

Meeting of the Northwest Interstate Compact on Low-Level Radioactive Waste Management

June 11, 2015

Radisson Hotel
Salt Lake City, Utah

Present

Mike Garner, Chair/Executive Director

Marlena Brewer, Alaska

Jeffrey Eckerd, Hawaii

Robert Bullock, Idaho

Todd Boucher, Montana

Rusty Lundberg, Utah

Luke Esch, Wyoming

Kristen Mitchell, Compact Counsel

Lois Dahmen, Compact Staff

Mr. Mike Garner, Compact Chair and Executive Director, convened the meeting at 9:00 am.

Mr. Rusty Lundberg, Utah's representative, then welcomed attendees to Salt Lake City and thanked Mr. Dan Shrum, EnergySolutions, for providing committee members with a tour of its Clive, Utah disposal site yesterday.

Mr. Lundberg stated that, as a result of a bill passed in the last legislative session, Utah's Division of Solid and Mixed Waste and Utah's Division of Radiation Control have been merged into the Division of Waste Management and Radiation Control. Mr. Lundberg stated he will serve as the Deputy Director of the new division and introduced Mr. Scott Anderson, who will serve as the Director of the new division.

The committee then unanimously approved the minutes from its June 2014 meeting held in Richland, Washington.

Party State Reports

Hawaii

Mr. Jeff Eckerd reported that Hawaii is working with the U.S. Nuclear Regulatory Commission (NRC) on dispositioning disused sources through the Conference of Radiation Control Program Director's (CRCPD) Source Collection and Threat Reduction (SCATR) program. Hawaii will continue to take advantage of the SCATR program to disposition additional sources having no further use. Mr. Eckerd said that Hawaii, in response to a recent CRCPD survey, stated it is reasonable to impose time limits for the disposition of sources no longer in use.

Alaska

Ms. Marty Brewer reported that Alaska's Department of Environmental Conservation (DEC) finalized its radiation protection regulations, and they are scheduled to become effective July 1, 2015. The radiation control regulations are not finalized, but this is anticipated to occur in the near future.

Alaska's DEC designated Ms. Brewer as the point of contact for the newly implemented advanced notification for certain radiological materials. Ms. Brewer reported that in the future Alaska may incorporate Naturally Occurring Radioactive Material (NORM) into its solid waste regulations.

Idaho

Mr. Bob Bullock reported Idaho's previous committee representative, Mr. Brian Monson, wanted to inform the committee he enjoyed participating on the committee.

Montana

Mr. Todd Boucher reported that Mr. Ed Thamke, Montana's Department of Environmental Quality Solid and Hazardous Waste Bureau Chief, is reviewing the T-NORM regulations and is promulgating changes. A significant change involves increasing the concentration for T-NORM from 5 picocuries per gram to 30 picocuries per gram. Mr. Boucher stated the primary reason he is attending today's meeting is that Mr. Roy Kemp plans to retire in 2016.

Wyoming

Mr. Luke Esch reported Wyoming's legislature passed a bill last year beginning the process for Wyoming to become an NRC agreement state and it is estimated to take three to five years to complete this process. The state continues to look at the T-NORM issue and has conducted inspections to identify if it will be necessary to revise its solid waste regulations applicable to T-NORM. So far, the inspections have not identified a need to revise these regulations.

Utah and Washington

Mr. Lundberg, Utah, and Mr. Garner, Washington, deferred to their presentations later on the agenda.

Mr. Leonard Slosky, Executive Director of the Rocky Mountain Compact, stated the proper management of NORM waste streams has become elevated as a result of the significant oil and gas exploration occurring within the country. A number of western states are very active now in either developing regulations or assessing the need to develop new regulations to address this emerging waste stream. Mr. Slosky stated for those interested in this topic it may be beneficial to attend an upcoming Low-Level Radioactive Waste Forum (LLW Forum) meeting where this topic has been discussed during recent meetings by representatives of western states, Pennsylvania, Illinois, Texas, and others.

Mr. Garner stated any committee member interested in attending a LLW Forum meeting should contact him as our memberships to the LLW Forum provides for four meeting attendees and this covers the \$500 registration fee. The next LLW Forum meeting is scheduled to be held in Chicago in October 2015.

Northwest Interstate Compact (NW Compact) Primer

Mr. Garner reported the Low-Level Radioactive Waste Act was adopted by Congress in 1980. In 1985 it was replaced by the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Amendments Act). This federal law identifies LLRW that states/interstate compacts are responsible for providing disposal access and management oversight.

Site development is a very difficult task, and since the enactment of the Amendments Act two new sites, EnergySolutions in Clive, Utah and Waste Control Specialists in Andrews County, Texas, have been developed.

The Amendments Act provides incentive for states to form interstate compacts for the management and disposal of LLRW on a regional basis. This incentive is an exemption to the Commerce Clause, which allows interstate compacts with operating sites to deny access to out-of-region LLRW beginning January 1, 1993.

This does not preclude an interstate compact from continuing to accept out-of-region LLRW if it so chooses. For example, South Carolina became a member of the Atlantic Compact and the compact continued to provide access to the region for disposal of out-of-region LLRW at its Barnwell, South Carolina site. Then, after providing significant notice, the Atlantic Compact elected to deny access to out-of-region LLRW beginning July 1, 2008.

The NW Compact exercised its exclusionary authority on January 1, 1993. Prior to this, the state of Utah and Envirocare (now EnergySolutions) came to the NW Compact and stated Envirocare's Clive, Utah disposal site could accept large volumes of very low activity LLRW that developing sites were not designed to accept.

At this time a number of interstate compacts were planning to develop LLRW disposal sites. However, if constructed, the acceptance of large volumes of very low activity LLRW would significantly shorten the operational life of these proposed sites. The new sites being proposed were scheduled to accept routinely generated LLRW; not large volume, low-activity decommissioning and cleanup LLRW.

The Northwest Compact committee adopted a Resolution and Order (now the Third Amended Resolution and Order) that provides access to large volume, low activity out-of-region LLRW for disposal at EnergySolutions' Clive disposal site. This provided continued access to the region for disposal of certain out-of-region LLRW at the Clive site after January 1, 1993.

Mr. Garner stated one of the required conditions in the Third Amended Resolution and Order is the approval of the interstate compact in which the LLRW is generated prior to shipment. This requirement ensures that an interstate compact that chooses to develop a LLRW disposal site or currently has an operating site can retain the LLRW generated within its member states to support and protect the economic viability of its LLRW site.

About seven years ago, the NW Compact committee adopted the Resolution Clarifying the Third Amended Resolution and Order. This resolution simply states that the Third Amended Resolution and Order does not serve as an arrangement for foreign LLRW, and a new arrangement would have to be adopted before foreign LLRW is provided access to the region for disposal at the Clive site. The Clive site now accepts most, if not all, Class A LLRW, but it is prohibited by Utah state law from accepting Class B and C LLRW.

Mr. Garner reported the state of Washington has always been willing to do its fair share, but it does not want to again be put in the position of having to accept LLRW from states throughout the nation. The Richland, Washington disposal site currently accepts LLRW from 22% of the nation's states.

There is a contract with the Rocky Mountain Compact that provides access to the region for disposal of LLRW generated within its three member states (Colorado, Nevada, and New Mexico) at the Richland, Washington site. The contract includes a cap on the annual volume of LLRW these three states may ship to the Richland, WA site for disposal. The annual volume cap started at 6,000 cubic feet in 1993 and increases by 3% annually. In addition, up to 2,000 cubic feet of unused capacity per year from the previous two years may be carried forward.

