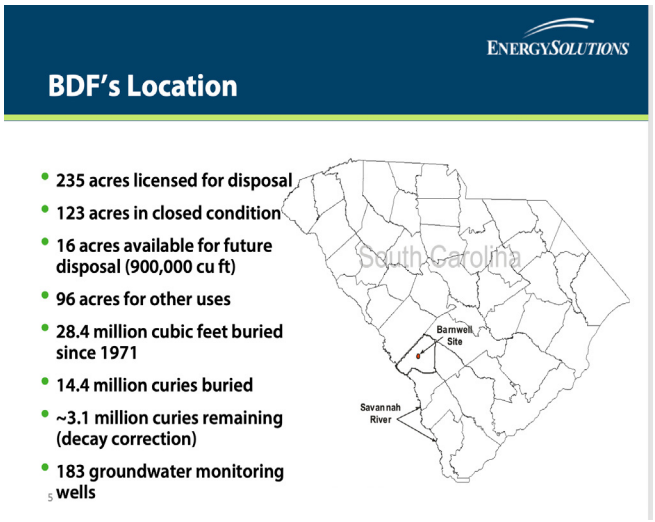
EnergySolutions Barnwell

Andy Veronee

"Growth potential is interesting."

- Always a strong safety culture
- Great emergency response team at Barnwell
- Compliance excellent – continual audit
- Direct hit by hurricane Helene – worked as designed

SC owns property; EnergySolutions is the operator.



Community Support

People in Barnwell want it to remain.

Operations

- Barnwell Disposal Facility has operated uninterrupted from 1971 to present.
- Received waste from across the U.S. until 2008.
- Atlantic Compact only operations since 2008.

Updates from Commercial Disposal Facilities in the United States - continued

ENERGY SOLUTIONS BARNWELL- CONTINUED

2000 Atlantic Compact Act
Atlantic Compact Membership
South Carolina New Jersey Connecticut

Receives about 9,000 cubic feet average yearly volume, excluding large component and irradiated hardware (IH) volume

Averages 60-70 containerized (cask) shipments per year

Site licensed to accept ABC waste. The license is under timely renewal since November 2000.

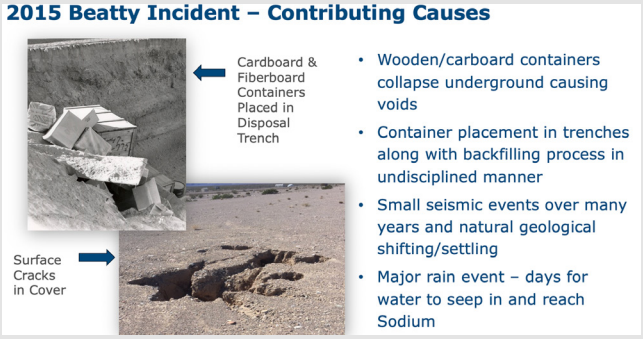
Hardware and large components disposal, using trust fund dollars by exception, will open the door for sending these to sites (Energy*Solutions* and WCS).

Institutional Activities

- >90% of facility in closed condition and under institutional monitoring and maintenance
- Extended Care Fund
  - Balance as of June 30, 2024 $158,220,829
- Projected Cost of Phase II Decommissioning $8,130,165
  - As of July 2022 Closure Plan

Beatty NV Event in 2015
Douglas Frenette, recounting event, though not representing Beatty

During 1960s and 1970's the facility received and disposed of >100 drums of Metallic Sodium packed in oil-filled steel drums. Oil was used to protect the Sodium from exposure to moisture. Drums corroded, and oil leaked out. Trenches degraded. Water eventually contacted Sodium waste resulting in the violent reaction.




