



NEW MEXICO LEGISLATURE

# RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

2016 INTERIM FINAL REPORT

LEGISLATIVE COUNCIL SERVICE  
411 STATE CAPITOL  
SANTA FE, NEW MEXICO 87501  
(505) 986-4600  
[WWW.NMLEGIS.GOV](http://WWW.NMLEGIS.GOV)

# TABLE OF CONTENTS

INTERIM SUMMARY

WORK PLAN AND MEETING SCHEDULE

AGENDAS AND MINUTES

ENDORSED LEGISLATION



## INTERIM SUMMARY



## **Radioactive and Hazardous Materials Committee 2016 Interim Summary**

The Radioactive and Hazardous Materials Committee met four times during the 2016 interim. In compliance with its statutory mandate, it heard a status report from the federal Department of Energy and the New Mexico Department of Environment on the Waste Isolation Pilot Plant. The Carlsbad Environmental Monitoring and Research Center also testified before the committee. Progress in nuclear technology was considered, as were the health effects of atomic weapons testing during World War II in the Tularosa Basin. The Gold King Mine discharge into the Animas River and progress on the Kirtland Air Force Base fuel spill cleanup were topics of interest.

The committee endorsed two bills: a bill to create the Carlsbad Brine Well Remediation Advisory Authority and a remediation fund; and a companion bill to appropriate money to the Energy, Minerals and Natural Resources Department to develop a request for proposals for design-build services to begin remediation of the brine well cavern that sits under a major United States highway junction in Carlsbad.





## WORK PLAN AND MEETING SCHEDULE



**2016 APPROVED  
WORK PLAN AND MEETING SCHEDULE  
for the  
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

**Members**

Rep. Cathrynn N. Brown, Chair  
Sen. Daniel A. Ivey-Soto, Vice Chair  
Rep. Eliseo Lee Alcon  
Sen. Ted Barela  
Sen. Carlos R. Cisneros  
Rep. Stephanie Garcia Richard

Sen. Gay G. Kernan  
Sen. Carroll H. Leavell  
Sen. Richard C. Martinez  
Rep. G. Andres Romero  
Rep. Larry R. Scott  
Rep. James G. Townsend

**Advisory Members**

Sen. William F. Burt  
Rep. David M. Gallegos  
Sen. Ron Griggs  
Sen. Stuart Ingle  
Rep. Rod Montoya  
Sen. William H. Payne

Sen. John Pinto  
Sen. Nancy Rodriguez  
Rep. Nick L. Salazar  
Sen. Clemente Sanchez  
Rep. Jim R. Trujillo

**Work Plan**

The Radioactive and Hazardous Materials Committee was created in 1979 pursuant to the provisions of the Radioactive and Hazardous Materials Act. During the 2016 interim, pursuant to Section 74-4A-11 NMSA 1978, the committee will review:

1. Waste Isolation Pilot Plant (WIPP) operations and management;
2. nuclear energy initiatives;
3. Department of Environment programs and operations;
4. Los Alamos National Laboratory progress on uranium legacy site cleanup and shipment of waste to WIPP;
5. small modular reactors;
6. Kirtland Air Force Base fuel spill status and legacy military waste disposal;
7. Gold King Mine disaster status;
8. chromium cleanup status at Los Alamos; and
9. interim spent fuel storage (Eddy Lea Energy Alliance).

**Radioactive and Hazardous Materials Committee  
2016 Approved Meeting Schedule**

<u>Date</u>	<u>Location</u>
June 1	Santa Fe
July 12	Albuquerque
August 2	Carlsbad
October 31	Santa Fe

## AGENDAS AND MINUTES



**TENTATIVE AGENDA  
for the  
FIRST MEETING  
of the  
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

**June 1, 2016  
Room 311, State Capitol**

**Wednesday, June 1**

- |            |   |
|------------|---|
| 10:00 a.m. | <b>Call to Order and Introductions</b><br>—Representative Cathrynn N. Brown, Chair                    |
| 10:10 a.m. | (1) <a href="#"><u>Department of Environment (NMED) Update</u></a><br>—Ryan C. Flynn, Secretary, NMED |
| 11:30 a.m. | (2) <a href="#"><u>2016 Interim Work Plan and Meeting Schedule</u></a>                                |
| 12:00 noon | <b>Adjourn</b>  |





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

**June 1, 2016  
Room 311, State Capitol  
Santa Fe**

The first meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Representative Cathrynn N. Brown, chair, on Wednesday, June 1, 2016, at 10:09 a.m. in Room 311 of the State Capitol. Legislators and staff introduced themselves to the audience.

**Present**

Rep. Cathrynn N. Brown, Chair  
Rep. Eliseo Lee Alcon  
Sen. Ted Barela  
Sen. Carlos R. Cisneros  
Rep. Stephanie Garcia Richard  
Rep. G. Andrés Romero  
Rep. Larry R. Scott

**Absent**

Sen. Daniel A. Ivey-Soto, Vice Chair  
Sen. Gay G. Kernan  
Sen. Carroll H. Leavell  
Sen. Richard C. Martinez  
Rep. James G. Townsend

**Advisory Members**

Sen. William F. Burt  
Sen. Ron Griggs  
Sen. John Pinto  
Sen. Nancy Rodriguez  
Rep. Nick L. Salazar  
Sen. Clemente Sanchez  
Rep. Jim R. Trujillo

Rep. David M. Gallegos  
Sen. Stuart Ingle  
Rep. Rod Montoya  
Sen. William H. Payne

**Staff**

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

**Guests**

The guest list is in the meeting file.

**Handouts**

Handouts and other written testimony are in the meeting file.

**Wednesday, June 1**

**Department of Environment (NMED) Update**

Secretary Ryan C. Flynn, NMED, introduced Kathryn Roberts, director, Resource Protection Division, NMED, who supervises the reopening of the Waste Isolation Pilot Plant (WIPP) as well as cleanup efforts at Los Alamos National Laboratory (LANL) and Kirtland Air Force Base (KAFB). In addition, he introduced two staff members in the audience: Allison Majure, director of communications, and Michaelene Kyrala, legislative liaison.

Secretary Flynn said that the public comment period ended just yesterday on the revised LANL consent order and added that he and Ms. Roberts would be covering details about the public comment period and comments received, an overview of the revised consent order, the NMED's perspective and next steps.

He explained that the consent order is an agreement among the NMED, the federal Department of Energy (DOE) and the DOE's contractor at LANL, Los Alamos National Security. The consent order governs the cleanup of legacy contamination at the Los Alamos site, where early on there really was no regulatory framework in place to deal with the radioactive waste generated there. He said that cleanup discussions began in the early 2000s and the consent order was established in 2005. Secretary Flynn described a consent order as defining the scope of the problem at hand, the areas of investigation and types of sites to be analyzed as well as the process that is to be used for cleanup. The consent order does not dictate what the remedies will be, he clarified, but defines scope and process. The manner of actually removing the contaminants is determined through a regulatory process, which is not part of the consent order.

