**Present**

Earl Fordham, Executive Director/Chair, Washington

Kristen Schwab, Alternate Executive Director (Virtual)

Cheri Kennedy, Compact Admin (Virtual)

Daryl Sawyer, Idaho Alternate

Jess Byrne, Idaho (Virtual)

Kaylie Holland, Alaska Alternate (Virtual)

Gabrielle Fenix Grange, Hawaii (Virtual)

Geoffrey T Lau, Hawaii (Virtual)

Matt Hendrickson, Oregon

Doug Hansen, Utah

Ross Barnes, Montana

Brandi O’Brien, Wyoming (Virtual)

Lilia Lopez, WA Compact Legal Counsel (Virtual)

**Presenters & Guests**

Dane Blakinger, DOH

Douglas Frenette, US Ecology

Alicia Boyd, Ecology (Virtual)

John Price, Ecology (Virtual)

Theresa Howell, WA Department of Ecology (Virtual)

Vern Rogers, Energy*Solutions*

Dan Shrum, LLRW Forum

**Opening**

Cheri Kennedy, Northwest Interstate Compact (NWIC) Staff, began recording at 8:45.

Earl Fordham, Executive Direct and Compact Chair, convened the meeting at 9:00 am with introductions.

The recording for these meeting minutes did not work properly and vital topics, overviews were not captured. Overviews have been filled in from presentations and attendees.

**Compact Business**

The committee unanimously approved the meeting minutes from October 19, 2022, held virtually in Richland, WA. Douglas Frenette motioned to approve the 2022 Meeting Minutes and Matt Hendrickson second the motion. No discussion was held.

**Party State Reports**

No information provided or captured.

**US Ecology, Inc. Activities Overview**

Doug Frenette is the new General Manager; Richland Low-Level Radioactive Waste (LLRW) Disposal Facility provided an oversight on a few things that would be interesting to a few attendees that have seen a previous presentation and helpful for the new attendees. Republic Services, Inc. announced they had acquired US Ecology, Inc. The US Ecology, Inc. would be part of the “Environmental Solutions” Division of Republic Services lead by Senior Vice President Richard Kang. The Republic Services Richland Facility is in the Pacific Area of Operations which is under the leadership of Matt Henry and Terry Geis. It’s been a lengthy process moving a company of ~4000 employees into a company of ~35,000 employees. The US Ecology, Inc. was rebranded to Republic Services, but the legal name “US Ecology Washington, Inc.” will remain the same. Republic Services, Inc. is the nation’s leading environmental services provider. Through our subsidiaries (US Ecology, Inc., ACV Enviro, Ecoflo), they provide superior service offerings to ensure compliance while partnering with customers to create a more sustainable world. The company overview is 39,000 employees, 14M customers, 1, 000+ worldwide locations, $11B in revenue in 2021, 95% customer retention, and 16K trucks, 5th largest vocational fleet in the nation. The business solutions are solid waste collection and disposal, recycling, dumpster rental, construction and demo, compactor solutions and environmental solutions. The Republic Services, Inc. vision is to be the premier provider of comprehensive environmental services with capabilities of treatment, recycling, disposal, industrial and field services, emergency response and retail.

The US Ecology, Inc. Richland Facility has one of four in the United States Part 61 LLRW Facility and is located on 100 acres within the Department of Energy (DOE) Hanford Reservation. US Ecology, Inc. was originally licensed in 1965 and designated the NWIC

 Facility (accessible to 11 states in NW and RM Compacts as of January 1, 1993, and operates through lease agreement with the State of Washington and is rate-regulated by WA Utility and Transportation Commission. The Richland US Ecology, Inc. Facility has 24 fulltime employees and the facility averages ~21,000 cubic feet of LLW annually. US Ecology, Inc. construct their trenches and are designated for stable or unstable LLW. The trenches are built of various sizes and can be up to 50 ft deep, 150 ft wide, and 1,000 ft long and provide disposal capacity for their compact waste generators through 2056. They now construct trenches on a build-as-you-go (150’ sections) concept. They handle the disposal of NARM/NORM which includes radium sources nationwide. They have special provisions for that and exempt radioactive or exempt Radway. This is throughout the nation, though that’s not just limited to the folks from the compact. A bit of an overview of the site footprint, we occupy 100 acres. We have three active trenches at this moment. Trench 18 will probably be capped in the next couple years, if not sooner. It’s an unstable trench along with Trench 12 which is much newer. Trench 19 is our stable waste trench that can accommodate type class ABC stable. This trench has a lot of life left for years to come.