Mr. Garner stated that US Ecology, Inc. operates the Richland, Washington site, and its disposal fees are regulated by the Washington Utilities and Transportation Commission (WUTC). The company is provided with an annual revenue requirement that consists of their cost to operate the site plus a 29% profit. This is one reason for the concerns regarding NRC's current Part 61 rulemaking. The cost to implement any new regulations will be borne by the licensee, who then may choose to submit these costs to the WUTC as part of their cost to continue operation of the site. If this were to occur, it will result in increased disposal fees for Northwest and Rocky Mountain Compact LLRW generators. This does not seem equitable for a disposal site that has no intention of accepting large volumes of depleted uranium or other long-lived radionuclides for disposal.

Mr. Garner reported NRC's proposed 10 CFR Part 61 rulemaking addresses unanticipated waste streams previously not considered by NRC. Large volumes of depleted uranium is currently the primary unanticipated waste stream. As detailed in the U.S. Enrichment Corporation Privatization Act, the disposal of these large volumes of depleted uranium is a U.S. Department of Energy (USDOE) responsibility, and states / interstate compacts have no liability for this waste stream.

However, there are now two commercial sites, EnergySolutions and Waste Control Specialists, which are interested in accepting large volumes of depleted uranium for disposal. These sites stand to receive significant economic benefit should they accept large volumes of depleted uranium for disposal, whereas the Barnwell and Richland sites will receive no economic benefit while incurring the cost to implement these new regulations.

It seems much more equitable to limit the application of these new regulations to those sites that choose to pursue such unanticipated waste streams and will receive significant economic benefit by doing so.

Mr. Garner stated there are currently four operating commercial LLRW disposal sites in the country.

1. The Andrews County, Texas site operated by Waste Control Specialists accepts Class A, B, and C LLRW from its two member states. The site also accepts out-of-region LLRW, and Texas receives 20% and Andrews County receives 5% of the gross revenue resulting from the importation and disposal of out-of-region LLRW.
2. The Barnwell, South Carolina site operated by EnergySolutions accepts Class A, B, and C LLRW from the three member states of the Atlantic Compact. Approximately 85-90% of this site has been closed and is in the 5-year post-closure observation period.
3. The Clive, Utah site operated by EnergySolutions accepts only Class A LLRW from out-of-region generators. State law prohibits the disposal of Class B and C LLRW. The site also accepts mixed LLRW and a number of other waste streams from generators throughout the country.
4. The Richland, Washington site operated by US Ecology accepts Class A, B, and C LLRW from the 11 member states of the Northwest and Rocky Mountain Compacts. The site also accepts NORM/NARM waste from states throughout the nation. The Richland site is scheduled to operate until 2056, when final closure will begin. Eventually the compact will need to examine whether a member state wants to develop a new site or if the compact wants to rely on outside options for LLRW disposal. This is another concern with NRC's current Part 61 rulemaking, as the new requirements could make future site development much more difficult, if not impossible.

Mr. Slosky stated there is another facility, the Deer Trail site located in Colorado and operated by Clean Harbors. This site was originally developed as a RCRA site, and about 10 years ago it was designated as a regional site by the Rocky Mountain Compact. The Deer Trail site accepts both in-region and out-of-region NORM waste generated by oil and gas operations.

Last year the Rocky Mountain Compact provided the Deer Trail site with an annual import permit, eliminating the need for individual generators to come to the compact for an import permit. The amount of NORM waste received from the oil and gas industry has declined during the past couple of years.

Mr. Mike Zittle, University of Washington, stated two years ago it appeared other states could join the Texas Compact for a fee of \$25 million. Mr. Zittle asked if the Northwest Compact had ever considered allowing other states to join the Northwest Compact for an exorbitant fee. Mr. Garner stated that as long as the disposal site is situated within the state of Washington, the state feels comfortable that it is doing its share by accepting LLRW from 22% of the nation's states.

Washington State has been approached by an out-of-region state in the past, and these proposals have always been rejected. In fact, Washington's legislature has adopted a requirement restricting the arrangements that Washington's representative can vote affirmatively on. These arrangements are limited to states that are contiguous with a member state of the Northwest Compact and generate less than 1,000 cubic feet of LLRW annually. Under compact law, such an arrangement requires the affirmative vote of the representative from the state in which the affected facility is located. This is done to ensure a state in which a site is located is not forced to accept LLRW it does not want to accept.

US Ecology Activities Overview

Mr. Parrish Jones, Quality Assurance and Regulations Compliance Coordinator for US Ecology, Inc., stated that US Ecology, Inc. is a publically traded company based in Boise, Idaho. Last year the company purchased the Environmental Quality Company, which increased the number of company employees by more than three-fold.

US Ecology has multiple operations throughout the United States, and also has operations in Canada and Mexico. US Ecology places a heavy emphasis on safety, and in 2007 the company obtained "star site" status through OSHA's Voluntary Protection Program.

Mr. Jones stated LLRW disposal fees at the Richland site are regulated by the WUTC. Currently, there are two active trenches at the site. Unstable LLRW is disposed in Trench 18 and stable LLRW is disposed in Trench 19.

The site receives 20-30,000 cubic feet of waste annually and based on waste volumes received through April of 2015 the site is on target to receive a similar amount of waste in 2015. The site has ample capacity to continue to accept waste through 2056 when the site is scheduled to close.

Mr. Jones reported the site accepts Class A-B-C LLRW from the member states of the Northwest and Rocky Mountain compacts, as well as NARM and exempt waste from states throughout the country.

In 2014 the site received 17,266.33 cubic feet of LLRW, 3,175.35 cubic feet of NARM waste, and 24.14 cubic feet of exempt waste for a total of 20,465.82 cubic feet.

Through April of 2015 the site has received 6,945.15 cubic feet of LLRW and 399.90 cubic feet of NARM waste for a total of 7,345.05 cubic feet.

Under rate regulation, US Ecology is provided with an annual revenue requirement which includes five cost recovery components. The revenue collected to date in 2015 for the five cost recovery components shows the company is on track to achieve its 2015 annual revenue requirement of \$5,798,982.

Mr. Jones reported the company is working with the Washington State Department of Health's Office of Radiation Protection on moving approximately 550,000 cubic yards of soil from the U.S. Department of Energy's (USDOE) Environmental Restoration Disposal Facility (ERDF), which is located on the Hanford Reservation near its Richland site. This soil will be used to fulfill surcharge requirements for filled trenches as well as for placement of the Phase 1 cover on the filled trenches at the site.

Mr. Jones stated the Model Toxics Control Act (MTCA) investigation continues. In January 2015, the company submitted Draft B of its Focused Feasibility Study to the Washington State Department of Ecology (Ecology). The company received comments back from Ecology in May, and the company is currently preparing its final submission and is working on interim actions.

Mr. Garner pointed out in the mid-1980s, the Richland site was accepting over 1-million cubic feet of LLRW annually. Prior to 1993, the state of Washington determined the Richland site would be considered to be a monopoly under state regulations once the NW Compact exercised its exclusionary authority.

There was significant contention involving the move to rate regulation, specifically the criteria used to establish annual disposal fees. Large volume, low-activity generators stated rates should be based on the activity of the LLRW to be disposed, whereas low volume, high-activity generators stated rates should be based on the volume of LLRW to be disposed.

During a collaborative process attended by generators, a compromise was reached that resulted in the current format for determining annual disposal fees. Recently the WUTC agreed to extend the current format for the next five to six years.

Ms. Brewer asked if there was a breakdown of LLRW volumes received at the Richland site annually, stating specific interest in Alaska volumes as well as a breakdown by member state. Mr. Earl Fordham, Deputy Director for the Washington State Department of Health's Office of Radiation Protection, stated he could get this information and would pass it on to Ms. Brewer.