Originally, the 2005 consent order required that all cleanup work be completed by the end of 2015, but the DOE determined that this could not be done, which was not a surprise, Secretary Flynn added. He opined that the current estimate from the DOE for cleanup is conservative and said that cleanup is an immense public health challenge that will cost a huge amount of money. The DOE's estimate, which comes in at \$3.8 billion, assumes mostly "cap-and-cover" remedies. Secretary Flynn stated that the actual cleanup cost will likely exceed \$4 billion and take over 10 years to complete.

Secretary Flynn described the process involved in the public comment period for the revised consent order, which included meeting individually with stakeholders, non-governmental organizations and the public over a 45-day period, which was then extended by 15 days. The NMED's intention is to apply lessons learned. The enhancements made to the revised consent order have been devised to accelerate the pace of cleanup and to provide a plan for increased funding, he explained. In addition, Secretary Flynn said, what is most needed is more active remediation at the site and there is a regulatory process that must be followed. This process can prevent progress on cleanup, which is what has happened in the past. He spoke of the importance of receiving added funding for the cleanup, saying that the state received a good amount through federal American Recovery and Reinvestment Act of 2009 funding, but the

moderate annual increases are far below what is necessary. He compared the funding that New Mexico receives annually (currently at \$189 million) with what a site such as Hanford receives (\$2 billion).

Ms. Roberts reviewed the four key areas of enhancement used in the revised consent order: a campaign approach, cleanup versus investigation, an annual planning process and data quality objectives. The campaign approach allows for sites to be grouped into one campaign that consists of one or more deliverables and that extends though several fiscal years in scope, she said. Secretary Flynn added that campaigns are essentially manageable chunks that allow for projects to be completed within a sensible framework that also allows for greater accountability and transparency and an ease in seeing the way forward. This is particularly helpful because there are over 1,200 cleanup sites.

The NMED's focus on cleanup over investigation (which was necessary in 2005 but not now) centers on the need to complete actual remediation now, Ms. Roberts added. The DOE's requirements must ultimately be approved by the NMED, so, although the DOE could choose another remedy, that remedy would eventually have to be approved by the NMED. The two agencies can agree on what remedy is most appropriate and move forward with that work without getting tied up in the regulatory process, Secretary Flynn explained. Ms. Roberts indicated that it is a more robust process if the NMED and the DOE collaborate on both deliverables and the work to be done. Secretary Flynn lauded Ms. Roberts' background as being both technical and academic — she worked for the NMED's Hazardous Waste Bureau on that 2005 consent order and later at LANL before returning to the NMED. She understands being the regulator as well as being regulated, which is essential to the process the NMED is now able to put into play, he said.

Ms. Roberts spoke next of the annual planning process, which allows the NMED and the DOE to update milestones and create target dates annually and adjust timelines based on changing conditions, priorities and funding. The work is scheduled for the current fiscal year and two years beyond the current year. She explained that in 2005 no one knew about the chromium plume at LANL and resources had to be shifted to address this emerging problem; revision of the consent order allows for a dynamic process that includes necessary flexibility.

The focus on data quality objectives promotes a well-established process for conducting corrective action work under the federal Resource Conservation and Recovery Act of 1976 (RCRA). The NMED is the final decision-maker as to whether the DOE has met its objectives, but this enhancement requires that methods and procedures used during field work will be part of the reports. Also, work plans will be in place that describe the objectives of the work at hand.

Other enhancements that Ms. Roberts cited include the relationship between the consent order, which covers all legacy practices, and the RCRA permit, which covers current operations. The current consent order clarifies what happens to the site if the consent order work is not completed; all incomplete work will move over into the RCRA permit process so that there is no

gap and the work is covered by one document or the other, she stated. Also, all deliverables in the revised consent order are subject to stipulated penalties for non-performance.

Secretary Flynn reviewed what has not changed between the 2005 consent order and the revised one: all work is carried over from 2005 to the revised consent order; public participation continues; stipulated penalties continue as just mentioned; and cleanup continues rigorously. He added that the NMED makes the final call on whether cleanup has been accomplished at the appropriate level.

He then gave an overview of the comments received on the revised consent order, focusing mainly on comments related to public participation. Those comments included complaints that a public hearing has not occurred on these changes. He pointed out that a public hearing is not required in the law. He also spoke of how much money and time are required for public hearings, saying he feels that direct one-on-one and public meetings are much more productive. Secretary Flynn said that the NMED will post all written comments on its website.

In conclusion, Secretary Flynn indicated that the revised consent order focuses on cleaning up contamination aggressively, provides a plan for the completion of such work, clearly articulates what the enforceable penalties are for each year and provides more flexibility to both the NMED and LANL to ensure success in cleaning up legacy waste. He said that the NMED's next steps are to review and compile comments received, determine changes needed, negotiate with the DOE on the revised document and finalize it by early July.

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

- the state and the DOE work hand-in-hand to devise remedies to address contamination immediately; the regulatory process is slower; the goal is that the final remedy will complement the current process;
- the fact that New Mexico is taking the waste of the nation at WIPP needs to be an argument for the necessity of receiving higher funding levels;
- although the DOE has concerns about the NMED's proposal to increase penalties in the revised consent order, the NMED feels strongly that there needs to be a consequence for not meeting deadlines;
- it is difficult to set a deadline for completion of work on the revised consent order; setting a deadline before fully investigating the problems and knowing what the final remedies are can result in failure;
- kudos from committee members regarding the campaign approach, which makes it more likely that projects can be more clearly articulated and funding for these more successful;
- any decision the NMED makes at LANL gets litigated and a lot of taxpayer dollars go into these lawsuits; and
- through engagement among the NMED's staff, the Albuquerque-Bernalillo County Water Utility Authority and the U.S. Air Force, progress on cleanup of the KAFB fuel

spill is immense: three wells running, a pump-and-treat system in place, ground water treatment systems in place and a study on how to address the light non-aqueous phase liquid ground water contaminant issue through a ground water extraction well system, all leading to the ultimate reduction of the contamination.

### **Interim Work Plan and Meeting Schedule**

Mr. Meeks reviewed the proposed work plan for the 2016 interim. Committee members requested the addition of a few more items of concern, including: an update on the Gold King Mine spill; an update on chromium cleanup at LANL; a report on the final revised consent order; an update on the deep borehole method of waste storage; and an update on the Eddy-Lea Energy Alliance. In addition, places were determined for each meeting date, which include: July 12 in Albuquerque, August 2 in Carlsbad and October 31 in Santa Fe. On motion and second, the work plan and meeting schedule were approved by the RHMC.