Each year the commission looks at the cost of running our facility. Based on our waste projections from the waste generators, we forecast what that will be, and the rates are set. The site availability category is forecasted to be adjusted before the end of the year resulting in a small under collection. Their Radioactive Materials License (RML) Amendment 42 of License # WN-1019-2 was renewed in 2022 by the WDOH with the term extended through July 31, 2027. Most of the changes were associated with site responsibilities with no changes to waste acceptance criteria. Class A, B and C LLRW in the Northwest and Rocky Mountain Compacts, NORM/TENORM/NARM acceptable from generators nationwide and high-activity sealed source capabilities. All waste arrives by truck.

Discussion on the Annual Disposal Volumes (totals = LLRW + NARM + Exempt):

2013: 24, 959.4 ft3

2014: 20, 466.8 ft3

2015: 27,400.1 ft3

2016: 21,218.1 ft3

2017: 13,807.7 ft3

2018: 15,285.5 ft3

2019: 22,492.6 ft3

2020: 15,290.6 ft3

2021: 20,002.1 ft3

2022: 26,681.7 ft3

Washington Facility has received an annual average volume of ~20,800 ft3 (2013-2022) from generators within the Northwest and Rocky Mountain Compacts. Approximately 50% of volume is generated at Energy Northwest Columbia Generating Station. Amply capacity remains to support the generator needs through 2056 (and beyond).

2022 Disposal volumes: 2023 Disposal Volumes (through August):

LLRW 26,681.7 ft3 LLRW 5,721.32 ft3

NQRM 0.00 ft3 NARM 510.10 ft3

Exempt 0.00 ft3 Exempt 0.00 ft3

Total 26,681.7 ft3 Total 6,231.42 ft3

USEW operates under a base revenue requirement (RR) that’s submitted for approval by WUTC every six years. Facility cost of operation @ 71% operating ratio with annual adjustments to RR based allowed on core inflation metrics. Uncollected amounts in a category (volume, shipments, containers, etc.) may be rolled over into next year’s RR. Overcollection results in refunds to all generators that shipped waste that calendar year. Rates are set using generator supplied volume estimates, total rate RR / volume estimates. Base rates set in January and adjusted in May of each year. Revenue requirement is split into five categories: site availability (22%), volume (31.6%), shipments (10.7%), containers (21.5%), and does rate (14.2%).

WDOH issued the Radioactive Materials License (RML) renewal on July 14, 2023. Copies were sent out to waste generators last year. They are also available on our website: <https://www.usecology.com/location/us-ecology-washington>. Amendment 42 of License Number WN-I019-2 extended license tern through July 31, 2027. Most changes associated with site responsibilities and not waste generators. There were no changes to waste acceptance criteria. There is an administrative amendment coming soon. No changes to that will impact waste generators.

Organization changing workforce: over the last few years, we have said farewell to many of the tenured employees. There has been a changing of the guard. In April, our Assistant Radiation Protection Manager, Steve Gowen retired after 37+ years. In August, our former Facility Manager, Mike Ault retired after 33+ years.

**Hazardous Waste Investigation at US Ecology Overview**

Theresa Howell, Section Manager, WA Department of Ecology gave an overview on the Model Toxics Control Act (MTCA) Investigation update at US Ecology, Inc. The US Ecology, Inc. is the Commercial LLRW Disposal Facility in Benton County. It’s on approximately 100 acres of land leased to the State of Washington, subleased to US Ecology, Inc. and is located 23 miles northwest of Richland, WA. The MTCA is commonly known as MOTCA, and that’s Washington state clean up law. At the facility, US Ecology, Inc. is the disposal facility operator and there are two regulators.

