LLW notes

Volume 38 Number 5 September - October 2023

A Message from Dan Shrum, Executive Director

The Forum thanks everyone who participated in the Fall meeting held in Salt Lake City. Presentations are available at the following link: https://llwforum.org/presentations/. Look forward to seeing everyone in person or virtually April 3-4, 2024 in Orlando, Florida. Stay Safe.

Daniel B. Shrum, Executive Director

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

In this Issue...**Find highlights of the Fall Meeting, the Forum Board's focus, Southeast Compact Commission Pilot Incentivization Program for Unwanted Source Disposal, along with compact and regional news.**

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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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Forum Corner

Board Meeting Focus

Directors voted to extend the Executive Director's contract and the contracts of Margaret Henderson and Cecilia Snyder – this was done in a closed session, but the outcome was announced.

Directors voted to change the by-laws so that officers serve for one-year as opposed to two-year terms – this was proposed and approved during the meeting.

Directors voted that the Executive Director set-up a post office box in the Washington DC area as a mailing address

Directors discussed the meeting – pros and cons – but mostly the Directors thought the meeting went well.

SAVE THE DATE!

LLW Forum Meeting Dates

LLW Forum

Spring 2024 Meeting

Host: Southeast Compact
April 3-4, 2024

DSWG Meeting
April 5, 2024

Orlando, FL

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Forum Corner

DSWG Update – October 2023

by Michael Klebe

The DSWG held a hybrid meeting on Thursday, October 5, 2023, following the LLW Forum meeting in Salt Lake City, Utah.

The DSWG discussed at length the Pilot Study for Adding Category 3 Sealed Sources to the National Source Tracking System. (This pilot study was described in detail in the July -August edition of the LLW Notes.) One Agreement State program was approached about participating in the study, but, unfortunately, they declined. Preliminary discussions with a second Agreement State program are underway.

The NRC staff have sent a proposed rule "Decommissioning Financial Assurance for Sealed and Unsealed Radioactive Material (SECY-23-0062)" to the Commission for approval to publish in the Federal Register. This proposed rule would:

- Replace Part 20 Appendix B with Part 30 Appendix C;
- Remove radionuclides with half-lives of 120 days or less;
- Set default values for alpha-emitting and non-alpha-emitting radionuclides; and,
- Rename Part 20 Appendix B to "Quantities of Licensed Material to Assess Financial Assurance for Decommissioning."

The DSWG provided comments on the proposed rulemaking. This version addresses some of the concerns identified by the Group. The unaddressed concerns include the activity threshold for requiring financial assurance and the default financial assurance monetary amounts.

The Group reviewed and discussed the outstanding DSWG report recommendations.

The next DSWG meeting will be held on Friday, April 5, 2024, in conjunction with the LLW Forum meeting in Orlando, Florida.

Michael Klebe gave a detailed presentation at the Fall Meeting, "Overview of the LLW Forum's Disused Sources Working Group." Content is available at https://llwforum.org/presentations/.

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LLWF Fall Meeting

Clive Disposal Facility Tour: October 2, 2023
LLW Forum Meeting: October 3-4, 2023
DSWG Meeting: October 5, 2023

Salt Lake City, Utah

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Keynote Speaker

PETER BRADFORD

TLLRWDCC Commissioner

Former NRC Commissioner

Low-Level Waste Disposal in an Evolving Electric Industry

Climate enthusiasm now has a caused a resurgence in the nuclear industry potential. Upon examining 50 years of energy policy, there are lessons to be learned. Forecasting needs to be politically astute. The issue is how to change to power model with solutions and not rush into any particular one. Take into account climate change and the history of the development of the power market and let the markets decide.

Nuclear Euphoria

"Decades start with nuclear euphoria. Planning needs flexibility to respond to unexpected occurrences such as accidents and wars."

Peter Bradford

1968 A few reactors were operating, more challenges were coming with size changes in reactors and projections in the 1970s were that there would be 1000 reactors by the year 2000.

Nuclear parks were envisioned, with multiple reactors in locations, several disposal sites, breeder reactors, reprocessing plants -----and also weapons and military installations. These aspirations were propelled with OPEC raising gas prices and a heightened focus on energy.

1977 NRC delegated low-level radioactive waste disposal to the Agreement States. Various problems arose with sites -- waste migration and transportation issues. In 15 years, all the original LLW closed or limited amounts that they would take for disposal.

Though sites were closing, legislative hearings for confirmation of NRC Commissioners did not raise the issue. At NRC meetings, the focus was more on the need for radiation protection and little about waste disposal.

1979 With the Three Mile Island (TMI) accident unfolding for five days with the explosion and release of radioactive materials, NRC shifted into accident management focusing on evacuation, etc. Accidents at West Valley and FERMI I in Florida caused a new demand for LLW disposal and accident response also shifted into new rules for off-site emergency planning.

Economic Changes in Nuclear Sector

"1000 reactors predicted by 2000 became a delusional projection. Actually, 120 really got built. Political backlash, customer demand and economic conditions were influential."