Resulting Crater formed from the event

CORRECTIVE ACTIONS

Stabilization efforts:

Gather ejected debris, repacked and dispose

Repairs to Closure Cap (cracks, erosion, subsidence)

Scraped up ~140 tons of Sodium contaminated soil from surrounding area and disposed of in the adjacent hazardous waste landfill

Repairs to other nearby trench caps

Additional cap cover installed in phases (ongoing)

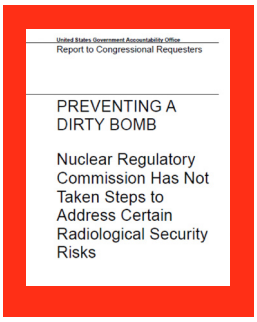
Regulatory efforts:

Rules/legislation were needed to secure funds earmarked for monitoring and maintaining of closed LLRW facilities

Reestablishment of funds for increased radiological environmental monitoring and regulatory inspections

NRC recommended having more than just an earthen cover.

Preventing a Dirty Bomb: NRC Has Not Taken Steps to Address Certain Radiological Security Risks - Ned Woodward, GAO



GAO-24-107014

https://www.gao.gov/products/gao-24-107014

GAO is now asking that Congress consider directing NRC to strengthen its requirements. This would include accounting for any potential social and economic consequences of a dirty bomb detonation in its decision-making, and updating its security requirements accordingly.

GAO examined federal efforts to prevent a dirty bomb. This mission is primarily shared by 3 agencies: DHS, NNSA, and NRC.

GAO

Agencies Have Differing Views on Risk

- DHS, NNSA, and NRC all agree that there is an enduring general threat that a terrorist may seek to acquire radioactive material for use it in a dirty bomb
- DHS and NNSA agree that socioeconomic consequences are the principal outcomes of concern from a dirty bomb and this view informs their radioactive security efforts
  - Massive panic, evacuations/sheltering in place
  - Denial of access to homes and business
  - Extensive cleanup and loss of economic activity/tourism
- Our prior work shows that such consequences could be many billions of dollars.

NRC does not consider socioeconomic consequences, but only prompt fatalities and immediate health effects.

DHS's Securing the Cities program providing training and detectors. A Police Officer wearing a personal protection device found a Category 3 source in Houston, TX.

NRC has not implemented recommendations relating to:

- Factoring in socioeconomic costs into NRC's security requirements
- Strengthening the licensing and security of category 3 quantities of radioactive materials

GAO does not agree that Category 3 sources are not included in the tracking system because:

- They maybe sold on the secondary market.
- They are more likely to be used in a dirty bomb because there are more sources and less security.

GOA is elevating concern to Congress:

GAO

Matters for Congressional Consideration

GAO is elevating our concerns to the Congress

- Congress should consider directing NRC to incorporate socioeconomic consequences into NRC's decision-making for setting security measures for radioactive materials, and direct NRC to update its regulations accordingly
- Congress should consider directing NRC to immediately require that all category 3 licenses be added to the Web-based Licensing System (WBL), all category 3 sources be included and tracked in the National Source Tracking System (NSTS), and that all vendors verify the legitimacy of would-be purchasers' category 3 licenses with the regulator

NRC said would cost $2 million dollars to put Category 3 sources into the tracking system. GOA believes this would avoid billions of dollars in liability.

Audience Questions

Q What is reference case and probability?

A Sandia study (2017-2018) of Category 1 sources was reviewed in terms of Category 3 sources, and the difference was not much. Tens of billions of dollars/weeks estimated with a scenario in NY.

Q Waste issues?

A Volumes of waste generated from dirty bomb would overwhelm compact system disposal capacity– where will it be buried?

Overview of the LLW Forum's Disused Sources Working Group
Michael Klebe, DSWG

STATUS OF RECOMMENDATION ON TRACKING SOURCES

National Source Tracking System

- In 2008, NRC proposed to add Cat 3 sources to NSTS. Failed on a 2-2 Commission vote.
- DSWG's 2014 report recommended adding Cat 3 sources to the NSTS.
  - #5 –The NRC should expand the NSTS to track Category 3 sources.
- Response received from Agreement States has been the effort is not worth the return without any quantification of the effort involved.

Pilot Study for Adding Cat 3 Sources to NSTS

- DSWG is seeking an Agreement State program partner to evaluate the level of effort associated with adding Cat 3 sources.
- Two phases:
  - Figure out what it will take
  - Do it
- Funding
  - Phase 1 - flat fee
  - Phase 2 – based on estimate generated in phase 1

DSWG is seeking an Agreement State to conduct a tracking pilot study to determine the level of effort and benefit, but no Agreement State has agreed to conduct the study. Staffing availability appears to be the big impediment.