The DOH holds the RML and oversees the operations and closure and serves as the Chair of the NWIC. The Department of Ecology manages the lease for the state and oversees remediation of the chemical contaminants that originated from the closed trenches. This is done under the MTCA investigation. The investigation began in the late 1990s when hazardous non-radioactive chemicals were detected above the state’s cleanup levels in groundwater and soil gas samples and the under the groundwater constituents of concern at the site are primarily TCE and hexavalent chromium.

We faced legal challenges mar the sites history and investigatory options. Yakama Nation and the state are partnered together to move the investigation forward. However, Yakama’s raised some concerns, and they would like to see material in the trenches characterized, which is a technical and safety concern for the state and the facility. The contamination at the site is technically challenging to remove beyond a certain threshold as Nonaqueous Phase Liquids (NAPL) are present in the groundwater and they’re notoriously difficult to find and difficult to restore to drinking water standards, even using the best technologies that exist.

The US Ecology, Inc. contracted LEIDOS in early 2021 to complete the data gaps report, developed an updated cost estimate and update the relevant work plans. The DOH and Yakama Nation were involved in contracting and reviewing the deliverables. In May 2021, a draft was received of the Data Gaps report and US Ecology, Inc. is working with Yakama Nation and Leidos to resolve their comments. Recommendations for data gaps report: install soil vapor monitoring wells near where elevated volatile organic compounds (VOC) were indicated in the past, install four additional GW monitoring wells, collect soil samples during well drilling, and perform soil vapor extraction (SVE) pilot test to fill remedial alternatives data gaps.

Moving forward, the study concerns is Yakama Nation focused on including radionuclides in the MTCA investigation, for which there is no state precedent or cleanup numbers. The US Ecology, Inc. has Yakama Nation buy0in on site receptors, but not on authority for cleanup, and GPR indicates drilling between trenches is not a safe option.

The investigation path forward is to resolve legal questions on data gaps report and cleanup authorities, write cost estimate and field implementation plans to support draft Cleanup Action Plan (CAP), drill wells and run SVE treatability tests, collect additional data based on data gaps report, have a consultant evaluate additional technologies and include in updated feasibility study, write Environmental Impact Statement (EIS) supplement in parallel with FS, and write a CAP for comment.

**Utah Activities Overview**

Doug Hansen, Director of the Division of Waste Management & Radiation Control provided a presentation overview of the Utah program. For those of you who aren’t familiar with the Clive Facility, it’s a little over an hour’s drive West of our offices in Salt Lake City. An overview of the Clive regulatory for licensing, compliance and operations activity monitoring for inspections there are 16 health physics, 12 engineers, 16 groundwater/BAT and 6,422 generator site access shipments. Operations handles licensing & variance requests, construction activity, compliance solutions, and alternative management.

Ongoing Licensing actions for the Low Activity Cell application submitted April 8, 2020, with ongoing review and request for information. The Ram License renewal application to renew UT2300249 submitted October 12, 2012, as timely renewal. The Federal Cell application submitted August 4, 2022, with ongoing review and request for information.

License Amendment 26 was issued and completed for clarification of condition 9.E and Huntsman Agreement.

License Amendment 27 issued and completed for removal of State prohibition for disposal of Class A sealed sources and annual surety update. This amendment allows Energy*Solutions* to receive sealed sources because they’re current license prohibited that. The amendment will allow sealed sources to come in as long as the source material would be Class A waste rather than a hotter waste.

Doug presented a layout of the Clive Facility showing the active cells, mixed waste disposal cell, 11e.(2) Byproduct disposal cell, the proposed LLRW disposal cell, Exempt cell and Federal disposal cell for depleted uranium which are not yet constructed.

**Alaska Activities Overview (Virtual)**

Kaylie Holland, Regional Manager Solid Waste Program, Department of Environmental Conservation stated Alaska recently passed state microreactor siting regulations in August 2023.

