

**MINUTES
of the
FOURTH MEETING
of the
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

**October 31, 2016
Room 311, State Capitol
Santa Fe**

The fourth meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Representative Cathrynn N. Brown, chair, on Monday, October 31, 2016, at 9:06 a.m. in Room 311 at the State Capitol.

Present

Rep. Cathrynn N. Brown, Chair
Rep. Eliseo Lee Alcon
Sen. Ted Barela
Sen. Carlos R. Cisneros
Rep. Stephanie Garcia Richard
Sen. Gay G. Kernan
Sen. Carroll H. Leavell
Rep. G. Andrés Romero
Rep. Larry R. Scott
Rep. James G. Townsend

Absent

Sen. Daniel A. Ivey-Soto, Vice Chair
Sen. Richard C. Martinez

Advisory Members

Sen. William F. Burt
Rep. David M. Gallegos
Sen. Ron Griggs
Rep. Rod Montoya
Sen. John Pinto
Rep. Nick L. Salazar
Rep. Jim R. Trujillo

Sen. Stuart Ingle
Sen. William H. Payne
Sen. Nancy Rodriguez
Sen. Clemente Sanchez

Staff

Gordon Meeks, Legislative Council Service (LCS)
Renée Gregorio, LCS

Minutes Approval

Because the committee will not meet again this year, the minutes for this meeting have not been officially approved by the committee.

Guests

The guest list is in the meeting file.

Handouts

Handouts and other written testimony are in the meeting file.

Monday, October 31

Carlsbad Environmental Monitoring and Research Center (CEMRC) Update

Dr. Russell Hardy, director of the CEMRC, began his presentation with an overview. He said that the CEMRC was created in 1991 as an independent environmental monitoring program for the Waste Isolation Pilot Plant (WIPP) and serves as the "eyes, ears and voice" for the residents of southeastern New Mexico; the monitoring it conducts is focused on the air in and around the WIPP facility; 80% of the CEMRC's funding comes from the federal Department of Energy; the CEMRC provides office and laboratory space for Los Alamos National Laboratory (LANL) as well as for WIPP; and it performs subcontracts for DOE-related and nuclear-related facilities.

Dr. Hardy briefly reviewed the 2014 radiation release, which occurred in Panel 7, Room 7. WIPP has been closed ever since. He spoke of the pre-high-efficiency particulate air (HEPA) and post-HEPA filter monitoring of WIPP's air through sampling stations A and B and the daily collection of air filters. He explained that the air is monitored before it is released, after it goes through filtration and once it is released into the atmosphere. He gave details of amounts of americium and plutonium before and after the release. After the release, the disintegrations per second (DPS) were over four million, when generally the DPS is around 400. He talked about the way in which the CEMRC counts samples over a period of five days so that more data points can be collected. He added that the one-time event levels declined after the release, and he said that the environment at WIPP is still contaminated, although at a much lower level than immediately after the release, and since January of this year, the contamination is at a fairly low level.

Dr. Hardy indicated that the HEPA filtration system caught over 99% of the contaminants, and he said that it is a valuable system that prevented almost 100% of these materials from being released into the environment. He explained how any spikes in contaminant activity are related to maintenance on the HEPA filtration system and said that whenever a switch is made to one of the fans in the system, dust gets blown about and so does contamination.

He described the locations of the ambient air monitoring done by the CEMRC, with three monitoring stations around WIPP and one station each in Carlsbad and Loving. On the night of the radiation release, because the wind was blowing northwest toward Carlsbad, the contaminants were blown right over one of the CEMRC's monitoring samplers. As a result, the CEMRC was the first group to announce that contamination had been detected beyond WIPP's fence line; this result was released by the CEMRC on February 19.

Given the most recent results from the ambient air monitoring, Dr. Hardy said that levels of plutonium and americium are the same as before the event and that it is hard to tell if the presence of contaminants is WIPP-related, is left over from weapons detonation in the past or is from the Nevada or Gnome sites. He added that the situation with soil monitoring is much the same and that it is difficult to distinguish plutonium that is pre-event versus post-event. Dr. Hardy also expressed a lack of concern over the becquerel (Bq) level of plutonium that is present (1 Bq per kilogram), given that at the Gnome site there are 30 Bqs per kilogram and there have been cattle grazing there for 50 years without an issue.