During the Reagan time period, the ecstasy and euphoria about reactors faded and half of the orders were canceled and there were no new reactor orders in the 1980s in the U.S. The Cheney plan for nuclear renaissance developed with cancellations or deferrals.

Until around 1990 the energy model was a Vertically Integrated Monopoly Utility in the U.S. with all prudent expenses covered.

1990's Competitive Wholesale Electricity Market Structure placed generators in competition with each other to sell into a transmission and distribution sector that was regulated. This created hugely important differences. There were cost recovery challenges for generators with new technology, etc., and a need to keep costs down.

Cost overruns in the nuclear sector, including the expenses of LLW disposal, may make it cheaper to keep waste on site rather than disposing of it. Cost estimates for new reactors are steep. Other energy options are being explored and produced, but as in the past, planning needs to be flexible to see how all these resources will work together in an economic model that will provide needed energy.

"A NEW STAGE in nuclear economics may need subsidies to keep uneconomic operating plants alive with all the uncertainties of potentially high cost, long delays, safety and other issues."

Significance of the Compact System

"The Compact System makes sense in that all states do not need to have disposal sites. In terms of politics and getting disposal done—mandating this has produced results."

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NRC Update - Topics of Interest to LLWF

Steve Koenick, Chief, Low-Level Waste and Projects Branch

Greater Than Class C Waste (GTCC)

As GTCC will "now" be part of 10 CFR Part 61, does that mean that GTCC also falls under the Low-Level Radioactive Waste Policy Act?

Yes.

Will the compacts have authority over the transportation of GTCC between compacts and or states?

Changes are not supposed to change authority of compacts with respect to transportation; including GTCC may increase amounts transported and disposed. States need to review agreements with NRC which might need modifications. Compacts need to look at their authority between compacts and states.

Will Agreement States immediately have regulatory authority over commercial GTCC within their borders – if so, will states have authority to license GTCC within their borders regardless if it is for disposal?

This change will only addresses disposal and is not making changes to authority to regulate radioactive materials.

Compliance Period

Staff has presented a few slides showing a variety of compliance periods – are these appropriate for comparison purpose, including DOE facilities. What would different compliance periods between the DOE / NRC mean?

DOE uses a 1000 year compliance period and combines this with evaluation of the period with sensitivity analyses. DOE is self-regulating and can implement changed based on analyses.

NRC cannot change based on analyses. DOE has land disposal facility in perpetuity and will maintain regardless in contrast to regulated sites of NRC.

Grandfather Clause – Now Titled An "Exception"

Will disposal facilities that fall under the exception be considered 10 CFR Part 61 disposal facility or will they operate under a lesser license or a license that does not meet the requirements of Part 61?

It will be a lesser license but fully protective of public health and safety.

Regulatory Analysis

SRM SECY-16-106 directed staff: "Be informed by broader and more fully integrated, but reasonably foreseeable, costs and benefits to the U.S. waste disposal system resulting from the proposed rule changes, including pass-through costs to waste generators and processors."

Cost/benefit analysis will be updated as part of the rulemaking package. There will opportunity for public input prior to the rule going back to the commission.

MARSSIM

NUREG-1575, Rev. 2, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)"

Issued for public comment in July 2021

Over 60 comments in 17 comment letters

Science Advisory Board peer reviewed

MARSSIM Working Group is currently addressing comments.

Estimated time to finalize is in 2024.

For Waste Issues, see:
https://scp.nrc.gov/llrw.html
https://www.nrc.gov/waste.html

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NRC Update - Topics of Interest to LLWF - continued

Risk Informed Regulation

NRC is working on implementing this concept from the reactor community and applying it to the materials programs. During inspections regarding unresolved compliance issues, inspectors determine those of low enforcement significance, mention and may discontinue inspection of the topic.

For Decommissioning Issues, see: https://www.nrc.gov/waste/decommissioning/oversight.html

Decommissioning Rulemaking

This would implement specific regulatory requirements for different phases of the decommissioning process consistent with the reduced radiological risk. Topics include:

Emergency Preparedness
Decommissioning Funding Assurance
Environmental Considerations
Spent Fuel Management Planning
Record Retention Requirements

Target date for submitting the draft final rule to the Commission is January 2024.