### **Adjournment**

There being no further business, the committee adjourned at 12:02 p.m.



**TENTATIVE AGENDA  
for the  
SECOND MEETING  
of the  
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

**July 12, 2016  
Rotunda Room, University of New Mexico Science and Technology Park  
801 University Boulevard SE  
Albuquerque**

**Tuesday, July 12**

- 10:00 a.m.      **Call to Order and Introductions**  
—Representative Cathrynn N. Brown, Chair
- 10:10 a.m.      (1)    [Department of Energy Forum and Nuclear Research at the University of New Mexico \(UNM\)](#)  
—Ed Blandford, Assistant Professor, Department of Nuclear Engineering, UNM
- 11:00 a.m.      (2)    [Gold King Mine Discharge Update](#)  
—Trais Kliphuis, Director, Water Protection Division, Department of Environment (NMED)  
—Dennis McQuillan, Chief Scientist, NMED
- 12:00 noon      **Lunch**
- 1:00 p.m.      (3)    [Kirtland Air Force Base Bulk Fuel Spill Status](#)  
—Dennis McQuillan, Chief Scientist, NMED  
—Kathryn Roberts, Director, Resource Protection Division, NMED  
—Adria Bodour, Technical Project Lead, Air Force Civil Engineer Center, United States Air Force (USAF)  
—Kate Lynnes, USAF  
—Mary Lou Leonard, Director, Environmental Health Department, City of Albuquerque  
—Maggie Hart Stebbins, County Commissioner, Bernalillo County; Chair, Albuquerque-Bernalillo County Water Utility Authority Board
- 3:30 p.m.      **Adjourn**





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

**July 12, 2016  
Rotunda Room, University of New Mexico Science and Technology Park  
801 University Boulevard SE  
Albuquerque**

The second meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Representative Cathrynn N. Brown, chair, on Tuesday, July 12, 2016, at 10:03 a.m. in the Rotunda Room at the University of New Mexico (UNM) Science and Technology Park in Albuquerque.

**Present**

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

**Advisory Members**

Sen. Nancy Rodriguez  
Rep. Jim R. Trujillo

**Absent**

Sen. Daniel A. Ivey-Soto, Vice Chair  
Sen. Gay G. Kernan  
Sen. Carroll H. Leavell  
Sen. Richard C. Martinez

Sen. William F. Burt  
Rep. David M. Gallegos  
Sen. Ron Griggs  
Sen. Stuart Ingle  
Rep. Rod Montoya  
Sen. William H. Payne  
Sen. John Pinto  
Rep. Nick L. Salazar  
Sen. Clemente Sanchez

**Staff**

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

**Guests**

The guest list is in the meeting file.

## **Handouts**

Handouts and other written testimony are in the meeting file.

## **Tuesday, July 12**

The chair recognized UNM Provost Chaouki T. Abdallah and invited him to welcome the committee. He spoke of a groundbreaking for Innovate ABQ that was occurring that day and said he would like to update the RHMC in three topic areas: academic, innovation and economic development. He reported that although enrollment remains a challenge, UNM is focused on student success and is projecting a graduation rate of 60% within the next few years. He highlighted UNM's innovation efforts, which include partnerships among the state, private organizations and the university; and an innovation district in the city that will offer an integrated place to live, work and play, with its mission being to strengthen the economic base. He spoke of an innovation academy that engages UNM students and companies in creative projects and that began with 125 students in its first year and will increase to 200 in the second. The university also recently hosted the U.S. Department of Energy (DOE) regional forum, and he said that regional partnerships among its participants will be announced in September. The DOE will fund collaborations, and UNM's goal is to be at the center for the region.

The chair asked committee members to introduce themselves before they engaged in questions. Then, committee members asked questions, and the following points arose:

- issues with remediation, the impact on graduation rate and a new interactive system that allows for immediate feedback and much better results;
- the role of the national laboratories in Innovate ABQ, which includes connecting to businesses, sharing intellectual property, joint research and education and joint hiring;
- declines in enrollment and issues around attracting quality out-of-state students, extending the territory beyond the member states in the Western Interstate Commission for Higher Education and concerns for the business model at UNM, which would not work well if all students were paying in-state tuition; and
- interest in touring the UNM facility, which contains a small nuclear reactor.

## **DOE Forum and Nuclear Research at UNM**

Ed Blandford, assistant professor in the Department of Nuclear Engineering at UNM, presented the RHMC with highlights of the DOE's Southwest Regional Innovation Forum, which took place on July 5 and featured U.S. Secretary of Energy Ernest Moniz. The forum included broad participation from regional universities and the national laboratories, with a stated goal of exploring clean energy challenges, especially how to address these challenges through public-private partnerships, and with a strong focus on materials technology for clean energy.

Mr. Blandford highlighted the issues covered by four panels, which included hydrogen technology, advancements in photovoltaics, electrical energy storage and advancements in nuclear materials. The key take-away from the panels focused both on challenges and

opportunities, which Mr. Blandford discussed. Challenges include the fact that nuclear materials are unique because the time required to qualify them is often quite long and the cost is high, both of which are key barriers to developing, demonstrating and licensing new materials. Also, advances made in nuclear fuel and materials significantly affect both current and future costs of reactors and technologies. The opportunities that exist, despite these stated barriers, include establishing a research and development program with funding that focuses on cost reduction and reducing the duration of materials development, testing and licensing; making nuclear material science capabilities more widely available to scientific users at a lower cost; establishing stronger integration between nuclear materials and fuels modeling and simulation; and creating solid synergies with other clean energy sectors as related to materials science. Mr. Blandford ended by saying that the panels are developing a report for the DOE that would specify the elements of a regional partnership in materials for clean energy technology research and development. (For an overview of UNM's Department of Nuclear Engineering activities, please refer to the handout, as this was not presented.)

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

- the definition of clean energy, which includes coal, nuclear fuels and traditional renewables;
- potential benefits and challenges of recycling of nuclear fuels;
- the strategic approach with small nuclear reactor technology, which focuses on packaging and size and uses existing materials to reduce capital costs and production time lines;
- encouraging UNM's involvement with the Eddy-Lea Energy Alliance for interim storage;
- the viability of extracting uranium from sea water as a long-term, sustainable option;
- the economics of recycling spent nuclear fuel; and
- the challenges scientists face in effecting change within current political environments.

### **Gold King Mine Discharge Update**

Trais Kliphuis, director, Water Protection Division; Dennis McQuillan, chief scientist; and Diane Agnew, hydrologist, all from New Mexico's Department of Environment (NMED), gave an update on the Gold King Mine spill and its continuing effect on New Mexico. Mr. McQuillan spoke of the continued need to protect water quality and the efforts of the response team appointed by the governor to monitor the effects of the mine waste spill. He described the Animas River watershed as a complex hydrologic system where ground and surface water near the river interact. He reviewed actions taken by the NMED since the spill on August 5, 2015, which involved shutting down drinking water intakes, testing private wells and observing fish and wildlife mortality. Seasonal ground water surveys are being funded by the NMED, with the Bureau of Geology and Mineral Resources at the New Mexico Institute of Mining and Technology accomplishing the work. He added that there is still concern about contaminants reaching private wells.