Mr. Garner stated following implementation of the compact's exclusionary authority in 1993, Oregon and Washington generators accounted for approximately 85% of the volume received at the site annually. This has declined as a couple of large volume generators in Oregon having waste streams containing a "characteristic hazard" that required treatment prior to disposal at the Richland site now ship these waste streams directly to the Clive site as mixed LLRW.

Mr. Zittle asked whether, as a result of the MTCA investigation at the Richland site, is there any anticipation that a regulatory entity will approach generators for funds to remediate the mixed waste disposed at the site prior to 1985? Mr. Garner stated it would be more appropriate to ask this question of a representative of the MTCA team, who will likely be attending our next meeting when more information is available to report.

Mr. Garner stated it is likely other requirements of the MTCA process have to be completed before making such a decision. This would include a cost benefit analysis which will be factored into the selection of a preferred remedy. These issues need to be resolved before an answer to your question can be provided.

Utah Activities Overview

Mr. Lundberg stated Utah's Governor and the Department of Environmental Quality recognize the importance of continuing to adopt processes that both improves our efficiency as well as the way the agency interacts with its stakeholders and public. There have been significant efforts in this area that appear to be providing real benefits, including improving the agency's image.

Mr. Lundberg reported there is a statutory requirement to examine the financial assurance and surety requirements for both hazardous waste and radioactive waste facilities. An initial report was submitted in 2006 and an update is required every five years with the next update due in 2016.

Mr. Lundberg reported that HB 78 includes a slight revision to the statutory authority that allows the agency to issue generator access permits to waste generators. If a generator is already under the regulatory purview of the NRC or an agreement state, this serves as acknowledgement the generator qualifies to receive a generator access permit from the agency. The intent was to identify generators qualifying for such a permit as well as the reach and scope of the permits.

Mr. Lundberg reported that SB 173 adjusted the financial assurance requirements for a LLRW disposal site. There are cost estimator programs available to licensees to estimate financial assurance costs associated with closure, post-closure, and institutional control. This bill provides the opportunity for a bidding process that can then be used by a licensee as the basis for its estimate of the amount of financial assurance required for a given site. This bill is important, as it clarifies the scope of the financial assurance and surety submittals.

A new mandate required by statute is that if the legislature mandates a new rulemaking, it must be filed with the Administrative Rulemaking Division within 180 days the effective date of the bill. Therefore, rulemaking regarding financial assurance requirements must be filed by November 8, 2015, as the effective date of this bill was May 12, 2015.

Mr. Lundberg reported SB 244 consolidated two divisions, the Solid and Hazardous Waste Division and the Radiation Control Division, into the Utah Division of Waste Management and Radiation Control. It also creates a new, combined Waste Management and Radiation Control Board. The makeup of the Radiation Control Board was amended a few years ago, making it a nine member board, and the new combined board will consist of twelve members. It is anticipated this new board will hold its first meeting in September.

Mr. Lundberg reported some of the recent actions by the Radiation Control Board involve rulemakings incorporating statutory changes and identifying time frames for completing actions, such as licensing actions. In federal law when dealing with licensing actions involving 11e.(2) material the opportunity for cross examination must be incorporated into the process. This is a unique requirement that will affect licensing actions regarding uranium mills and the 11e.(2) disposal cell at the Clive site. A rulemaking was conducted to identify these requirements and NRC is asking those states with 11e.(2) by-product material to incorporate this requirement.

Mr. Lundberg stated NRC has changed security requirements in 10 CFR Part 37 for radioactive materials and a rulemaking was adopted by the Radiation Control Board to incorporate these new requirements. This rulemaking becomes effective at the end of June 2015. Utah is one of the earlier states to adopt these new requirements and the state held a workshop for licensees that addressed the implementation of these new requirements.

Mr. Lundberg reported Utah's Department of Environmental Quality is working to improve transparency and the ease of accessing information for stakeholders and the public. The agency is examining methods to rebrand itself. This involves evaluating how stakeholders and the public view the agency, what is the agency's role and mission, and how effective is the agency.

The agency used focus groups to evaluate these aspects and to identify ways to improve its activities and perception. For example, a new search engine has been developed allowing parties to conduct searches for documents that are considered to be of high public interest. The agency has now posted documents related to the Clive disposal site and uranium mill disposal sites. There is also a "permit wizard" that enables a party to go to this site to learn about specific permit requirements.

Mr. Lundberg reported that under its license, the Clive site is not allowed to accept radioactive sealed sources. Following discussions with the National Nuclear Security Administration and CRCPRD's SCATR program, Utah felt it was important to implement a variance that would provide for disposal of sources considered to be Class A LLRW. This one-year variance became effective September 29, 2013, and ran through September 29, 2014. During this period, the Clive site received a total of three drums containing approximately 50,000 sources. An extension was provided through the end of 2014 as there were two additional drums of sources in the process of being packaged for disposal that were important to capture.

During the comment period for the proposed variance no comments were received. The lack of comments was taken to mean the public agreed with the variance, as disposal is a preferred when compared to indefinite storage of such sources.

Mr. Lundberg stated EnergySolutions is moving from a rock armor cover to an evapotranspiration cover for its Clive site. Last fall, renewal of the groundwater permit for the Clive site was completed, as well as revisions to the overall site monitoring plan. The division is currently working on evaluating a new performance assessment for blended LLRW that incorporates the new cover design. A separate performance assessment associated with the disposal of depleted uranium is also under review and evaluation. Mr. Lundberg stated a license renewal is underway for the 11e.(2) by-product material area that will incorporate the new cross examination requirements.

Mr. Garner mentioned that the state of Washington has a site use permit system, similar to Utah's generator access system. The revenue generated by the issuance of site use permits for the Richland site supports committee meetings. The issuance of site use permits for the Richland site historically generated \$225,000 to \$275,000 annually. A couple of years ago the annual revenue dropped to \$185,000 and has since rebounded a little to the range of \$200,000 – \$210,000. Site use permit fees were last increased in 2003, but an increase in site use permit fees may be required in the near future.

EnergySolutions Activities Overview

Mr. Dan Shrum, Senior Vice President of Regulatory Affairs for EnergySolutions, stated that safety is a top priority within the company. The company provides the tools necessary for employees to safely conduct their activities. The company protects the environment by adhering to the standards that have been developed by its regulators. Mr. Shrum stated one safety demonstration involves the proper use of fire extinguishers. Fire extinguishers are not there to fight a fire, the extinguishers are there to escape a fire. Fire extinguishers need to be available for use and inspected annually.

EnergySolutions is headquartered in Salt Lake City and today is moving its headquarters about three blocks east of its current location. The company is owned by Energy Capital Partners and has operations in the United States, the United Kingdom, Japan, China, and Canada.

The company owns the Clive site and accepts waste generated by nuclear utilities and medical and research facilities, as well as USDOE and U.S. Department of Defense. The company employs approximately 2,000 employees. The company operates the Barnwell, South Carolina disposal site that includes an on-site processing facility, the Erwin Resin Solutions facility where the THOR steam reformation process is used to melt utility resins into a more solid waste form, and the Bear Creek facility, which has metal melt and incinerator capabilities for radioactive waste and also makes products, such as shielding, from radioactively contaminated metals. The company has a logistics, processing, and disposal branch and a products, projects, and technology branch. The company also owns a trucking operation and a number of waste shipment containers and casks.

Mr. Shrum stated the company processes waste and disposes of waste at the two disposal sites it operates. The company has also constructed three disposal facilities for USDOE that are currently in operation. The company averages over 300 radioactive waste shipments per month. EnergySolutions has the largest fleet of shipment casks available to the nuclear industry and has 322 railcars available for waste shipments. The company is developing a 360 B shipment cask that should be available in 2015 and will be used primarily to ship sealed sources. The company also transports large components such as steam generators for disposal.