EPA Program Updates
Jonathan Major, EPA

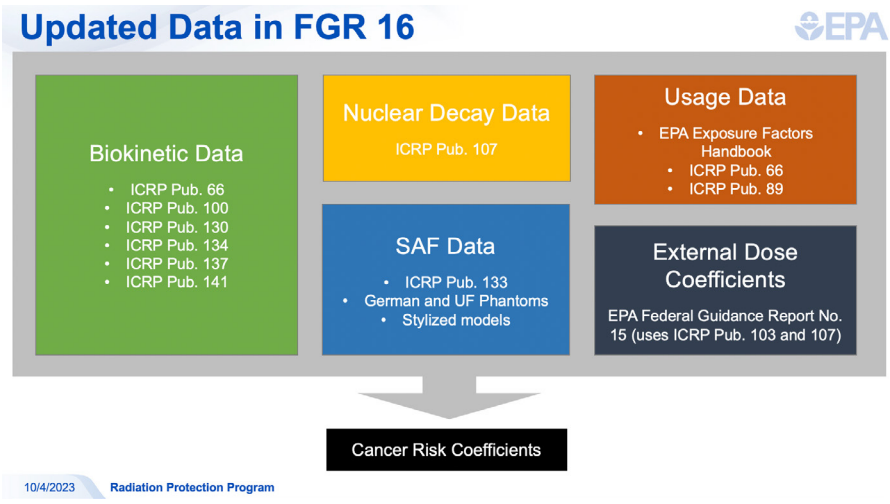
Federal Guidance Report No. 16

FGR 16 provides cancer risk coefficients for estimating population radiogenic cancer risks (morbidity and mortality) for environmental exposures to radionuclides. It updates FGR-13 (1999).

Risk coefficients are provided for:

- 1,252 radionuclides for external exposure from air and soil.
- 888 radionuclides for internal exposure from ingestion (water and diet) and inhalation.

Goal: Final publication in 2024.



MARSSIM

Multi-Agency Radiation Site Survey and Investigations Manual (MARSSIM) Version 2 anticipated early 2024.

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EPA Program Updates - continued

Critical Minerals

Emphasis increased at the federal level to increase domestic and allies' mineral production and reduce reliance on foreign, potentially adversarial suppliers.

Rare earths, lithium, cobalt, many others are listed in the USGS Critical Minerals List (2022) & DOE Critical Materials Assessment (2023).

Inter-agency Working Group on mining reform and "Executive Order 14017 – Securing America's Supply Chains" involved Interior, USDA, DOE, EPA, States, and others.

Final Report: *Recommendations to Improve Mining on Public Lands* (Published Sept. 2023)

Mining and processing of many critical minerals are associated with NORM and TENORM.

Ukraine

The situation at Zaporizhzhia Nuclear Power Plant is relatively stable; new wells are being drilled to ensure supply of cooling water after destruction of Kakhovka dam in early June threatened existing reservoir. All six reactors shut down, transitioning between "hot" and "cold" shutdown to help keep power and steam at the facility. External electricity lines are still operating. Westinghouse fuel was supplied, the first use of western-supplied fuel in Ukraine.

NORM & TENORM

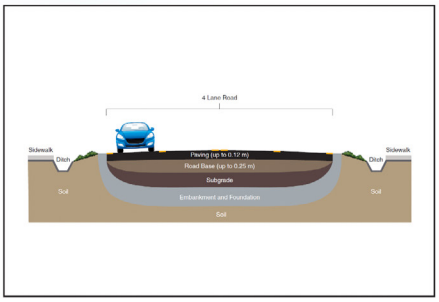
Phosphogypsum (PG) is generated by the production of fertilizer from phosphate ore and is regulated under the Clean Air Act to control radon emissions. By rule (40 CFR Part 61, Subpart R) phosphogypsum must be managed in an engineered stack.

Exceptions can be made for certain agricultural or indoor research uses; EPA may approve other uses if they are at least as protective as management in a stack.

EPA is evaluating a request from The Mosaic Company for a test road on its property, proposing segments constructed using different mixtures of phosphogypsum and other materials.

Phosphogypsum
Mosaic pilot road study

EPA



	Specification
Road width	24 feet
Road length	1200 feet in 200' test sections
Total amount of PG used	337 tons
Road base thickness	10 inches
Mix 1	PG + limerock (LR)
Mix 2	PG + recycled concrete aggregate (RCA)
Mix 3	PG (<50%) + sand + Type 1 portland cement
PG content	30-50%
Ra-226	~15 pCi/g (555 Bq/kg)

10/4/2023 Radiation Protection Program

Florida DOT has requested some modifications to the original project design:

- Implementing new direction from legislature to evaluate suitability of phosphogypsum in road base;
- Determination of suitability would eliminate further state review (including environmental).

Florida Phosphogypsum

~ 1 billion tons of phosphogypsum stacked in Florida

> 30 million tons produced annually

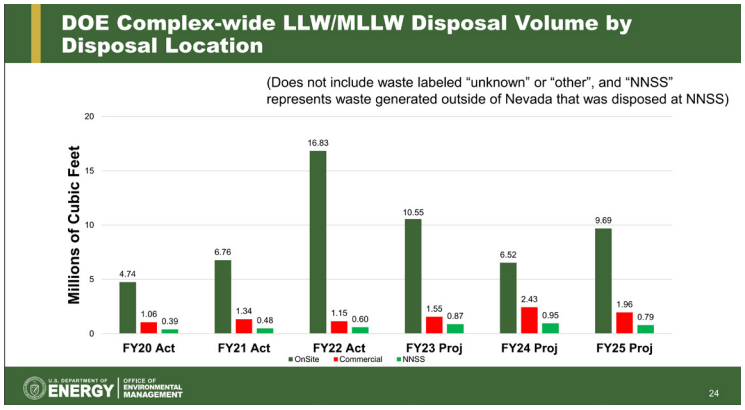
1,800 miles of four-lane highway would be required to divert Florida's annual PG production.