Dr. Hardy spoke of the free service that the CEMRC offers to the public, which is a whole-body counter that is a noninvasive way to read radiation levels in humans. He added that from February to July 2014, 144 WIPP workers and residents were read, and no plutonium or americium was detected in anyone. He said that what this test reveals are levels of potassium (K-40), which is a good form of radiation, as well as cesium 137, which is a fallout product from weapons testing. He spoke of the presence of cesium 137 at higher levels in people who spend a lot of time outdoors or eat a lot of wild game, but he said that these levels are still below any levels that could threaten public health.

In conclusion, Dr. Hardy stressed that the CEMRC has consistently found that the air, soil and water in the area are all healthy environments that cause no concern to public health.

Committee members engaged in questioning, and the following points arose:

- a portion of the WIPP site is contaminated and will likely remain so; the plan is to section off and abandon this contaminated section;
- contaminants will not be able to get through the affected area because of salt barriers and bulkheads;
- all air leaving WIPP is being filtered, and WIPP workers are wearing protective gear;
- filter disposal is at an outside facility;
- WIPP is ready to open, yet it has to demonstrate to regulatory bodies that it can operate safely;
- there have been improvements in the flow of communication among agencies during WIPP's recovery;
- the concern about monitoring at the Waste Control Specialists (WCS) facility and how quickly any release of contamination at that facility would affect New Mexico residents;
- improvements have been made in waste characterization and sampling from waste streams to test compatibility;
- the presence of drums at LANL and WCS that contain the problematic waste stream;
- LANL pays WCS to store these drums;
- whether closing off portions of WIPP reduces the future viability of the mine; and
- future growth at WIPP would be to the north and west, not south, where the closure would be.

Proposed Legislation

Representative Brown led the committee in a discussion of a proposed bill on remediation of the Carlsbad brine well. She emphasized that the bill passed the house unanimously and that the urgency of the situation is understood by members, but the situation got more complex when the company that ran the brine well went into bankruptcy, and the issue of liability arose. She said that both Jim Griswold, bureau chief, Environmental Bureau, Oil Conservation Division (OCD), Energy, Minerals and Natural Resources Department (EMNRD), and Dale Janway, mayor, City of Carlsbad, were present and could speak to the issue.

Discussion ensued regarding a request that was made of the Attorney General's Office to determine liability, but the letter that came from that office and was sent to David Martin, former secretary, EMNRD, did not address the legal issues. Representative Brown said that the bedrock question is who owns the property and the problem of the brine well. Committee members expressed the desire to endorse a bill or a bill draft because of the need for corrective action in the brine well situation. Some questioned the need to set up a remediation authority without funding. Creating a fund for this purpose was also discussed, as was dedicating severance tax funding to remediation purposes. Concern was expressed about how much money the state has spent in studying the problem and the need for having a remediation plan in place. In addition, the Federal Emergency Management Agency has been approached by Eddy County for funding.

Representative Brown then invited Mr. Griswold to speak to the RHMC about the various solutions that have been proposed to date. Mr. Griswold indicated that the OCD hired a contractor in 2012 to evaluate the brine well situation and the monitoring system. A feasibility study was done, and that report came forward in 2014. The options for remediation include continuing to monitor the well, inducing collapse and backfilling or doing an in-place backfill before a collapse occurs. The recommendation made to the OCD was to engage in a design-build process, at an estimated cost of \$12 million to \$25 million. More discussion on liability ensued, including which entity owns the property, having liability coverage for members of a remediation authority and determining who is liable if something goes wrong with the remediation itself.

Representative Scott commented that Representative Alcon's point that this authority is a political construct, not a technical one, is right and that to solve the problem, a technical proposal with cost estimates is needed. He added that the state is really the only entity with the resources to fix this problem. In addition, members said that it would be the authority created by legislation that would be responsible for moving the remediation forward. Representative Brown then asked Mr. Meeks to draft new legislation for review after the lunch break, and then she asked Mayor Janway for his thoughts.

Mayor Janway presented a time line on brine well activities to the RHMC (see handout). He also said that the brine well is the state's responsibility because the state permitted it and benefited from it. He also mentioned that entities, such as the WIPP site; the Mosaic Company, which mines potash; and other potash mines, have made offers of varying assistance.