Mr. McQuillan spoke of several efforts that the NMED led to ensure a regional response, which included installing sondes into the Animas and San Juan rivers to obtain real-time water quality data, developing a spring runoff preparedness plan and sampling river sediment, which prove that heavy contamination exists. He emphasized that many entities, including tribes and local and state authorities, have come together in agreement about ways to proceed, even though the \$6 million grant application to the U.S. Environmental Protection Agency (EPA) that would fund long-term monitoring has only been approved for \$465,000. Ms. Kliphuis stressed how critical this funding is and how unacceptable the lack of support from the EPA is.

A risk and exposure dashboard has been compiled, Mr. McQuillan said, to communicate levels and areas of risk to the public. He mentioned that many people have been affected by the spill and are not being treated as participants in the process; in many cases, the poor and homeless along the river have been left unprotected, turning this into an environmental justice issue alongside all of the other issues at hand. The dashboard highlights the pathways of exposure to risk, the risk level and an explanation of the current state of each pathway. Several areas fall under a cautionary risk level, such as public drinking water supplies, private domestic wells, river and ditch sediment and recreational activities. One area that is marked as unsafe is river water for domestic supply — untreated river water should never be used for domestic supply, even if contamination is not visible. (See the handout for a more detailed explanation of each risk category, rating and explanation.)

Mr. McQuillan made clear that the EPA and the State of Colorado are not making the needed efforts to keep to a high standard of cleanup of this contamination. A citizens' advisory committee was set up by the NMED in 2015 and meets monthly to determine appropriate corrective action. He added that the NMED originally thought that the EPA would step up to the plate when the spill happened, but this did not occur. He asserted that the responses of both the EPA and the State of Colorado are grossly inadequate and that the EPA has been lying; therefore, what is needed is independent, unbiased monitoring. Mr. McQuillan said that the EPA's own data show that the river water is contaminated, that the Animas River is used for drinking water, both public and private, and that water systems have to comply with the EPA's standards. Although the EPA has asserted that the metals in the surface water and sediment have returned to pre-event conditions, the Animas and San Juan watersheds contain over one million pounds of metals that were not present before the spill. Even the EPA's monitoring data, although sometimes misleading, show that the level of metals has not returned to pre-spill status. Also, the EPA has set a screening level for lead in soil post-spill that exceeds many other levels set across the country by the EPA; for example, the recreational exposure level is set at 20,000 parts per million. Mr. McQuillan insisted that the NMED will not allow children to be exposed to more than 500 parts per million of lead in soil in their yards. He added that these recreational standards are not appropriate for people who live on a river daily. He also spoke of the contamination of the irrigation ditches that cannot be shut down by the NMED, that farmers continue to irrigate with this water and that there is evidence of chlorosis in the water, making it impossible for crops to be safe for consumption.

Mr. McQuillan stated that the NMED has initiated litigation against the EPA and the State of Colorado due to all of these complaints. He said that these are delineated on the NMED's website.

The Bonita Peak Mining District has been proposed by the EPA for Superfund status, Mr. McQuillan indicated, and the NMED supports this listing. He then spoke of the comments that the NMED submitted to the EPA, with a list of demands to be met that includes full funding to the states and tribes to do independent monitoring without EPA interference; involving downstream stakeholders in the Superfund process; using good science; and communicating clearly, truthfully and in a timely fashion.

Ms. Agnew discussed the NMED's long-term monitoring plan, stating the importance of understanding the movement of contaminants into New Mexico. She said that even without any mining being done in this area, there is a natural occurrence of metals in the watershed. It is necessary to differentiate contamination from the spill and legacy contamination. With concern for spring runoff and the potential for releasing sediment into New Mexico, the NMED has tracked runoff daily, she added. In addition, there is ongoing monitoring for turbidity, pH and temperature. Heavy metal concentrations are measured as well through this sampling. Ms. Agnew remarked that Farmington has been proactive in monitoring its intake to ensure that no water is delivered with a high concentration of lead.

Ms. Agnew spoke of the relationship between ground water levels and the quality of water in the wells, saying that Aztec found a band of mineralized sediment where 2,400 parts per million of lead was found. The "running hypothesis" on what causes this, she added, is that this happens as the river loses its reach and the ground water moves out to the aquifer. Mapping the mineral area to determine how extensive the reach is and its age is the work that remains to be done. The NMED also wants to map out where, and what kind of, sediment is all along the Animas River, which can be accomplished with hand-held analyzers. UNM can then characterize what minerals are present in the sediment. Ms. Agnew said that jarosite is a characteristic metal at the Gold King Mine, which is not stable at a high pH, and as it moves downstream to New Mexico, it will become unstable and dissolve, releasing all of its heavy metals, which are lead, zinc and aluminum, into the water. In ending, Ms. Agnew reiterated that there is no evidence of unusual livestock or wildlife mortality.

Committee members asked the panel questions, and the following points were discussed:

- Utah's intent to sue the EPA;
- the EPA's negligence in not initially scheduling a Superfund meeting in New Mexico;
- a treatment facility at the Gold King Mine site;
- the impact of multiple mine sites on the Animas River and the potential for similar events occurring from legacy contamination in the future;
- Colorado's negligence over time, not just in the case of the Gold King Mine spill;
- the readiness of experts in Socorro to study other mines;

- when the sediment formed at the Aztec drinking water diversion channel;
- the availability of the data from sampling on the NMED's website;
- the EPA's questioning of unallocated federal funds to New Mexico, which has already been allocated for drinking water programs;
- the availability of historical data prior to the spill;
- Utah's monitoring of heavy metals from the San Juan River into Lake Powell, whose levels have significantly increased;
- emergency orders mandating Morningstar's water system to connect to Farmington's by July 15;
- what causes the yellow in the photographs of the river;
- the status of the mining companies that have been sued and that are still corporate entities, even though mining operations have ceased; and
- an estimate of two dozen mines out of hundreds to be monitored through the Superfund investigation.

Committee members next discussed a letter written a year ago to the EPA expressing concern about it not holding to high standards in its responses to the Gold King Mine spill. No response was received, the chair noted. Ms. Kliphuis stated that legislative support is crucial to the NMED, whether the EPA responds or not. A motion was made that the RHMC submit another letter to the EPA, noting that an inquiry was made a year ago and not answered and expressing continued concern over its mishandling of cleanup efforts related to the spill. The motion was seconded and approved.