DOE/EM Waste Management Update
Douglas Tonkay, DOE

DOE operates the largest cleanup program in the world using its strategic plan and looking at significance to communities.

LLW/MLLW Disposal

DOE has actual volumes known for FY22 and Projections for FY 23 - 25 based on data available.



LLW Manifest Data

Non-DOE waste data come from manifests:

- Current to calendar year 2022
- Working on 2023 entries
- Available at mims.doe.gov

HLW Interpretation

The HLW interpretation is a tool in the "waste management policy toolbox" that, where implemented, allows DOE to dispose of defense reprocessing waste in accordance with its radiological characteristics and not by source or where it came from, i.e., some reprocessing wastes may be classified as not HLW (non-HLW). For more information, visit https://www.energy.gov/em/high-level radioactive-waste-hlw-interpretation

Greater than Class C LLW Disposal Status

DOE is continuing to discuss with NRC staff DOE views on the information presented and looks forward to an opportunity to review the draft rule and guidance.

Depleted Uranium (DU)

- 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)
- Waste Control Specialists LLC (WCS) Federal Waste Facility (licensed)
- Multiple shipments by rail in 2023 with first shipment from Portsmouth site and additional shipments from Paducah site

Q. Why does DOE not use compact facilities?

A. This related to the statute and a division of responsibilities and the role of states in regulating LLW via compacts. Liability becomes an issue as well; DOE has liability for its own waste.

DoD – LLRW Program
Cyrus Turner, DoD

Scope

Unwanted or excessed commodities (military items) that contain source, special nuclear, or byproduct material, including mixed waste, NORM and NARM.

Military Items

In general, military items outside of DoD possession and control may not be accepted, but this does not mean that the DoD cannot take back radioactive items clearly marked as DoD (labeled) property from the public. Some items taken back include:

- a depth gauge USN drivers wear like a watch;
- munition DU someone had in possession;
- an old jeep radio cluster with radium dials.

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Panel Discussion on Detection Limits and Waste Attribution

Dan Shrum, - Moderator
Panelists:
Stephen Koenick, NRC
Doug Tonkay, DOE
Clint Miller, PG&E, Diablo Canyon
Darcy Campbell, EPRI

Darcy Campbell – EPRI

Tc-99 and I-129 have long half-lives and are mobile in wet settings. Both are hard to detect and normal methods do not work well, so they must be characterized or quantified. Now they are reported as LLD (lower limit of detection). This can lead to overestimation of radioisotopes which could limit options for disposal. There is a need to understand plant history, materials, components, etc., and historical information is not available. Minimum detectable activity is above what they are finding. Data sets that exist are small samples and there is not history so that so compounds uncertainty.

WHAT NEXT? 2023- 2024

International -- New disposal facilities being sited, licensed, and constructed.

U.S. -- Disposal facilities may impose site specific limits based on facility specific, rather than generic, performance assessments; Regulatory revisions are currently in progress; Availability of "Very Low Level Waste" options under consideration.

Tasks -- Collect waste sample data to create a new industry dataset to support statistical analysis of Tc-99 and I-129 in typical plant waste streams; Determine if changes can be made to laboratory analytical methods to achieve lower levels of detection for Tc-99 and I-129; Review U.S. and international guidance assumptions; EPRI Technical Report to capture findings (Fall 2024)

LLW Disposal Attribution & Volume Reporting, by Clint Miller, PG&E

Reports are required to be submitted to the SW Compact, the State of CA, NRC, DOE-- all with unique requirements. The definitions are loose and create problem for attribution. For instance, information includes disposal volume; some reporting on what is sent to processor, but with no class assigned; and generator identification which may not mesh with is in MIMS. One result is that all information from one place may not be reflected in the totals. Other problems are that time periods vary; also there are issues about waste variables (bulk, processed or compacted). Is the volume the volume of waste or the volume of the container?

Doug Tonkay, DOE

Clint took a thorough look at attribution where issue occur with processors. DOE purchases data from LLW disposal sites, but does not look into how it is created. There are some software issues about query involving start/stop dates. Whether the volume is what is packaged or what is disposed is up to the site. DOE reports what it is given. DOE is open to stakeholder suggestions.

Stephen Koenick, NRC

Q. What about RCRC? Waste going to a RCRA cell -- is that LLW or exempt material? Is is it a Part 61-like facility?

A. RCRA is still within their Part 61 framework and in performance assessments. This is an interesting question with no answer now, but the question can be taken back to review.