DSWG is interested in intergrated rulemaking from the perspective of disposal of GTCC sealed sources (especially Am-241).

DSWG resource page is being updated. Check http://www.disusedsources.org to find updates when completed.

MEMBERSHIP NEWS - JOE KLINGER RESIGNED, LEAVING THE CHAIR POSITION VACANT

Update on the Southeast Compact's Source Disposal Funding
Tom Hansen, SE Compact

The Southeast Compact (SEC) has a program to incentivize disposal. Florida, a member state, has used SCATR more than any other state.

SEC has no source of income other than an invested nestegg, and savings from streamlining operations. Surplus money is being invested in disposing of disused sources. $40,000 for FY 2022 was budget for disused sources. SEC does not manage the disposal. CRCPD approves applicants. SEC writes checks to the broker, Bionomics.

ACCOMPLISHMENTS

Program Cost	Number of Locations	AL	FL	GA	MS	TN	VA	Total	Activity (mCi)
$18,231	20	5	63	106	0	47	17	238	1,077.9

Data is from May – August 2024

SEC intents to continue the program and consider other options to increase participation.

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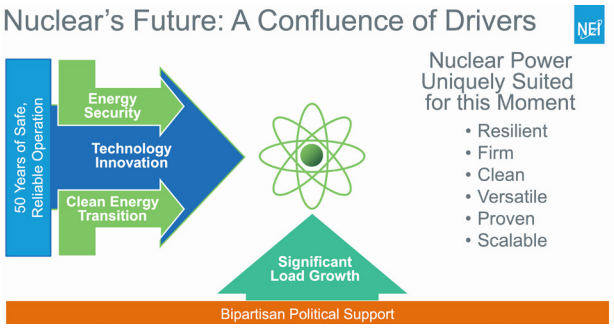
NEI Update

Bruce Montgomery

"We are living in dynamic times..."
Maria Korsnick, NEI President

Energy Needs

Driven by advanced computing, artificial intelligence, and the electrification of the manufacturing and transportation sectors.



Demand

AI Needs

As technology evolves, power demand from data processing is expected to double nationwide in three years. One small example of this demand surge — OpenAI's ChatGPT requires 2.9 watt-hours per request, and that's nearly 10 times more power than a typical Google search.

Global phenomenon

US companies are making big commitments to global countries.

25 countries pledged to triple nuclear power by 2050.

Restarts of decommissioning reactors--

Three Mile Island plant is being restarted as an energy center dedicated to power a data center.

Demand Effects

The Transportation Effect

New grid demand:

- **Electric Vehicles**
- **Heavy Haul EV's**
- **Off grid demand (Merchant Shipping)**

The Military Effect

Military bases are increasingly investing in energy resilience technologies to ensure they can continue to support critical missions during outages, cyberattacks, and other events.

The Army plans to build microgrids at all of its 130 bases worldwide by 2035.

The Space Effect

Surface power for moon and Mars.

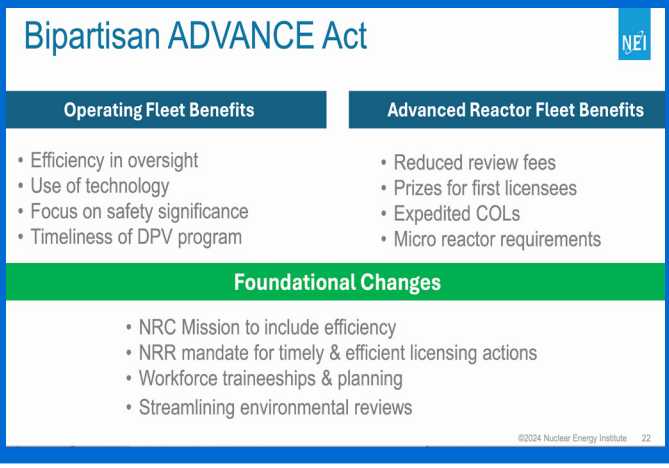
Nuclear powered spaceships and waste will stay in space.