### **Approval of Minutes**

On a motion and a second, the minutes of the June 1 meeting were also approved.

### **Kirtland Air Force Base (KAFB) Bulk Fuel Spill Status**

Kathryn Roberts, director, Resource Protection Division, NMED, introduced a panel, composed of the following individuals, to present a status update on the bulk fuel spill at KAFB: Mr. McQuillan; Ms. Roberts; Adria Bodour, technical project lead, Air Force Civil Engineer Center, United States Air Force (USAF); Kate Lynnes, USAF; Mary Lou Leonard, director, Environmental Health Department, City of Albuquerque; and Maggie Hart Stebbins, county commissioner, Bernalillo County, and chair, Albuquerque-Bernalillo County Water Utility Authority (WUA) Board.

In addressing the RHMC, Mr. McQuillan stressed the importance of partnership in solving the issues surrounding the fuel leak, with a special nod to the support received from Albuquerque's neighborhood associations. He discussed regulatory background as related to responsibility for dealing with such issues and cited both the federal Safe Drinking Water Act of 1974 (SDWA) program and the federal Resource Conservation and Recovery Act of 1976 (RCRA) program, both of which the NMED administers. It is imperative that public water systems deliver water to consumers that meets the standards under the SDWA, and KAFB must also comply with the RCRA hazardous waste permit. KAFB submits work plans to the NMED,

which it then approves (or not). He reminded the RHMC that the NMED is the regulator and KAFB is the permittee. Mr. McQuillan reviewed the goals of the strategic plan, which include a monitoring and wellhead protection program; characterizing and remediating light nonaqueous phase liquid; collapsing the ethylene dibromide (EDB) plume; and providing the opportunity for public comment throughout the process.

Mr. McQuillan reviewed a model of the site that shows that the water table has been dropping because of ground water depletion. He explained that a leak at the pipeline had migrated to the east because of the permeability of the layers of soil. Monitoring wells were installed to track and document the contamination. The supply of drinking water is being protected, he added, through monthly testing and monitoring and the establishment of well nests between the contaminated and drinking water wells that provide early warning of any migration of the plume. No drinking water wells show any sign of containing contaminants, he said. Also, sentinel wells are tested quarterly.

He reviewed the RCRA's time line from 2015 through 2017 and added that the USAF is about to submit a report that summarizes all of the data thus far, which is a required element of the hazardous waste permit. Public input is part of the process, followed by corrective measures, and interim corrective measures have been accomplished over the past 15 years, he pointed out.

Mr. McQuillan reported that since last year, when the first extraction well was installed, two more wells have been installed and are operating. Also, since last year, the USAF has installed a full-scale ground water treatment system. In addition, a pilot test is under way to inject treated water back into the aquifer. There is now a "cone of depression" in the extraction zone, which is great news and the first milestone in the process of collapsing this plume, he said.

In discussing the anatomy of the fuel plume, Mr. McQuillan said that the composition of the plume is different depending on where one is in the plume, and different technologies are required to assess this. He added that in the source area, the bacteria have been respirating and the EDB is getting destroyed. Beyond the source area, the downgradient portion shows evidence of hydrolysis through stable isotope testing and data. This shows that EDB has been degrading chemically through hydrolysis. He said that the fact that EDB is subject to chemical degradation is good news in that there is a natural degeneration of EDB occurring.

He said that three extraction wells were drilled last year and that the success of collapsing the plume is going to be measured in terms of how the water table is depressed. The water is pumped out, put into the pipeline and taken into a massive ground water system, the largest and most robust ground water system in the state, he stated. The "cone of depression" that occurred from the first three wells shows that the ground water contaminated with EDB has been removed. Mr. McQuillan indicated that this water would be considered potable anywhere else and is now being used for golf course irrigation.

Mr. McQuillan explained that potential risk occurs when a human or ecological receptor is exposed to contamination and that at KAFB, there are no such exposure pathways. There are contaminants in the ground water and in the soil, but not in the exposure pathway that leads to humans, he added. He then reviewed the risk levels (none) for drinking water, surface soil and water, vapor intrusion, gardens and recreational activities, all of which are considered safe. He added that there are more than 500 wells in the area, with four years of really good data, and that some of these wells have never shown the presence of any contamination.

Ms. Bodour discussed the technologies being used for soil vapor extraction and gave details of what has been extracted to date. Over 12 years, 750 gallons of fuel contaminants have been removed. She explained that there was a need to evaluate the effectiveness of a system that had been operating for so long, so it was decided to turn off the system, collect and analyze data and monitor the rebounding of hydrocarbon and in-situ respiration. Then, vapor trends could be evaluated and new technologies identified, such as bioventing.

Ms. Bodour gave details of what occurred during the shutdown when data were collected and analyzed and looked at over time. She gave specifics on how degradation occurs. She then spoke of bioventing, which she described as the opposite of the soil vapor process because bioventing involves air injection. Bacteria is enhanced by the injection of oxygen so that the bacteria can do its job, she explained, and when fuel hydrocarbons are degraded, EDB is metabolized. She then talked about the anaerobic degradation process. A work plan on this process will be submitted in July to the NMED, she said.

She described the three phases of the implementation of the pilot testing in detail, which involves baseline testing, biostimulation and bioaugmentation. She indicated that the strategic plan for 2016 is even more ambitious than the previous year's and includes pilot testing work, a fourth extraction well, aquifer testing, data gap monitoring wells, ground water treatment system expansion and meetings of the technical working group.

Ms. Leonard gave her perspective on the progress being made at KAFB, which she attributes largely to both the NMED and the USAF providing the best personnel to take the lead on cleanup efforts. She said, "When heads of agencies are bold enough to give the best to a troubled project, that makes the game change". She applauded the efforts of Secretary of Environment Ryan C. Flynn, the USAF, the water utility authorities, the federal government and the state legislature in getting behind this project in daring ways so that great technical progress could be made.

Commissioner Hart Stebbins spoke next with her WUA hat on, saying that the authority is serious about its response to protect the water supply. The WUA wants to make sure it and the public understand how the fuel spill happened, the extent of the contamination and how to prevent it from reaching the water supply. She added that the WUA has conducted water sampling for EDB, aviation gas and jet fuel constituents, and it has not found any contaminants related to the jet fuel spill. Actions that the WUA took included installing an early warning



system if contamination reaches water and hiring its own remediation expert to ensure an independent review. She said that the WUA realizes that the people in the community are justifiably concerned and that the WUA continues to monitor and support cleanup efforts. She concluded by stating that the WUA has seen tremendous progress, with a good flow of information, community engagement and transparency between the USAF and the NMED.

Ms. Lynnes said that Congresswoman Michelle Lujan Grisham wanted her to be involved in the KAFB fuel spill remediation, and Ms. Lynnes came on board last September. She said that her involvement is evidence of the USAF's commitment to this community, and she spoke of how visible this project is to the USAF and how committed it is to continued work and funding.