Q. On Tc-99 and I-129. What do you think?

A. This worthy of further discussion. There are different approaches to address the problem.

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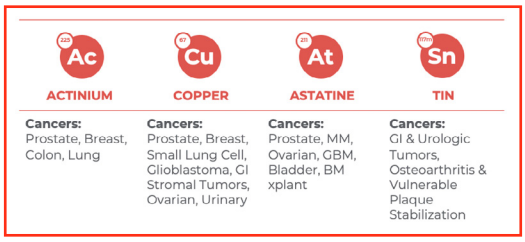
Production of Radioactive Isotopes for Medical Treatment
Scott Larrivee, Nusano

NUSANO is working to address supply chain issues for emerging therapeutics with radioisotope production and plans to be operating in the first quarter of 2025 in West Valley Utah.

Plans are to produce 30 different medical radioisotopes, which can target and destroy cancer and leave other tissue in tack thus improving quality of life for survivors. This is an emerging field of drug development in therapeutics.



Clinical studies of radiotherapeutics are increasing the demand for medical radioisotopes. Current production methods are unable to support growing clinical demand and sourcing from Russia is a geopolitical problem.

Nusano Ion Source & Platform

12 targets can produce 12 different radioisotopes at once or target only one and make larger quantities of that one radioisotope.

A 107, 000 sq.ft. facility near an airport and shipping hub allows shipment of short half-life radioisotopes.

Radioactive Waste

- Will recycle target material if possible.
- Short half-life radioisotopes will be stored for decay on site.
- Longer half-life radioisotopes will be disposed at waste sites if not decayed in storage.
- Decommissioning plan will address disposal of activated materials (concrete).
- Regulatory considerations: UT is an Agreement State and regulatory issues are a well understood landscape.
- Encapsulated waste will go out as Class A waste.

The Path to Commercial Fusion Energy
Benjamin Byboth, Commonwealth Fusion Systems

Commonwealth Fusion, founded in 2018, spun out of MIT. It has raised >$2 Billion in private funding, and is the largest fusion company in the world.

Climate drives urgency about the topic of fusion due to detrimental effects of using fossil fuels. Currently, SPARC project in Massachusetts is being built.

Advantages

Clean – No emissions, no long-lived, high-level radioactive waste

Safe – No risk of meltdown, regulated like medical research facilities

Scalable – Affordable, modular, and capable of siting almost anywhere

Assembly and integration are what they are working on. Scaling and industry challenges can be met.

Waste

- Activated material from 14 MeV neutrons interaction with vessel will result and vessels be swapped out after years.
- Activated material will be stored or sent to an off-site repository.
- Solid material with activity will decay over decade or two.
- LLW materials will be generated.

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Engaging Local Governments on Nuclear Development and Waste Management

Kara Colton, Energy Communities Alliance

ENERGY COMMUNITIES ALLIANCE (ECA)

Formed over 30 years ago by local governments responsible for community-driven and risk-based economic opportunity.

Communities currently hosting DOE's national laboratories, EM cleanup sites, nuclear weapons facilities, nuclear component manufacturing, nuclear energy sites, de facto interim storage sites, and potential hosts for nuclear waste storage and disposal facilities.

LOCAL SUPPORT IS NECESSARY FOR SUCCESS

- Trust
- Capacity – Necessary to build enduring, informed decisions
- Partnership around/support for a project
- How decisions are perceived – "Risk" (real or perceived) must be addressed, seen as based on sound science, and there must be transparency at each step. "Risk is how people feel about the facts."
- How to address environmental justice and equity – There should be no "one- size-fits-all" approach. Stakeholders around potential new nuclear development must be engaged in defining, evaluating and determining how to mitigate environmental justice and equity issues. It is important to recognize unique aspect of the community.

NEW NUCLEAR INITIATIVES

Core questions for communities hosting or interested in hosting future public or private advanced nuclear facilities are:

- What do communities need to know to attract and support new nuclear development/missions?
- What and how should communities communicate to industry, national laboratories, and state and federal governments about local resources and development opportunities?
- What hurdles and challenges will communities face and who can we work with to overcome them?

In terms of Consent-Based Siting agreement, there is no "one-size-fits-all" agreement: The conditions under which a specific community will take on a nuclear mission needs to reflect the priorities and vision of that community.

RECOMMENDATIONS

- Engage early and often with host municipalities on all aspects of the nuclear project, ensuring safety and protection of human health and the environment.
- Provide resources to the host municipalities to create technical expertise in the community to be able to work cooperatively with the government/project owner.
- Create, expand, and cooperate with the host municipalities on socio-economic opportunities for the long-term sustainability of the region.
- Commit to short and long-term investment in the education, infrastructure and workforce of the host community (i.e., local purchasing from local businesses) as part of any new nuclear project.

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GAO Covert Testing of NRC Materials Licensing

Ned Woodward and Jeff Baron

The Government Accountability Office (GAO)

- Provides Congress, the heads of executive agencies, and the public with timely, fact-based, non-partisan information.
- Works at the request of congressional committees or subcommittees or is statutorily required by public laws or committee reports.
- Nuclear portfolio includes:
  - nuclear weapons sustainment/ modernization;
  - nonproliferation and arms control;
  - radiological security; and
  - DOE acquisition and program management.