Mr. Shrum reported the company has the ability to conduct decontamination, volume reduction, solidification, spent ion and liquid waste processing, and remote handling capabilities. The company also has patents on several vitrification systems that are not operating currently although one is under construction in Washington State.

Mr. Shrum stated the vast majority of waste accepted at the Clive site is bulk waste, but the site also accepts containerized waste, large components, mixed waste, and PCB waste. Currently the Clive site receives 2-3 million cubic feet of LLRW annually, which translates into at least 30 years of capacity remaining.

Mr. Shrum reported the company has a mobile water treatment facility that can be transported to a power plant, hooked into their system and treat the waste water if the facility requires maintenance. This allows the plant to continue operation as the required maintenance is completed. The company also manufactures hicks and most of the liners used by industry today.

Mr. Garner asked Mr. Shrum if the annual volume of commercial low-level waste is remaining fairly constant over the previous few years at around 2 million cubic feet per year. Mr. Shrum stated that over the last 4 years USDOE waste volumes have declined, but this has been offset somewhat by an increase in commercial volumes to include NORM waste. The site needs fill material, so it has been doing several soil projects that will provide the site with the needed fill material.

Ms. Brewer asked Mr. Shrum if EnergySolutions has a monthly breakdown of waste received at the site. Mr. Shrum stated Mr. Garner receives monthly reports but there is also the Manifest Information Management System (MIMS) maintained by USDOE. Once the MIMS system is accessed, waste disposal information for all four operating disposal sites is available.

Mr. Matt Pacenza, Executive Director of HEAL Utah (HEAL), asked Mr. Shrum if industry sees other unanticipated waste streams like depleted uranium looming on the horizon. Mr. Shrum stated a waste stream that states are just starting to get a handle on are wastes resulting from oil and gas fracking. It has yet to be determined how this waste is going to be regulated. EnergySolutions sees this as a waste potentially needing a higher level of oversight. Another waste stream is exempted waste, which the company does not oppose, but the requirements for exempting waste are not clear. However, it is anticipated NRC will clarify the exemption process in the near future.

National and Regional Issues

Mr. Garner stated import/export license applications are required when LLRW is imported from a foreign country into the United States for treatment or processing purposes, and the resulting waste is then returned to the country from which it was received. No new applications have been received since the last meeting.

Mr. Garner reported contacting AREVA, which has an import license that allows their Richland facility to receive contaminated, combustible material from its sister facility in Lingen, Germany. The material received is then incinerated and the resulting ash is run through a uranium recovery process. Over the past several years the inventory of incinerator ash awaiting processing for uranium recovery has remained fairly stable.

The purpose of the contact was to put AREVA in the best position in 2019 when its import license comes up for renewal. The best way to ensure this occurs is to further reduce the backlog of ash awaiting processing. AREVA stated it has another option for processing the ash that involves putting the incinerator ash in bags that are then placed in a washing machine where an acid solution is used to remove the uranium. This alternative can process the accumulated ash at a faster rate. LLRW generated by the uranium recovery process is sent to the Richland site for disposal.

Mr. Garner stated another issue NRC is examining is the potential over-reporting on LLRW manifests of the activity of H-3, C-14, Tc-99, and I-129, known as the “Phantom Four” radionuclides. Many times, the activity of these radionuclides are listed on a waste manifest at the lowest detectable limit (LDL) because the equipment used to detect the activity is not sensitive enough to identify the actual activity of these radionuclides. This results in the activity of these radionuclides potentially being over-reported, which could lead to the premature closure of disposal sites.

Mr. Garner stated the Electrical Power Research Institute (EPRI) has conducted studies on waste streams generated by nuclear power utilities to determine ways to improve the accuracy of the reported activity for these four radionuclides. EPRI discussed this issue with NRC and explained how the over-reporting of the activity of these four radionuclides can affect the operating life of a disposal site. These four radionuclides are thought to be especially important when related to the groundwater pathway.

Currently, the activity of these radionuclides must be reported on the manifest at the LDL, even if the activity is believed to be lower than the LDL. As the actual activity of these radionuclides may be an order of magnitude less than the LDL, industry is seeking a way to report the activity of these radionuclides more accurately.

Mr. Garner stated NRC will now allow indirect measurement called “scaling” to be used to report the activity of these radionuclides in those cases where the activity is suspected to be significantly less than the LDL. This is accomplished through relationships with easy to measure radionuclides which are shown to be correlated with these hard to measure radionuclides. NRC says this is an acceptable method provided the activity reported is within a factor of “10.” An example would be a utility process that includes Cs 137. Based on historical sampling, a utility can potentially say that when the activity of Cs 137 is “X,” then the activity of a specific Phantom Four radionuclide is “Y.”

NRC indicates that when using “scaling” for reporting the activity of one of these four radionuclides, a confirmatory assessment should be performed initially and again if the process is significantly changed in the future which could alter the previous scaling factors. Also, interval sampling should be conducted to ensure the activity of these four radionuclides remains below LDL. NRC will incorporate this guidance into NUREG/BR-204.

Mr. Garner reported that in 2007, NRC conducted a strategic assessment to help the agency prioritize its projects and work activities during the next seven-year period. NRC’s low-level waste program objective is to have a stable, reliable, and adaptable regulatory framework for effective LLRW management while maintaining safety, security, and protection of the environment.

NRC’s 2014 strategic assessment resulted in changes for its proposed projects. For example, one of the lower ranked priorities for 2007 NRC was to examine whether certain legislative changes may be required. This item was included to address the projected closure of the Barnwell site to out-of-region LLRW on July 1, 2008, resulting in 36 states not having access for disposal of their Class B and C LLRW. This project was deleted off the 2014 list due to the opening of the Waste Control Specialists site in Andrews County, Texas, which accepts both in-region and out-of-region LLRW.

Mr. Garner stated another project NRC pursued was a revision to the Branch Technical Position (BTP) on Concentration Averaging and Encapsulation. This revision allows Class B and C LLRW to be mixed with Class A LLRW at a level where the final content of the waste package is considered to be Class A LLRW. This allowed additional LLRW to be disposed at the Clive facility following closure of the Barnwell site to out-of-region LLRW, while pushing the concentration level in the LLRW disposed closer to the Class A LLRW limit.

Mr. Garner reported NRC’s 2014 strategic assessment includes the following rankings:

High Priority:

- Complete and implement site-specific analysis rulemaking (10 CFR Part 61).
- Update waste classification tables.
- Implement the updated BTP – Concentration Averaging and Encapsulation.
- Perform scoping study to identify need to review/expand byproduct material financial assurance to account for life-cycle costs.
- Clarify the regulatory authority for GTCC waste disposal and develop licensing criteria for a GTTC facility.
- Finalize internal procedure/standard review plan for 10 CFR 20.2002 exemption requests
- Update NUREG/BR-204, Revision 2 (July 1998), “Instructions for completing NRC’s Uniform LLRW manifest.”

Medium Priority:

- Develop guidance summarizing disposition options for low-activity waste (LAW).
- Update and consolidate LLRW guidance into one NUREG.
- Coordinate with other agencies on consistency in regulating LAW and determine impact of LAW disposal from radiological dispersion devices.
- Promulgate rule for disposal of LAW.

Low priority

- Develop procedures for import/export review.
- Examine need for guidance on defining when radioactive material becomes LLRW.
- Develop and implement the national waste tracking system.

Mr. Garner stated by-product financial assurance has been elevated due to concern in ensuring a radiological dispersion device event is prevented. If an entity has sources it is no longer using, it is good practice to either recycle or dispose of the device instead of simply storing the unused device for extended periods of time.