Committee members discussed additional ways to establish an authority and a fund and to make an appropriation to the OCD for \$500,000 to develop a request for proposals for design-build services for the remediation of the brine well, with the possibility of time lines being established for the remediation. Members discussed that the path forward could be to address funding issues, educate the body and challenge engineers to come up with a solid plan that addresses critical issues of a collapse. Members agreed that the legislature needs to move on this, as there would be a much bigger problem down the road if nothing is done. When the RHMC returned from lunch, Mr. Meeks presented two bills, one an appropriation bill, and the other a bill that created the "Carlsbad Brine Well Remediation Advisory Authority" and a remediation fund. On a motion and second, both bills were adopted as committee-endorsed bills.

On another motion and second, the minutes from the August 2, 2016 RHMC meeting were adopted.

Investing in Smart Energy Infrastructure Through a Reliable Energy Mix

Carlos Lucero and Matthew Jaramillo, both from federal and state government affairs for Public Service Company of New Mexico (PNM), gave an overview of PNM investments, which included its nuclear assets in the Palo Verde Nuclear Generating Station and other investments in infrastructure for solar energy and consumer protection. Mr. Lucero began by stating that PNM has been in business in New Mexico since 1917 and is the only New Mexico-headquartered company on the New York Stock Exchange. He reviewed specifics of the company, in particular that it has more than 516,000 customers and 2,800 megawatts of generation capacity, with a balanced mix of energy generation that includes nuclear, coal, natural gas, wind and solar. PNM has over 15,000 miles of transmission lines, and Mr. Lucero described the company as a reliable, affordable and environmentally friendly energy company that is also one of the top taxpayers in the state. He also detailed some of PNM's investments, which include \$203 million per year on small business services; over \$3.5 million to local communities and nonprofits; and assistance to low-income families through its Good Neighbor Fund, which in 2015 totaled \$428,000. He also mentioned that PNM offered grants to nonprofits of \$5,000 to upgrade inefficient electrical systems.

Regarding the Palo Verde Nuclear Generating Station, Mr. Lucero said that PNM has 10% ownership of the facility, which is west of Phoenix and is operated and maintained by Arizona Public Service Company. He stressed that this plant is one of the most reliable and safest nuclear plants in the world, with zero carbon emissions.

Mr. Jaramillo then briefed the RHMC on PNM's infrastructure, stating that the company is always faced with difficult decisions. He added that PNM's system is constructed for peak usage every year and that its forecasted benchpoints are not coming in as high as expected, so it will not be needing the added peaking energy that would have been provided by building in the San Juan area. He stressed the need for reliability and affordability without building more generation than is necessary.

Mr. Jaramillo spoke of PNM's desire to invest in new technology, such as smart meters, to the tune of about \$80 million. He pointed out that New Mexico is behind the times regarding flexibility with customers and the handling of energy use. He indicated that private rooftop solar systems are on the rise, but PNM's system is 80 years old. New technology infrastructure would allow for communication between private systems and PNM's system, which would help with management of the utility, he said. This would also allow customers to control their energy usage and monthly bills more readily. PNM could connect and disconnect in real time, and this would help PNM manage its energy capacity and deliver energy more efficiently.

Mr. Jaramillo said that there are many customers shifting to private solar systems and that solar is a growing technology with much job creation. PNM has 7,400 private solar customers. Solar is also a more affordable energy source now, with the availability of both state and federal assistance. He expressed concern over the growing pains evident in the models available for leasing or purchasing systems. He said that about half of applications received are ones in which the customer does not own the materials but pays for the energy generated. He stressed the need to solve problems that have come up with solar leasing models and the need for transparency here. Many customers have been pressured into signing 25-year leases, and many do not understand the financial encumbrance related to the equipment, he added. He said that, often, savings are presented in a manner that shows an increase every year, but in reality, savings erode over time and comparisons need to be made more distinctly. Also, the transferring of solar power when a home sells or the purchase of solar power outright is not clear at present in these arrangements, and, often, it does not make sense to transfer solar facilities as the technology is considered too old. The bottom line is to improve financial transparency and disclosure in these private solar systems so that customers can make informed decisions in financing, leasing or purchasing.

Committee members' questions explored the following topics:

- the need for legislation that would help to delineate the leasing issues associated with private solar systems;
- cancellation of the Four Corners area expansion;
- the potential for upcoming legislation on solar systems and industry issues;
- the cost-shifting effect of meters on customers;
- that New Mexico lags behind other states regarding its energy infrastructure and the effect of this on economic development;
- PNM's readiness to invest in smart meter technology and the control over energy use that this would give to its customers and the flexibility it would give to PNM in how it manages generation transmission;
- the proprietary nature of customer data; and
- PNM's competitive rates in comparison to other states.