Past Tests

2006 GAO demonstrated that it was possible to transport unlicensed radioactive material through ports of entry into the U.S. with a fraudulent license. (GAO-06-545R)

2007 GAO established a shell company and obtained a valid NRC license that GAO altered to secure commitments to purchase a dangerous quantity of radioactive material. (GAO-07-1038T)

2016 GAO established three shell companies and obtained a valid license from one of these companies that GAO altered to secure commitments to purchase a dangerous quantity of radioactive material. (GAO-16-330)

Ongoing and Future Work

A GAO draft report is out to DOE and NRC for comment dealing with disused sources. GAO expects to issue this report next month with public release mid-November.

Securing the Cities - Grants for radiation detection technology devices for first responders to get technology and training so they can respond ASAP.

Looking at Federal roles of DHS, NRC, NNSA to prevent dirty bomb. Studying threats, consequences, etc. and how the agencies align on this. This will take approximately a year to finish.

How Tests of the System Are Done

GAO has unique authority to commit fraud as tests and has special investigators who conduct the tests. Subject Matter Experts, who may use scientific advisors, task the investigators.

GAO does not take possession of radioactive materials and assures the materials are returned to vendors.

"Preventing A Dirty Bomb" (July 2022) for the House Committee on Homeland Security was built on the 2016 work and resulted in looking at effectiveness of NRC's license verification system.

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Updates from Commercial Disposal Facilities in the U.S.

WCS - Dave Carlson, President and COO

PERFORMANCE ASSESSMENT

PA is coming up on renewal. Current disposed inventory has a peak dose of 0.5 millirem per year at 170,000 years from closure.

CAPACITY

CWF Licensed Capacity

- 9,000,000 ft^3
- 3,890,000 Ci (decay corrected)
- Can be increased to 8,000,000 Ci upon request and TCEQ approval

Total CWF LLRW Disposal since inception – to 8/31/2023 (11 years)

- 307,687 ft^3 (3.4% of licensed capacity)
- 583,668 Ci decayed (28 % of licensed capacity)

LICENSING ACTIONS

WCS License Renewal – Expiration September 10, 2024

- Renewal application submittal required one year in advance of license expiration date
- Submitted 8/28/23 – on schedule

FEDERAL WASTE FACILITY

Will be federal responsibility post-closure

DU – approved for large quantity disposal (in federal waste facility)

LANL TRU Waste – is held in temporary storage (received when forest fire threatened Los Alamos); will ship to WIPP perhaps in 2026.

LOCAL SUPPORT

160 employees mostly in Texas

FINANCIAL SUPPORT

Surcharges (up to 31.25% of gross receipts) $76.5 million to Texas (11 years) = $7M/y

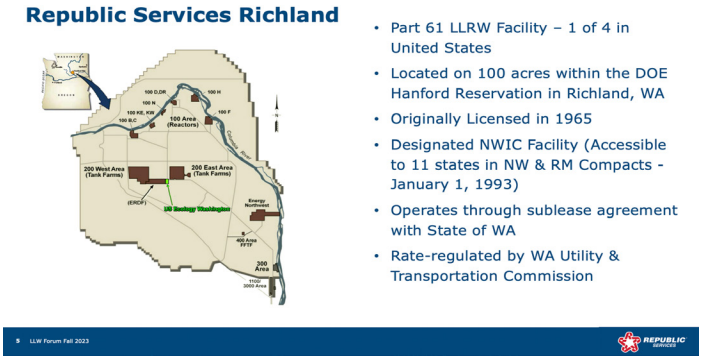
$17.3 million to Andrews (11 years) = $1.6M/y

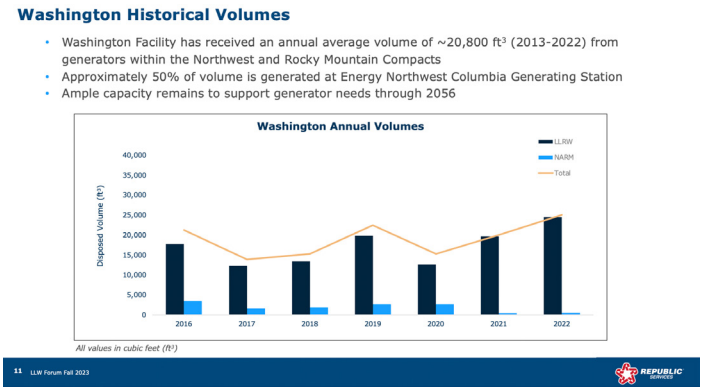
Grand Total: $93,816,823

Significant contributions to Community Activities - Scholarships, Education Foundation, Public Safety, Sports Teams

Republic Services Richland, Douglas Frenette, General Manager

"U.S. Ecology Washington, Inc." is the legal name now re-branded as "Republic Services Richland." Expect no change to the rad waste programs or services provided.