Committee members asked several questions of the panel, and the following points arose:

- how difficult it is to determine the size of the leak;
- that the USAF owns the water rights and also pays for cleanup, contract and core oversight costs;
- the NMED's three-year memorandum with the USAF that reimburses it at \$250,000 per year, which covers its costs;
- costs absorbed by the WUA's ratepayers;
- issues around private water systems that are still subject to federal law;
- EDB's danger as a carcinogen;
- the thickness of the plume and how long it will take to collapse;
- the array of public meetings to address community concerns;
- the excavation of the most heavily contaminated soil; and
- praise for this "all-star team" and the potential for this cleanup to be written up and turned into a motion picture.

### **Adjournment**

There being no further business, the committee adjourned at 3:08 p.m.



**TENTATIVE AGENDA  
for the  
THIRD MEETING  
of the  
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

**August 2, 2016  
Auditorium, Carlsbad Field Office  
Skeen-Whitlock Building, 4021 National Parks Highway (Hwy. 62/180 - El Paso Highway)  
Carlsbad, New Mexico**

**Tuesday, August 2**

- |            |  |
|------------|--|
| 10:00 a.m. | <b>Introductions</b>   |
| 10:10 a.m. | (1) <a href="#"><u>New Mexico Department of Environment/ United States Department of Energy Settlement</u></a><br>—Kathryn Roberts, Resource Protection Division Director, Department of Environment |
| 11:10 a.m. | (2) <a href="#"><u>Waste Isolation Pilot Plant Status Report</u></a><br>—Todd Shrader, Manager, Carlsbad Field Office, Department of Energy  |
| 12:00 noon | (3) <a href="#"><u>Working Lunch — Carlsbad Environmental Monitoring and Research Center</u></a><br>—Russell Hardy, Director, Carlsbad Environmental Monitoring and Research Center                  |
| 1:00 p.m.  | (4) <a href="#"><u>Carlsbad Brine Well Status</u></a><br>—Jim Griswold, Bureau Chief, Environmental Bureau, Energy, Minerals and Natural Resources Department  |
| 2:00 p.m.  | (5) <a href="#"><u>Interim Storage — Eddy/Lea County Alliance</u></a><br>—Joy Russell, HOLTEC International  |
| 3:00 p.m.  | (6) <a href="#"><u>Carlsbad Nuclear Task Force</u></a><br>—John Heaton, Chair, Carlsbad Nuclear Task Force   |
| 4:00 p.m.  | (7) <a href="#"><u>URENCO Status Report</u></a><br>—Clint Williamson, Vice President of Communications and External Relations, URENCO  |
| 5:00 p.m.  | <b>Adjourn</b>   |



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

**August 2, 2016  
Carlsbad Field Office Auditorium  
U.S. Department of Energy  
Carlsbad**

The third meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order as a special subcommittee by Representative Cathrynn N. Brown, chair, at 10:00 a.m. on Tuesday, August 2, 2016, at the auditorium of the Carlsbad Field Office of the U.S. Department of Energy (DOE) in Carlsbad. Representative Brown welcomed all and asked committee members to introduce themselves.

**Present**

Rep. Cathrynn N. Brown, Chair  
Rep. Eliseo Lee Alcon  
Sen. Gay G. Kernan  
Sen. Carroll H. Leavell  
Rep. James G. Townsend

**Absent**

Sen. Daniel A. Ivey-Soto, Vice Chair  
Sen. Ted Barela  
Sen. Carlos R. Cisneros  
Rep. Stephanie Garcia Richard  
Sen. Richard C. Martinez  
Rep. G. Andrés Romero  
Rep. Larry R. Scott

**Advisory Members**

Sen. William F. Burt  
Sen. Ron Griggs  
Sen. John Pinto  
Sen. Nancy Rodriguez  
Rep. Jim R. Trujillo

Rep. David M. Gallegos  
Sen. Stuart Ingle  
Rep. Rod Montoya  
Sen. William H. Payne  
Rep. Nick L. Salazar  
Sen. Clemente Sanchez

**Staff**

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

**Guests**

The guest list is in the meeting file.

**Handouts**

Handouts and other written testimony are in the meeting file.

**Tuesday, August 2**

**New Mexico Department of Environment (NMED)/DOE Settlement**

Kathryn Roberts, director, Resource Protection Division, NMED, introduced other staff who accompanied her: Butch Tongate, deputy secretary, NMED, and Michaelene Kyrala, legislative liaison. Ms. Roberts began by reviewing the settlement agreements made with the DOE and signed in January. She said that there are two agreements, one with the Waste Isolation Pilot Plant (WIPP) and one with Los Alamos National Laboratory (LANL). The April 30, 2015 principles of agreement provided a framework for the settlement agreements, which identify corrective actions needed and specify supplemental environmental projects (SEPs). She added that the NMED has complete enforcement capabilities for noncompliance on the agreements. She discussed the parties for each agreement: for WIPP, the parties are the NMED, the DOE and the Nuclear Waste Partnership (NWP); for the LANL agreement, the parties are the NMED, the National Nuclear Security Administration (NNSA) of the DOE and Los Alamos National Security. Ms. Roberts pointed out that these two agreements are funded from two different pots of money — one from the NNSA and the other from environmental management — and that there are different restrictions on how the money can be utilized.

Ms. Roberts indicated that both settlement agreements amount to a total of \$74 million in improvement projects in the Carlsbad and Los Alamos areas. She said that each SEP has a team assigned to it, made up of the DOE, contractors, the NMED and some outside stakeholders. Each team also has an NMED team leader who coordinates the meetings, focuses the discussions and has final decision-making capability for the SEP. She then gave a brief overview of the project breakdown, saying that \$34 million was allocated to LANL and \$39.5 million to WIPP.

Significant progress has been made at WIPP since January of this year, Ms. Roberts said. In giving an update on the projects, Ms. Roberts stated that the first phase of the north access road project is completed; the surface overlay is the next phase, which should begin in mid-August and take 30 days to complete; the third phase is the striping, and it should take three weeks to complete. Mid-October is the hoped-for completion date, she added. The total cost of these phases amounts to \$6.6 million of the \$7.2 million allocated. Other projects at WIPP include: the emergency operations center, which needs a backup generator; emergency responder training, which was funded at \$1 million and is complete; and the triennial review, which is designed to be an independent look at systems and processes to identify problems early. The scope of work for this review, she said, is due to the NMED by January 22, 2017, and the first review should be completed by September 30, 2018.