Improving financial assurance requirements may result in an entity deciding it does not need to purchase a source for its activities or helps ensure that when a source is of no future value it is promptly disposed. NRC currently tracks Category 1 and 2 sealed sources but the field pertaining to a source's current status, in use or not in use, is optional. Mr. Garner stated it seems this field should be mandatory.

Mr. Garner reported another high priority project includes identifying the regulatory authority pertaining to Greater Than Class C (GTCC) LLRW. USDOE is responsible for completing the Environmental Impact Statement for GTCC LLRW. Once completed, USDOE will submit its recommended preferred alternative to Congress for review and direction. Then, NRC is required to develop regulations for a disposal site proposing to accept GTCC LLRW.

Another project involves standardizing the process contained within 10 CFR 20.2002 to evaluate LLRW exemption requests. This is the regulation used to identify if LLRW can be exempted and disposed at a site other than a Part 61 site such as a RCRA site. Another high priority item involves updating NUREG/BR-204, last revised in July 1998, which provides instructions for properly completing NRC's LLRW uniform manifest.

Mr. Garner stated it is important to recognize that if low activity waste is provided with an alternative disposal pathway, then it is likely disposal fees will increase for those generators that need to continue to use a Part 61 site. This will certainly be true for the Richland site where disposal fees are subject to rate regulation. Mr. Slosky reported one of the primary drivers for alternate disposal for low-activity waste are decommissioning wastes from nuclear utilities.

Mr. Garner stated 10 CFR 20.2002 identifies the process used by NRC to exempt LLRW. A few years ago Tennessee was going to exempt LLRW generated by an in-state facility. Once exempted, the LLRW was scheduled to be shipped to US Ecology's RCRA site in Grandview, Idaho for disposal. NRC intervened, indicating the state receiving LLRW for disposal must provide the exemption, not the state the LLRW is generated in. Mr. Bullock indicated there was a recent case involving LLRW from Washington State, but NRC concluded the waste did not rise to a level requiring NRC regulation and, therefore, an exemption is not required. This waste was then shipped to US Ecology's Grandview site for disposal.

Mr. Garner stated Waste Control Specialists began accepting LLRW in April 2012, and through November 2014 the site has accepted 49,729 cubic feet of out-of-region LLRW and 12,784 cubic feet of in-region LLRW. The activity of the out-of-region LLRW is approximately 225,000 curies as compared to 2,500 curies for the in-region LLRW. The disposal capacity for the compact site has been increased from 3 million to 9 million cubic feet, and WCS has received authorization from the Texas Commission on Environmental Quality to accept large volumes of depleted uranium.

Mr. Garner stated it appears the majority of depleted uranium accepted for disposal would be disposed in the federal facility at the WCS site. WCS also accepts low-activity LLRW where, upon receipt, a review is conducted and if the waste meets certain criteria it is exempted and disposed in the on-site RCRA facility. WCS is also exploring opportunities to develop disposal capacity for GTCC LLRW and development of interim storage space for spent nuclear fuel.

It certainly appears WCS has done a good job of gaining public support in Andrews County for its proposed activities. Andrews County receives 5% and the state of Texas receives 20% of the gross revenue for out-of-region LLRW disposed at the site.

Mr. Garner reported being asked by NRC to participate on a panel briefing NRC Commissioners on its current 10 CFR Part 61 rulemaking in June. Mr. Garner stated after considering this invitation it became evident the proposed rulemaking could significantly impact interstate compacts, specifically their ability to develop future disposal sites. Under federal law, states and interstate compacts are responsible for developing disposal capacity for LLRW that is their responsibility. It became apparent the proposed implementation of these new regulations will impact all sites, not just those sites interested in accepting large volumes of depleted uranium for disposal. This will likely make future site development much more difficult, if not impossible.

Mr. Garner stated there is no issue with two commercial sites pursuing the disposal of large volumes of depleted uranium. The issue is with the manner in which NRC currently intends to implement these new regulations. These new regulatory requirements would apply to all sites, including those sites that have no interest in accepting large volume of depleted uranium. Currently, NRC has a graph showing traditional LLRW decays to 1% of its original activity within 500 years following site closure. The concern relating to future site development efforts is that once depleted uranium is incorporated into the graph it shows that depleted uranium, currently a Class A LLRW by default, continues to grow in activity well past 1 million years.

It certainly appears it will be much easier to receive public support for future site development if large volumes of depleted uranium are not part of the equation. When depleted uranium is included, it is likely the public will arrive at the conclusion that depleted uranium should be subject to greater isolation than that afforded by a shallow-land burial facility. It would not be as difficult if these new regulations for unanticipated waste streams, such as large volumes of depleted uranium, were placed in a separate section or subpart where they would only apply to those commercial sites seeking to accept large volumes of depleted uranium for disposal. Mr. Garner stated this topic will be included in talking points for the Commissioner briefing.

Mr. Garner stated new sites will need to be developed by the middle of this century. US Ecology is scheduled to close in 2056, EnergySolutions has approximately 30 years of licensed capacity remaining, and by the middle of this century additional nuclear utilities will be decommissioned. So new disposal capacity will need to be developed. However, if the new regulations are universally implemented it is improbable that such a site could receive the public support required as such a site has never been developed.

Site development depends on technical analysis showing LLRW is disposed in a manner that is protective of public health and safety. But just as importantly, such a facility requires the public's acceptance before initiation of site construction. For example, the administration in place prior to initiating construction can state it has no intention of providing access for the disposal of large volumes of depleted uranium, but the public will recognize this can change with a new administration so the only way to ensure such waste is not accepted is to not support site development.

Mr. Garner stated that to reduce the impact of these new requirements, these new regulations should be placed in a new section or subpart where they only apply to those commercial sites pursuing the disposal of large volumes of depleted uranium or other long-lived radionuclides. The new rules should not impact those commercial sites that have no interest in accepting such waste streams. This will still allow NRC to accomplish its goal of establishing regulatory requirements for unanticipated waste streams.

Mr. Garner reported at the last LLW Forum meeting, the U.S. Environmental Protection Agency (EPA) stated it is developing new regulations for in-situ uranium recovery operations. In-situ uranium recovery has become the predominant method used for uranium extraction in the country. Current standards in 40 CFR Part 192 do not include explicit requirements for in-situ uranium recovery operations. EPA is proposing a new subpart that will establish pre and post operational monitoring and groundwater restoration guidelines for in-situ uranium recovery operations. Once finalized NRC and Agreement States will be responsible for implementing the new standards. This includes a requirement to characterize the groundwater prior to commencing with in-situ recovery.

Mr. Garner stated these new regulations include requirements to meet restoration goals for thirteen constituents. If groundwater meets standards prior to in-situ uranium recovery, it must be restored to meet standards following uranium recovery efforts. If constituent levels exceed standards prior to commencing uranium recovery, then following uranium recovery groundwater levels must be restored to the level present prior to initiating uranium extraction. If background levels of groundwater standards cannot be achieved, operators can request an alternate concentration.

At licensing, the facility must develop and have approved a corrective action plan. If excursion is detected, the corrective action plan must be implemented and continued to the extent necessary to achieve and maintain compliance with groundwater standards. Long-term monitoring requirements following operation include monitoring for 30 years to demonstrate that groundwater chemistry has been restored and is stabilized.

The duration of monitoring can be shortened if: 1) monitoring shows groundwater has been restored to required levels; 2) statistical analysis shows groundwater has remained stable for greater than 3 years at a 95% confidence level; and 3) geochemical modeling shows that groundwater chemistry will remain stable and re-mobilization of the targeted constituents is unlikely.