WDOH License # WN-I019-2, Amendment 42

Expires July 31, 2027

- Class A, B and C LLRW in the Northwest and Rocky Mountain Compacts
- NORM/TENORM/NARM acceptable from generators nationwide
- High-activity sealed source capabilities
- All waste arrives by truck

2023 Revenue Requirement
(through August)

Component	Revenue Requirement	Collected	Remaining
Site Availability	$833,188	$842,591	($9,403)
Volume	$2,555,879	$1,114,864	$1,441,015
Shipment	$865,440	$452,020	$413,420
Container	$1,738,968	$660,100	$1,078,868
Exposure	$1,148,528	$328,734	$819,794
Total	$7,142,003	$3,398,309	$3,743,694

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Updates from Commercial Disposal Facilities in the U.S.

Clive Site Operational Overview: Operator David Booth, Energy*Solutions*

The Clive site is the world's largest commercial radioactive waste disposal facility.

CAPABILITIES

Unload 45 railcars per shift
Unload 30 truck shipments per shift
Shred 1,500 tons per shift
Place 50,000 CF per day
20 M gallons evaporation pond storage

CAPACITY

~100 million cubic feet of licensed capacity remaining

At average receipts of 3-4 million cubic feet per year, the Clive facility has 30-35 years of capacity remaining.

WORKFORCE

111 FTE - 16% Female - 84% Male
Primary Labor Pool – Tooele County

Clive Update: Regulator Doug Hansen, Director, Division of Waste Management and Radiation Control, State of Utah

PROGRAM STATUS

The State of Utah has just concluded and passed NRC's IMPEP review, a thorough review of the state program conducted every four to five years.

WORK REGARDING CLIVE

The program is doing considerable permit and license work. At the site, final inspection of groundwater monitoring and recent construction is ongoing. Recently, air quality testing was performed.

Clive is busy facility and the state works continuously to keep up with the work and do oversight on facility.

Southeast Compact Commission Pilot Incentivization Program for Unwanted Source Disposal

The Source Collection and Threat Reduction (SCATR) Program is an initiative of the Conference of Radiation Control Program Directors. The program is supported by the U.S. Department of Energy National Nuclear Security Agency and provides funding for the disposal of unwanted radioactive sealed sources. The amount of funding available via SCATR varies year by year, but the program is targeting a 40% cost-share amount for 2023-24 program participants.

The Southeast Compact Commission is piloting a program aimed at incentivizing its regional source owners to register and dispose of their unwanted and unneeded sealed sources via SCATR. The Commission intends to cost-share an additional 30% of the disposal for sources located in the states of Alabama, Florida, Georgia, Mississippi, Tennessee, and Virginia on a first-come, first-served basis until its available funding for the pilot program is depleted. This means, at least for 2023-24 program participants, that they may only be responsible for 30% of the total disposal cost of their unwanted sources.

To participate in this program, interested parties need only register their unused sources with the Department of Energy Off-Site Source Recovery Program by visiting the on-line registration page -- https://osrp.lanl.gov/PickUpSources.aspx. Participants in qualifying states will be automatically notified when they qualify for cost-sharing from the Southeast Compact Commission.

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.

Appalachian Compact
Delaware • Maryland • Pennsylvania • West Virginia

Meeting
October 27, 2023

Contributed by Rich Janati, Administrator, rjanati@pa.gov

Appalachian Compact Commission

Annual Meeting was scheduled to be held on October 27, 2023 in Harrisburg, PA. The Commission has several new members from Pennsylvania and Delaware that will represent their respective states on the Commission at this meeting. The Commission consists of 10 members; four from Pennsylvania (the host state) and two from the other three party states of Maryland, Delaware and West Virginia each. There is no regional low-level radioactive waste (LLRW) disposal facility in the compact but the compact's LLRW generators have access to both Energy*Solutions* facility in Utah and the WCS facility in Texas. There are 10 operating nuclear power plants at five sites in the compact and one plant that is being decommissioned.

Decommissioning of Three Mile Island Unit 2 (TMI-2)

In December 2020, Energy*Solutions* announced that it acquired the TMI-2 plant from the subsidiaries of First Energy Corp. The purpose of this sale is to complete the decommissioning process of the facility. TMI-2 is the nuclear power plant that experienced the worst commercial nuclear plant accident in the United States in 1979. A subsidiary of ES, TMI-2 Solutions will decommission this plant. Unit 2 is currently undertaking Phase 1 of the decommissioning to remove and package the remaining fuel debris in the reactor building. As of now, Phase 1 is expected to complete in 2029. Phase 2 is expected to last about 8 years to complete the remaining site decommissioning and terminate the license.