Next, Ms. Roberts reviewed the status of projects in Los Alamos, which include: road improvements to WIPP routes in and around Los Alamos, for which a final determination of projects is close, and for which a document that includes all deadlines, dates and projects is being worked on now; structures for watershed enhancement to control the water flow in the canyons, including developing a storm water engineering structure work plan; water surface sampling to close a data gap; water line replacement; and a triennial review, which has to be completed by

September 30, 2018. Ms. Roberts stressed that teams of people are collaborating to achieve these goals.

Committee members engaged in questioning and the following points arose:

- clarification of road projects around the WIPP site (a map was provided) and that the New Mexico Department of Transportation (NMDOT) is the final decision-maker on which roads are improved, with consultation with the NMED;
- the dangerous condition of State Highway 128, which is a primary access road to WIPP, yet this road does not appear to be slated for funding; and
- the allocation of \$7.2 million for roads, for which it is hoped that the remaining funds will be given to the NMDOT by the end of 2017.

### **WIPP Status Report**

Todd Shrader, manager, Carlsbad Field Office of the DOE, gave an overview of projects at WIPP and stressed that the workforce has been quite dedicated in its pursuit and management of safety concerns. He spoke of the document safety analysis in which all consequences are analyzed for potential accident scenarios and a document is provided for safety oversight. In describing cold operations, Mr. Shrader said that this is a chance for operators to practice procedures of safety management and emergency response in a simulated manner. After this, there is a need to test the systems and complete a management self-assessment, which is an independent review followed by corrective action. This most extensive assessment is conducted by the WIPP management and operations contractor, the NWP, and this work will confirm when operations are ready to begin again.

All of this assessing will eventually lead to a return to waste emplacement operations, he added, but this will not happen for a number of years. He said that there are still contaminated areas at WIPP and that waste cannot be moved into these areas. Many panels remain closed, and Mr. Shrader reviewed the status of the waste disposal panels. He stressed that WIPP is now only half full and that a map of the WIPP site 30 years from now will look vastly different from the map he provided today. He added that the corrective action schedule is now being analyzed along with the risks associated with each corrective action to determine how the current schedule needs to be adjusted. Challenges that are still present and that can impede the schedule include weaknesses in the ventilation system, ground control in waste areas, the breaking of roof bolts and floor heave.

He spoke of changes to the DOE's transuranic (TRU) waste program, which include increased oversight. There is a need to ensure that WIPP's processes and procedures are in place. He said that the new waste acceptance criteria document (WAC) was issued on June 27, includes all requirements for the movement of waste and that it became effective July 5. The WAC includes accident investigation board findings. Mr. Shrader reviewed the new requirements, which include: enhanced acceptable knowledge, chemical compatibility evaluations and waste characterization programs that ensure knowledge of oxidizing chemicals in the waste stream.

Also, generator site technical reviews are done initially at sites and then followed by periodic reviews. He added that these reviews will likely be done at both sites before any shipments are made even though this is not a requirement of the WIPP WAC.

Mr. Shrader reviewed the SEPs currently in process, which include construction of the north access road and training and equipment projects at WIPP and other local mines. He ended by saying that it will take two to three months to empty out the waste handling building, and, after that, shipments of up to five per week can begin. He added that the "choke point" is not the shipments themselves, but getting the waste underground.

Committee members' questions explored the following topics:

- gap analysis done on waste streams that have been previously certified;
- the need for interim ventilation systems before a permanent one is installed;
- the target date of December 12 for opening, although this date is being re-evaluated;
- waste from the Waste Control Specialists (WCS) site will move to WIPP at some point;
- replacement of bolts and measurements done to measure even minute changes; and
- recovery of some or all of the WIPP mine.

### **Carlsbad Brine Well Status**

Jim Griswold, chief, Environmental Bureau, Energy, Minerals and Natural Resources department (EMNRD), began by saying that he would limit his talk to the technical aspects of the brine well. Mr. Griswold added that Secretary David Martin retired from the EMNRD at end of June, which is the only reason he was not in attendance. Mr. Griswold showed a map of the area and pointed out the main cavern area in green on the map. The red area, he pointed out, indicates the partial removal of salt in that area where brine has permeated the rocks. If the area were to fail, there would be a significant hole in the green area, with cracks in the red area.

Mr. Griswold spoke of the work on the early warning system, which includes instrumentation that monitors the stability of the cavern and tilt meters, pressure transducers and temperature gauges. He said that all instruments are tied into an automated system that, when it detects a change, signifies an "event", at which time reasons are sought out for such an occurrence. The system notifies the EMNRD on a daily basis, he added, and each event is interpreted. There are also multiple sensors that notify Eddy County of the need for road and canal closures as well as the need to move people away from the area.

He next spoke of the microseismic monitoring system that is in place to detect very small earthquakes. He said that there are four off-site stations for monitoring and triangulating locations of fracturing in the subsurface. There is also a surface filtering device to screen out traffic noise, for example, and to improve the accuracy of the system.



In discussing the stability of the cavern itself, Mr. Griswold said that a feasibility study was done in 2014 for the site, which confirmed that the cavern is not stable and that it would likely fail between 2023 and 2038. He added that in late 2014, these calculations were refined and it was determined that the failure could occur by 2021. The area is potentially five years out from a collapse, he pointed out. Also, the measurements of pressure changes and microseismic data show an increased probability of collapse. He depicted the situation as being much like an old cartoon of coyote and roadrunner, where spires of sandstone tenuously hold a rock on top of it and asked what the feather is that pushes it over the edge. In other words, collapse is imminent!

Mr. Griswold reviewed the data leading to this conclusion, which include a recording of cabin pressure on a daily basis since 2010 and show that salt creep is primary. He also pointed out that at each drop in pressure, a sizable microseismic event occurred at the cavern and that, after these events, the pressure just does not return. He showed a map that indicates the microseismic events that occurred in the last year and a half. He concluded by saying that the working hypothesis is that brine is seeping into the adjacent salt and rock formations at the north end of the cavern, which causes drops in cavern pressure and the release of seismic energy as fractures form. This indicates instability, and it appears that seismic activity is episodic. He said that, at present, the area is experiencing a quiet period, but it is expected that activity will increase in the fall.

Committee members asked several questions and the following points arose:

- cavern operations permitted by the state in the early 1980s predated the federal Clean Water Act of 1977;
- a city zoning permit originally allowed mining to occur;
- where the active brine facilities are and the difference in the depths of salt formations in different areas;
- the storage of gas in former brine caverns;
- legislation to establish the Carlsbad Brine Well Authority and a suggestion from the chair that the RHMC send a letter to the attorney general requesting an opinion on liability issues related to this issue;
- the difference between a signal and an event, which are two different alarms, and a signal that shows any fluctuation but may not rise to the level of an event;
- the options considered once it was determined that the cavern was collapsing; and
- the need for a solution and the importance of an attorney general opinion.