Mr. Garner stated radioactive sources present certain issues for interstate compacts, as they can be transferred from entity to entity as material, not waste, even if they have no useful life left. For example, in California if sources are exported as material they are not subject to the export fees that are used to support the activities of the Southwest Compact. If these sources are sent to an entity located within a member state of NW Compact, there is the possibility this entity may eventually pursue disposal of these sources as in-region LLRW. Mr. Garner stated only those sources last put to practical use within a member state of the Northwest or Rocky Mountain Compacts are eligible for disposal at the Richland site.

Overview of Changes to NRC's 10 CFR Part 61 and the BTP on Concentration Averaging

Mr. Earl Fordham reported the Richland site has been operating since 1965. In the mid-1980s, the site accepted one to one-and-a-half million cubic feet of LLRW annually from states throughout the nation. In 1999 the Richland site accepted its highest curie shipment when the Trojan reactor vessel was disposed intact as Class C LLRW.

The technical evaluation the state of Washington developed for disposal of the reactor vessel is now used in other parts of the country to accept whole reactor vessels instead of cutting them up into distinct parts prior to shipment for disposal.

Mr. Fordham stated that Mr. Mike Elsen, Supervisor in the Office of Radiation Protection Waste Management Section, is working with EPRI on development of a document that puts the BTP on Concentration Averaging and Encapsulation into a format that can then be used by licensees, waste generators, and regulators. This is a very complex document.

Mr. Fordham reported there are currently two operating trenches at the Richland site. Trench 18 accepts unstable Class A LLRW and Trench 19 accepts stable Class B and C LLRW. Previous trenches at the Richland site were 800-1,000 feet long and would accept LLRW for 3-5 years before being filled. The new trenches are receiving around 20,000 cubic feet of LLRW annually. One of the two operating trenches was constructed in the late 1990s and is 800 feet long. The other active trench is a dig-as-you go trench which works well with the limited volume of LLRW received annually. A downside of a trench initially being completely constructed is that sloughing occurs on the trench sides and this requires ongoing maintenance to preserve the integrity of the trench.

Mr. Fordham stated proposed changes to 10 CFR Part 61 do not impact the Richland site much, as both Washington and South Carolina have no interest in accepting large volumes of depleted uranium. ORP submitted comments stating it would be good to leave the Part 61 regulations "as is" as much as possible. ORP recommended putting these new regulations in a new part equivalent to International Atomic Energy Agency's intermediate level LLRW, or into Part 61 as a new, separate section that only applies to sites accepting large volumes of long-lived radionuclides like depleted uranium.

Mr. Fordham reported the state does not have an issue with the time frames and dose limits being proposed by NRC in its current Part 61 rulemaking. The Richland site was grandfathered into the original Part 61 regulations in 1982. This is because the site began operation back in the 1960s before these requirements were adopted. At that time, the state had not yet developed an Environmental Impact Statement (EIS) document for the site. In the late 1990s the state worked on the development of an EIS and during this process the state maintained continuous contact with NRC.

Mr. Fordham stated current regulations contain requirements for 25 millirem (mrem) per year whole body, 75 mrem per year to the thyroid, and 25 mrem per year to the other organs. ORP realized these numbers were not consistent with the International Commission on Radiological Protection 2 and were so old that they should be brought to current standards. The NRC asked if the state would be willing to update these values to current dosimetry and this resulted in adoption of the 25 mrem per year requirement.

The state also went out to 10,000 years in its modelling, as this is what NRC was promulgating in the early 2000s. This was done before NRC started its proposed revision to Part 61, so when NRC wanted to go out to 10,000 years for the performance assurance period, ORP had no comment.

The 25 mrem per year is effective for the first 1,000 years, and this is followed by an intruder limit with a target of 500 mrem per year, plus ALARA (As Low as Reasonably Achievable). Based on the modelling that was performed, the Richland site comes in at about 120 mrem per year for its intruder scenario. The only question in changing the doses is in regards to what was mankind doing 10,000 years ago and what will it look like 10,000 years into the future. So the state of Washington does not have any real issue with exposure limits being used in NRC's proposed Part 61 rulemaking.

Mr. Lundberg stated that in 2010 the Utah Radiation Control Board adopted its current rule that is specific to the disposal of depleted uranium. This rule is the basis that Utah has been working from in evaluating the performance assessment submitted by EnergySolutions in 2011.

This view is taken from NRC's NUREG guidance that recommends 10,000 years is a cutoff when looking at an evaluation period. Being guidance, it was simply a recommendation to look at a period of 10,000 years. The Radiation Control Board determined specific to depleted uranium that the compliance evaluation period would be up to 10,000 years in a quantitative manner, which requires modelling. Then after 10,000 years a qualitative analysis would be required.

Societal and geomorphology changes that may occur over long time periods are difficult to account for. However, if NRC determines its proposed new regulations are a compatibility B, this would require Utah to adjust its rule to match NRC's proposed rule, which may be an issue for Utah. For example, if Utah finishes its performance assessment evaluation and then NRC completes its rule, it seems odd after projecting these impacts out into the distant future that Utah would then have to redo its evaluation when there have not been significant operational changes at the site. So Utah will be examining how the new rule may impact its current evaluation of EnergySolutions' performance assessment. The intruder assessment is an area that will require additional evaluation by the state.

Mr. Fordham reported that at its public meeting last night NRC provided a timeline projecting the final rule will be completed by August 2016. The rule will then become effective in August 2017, and these new requirements will then need to be incorporated by agreement states in the 2020 - 2021 time frame.

Mr. Garner asked if the compatibility was changed from B to C or D, would this give sited states the option of sticking with the current regulations. Mr. Fordham and Mr. Lundberg both stated it would have to be changed to a compatibility D, meaning adoption of the new regulations is completely optional.

Mr. Bullock inquired whether there had been much tribal interest. Mr. Fordham stated that at the public meeting in Richland, Washington two nights ago, there were no tribal members in attendance.

Mr. Garner then asked if a 10,000 year evaluation is necessary for sites that accept only traditional LLRW where the waste decays to 1% of its original activity within 500 years of site closure. Mr. Fordham stated this graph is based on the waste classification tables in 10 CFR Part 61 that contains both short-lived and long-lived tables. In the short-lived table, the longest half-life is 30 years so after 300 years this is 10 half-lives. This makes up the vast majority of LLRW received at the sites. After 300 years the long-lived radionuclides are still present.

Mr. Fordham stated there is no requirement to redo the performance assessment for the Richland site prior to site closure. In communications with the NRC back in the 2000 time frame, it became apparent a performance assessment would need to be completed for the Richland site where the dose limit is required to be under 25 mrem per year.

The assessment also needs to include an intruder scenario requirement. This involves a scenario where an intruder enters the site and drills a well and the soils brought to the surface by the drilling rig are spread around on the surface. The state was aware the NRC intended to use 500 mrem for the intruder scenario, so the state has satisfied this requirement.

Mr. Fordham reported the state has not developed a safety case or a defense in depth document yet, so the licensee will be required to generate this document during its next license renewal. The new regulations indicate an additional performance assessment is only required if a site plans to accept large volumes of depleted uranium or other long-lived radionuclides. This is why ORP does not believe it has to update its performance assessment as there are no plans for the Richland site to accept large volumes of long-lived radionuclides such as depleted uranium.

During the EIS about ten years ago ORP placed inventory limits on eight critical radionuclides, including long-lived radionuclides. The limit for a few of these radionuclides is being approached. If, in the future, US Ecology decides it wants to accept such waste streams the company, not ORP, will have to pay for the performance assessment because ORP paid for the previous performance assessment. Should this occur, the inventory limits established for certain radionuclides will remain in effect.

Mr. Lundberg stated Utah is in the middle of evaluating the depleted uranium performance assessment submitted by EnergySolutions. The big question is how is this performance assessment and Utah's review impacted by NRC's proposed changes to 10 CFR Part 61? So there are a number of issues that relate to both the completion of Utah's evaluation of EnergySolutions' depleted uranium performance assessment and completion of NRC's current Part 61 rulemaking. This complicates Utah's current review.