Atlantic Compact
Connecticut • New Jersey • South Carolina

Meetings
September 20, 2023

The next Atlantic Compact Commission Meeting was held in Columbia SC on September 20, 2023. For more information email max@atlanticcompact.org

Central Midwest Compact
• Kentucky

Meeting
September 12, 2023

Contributed by Lori Beagles

The Central Midwest Compact Commission (CMCC) held its Annual Meeting on September 12, 2023 in Frankfort, KY. The meeting was held in person and via Webex. The CMCC welcomed new Kentucky Commissioner JP Kelly.
The CMCC continues in an oversight role

Central Midwest Compact
Illinois • Kentucky

and continues to monitor disposal facilities and rulemaking in both states.

Illinois and Kentucky Radiation Control staff were in attendance and provided updates on activities. Fiscal year 2024 budget lines were discussed along with the fiscal year 2023 Audit of expenses.

In the upcoming fiscal year the CMCC will seek a technical contractor to update the Regional Management Plan. A Request for Proposal (RPF) will be drafted. The CMCC will continue to meet yearly unless an item arises than needs immediate attention. The draft meeting meetings minutes are available on the CMCC website along with the CMCC FY23 Annual Report that details work of the CMCC over the last year along with audit details.

The next planned meeting is September 17, 2024, in Springfield, IL.

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

Meeting

A meeting of the Utah Waste Management and Radiation Control Board has been scheduled for October 12, 2023, at 1:30 p.m. For information, visit https://deq.utah.gov/waste-management-and-radiation-control/waste-management-and-radiation-control-board-meetings

Rocky Mountain Compact
Colorado • Nevada • New Mexico

Meeting
October 30, 2023

For information, contact Leonard C. Slosky, Executive Director, lslosky@rmllwb.us
Website: https://www.rmllwb.us/

Texas Compact
Texas • Vermont

Meetings
Thursday, October 12, 2023
Burlington, VT

November 3, 2023
Austin, TX

For the November 3 meeting, see the agenda at http://www.tllrwdcc.org/wp-content/uploads/2023/10/November-3-2023-Agenda-Final.pdf

Northwest Compact
Alaska
Hawaii
Idaho
Montana
Oregon
Utah
Washington
Wyoming

Midwest Compact
Indiana
Iowa
Minnesota
Missouri
Ohio
Wisconsin

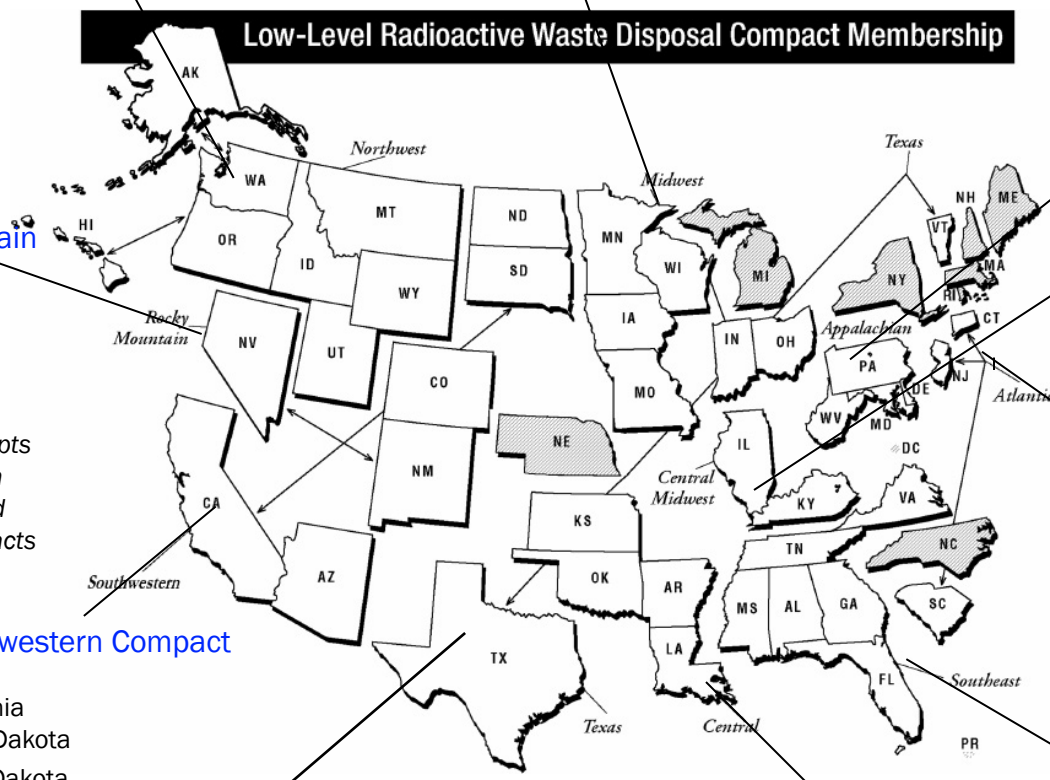
Appalachian Compact
Delaware
Maryland
Pennsylvania
West Virginia

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
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- 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/

Acknowledgment & Disclaimer

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