Nuclear Energy Inclusion in Renewable Portfolio Standards

Revis James, vice president, policy development and planning, Nuclear Energy Institute (NEI), reviewed his background for committee members and discussed the essentialness of

nuclear power. He was joined by Christine Csizmadia, director of state outreach at NEI. He emphasized that power considerations cannot be viewed solely in terms of cost and that nuclear power has sustainability on its side as well as economic development, grid resiliency and environmental positives, such as no greenhouse gas emissions. In pointing out the value of nuclear energy, Mr. James said that it contributes to state and federal taxes annually, supports 475,000 jobs and saves customers an average of 6% on electricity bills. He spoke of demand-growth over the next 30 years and encouraged taking a long view by investing in assets that will be needed eventually.

Mr. James stressed the value of diversity in any portfolio, which can help to stabilize fuel prices and ensure reliability and availability. In discussing clean energy standards, he said that as a results-oriented organization, NEI wants to reduce emissions and maintain clean air and that having standards would contribute to these goals. He then reviewed actions taken by various states related to emissions standards and various credits given to the nuclear industry.

He briefly discussed key features of small modular reactors in design, flexibility and efficiency. He added that although the units are expensive, these types of reactors have a lot of positive attributes.

Committee members' questions ensued, and the following points were discussed:

- 13 nuclear facilities have closed due mainly to economic factors;
- the definition of "carbon-free" and the reality of carbon being produced in construction;
- the question of the U.S. Nuclear Regulatory Commission granting the Palo Verde Nuclear Generating Station an 80-year extension;
- nuclear energy's low emissions;
- the goal of being able to dispatch power based on need;
- factors to consider in determining the carbon footprint of renewable sources of energy;
- the cost comparison of small modular reactors versus larger facilities; and
- extraction of uranium from sea water and the argument of nuclear energy not being renewable.

In conclusion, Ms. Csizmadia informed the RHMC that the Palo Verde license has been extended until 2045.

Small Modular Reactor Technology Progress

Van Romero, New Mexico Institute of Mining and Technology, began by giving a definition of small modular reactors (SMRs). He spoke of the discovery of fission of uranium atoms and the generation of energy as well as radioactive byproducts. He compared the way water is cooled in SMRs to the pumping systems in nuclear facilities that, when they malfunction, can cause overheating in the reactors and ultimately can melt the core. He added that during the Fukushima Daiichi nuclear disaster in 2011, grid power was lost and the cooling

system failed. But with SMRs, there are no pumps. He said that the naval nuclear program, with 230 operating vessels, had 9,000 SMR operations with no significant accidents.

Mr. Romero spoke of the pre-feasibility study that the EMNRD did on SMRs, which will be issued in December 2016. One advantage New Mexico has is that there is a surplus of produced water from oil wells that could be used as a cooling source in these reactors.

Committee members' questions brought forth the following points:

- the process by which heat is removed in the SMRs;
- natural circulation as a reliable source of cooling when power is lost;
- the size of SMRs, with their relatively small footprint (they fit on a railroad car); and
- quantifying the benefits that SMRs bring.

Tularosa Basin Health Impact Assessment Report

Tina Cordova, co-founder, and the Reverend Holly Beaumont of Interfaith Worker Justice and a steering committee member of the Tularosa Basin Downwinders Consortium (TBDC), spoke to the RHMC on restorative justice issues related to those affected by the tests conducted at the Trinity site 71 years ago. Ms. Cordova, a survivor of thyroid cancer, relayed stories of the many sick and dying people in south central New Mexico. In addition to her own cancer, she spoke of other family members and community members who were also diagnosed with cancer without any prior risk factors but who lived close to the Trinity site. In partnership with Joni Arends of Concerned Citizens for Nuclear Safety and Dr. Maya Gomez at the University of New Mexico, she said they are in the midst of a health impact assessment. She described the July 1945 Trinity test, in which the atomic bomb was detonated so close to the ground that it produced a massive radiation field and a cloud that traveled seven miles into the atmosphere. Being the first of its kind, the test was not efficient — only three of the 13 pounds of plutonium packed into the bomb actually fissioned, she explained. Also, plutonium has a half-life of 24,000 years, she said, and further concerns have arisen because, at the time of the detonation, the people in the area farmed organically, hunted and raised animals. The gardens, orchards, cisterns, ditches and holding ponds were all damaged by the Trinity test. She added that although the government described this area as "remote and uninhabited", about 40,000 people resided there. These residents were unknowing, unwilling and certainly uncompensated for their health costs and loss, she said.