The Shepherd Power Effect

Major service company for oil/gas field operations to make work emission free wants by 2030 microreactors across the Permian basin in Texas - hundreds to thousands of microreactors deployed by 2050.

HOW TO DO THIS?

Bipartisan political support – ADVANCE ACT



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Daniel B. Shrum , Executive Director Email: dshrum@llwforum.org www.llwforum.org

NEI Update - continued

OPTIONS FOR THE FUTURE

HOW TO DO THIS?

- License renewals – Preserve what they have up to 80 years possibly.
- Power uprates – What can we derive from the fleet?
- 24 month fuel cycles -There will be a need for more enriched uranium for PWRs.
- Restart decommissioning reactors like TMI 1.
- Build new reactors.

MICROREACTORS

Remote locations
Communities
Military sites and bases
Mining sites

SMALL NUCLEAR REACTORS

20 SMR companies
• Interest by several major utilities
• Well-suited for near term deployment at existing sites
• Right-sized for cooperatives, large military bases
Will have different waste streams

Waste Management Futures

- High Level Waste (hope for movement in 2025?)
  - Private CIS
  - Federal CIS, disposal (two new bills introduced in Congress)
    - New independent management organization
    - Study of recycling
- Low Level Waste
  - Revised 10 CFR Part 61 rule (finally!)
    - GTCC, DU solution?
    - Will it impact existing sites not accepting GTCC, DU?

EPRI Update, Darcy Campbell

"STRATEGIC RESEARCH CONSIDERS WHAT WE MAY NEED TO KNOW AND CARE ABOUT IN THE FUTURE."

TWO CURRENT PROJECTS

Accurate Estimation of Tc-99 and I-129 in Nuclear Power Plant Low and Intermediate Level Waste

Tc-99 and I-129 Hard-to-detect radionuclides that are required (and important) to characterize for radwaste disposal. Factors include half-life, mobility in wet settings, difficulty detecting in low quantities, inaccurate lower limit of detection, lack of labs available to analyze and disposal options.

Impact of Cellulose on Low and Intermediate Level Waste - Will be publishing an EPRI report on this soon.

Main constituent of the organic matter that makes up low and intermediate level waste (LILW) produces isosaccharinic acid (ISA) which can accelerate nuclide migration. Application of previous research into regulations is limited and/or unclear. Knowledge gap exists in U.S. and international waste management industry concerning this issue.

Appalachian Compact
Delaware • Maryland • Pennsylvania • West Virginia

Meeting
November 1, 2024

The next meeting will be held November 1, 2024. Contact Rich Janati at richjanati@pa.gov

Contributed by Rich Janati

Constellation has announced the signing of a 20-year power purchase agreement with Microsoft that will pave the way for the restart of Three Mile Island Unit 1 nuclear plant that was shutdown in 2019 for economic reasons. Under this agreement, Microsoft will purchase power from the Crane Clean Energy Center (new name for TMI-1) for its data centers within the PJM Interconnection. Additionally, Constellation intends to pursue license renewal for TMI-1 that will extend the plant operations to 2054.

The TMI-2 plant is undergoing decommissioning by TMI-2 Solutions, a subsidiary of Energy*Solutions*.

Atlantic Compact
Connecticut • New Jersey • South Carolina

Meetings
March 2025

The next Atlantic Compact Commission meeting will be held sometime in March 2025. The exact date and location will be available sometime in mid January next year. The last Compact meeting was held on September 18, 2024. Contact Max Batavia max@atlanticcompact.org

Central Midwest Compact
Illinois • Kentucky

Meeting
September 10, 2024

The Central Midwest Compact Commission (CMCC) held its Annual Meeting in Springfield, IL on September 10, 2024. Gary McCandless continues to serve as Chairman with J.P. Kelly serving as Secretary/Treasurer. Joe Klinger, former chair, is no long serving on the Commission.