Mr. Lundberg stated an additional concern is that NRC holds the view the current rulemaking should be completed prior to determining the appropriate waste classification for depleted uranium. As the Clive site, by state law, may only accept Class A LLRW, NRC's timing regarding the resolution of this issue is not ideal for Utah. Utah could complete its evaluation and then NRC could state it is now ready to determine the appropriate classification for depleted uranium.

The primary driver for the current NRC rulemaking is depleted uranium and what needs to be done to enable this waste stream to be safely disposed at commercial sites. Mr. Lundberg stated part of the discussion needs to determine when the in-growth and the decay products of a waste stream warrant additional evaluation. It is not hard to calculate and evaluate the in-growth when given a source term to start from. Based on the initial source term, calculations can be used to evaluate what the projected impacts will be from the decay products.

Mr. Garner stated it appears this process is a little backwards, as there would have been benefits to determining the proper classification of depleted uranium initially. Mr. Lundberg stated NRC believes the current rulemaking will help inform the next decision, the proper classification of depleted uranium.

Mr. Slosky indicated NRC was previously petitioned as part of the URENCO enrichment corporation licensing process to decide the classification of depleted uranium. Are parties hearing something different now? Mr. Garner replied that last night NRC stated that at the time of disposal depleted uranium is a Class A LLRW. However, over time it changes as a result of decay and the daughter products that are generated and this could affect its waste classification.

Mr. Lundberg indicated the decay that occurs in depleted uranium results in changes in the concentration of the waste stream following disposal. Mr. Lundberg added the SECY paper NRC staff offered was to look at the classification of depleted uranium again. The Commissioners agreed this would be good, but stated this should be undertaken following the completion of the current rulemaking as the Commissioners believe that finishing the current rulemaking will inform the decision on the proper classification of depleted uranium.

Mr. Fordham stated a new performance assessment would be required at the time of site closure, as the current performance assessment will be 50 years old by then. An average of waste acceptance volumes and activity were used for the projection out to 2056 for the current performance assessment. Actual volumes and activities have been much lower than those used in the projections so the estimates used in the previous performance assessment are high. This also provides an opportunity to incorporate advancements in science, such as how do radionuclides migrate through the vadose zone. A lot of new information is becoming available as a result of the monitoring that is being conducted by USDOE at the Hanford site.

Mr. Fordham stated the location of the Richland site in the middle of the Hanford Reservation creates a lot of uncertainties. The Hanford Reservation started out as 560 square miles. As USDOE continues its cleanup efforts, the active portion of the site is being reduced. Hopefully, in the next ten years, the central plateau area will be down to 10-15 square miles. This will then consist of an area where USDOE is disposing of waste being cleaned up at the site.

ERDF is located in this area as well as the Waste Treatment Plant that will be used to treat the high-level waste located in 177 underground tanks. The waste in the underground tanks was generated as part of the Manhattan Project. The tank waste will be vitrified and then some of the vitrified waste will stay at Hanford and some will be shipped to a high level waste and spent fuel repository that still needs to be identified. In addition to ERDF, this area contains several 200 area burial grounds containing a wide variety of waste materials. USDOE is currently projecting this area will be zoned for industrial use.

Mr. Lundberg commented that although Utah is currently going through an extensive performance assessment review, there are not a lot of operational changes that are expected prior to the closure of the Clive site. However it may be beneficial to evaluate some of the actions that have been taken at the site.

Mr. Fordham reported there are four Native American tribes that have treaty or cultural rights to the Hanford Reservation once cleanup is completed by USDOE. As long as USDOE is pursuing cleanup of the Hanford site, tribal members are allowed to visit but their treaty rights are not in effect. This is an issue that is always present at the Hanford Site and the tribal entities are active in the decisions made at the site.

One of the drivers behind ORP's performance assessment is a sweat lodge scenario. OPR's calculations for a Native American adult using this scenario is 22 mrem per year. Mr. Fordham stated USDOE has indicated there will be no operational water wells left on site. USDOE plans to eventually change over to an off-site water source. Therefore, the contaminated water below the central plateau, the location of the Richland site, will not be used. Mr. Fordham stated tribal entities have a number of culturally sensitive sites along the Columbia River that include burial grounds and seasonal sites where they stay occasionally to gather roots and other items.

Mr. Fordham stated the site would be structurally stable for a period of 10,000 years based on the scenarios evaluated by ORP. In the EIS, Washington looked at catastrophic events including a probable maximum precipitation event found in an NRC guidance document that generates a probable maximum flood. Federal maps were used to determine a maximum flood event.

The state also examined a scenario developed by the US Corps of Engineers regarding a 50% breach of Grand Coulee Dam that is located 100-150 miles upstream from the site. Such an event would take out several dams downriver, but would not impact the site which is located on a plateau several hundred feet above river level. The next big issue the state recognized is the next glacial age which is impossible to analyze.

Mr. Fordham stated the Richland site is located within an area of the Hanford Reservation that very likely will never be released for public access. Mr. Lundberg added the change in climate is very important in Utah because based on geological information and the cycles that occur the return of a humid climate would create an extensive freshwater lake in the Great Basin area.

Mr. Fordham stated defense in depth and the safety case go hand in hand, and potentially impact the Richland site. Mr. Fordham reported NRC addressed defense in depth, and this does not involve redundancy in every aspect; instead it is a system redundancy. For example if the cover goes away will the 25mrem and 500 mrem performance objectives remain valid for the site?

Retrofitting an existing facility can be quite difficult and expensive. For example, if the state is required to add a rock barrier with additional soil on top of the rock layer, it would be difficult to accomplish this as USDOE is protective of its good soil (silt loam) reserves. The Native Americans are also very protective of their areas. USDOE may not have enough silt loam available to meet the need for its own covers. Silt loam is a key ingredient for evapotranspiration covers. Once grass or other vegetation is established on top of the cover it is the silt loam that holds the water until a stretch of good weather when the water will then evaporate out of the cover, preventing water infiltration.

ORP and US Ecology are prepared to bring several hundred thousand cubic yards of soil over from ERDF. The waste cells at ERDF are very large, 500 feet wide, 1,000 feet long, and 70 feet deep, which results in significant soil accumulation at the area where these waste cells are constructed. However, this soil is not the silt loam needed for the top meter of the cover. So defense in depth may be an issue for the Richland site. However, there are several aspects working to the state's benefit. The depth to groundwater is three hundred feet and it is currently not potable. But Ecology is working to restore this water to its highest beneficial use, which would be potable water. Waste stabilization uses either concrete or high integrity containers placed in concrete overpaks. The disposal depth for Class C LLRW is at least five meters.

Mr. Lundberg added the protection of water is an important requirement. There is groundwater at the Clive site, an upper and lower aquifer, but both are highly saline and non-potable. Making decisions over the long-term for aquifers that are highly saline now is very difficult. There are some factors for Utah in a highly arid climate that makes it difficult to project probable changes over a very long period of time.

Mr. Fordham reported when the Richland site accepted the Portland General Electric Trojan reactor vessel intact, ORP performed a technical evaluation report, and this report examined future climate change. The report examined a 50% reduction in annual rainfall (6 to 3 inches per year) and a doubling of annual rainfall. However, in these long-term projections it is very difficult to project what is actually going to occur.

Mr. Fordham stated the safety case is a collection of arguments and evidence that demonstrates a facility can be safely sited, designed, constructed, commissioned, operated, shut down, and closed. One of the key components is what NRC refers to as a safety assessment, which is similar to a performance assessment. The NRC's safety case is basically a performance assessment plus defense in depth. The form of the safety case is determined by the individual states in which LLRW disposal sites are located.