Ms. Cordova described the current work of the TBDC and its partners, which consists of meeting with city and village councils and county commissions and advocating for people to come forward with their health histories of both living and dead family members as well as their oral histories. She stated that they are working hard to ensure that the federal Radiation Exposure Compensation Act (RECA) is amended because, although funding of over \$2 billion has been made available through the RECA for downwinders of the Nevada nuclear test site, New Mexico has never been included in this funding, but New Mexicans were actually the first downwinders. The fund has paid out over \$2 billion to those living downwind of the Nevada test site, she added, and these affected people also get a health care card with no premiums that

ensures that they can be taken care of anywhere. In New Mexico, those who get sick often go elsewhere for treatment. She said that the entire congressional delegation has signed onto the RECA amendments.

Reverend Beaumont reiterated the importance of restorative justice for New Mexico residents whose health has been affected, and she spoke of the economic impact on these families. She said that the federal government owes it to the people of New Mexico to provide the kind of support that would address their medical concerns. She urged legislators to apply their leadership on this issue and to advocate for these New Mexico residents.

Committee members brought their questions forth, and the following topics were covered:

- whether there has been a scientific investigation done of the Trinity site to determine the existence of contamination;
- that the federal Centers for Disease Control and Prevention (CDC) study determined exposures to contamination to be 10,000 times higher than recommended doses on the day of the Trinity event;
- the CDC's continuance of this study;
- the generations of people who suffered nuclear exposure at the Trinity site and the lack of any environmental studies being done after that; and
- the need for funding to do testing of soil and water even now.

Radiation in the Natural Environment

Norbert Rempe, a resident of Carlsbad, a former employee of WIPP for 23 years and a geologist, discussed radioactive matters as connected to geology. He spoke of the common misperception around anything "radioactive" or "nuclear" being associated with negativity. He added that although ionizing radiation is viewed as unusual and dangerous, it is actually always in people and around people, in x-rays and gamma rays. With New Mexico as a "significant nuclear state", with its national laboratories, uranium and potash deposits and detonations at the Trinity and Gnome sites, everyone is radioactive. He compared the amounts of background radiation in the underground of WIPP (.7 ur) with measurements taken in other places. For example, in Carlsbad, the measurement was 16 ur; in Albuquerque, 22 ur; in Radium Springs, 27 ur; and on an airplane at 34,000 or 35,000 feet, 320 ur.

Mr. Rempe spoke of how on the earth's surface there is actually a decrease in radioactivity over time as long-lived radioactive isotopes decay. Mr. Rempe quoted George Cowan of LANL in an article Dr. Cowan wrote in *Scientific American* in which he said that man imitated nature when he designed fission reactors because two billion years ago, portions of a uranium deposit in Africa spontaneously underwent nuclear fission. Mr. Rempe added that the nuclear fission of the sun and other stars is also quite natural.

Mr. Rempe next posed the question of whether people are overexposed or underexposed, and he questioned whether radiation is actually good for people. He gave a survey of radiation

levels in various parts of the world, stating that Ramsar, Iran, has the highest-known radiation levels on earth. He mentioned taking measurements at the area on Don Gaspar and Water Street in Santa Fe, where there are boulders from all over the state, and the measurements were at 80-90 ur/hr, whereas the standard in the city is generally around 22 ur. He also spoke of the composition of the Matterhorn, which is granite, and how granite is the hottest radioactive rock on earth. He compared radiation on the Matterhorn with that of the Asse repository (former salt and potash mine) in Germany, and Asse came out as less radioactive. Mr. Rempe's point over and over was that natural radiation is often higher than what people are protecting against with the federal Environmental Protection Agency's standards. He said that, of course, high doses of radioactivity received over a short period of time are harmful, but there is not really any damage at lower levels of exposure and that low exposures might actually be good for people.

Mr. Rempe went on to speak of the level of contamination at WIPP. He said that even before any incidents there, the radiation levels at the surface were higher than those below the surface. He added that 2,100 feet of rock serves as a shield and that salt is one of the least radioactive materials on earth. He spoke of the linear-no-threshold (LNT) hypothesis, which says that even the smallest amounts of radiation are harmful, but he argued that LNT has no scientific basis. He advocated that natural background radiation actually protects humans from disease. He questioned why anyone would regulate radiation levels when natural levels of radiation are actually much higher.

Adjournment

There being no further business, the RHMC adjourned at 4:58 p.m.