The CMCC continues in a general oversight role. The CMCC continues to monitor disposal facilities and rulemaking activities. Fiscal year 2024 details were shared and the budget for fiscal year 2025 was approved.

The CMCC is in the process of updating its Regional Management Plan. Michael Klebe was contracted for this task and his rewrite was presented and discussed at the meeting. Moving forward, the CMCC will ask for comments from low-level radioactive waste programs from the State of Illinois and the Commonwealth of Kentucky. In the Spring of 2025, public meetings will be held in each state.

Meeting minutes and the fiscal year 2024 Annual report are available on the CMCC website: https://cmcompact.org/pubs/

Northwest Compact
Alaska • Hawaii • Idaho • Montana • Oregon • Utah • Washington • Wyoming

Meeting
October 1, 2024

The transition of Executive Director and Chair was completed at the end of the annual meeting October 1st. Kristen Schwab now fills the Executive Director position, with Earl Fordham retiring.

Southeast Compact

Alabama • Florida • Georgia • Mississippi • Tennessee • Virginia

Southeast Compact Commission Incentivization Program for Unwanted Source Disposal

Questions about this program should be directed to the Southeast Compact Commission's Executive Director, Dr. Tom Hansen, at 865-228-1997 or tom@secompact.org.

Also see the article on page 14 of this issue.

Southwestern Compact

Arizona • California • South Dakota • North Dakota

The Southwest Compact held a meeting after the Forum meeting in Reno, NV, October 10, 2024. Contact Ron Gaynor for more information rongaynor@swllrwcc.org

Texas Compact

Texas • Vermont

Meeting

October 24, 2024

Andrews County Commissioners Court
201 North Main, Room 104 in Andrews, Texas by webinar and in person.

The agenda be found at https://clicks.aweber.com/y/ct/?l=5kvri&m=3Y_TcQKKk0hYuMv&b=P80Yfui2L.nbP3hp00561w

Public Education Workshop

The Texas Low Level Radioactive Waste Disposal Compact Commission (TLLRWDCC) is hosting a public education workshop to answer your questions!

Public Education Workshop
Date: December 13, 2024
Time: 9:00 am - 1:00 pm CST
Location: DoubleTree Suites Hotel, 303 West 15th Austin, TX (in-person attendance)
Online Option: Available for those who cannot attend in person

Please contact the Commission if you would like to attend.

If you have questions or concerns, please call the Commission at (737) 300-2154 or at administration@tllrwdcc.org.

Public Education Workshop: Texas Low-Level Radioactive Waste Disposal

Are you interested in learning more about importing or exporting low-level radioactive waste?

The Texas Low Level Radioactive Waste Disposal Compact Commission (TLLRWDCC) is hosting a public education workshop to answer your questions!

Here are the details:

- **Date:** December 13, 2024
- **Time:** 9:00 am - 1:00 pm CST
- **Location:** DoubleTree Suites Hotel, 303 West 15th Austin, TX (in-person attendance)
- **Online Option:** Available for those who cannot attend in person

Who should attend?

- Anyone interested in learning about the TLLRWDCC and low-level radioactive waste
- Individuals/ organizations needing information on imports/exports for radioactive waste

Speakers will include representatives from:

- Waste Control Specialists (WCS)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of State Health Services

What will be covered?

- The TLLRWDCC TCEQ, and TDSHS rules, duties and responsibilities
- Import/export permit process and requirements
- Regulations for handling low-level radioactive waste

How to RSVP:

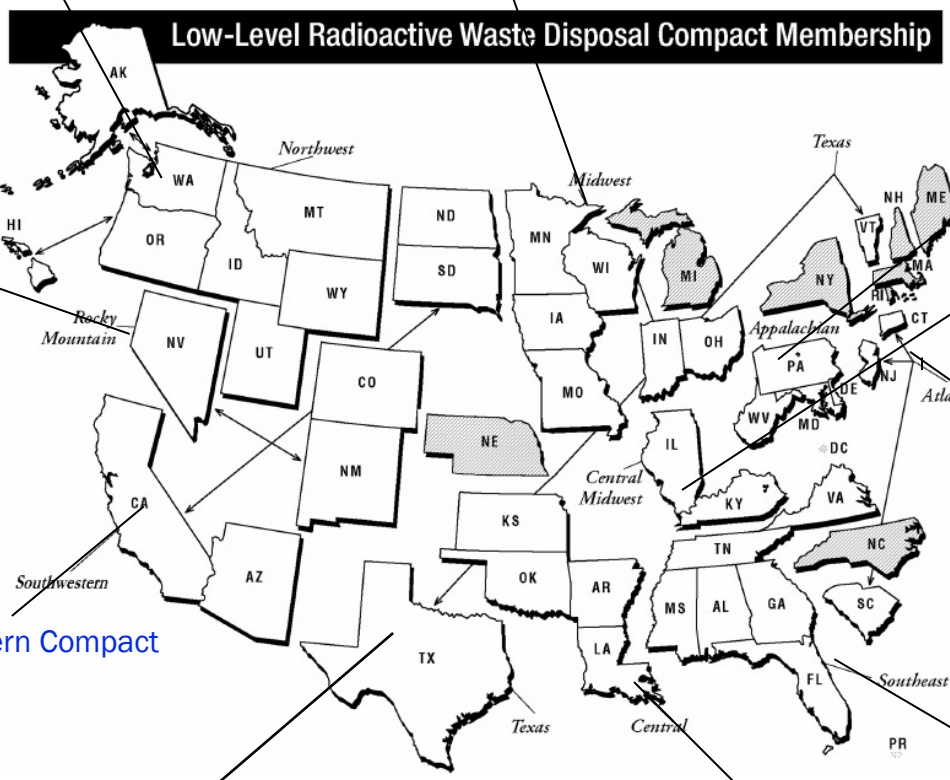
- Email administration@tllrwdcc.org or register for the webinar at https://us02web.zoom.us/webinar/register/WN_FHt8X6P7S9W3ICrJfsvttg

Have questions?

- Contact administration@tllrwdcc.org or call (737) 300-2154

Don't miss this opportunity to learn more about low-level radioactive waste disposal in Texas!

Low-Level Radioactive Waste Compact Membership



Northwest Compact
Alaska
Hawaii
Idaho
Montana
Oregon
Utah
Washington
Wyoming

Midwest Compact
Indiana
Iowa
Minnesota
Missouri
Ohio
Wisconsin

Appalachian Compact
Delaware
Maryland
Pennsylvania
West Virginia

Rocky Mountain Compact
Colorado
Nevada
New Mexico

Northwest accepts Rocky Mountain waste as agreed between Compacts

Central Midwest Compact
Illinois
Kentucky

Atlantic
Connecticut
New Jersey
South Carolina

Southwestern Compact
Arizona
California
South Dakota
North Dakota

Texas Compact
Texas
Vermont

Central Compact
Arkansas
Kansas
Louisiana
Oklahoma

Southeast Compact
Alabama
Florida
Georgia
Mississippi
Tennessee
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Information Resources

- DOE Public Affairs/Press Office - 202/586-5806
- DOE Distribution Center - 202/586-9642
- EPA (for program information, publications, laws and regulations) www.epa.gov
- EPA Information Resources Center - 202/260-5922
- EPA Listserve Network Contact Lockheed Martin EPA Technical Support at (800) 334-2405 or email (leave subject blank and type help in body of message) listserver@unixmail.rtpnc.epa.gov
- Government Accounting Office (GAO) Document Room - 202/512-6000
- Government Printing Office (to order entire *Federal Register* notices) - 202/ 512-1800
- Legislative Resource Center (to order U.S. House of Representatives documents)- 202/226-5200
- NRC Public Document Room - 202/ 634-3273
- NRC Reference Library (NRC regulations, technical reports, information digests, and regulatory guides) www.nrc.gov
- U.S. Government Printing Office (GPO) (for the Congressional Record, Federal Register,congressional bills and other documents, and access to more than 70 government databases) http://www.access.gpo.gov
- U.S. Senate Document Room - 202/224-7860
- Variety of documents through numerous links at LLW Forum, Inc. at https://llwforum.org/

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