In Washington, SEPA contains certain review requirements and when coupled with licensing actions allows all the critical components of a safety case to be addressed. Mr. Fordham stated the licensee will use these documents to develop the safety case for the Richland site. Mr. Lundberg stated this is a significant new requirement for Utah; specifically, how the licensee will prepare a document meeting this requirement.

Mr. Fordham stated the site-specific waste acceptance criteria will not impact the Richland operation as the classification tables contained in Part 61.55 tables will continue to be used. Mr. Fordham reported ORP will have to go back and examine Table A in the newly proposed regulations to determine whether a performance assessment is required for those long-lived alpha emitting radionuclides. A sum of fractions will be used to determine if this is required, but ORP's initial examination indicates the Richland site is only at about 30% of the level that would trigger this action.

Mr. Fordham reported that even though the Richland site will continue to use the conservative numbers found in Part 61.55, USDOE performed a site specific performance assessment for its nearby ERDF site. Mr. Fordham reported that prior to the development of 10 CFR Part 61, the Richland site had received waste that would currently be classified as GTCC LLRW and at this point there is no way to retrieve this waste.

Mr. Lundberg stated Utah is focused on the waste classification tables based on state law prohibiting the disposal of Class B and C LLRW. This makes the preservation of the waste classification tables very important to Utah. Based on comments made by NRC, there is the potential for a hybrid system. A site-specific assessment allows an entity to determine the unique characteristics of a given site. So for Utah it is important to rely on the site characteristics as determined in a site-specific performance assessment, but at the same time Utah must rely on the waste classification tables to ensure only Class A LLRW is being accepted for disposal.

Mr. Fordham stated the NRC's Integrated Materials Performance Evaluation (IMPEP) team visits agreement states every four to five years, and there are five general areas that agreement states are graded on. There are four additional areas a state could be graded on, and one of these is a low-level radioactive waste program. NRC typically goes to another sited state and requests a person who can participate on the IMPEP team. For example someone from Utah may join the team that conducts a review in Washington.

Mr. Fordham stated he has been on an IMPEP team that examined Utah's low-level waste program. At times this is beneficial, as NRC does not operate any LLRW disposal sites and the operation of a site provides unique insight to what the requirements should include. Representatives of the sited states regularly communicate with one another. For example, should ORP suspend access to the Richland site for a generator other sited states will be informed this action has been taken and the reason it is being taken.

Mr. Fordham reported NRC is looking at changing 10 CFR Part 20 that addresses the safety of workers and the public from radiation. It was last changed in the early 1990s. It requires a radiation protection program and most of the requirements are either compatibility A or B, which means you need to mirror the federal standards.

The health physics community continues to learn more about the management of radioactive materials. The regulations use this scientific knowledge as their basis so there is a need to update these requirements when new information becomes available. This makes it difficult as there is only a set number of people who understand radioactive waste. It is also very difficult to determine how to best educate the public and keep them up to date on the regulatory requirements. Therefore, when regulations change it is difficult to obtain good, knowledgeable comments from a broad spectrum of the public.

Mr. Fordham stated ORP is still examining the new compatibility requirements contained in the proposed Part 61 rulemaking. The compatibility will determine the actions the state is required to take.

Mr. Pacenza stated there is a piece of the document that is somewhat puzzling, and this is where the hybrid approach is discussed. It looks like either the classification tables or a site-specific performance assessment can be used, and in the federal register notice it appears the licensee chooses which approach to use. At NRC's public meeting last night, an NRC representative stated it is the states that determine which option to use. This appears to be contrary to what is stated in the federal register.

Mr. Lundberg responded that NRC's representative stated that the licensee chooses the option to propose, and the regulator then decides whether this is acceptable. Mr. Pacenza asked if this is in writing somewhere and Mr. Lundberg responded it is not. Much like an amendment request, the regulator can decide if such an amendment is warranted and allowed. So again, the licensee is afforded the opportunity to propose an action, but this can be approved or disapproved by the regulator who also provides the premise for its decision.

It would be preferred to have clearer language that addresses how to determine the proper option. The site-specific performance assessment provides valuable information but it does not necessarily determine what can be accepted at a given site. For example, Utah has a prohibition on accepting Class B and C LLRW.

Mr. Pacenza stated that HEAL feels strongly that depleted uranium should be reclassified. For example, Class C LLRW is treated in a certain manner due to its hazard persisting for 500 years, and Class B LLRW is treated certain manner due to its hazard persisting for 300 years, then it seems contrary to make the claim that depleted uranium which is hazardous for millions of years is Class A LLRW. The classification system embraces two notions. The first being the unique hazard posed by the radionuclide as well as the duration for which the hazard will persist.

Mr. Pacenza also stated that Ms. Amanda Smith, former Executive Director of Utah's Department of environmental Quality, said at a conference that Mr. Larry Camper of NRC stated his belief that large volumes of depleted uranium would eventually be classified as GTCC LLRW. HEAL has never been able to find this quote. Mr. Pacenza stated Germany has been looking at the disposal of depleted uranium and decided to bury this material at a depth of 2,000 feet to ensure it is isolated from the public.

Legal Activities Overview

Ms. Kristen Mitchell, Compact Counsel, reported the compact has no pending legal actions.

During the last couple of meetings a status update has been provided on the lawsuit that involves temporarily halting the placement of the first phase of the cover on the closed trenches at the US Ecology site. There are no new developments since our last meeting. The state continues its MTCA process. A new consultant has been hired, and this entire process takes a considerable amount of time to complete. So currently, any legal matters are basically placed on hold.

Committee Business

Mr. Garner stated there is a draft letter to the Chairman of the Texas Compact Commission that expresses the Northwest Compact's appreciation for the manner in which the Texas Compact Commission reviews the import applications it receives. One of the questions that is almost always raised is, does the waste included on the import application have access to another site for disposal?

Mr. Garner stated the Executive Director of the Texas Compact felt such a letter would be helpful as it reinforces the concern the Northwest Compact has regarding the potential disposal of LLRW generated within its member at a site other than the Richland site. Committee members concurred such a letter would be helpful.

Mr. Garner explained the NW Compact may be the only compact that does not have authority to prevent LLRW generated within the region from being exported to an out-of-region site for disposal. Mr. Garner stated it is uncertain why the NW Compact did not include such authority in its statutes. The one explanation given by Mr. Slosky was that the state of Washington was not concerned about LLRW being shipped to a site other than the Richland site for disposal; the state simply wanted to see the volume of LLRW accepted at the Richland site reduced.

Public Comment

Mr. Zittle, University of Washington, stated it is hard to obtain funds for disposal of LLRW, and the policy regarding the shipment of LLRW out-of-region for disposal represents a difficult situation.

Mr. Zittle stated if out-of-region disposal is pursued for a portion of the LLRW generated at the college, then this will result in increased disposal costs for LLRW the college needs to continue to ship to the Richland site. Mr. Garner reported having a number of conversations with Mr. Zittle on this topic, and has always recommended that Mr. Zittle use the Richland site for LLRW disposal. Mr. Garner stated that doing otherwise could impact the economic viability of the Richland site and eventually could result in the site closing prior to 2056. This would not benefit regional generators.

Mr. Zittle also expressed concern that in 30 to 50 years new sites will be required. Mr. Zittle stated the best way to ensure that new sites can be developed is to educate the public on the beneficial uses of radioactive materials. Mr. Garner agreed this would be of significant benefit to future site development.

The committee then decided to hold its next meeting in Portland, with Seattle as a backup in case an appropriate location could not be identified in Portland.

Mr. Garner thanked attendees and adjourned the meeting.