Work on the Fort Greely reactor decommissioning planning is ongoing. The military does not want to ship waste to compact facility and is instead trying to ship the waste to Texas of another facility. ADEC has reminded them that Alaska is part of the NWIC, and they need to work with the compact to dispose of LLRW.

**Rocky Mountain Compact Overview**

Leonard Slosky wasn’t present at this meeting.

**NWIC/WA State Updates**

No information provided or captured.

**Energy*Solutions* Activities Overview**

Vern Rogers, Director of Regulatory Affairs, Energy*Solutions*, stated they run a variety of sites and services across the country which includes a disposal site in Barnwell, that’s the Atlantic Compact site. They also have a site in Utah that is located within the NWIC. We typically take waste from outside of the compact into our Utah facility.

We did have a company/ownership change earlier in 2022. Prior to 2012, when Envirocare was purchased by Energy*Solutions*, at the time it was a publicly traded company. The 2013 timeframe, majority of the stock was purchased by Energy Capital Partners, and we were taken private. It’s been a great partnership/ownership working agreement with Energy Capital Partners that provided valuable capital and synergy with some of their other projects to support our work. In 2018, a portion of that was sold from Energy Capital to TriArtisan Capital. They worked as a minority owner through this year and then earlier this year, 2022, TriArtisan Capital took the remainder of the ownership from an Energy Capital partnership. We are now completely owned by TriArtisan Capital and provide some additional capital for the work we’re doing, the improvements we’re making as well as some other synergies with some of their other projects. EnergySolutions CEO Ken Robuck said “We’re delighted that TriArtisan has made a substantial additional investment in the Company to become our majority owner, and we look forward to continuing our close partnership with them. Our management team and I are excited to continue seamlessly executing on the current business plan.”

Vern stated Energy*Solutions* has successfully integrated Waste Management (WM) and Decontamination & Decommissioning (D&D) operations to provide comprehensive services for nuclear facilities. This integration includes:

* Logistics: Handling containers, casks, transportation via road, rail and barge, and large components.
* Processing & Treatment: Recycling and storage, volume reduction, and waste segmentation.
* Treatment & Disposal: VTD and grouting, permanent disposal solutions for various types of waste, including LLW, mixed low-level waste (MLLW) Clive, and A, B, C Waste (Barnwell).
* Turnkey D&D & Remediation: Full site remediation, spent nuclear fuel management, site delicensing and closure, and commercial & government.

This approach allows Energy*Soltuions* to offer seamless and efficient services for the entire lifecycle of nuclear facilities, from operation to decommissioning and site closures.

Energy*Soltuions* announced the successful completion of its acquisition of substantially all the assets and business lines of Williams Industry Services Group, and its subsidiaries, including its nuclear, fossil, energy delivery, and paper mill operations. The strategic move marks a significant milestone in Energy*Solutions* growth strategy and newly created Energy*Solutions* Nuclear Services Division. This new plant construction will enhance EnergySoltuions ability to provide comprehensive solutions across the nuclear lifecycle, from project management, execution capabilities, and outage support.

EnergySolutions cask division offers the largest fleet of Industrial (IP), Type A and B shipping casks to the nuclear industry, with more than 90 casks of different sizes, shielding and certifications. They also provide shielded, disposable liners for the transport of radioactive materials. Dot Type A & IP-II shipping casks 8-120A, 10-142, 14-170 Series, TCT, 14-190H, 14-195, 14-215, 14-210, 21-3000, 6-80, 18-450 and 27-415. NRC Type B casks 10-160B, 8-120B and 3-60B. Energy*Soltuions* transportation and logistics services railcars are high-capacity, low and high-side gondolas, gondola hard lid system, articulated bulk container (ABC) railcars, cargo containers in a variety of top and end-loading and shielded configurations and intermodals. Over-the-Road transportation specifications:

* Tractors are equipped with Qualcomm satellite communication and tracking devices,
* late-model or new tractors are equipped with state-of-the-art safety, communications, and information technology.
* Closed vans are equipped with Etrac load locks
* Pan vans
* Sendum tracking systems on trailers
* Chassis trailers
* Flatbeds with ISO locks
* Flatbed, curtain, single drop, double drop, and cask trailers
* Open top
* Shielded van
* 54-ton multi-axle lowboy
* 5, 200-gallon tanker
* 54-ton lowboys
* Other types of trailers can be leased for special projects

Hittman Transport Services, a national leader in the transport of radioactive and hazardous material shipments, has opened its Northwest Terminal in North Richland. They are noted as the largest premier transportation company of radioactive waste and nuclear fuel in the country. The company specializes in the shipment of spent nuclear fuel, radioactive materials, highway route control and high-level material/waste shipments, some of which are classified. Energy*Solutions* decommissioning, decontamination, packaging, processing and disposal services are complemented by Hittman Transport Services as offering the largest fleet of industrial, Types A and B, shipping casks and liners to the industry in multiple sizes, shielding and certifications.

The Bear Creek Processing Facility provides support to the NWIC and houses radioactive materials processing capabilities including solidification & encapsulation, volume reduction, decontamination, bulk survey for release, recycle, compaction, incineration, metal melting, water evaporation, High Activity filter Processing (HAFP), and a variety of specialty waste stream management options. There are only 2 incinerators commercially available in the U.S., Unit A constructed in 1989, and Unit B constructed in 1995. They support incineration of radioactive waste solids, liquids, oils and sludges @ 1,600 lbs. (720 kg) per hour or 38,4000 lbs. (17,400 kg) per day. A metal melt furnace, joule-heated metal induction furnace is used for recycling. It produces 10-ton shield blocks for high energy physics labs, 600-900 tons (553-816 tonnes) per melt campaign, and ~6,000 tons (5,400-5,500 tonnes) per year. The compaction is the largest in the U.S. and compacts drums and boxes with the compaction force of 10M lbs. It operates throughput day at typical volume 2:1 -5:1.

The Clive Facility, it’s located in Utah. It reached a major milestone of 7 million person-hours safely worked over 19 years. We take and accept waste outside of the NWIC as well as the Rocky Mountain Compact. We have our Class A West Facility embankment. There’s about 3.3 million cubic yards of capacity remaining. That is our Class A LLRW license disposal facility and below that facility is the VITRO cell that is a DOE Legacy Management cell. It was created when uranium mill tailings were removed from Salt Lake in the 1980s. We purchased property around that and are custodians on behalf of DOE Legacy Management. We do have a proposed federal cell that’s under licensed review. We have an application with the state and have been working closely with them and their contractor. It’s our hope that decision would be made so we can move forward in management of depleted uranium into that cell sometime in 2023. Our 11e.(2) cell only has about 2000 cubic yards of capacity left. 11e.(2) has dropped significantly in volume so we had some licensing changes. The 11e.(2) cell is our low activity rate of active waste cells. Originally the 11e.(2) cell was licensed for roughly 5,000,000 cubic yeads of waste and amended to just over 1.6 million cubic yards. Energy*Solutions* has a long history of working with low activity, radioactive waste, managing and disposing of it. We have mixed waste cells that contain hazardous and radioactive constituents with about 350 cubic yards of waste capacity still available. Lastly, a new low activity radioactive waste cell in currently under licensing.

Vern discussed licensing update for the 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 LLRW (license application under review), and LLRW cover construction. Capital improvements are, east side Rotary facility, Railyard Maintenance and Storage Facility, mobile equipment fleet upgrades, evaporative storage, and LLRW cover construction. Lastly, the four significant D&D pipelines were noted: Three Mile Island Unit having two nuclear power plants, Kewaunee Nuclear Power Station, Fort Calhoun Nuclear Generating Station, and San Onofre Nuclear Generating Station.

**Idaho Activities Overview**

Daryl Sawyer, Hazardous Waste Permit Supervisor for Idaho Department of Environmental Quality mentioned US Ecology Idaho and Qal-Tek have formed a partnership to manage a temporary storage facility located at the US ECY Rail Transfer Facility in Mayfield, ID. The NRC issued the license for the facility in February 2023. The facility is allowed to transport offsite for final disposal to three disposal sites: US ECY LLRW disposal site in Richland, WA, Energy*Solutions* LLRW disposal site in Clive, UT, and Waste Control Specialist LLRW disposal site in Andrews County, TX.

DEQ has approved the new site-specific performance assessment created on the Goldsim modeling platform. The new performance assessment increased the allowable concentration for radium-226 (226Ra), radium-228 (228Ra), and lead-210 (210Pb) in the Waste Acceptance Criteria (WAC).

**Update on Legal Issues**

No information provided or captured.

**LLW Forum Overview**

Dan Shrum opened by stating he was hired in December 2019 as Executive Director and is immediately looking for office space in the DC area. He’s personally attended the Commission meeting in January 2020, the Waste Management meeting in March 2020 and virtually held a day long meeting to refocus Forum direction, finances, and objectives with Chip Cameron facilitating.

The LLW Forum’s mission is to facilitate the implementation of the LLRW Policy Act by serving as the consolidated voice and face for the compacts and states. As the consolidated voice, they promote the safe and efficient disposal of LLRW by working with a broad spectrum of key stakeholders including regulators, policy makers, the public, and industry to develop national policy that anticipates and resolves problems.

The LLW Forum’s objectives include; bringing together a diverse group of stakeholders on a regular basis to promote sharing of ideas, concepts, and solutions; educating and informing policy makers and the public about the management an disposal of LLRW and about the aims of the federal legislation; fostering innovative information sharing among state and interstate compact officials; providing opportunities for state and interstate compact officials to exchange views with federal officials and other interested parties; and supporting the mission of interstate compacts and working to ensure continued access to licensed LLRW disposal capacity. Daniel’s objective is the Forum’s purpose to support the Compacts and States – Forum resources will only be used to further those interests.

Daniel went over the LLW finances mentioning 2008 – 2019, the Forum ran a negative balance, dwindling reserves. In 2020 – 2022, the Forum ran a positive balance, excess went back into reserves. The goal is to have 18-months of reserve funds and currently at 14-months. Renewed DSWG Contract and DOE Grant with DSWG moving to a Grant (travel).

A voting membership in the LLRW Forum, Inc. is open to interstate compacts, states that are designed by a compact to hose or that currently hose a commercial LLRW Disposal Facility, and unaffiliated states. All compacts and host states have returned except for Texas.

The Federal members are the United States Environmental Protection Agency, the U.S. Army Rock Island Arsenal, the U.S. Department of Energy (USDOE), and the United States Nuclear Regulatory Commission (NRC).

The LLRW Forum, Inc.’s supporter members include NEI, Electric Power Research Institute (EPRI), US Ecology, Inc., Advocates for Responsible disposal in Texas, Energy*Solution*s, URENCO, The Law Office of Richard L. Adams, PLLC, and JL Shepherd and Associates.

Daniel stated upcoming activities are semi-annual meetings (all now hybrid). The fall meeting is October 2-5, 2023, in Salt Lake City, UT with a Clive tour and the spring meeting April 1-4, 2024, in Orlando, FL. Discussion on DSWG, 10 CFR Part 61, Texas/Vermont Compact Management Rule, Waste Management sessions, RadWaste Summit 2.0, EPRI training, and OAS presentation.

**Oregon Activities Overview**

No presentation provided or information captured.

**Round Table Discussions**

Earl mentioned this is where you would talk about your biggest challenges in the world of waste handling, waste processing.

The meeting choice in September, October timeframe was Boise, Idaho. Due to obtaining hotel, conference meeting room in Boise, Idaho the meeting was moved to Richland, Washington.

**Public Comment**

There were no public comments.

**Closing**

Earl Fordham thanked the attendees and adjourned the meeting.