### **Interim Storage — Eddy-Lea Energy Alliance (ELEA)**

John Heaton, chair, Carlsbad Nuclear Task Force, stood in for Joy Russell of HOLTEC International and reviewed possibilities for interim storage of waste. He discussed the need to have access to the federal Nuclear Waste Fund established under the Nuclear Waste Policy Act of 1982, but because interim storage is not considered a repository, this fund cannot be tapped. A geologic repository is not a current option and is expensive, and although WIPP is an option

for storage at some point, at present only a square mile of the available 16 square miles is being used at WIPP. Mr. Heaton pointed out that new reactor technology is being developed that could burn spent fuel. He added that there are 64 interim storage sites around the country that are all similar to the consolidated interim storage (CIS) facility being discussed in New Mexico, with the exception of the need for stronger security here.

Mr. Heaton reviewed the reasons that the state needs interim storage, which include that CIS complements a future repository and is a safe, secure way to age the fuel before storage at a more permanent site. Also, CIS would allow the DOE to begin taking spent fuel and help to reduce the money currently being spent on lawsuits, which is projected to amount to \$22 billion by 2020 and even more in the future. He added that CIS provides flexibility in terms of recycling, research and disposal of spent nuclear fuel and that there are really no other solutions.

In reviewing where the state is today in relationship to the process around setting up CIS, Mr. Heaton said that both houses of Congress have produced comprehensive bills, but to no avail. U.S. House Energy and Commerce Committee Chairman Fred Upton and Environment and the Economy Subcommittee Chairman John Shimkus are focused on Yucca Mountain issues to the exclusion of other issues, Mr. Heaton added. Also, Senator Lamar Alexander is putting together another CIS bill, Mr. Heaton indicated. The U.S. House of Representatives is also working on a bill related to Yucca Mountain issues, which may include CIS, he stated. The Office of Nuclear Energy of the DOE is beginning a consent-based siting process and is looking for interim storage and repository sites across the county, he indicated. The DOE's interest is in a defense-only repository, meaning it advocates storing defense fuel independently of spent fuel, and Mr. Heaton said that it makes sense to bifurcate.

Mr. Heaton next spoke of the makeup and formation of the ELEA and the reasons for choosing the ELEA interim storage site. He thanked committee members and the legislature for last year's memorials and for their support. He pointed out the map of the southeast's nuclear corridor, which shows the location of the ELEA site. He next discussed the history and ratings of HOLTEC International, which was established in 1986 and has the highest industrial credit rating. HOLTEC is currently building a huge facility in New Jersey for small modular reactors, he added. Next, he reviewed construction of the spent fuel canister and what would be included in phase 1 construction of the facility. He pointed out that the construction of the first unit on 50 acres could store 74,000 tons of spent fuel that presently exists in the country. He described security as being enhanced, inconspicuous and less visible from the air, and he added that security is easily implemented because there are no areas where a person could hide.

Mr. Heaton spoke about implementation of plans to build an interim storage site, saying that HOLTEC will support its development, partner with the ELEA and institute a licensing process and operation of the facility. The site could be constructed by 2021, he added. With consent from many different entities—cities, counties, the legislature, the governor and the public—what is now needed is political action in motivating the congressional delegation to get this accomplished, Mr. Heaton stressed. Committee members questioned when HOLTEC would

be submitting its licensing package, which will be by year's end, Mr. Heaton said. Concern was also expressed regarding the manner in which the WCS is storing material that will eventually transfer to WIPP.

### **Carlsbad Nuclear Task Force**

Mr. Heaton continued with his own presentation, giving an overview of the Carlsbad Nuclear Task Force. He said that the task force has spent a good deal of time advocating for a budget in Washington, D.C. Proposals amount to \$240 million in the WIPP budget in the U.S. Senate, and \$27 million of this budget goes toward the settlement agreement, which cuts into the WIPP budget. The U.S. House of Representatives budget, though, is at \$293 million, with separate funding for the settlement agreement. He expressed how difficult it is to plan work and move forward when the budget is not settled.

Mr. Heaton reviewed the task force's objectives, which include: supporting WIPP's safe recovery and HOLTEC's efforts in licensing; expanding WIPP's mission; developing and supporting spinoffs of the nuclear industry; and supporting the community assurance program. He said that the task force is composed of about 50 community members who meet two or three times each month and conduct town hall meetings on specific pertinent issues.

Among the new opportunities in the task force's work is a change to the definition of TRU waste, Mr. Heaton said. He said that tank waste is considered high level only because it is the first level of extraction and that the U.S. is the only country that defines waste in this way. He said that this waste is very predictable and the definition needs to be changed so that it is based on levels of fission product concentrations. He also mentioned changes to the WIPP Land Withdrawal Amendment Act and having a subcommittee review permit modifications for the NMED.

Mr. Heaton also spoke about the definition of the amount of waste being amorphous, that the volume of the container the waste is shipped in is currently being measured rather than the waste itself. He ended by advocating strongly for nuclear power as a fundamental and necessary energy source.

Committee members asked several questions and the following points arose:

- how the capacity for WIPP is set by the Land Withdrawal Amendment Act at 175.6 cubic meters, an arbitrary number;
- the constant effort required to keep Congress informed and educated about WIPP and nuclear waste storage and the need for champions there;
- replacing employment in the coal industry with nuclear plant employment;
- adding nuclear energy to the renewable energy portfolio, especially based on new findings that allow for the extraction of uranium from sea water; and
- the importance of the affordability of nuclear energy technology.

Next, the chair asked for the RHMC to consider the July minutes, and the special subcommittee recommended approval of those minutes.

### **URENCO Status Report**

Clint Williamson, vice president of communications and external relations at URENCO, reviewed the company's vision, mission and values, which revolve around meeting the demand for sustainable global energy through nuclear power. He said that URENCO's hands-on approach contributes to the community support that the company still enjoys today. He gave an overview of URENCO's reach around the world, how it distributes its product around the world and the flow of that activity in and out of New Mexico. He went over the nuclear fuel cycle, which shows that each utility is responsible for procuring the mining component (uranium) and for the conversion process. At this point, the material flows to URENCO for enrichment then moves on to fuel fabricators.

Mr. Williamson said that fuel arrives at URENCO in 48-inch-wide cylinders, one per truck, and that these are now arriving most days of the week. He described the enrichment process, which involves heating and pressurization that result in separation of uranium into two isotopes. He spoke of URENCO as supplying the force needed for this separation to happen (measured in separative work units, or SWUs).

Mr. Williamson gave an overview of the company's history and workforce, with its corporate headquarters in Eunice, New Mexico, and its workforce of approximately 280 full-time and 100 contract employees, which he said will remain stable over the following decades. He indicated that in June 2006, URENCO was issued the first construction and operating license of its kind in the U.S. In June 2010, the Nuclear Regulatory Commission authorized URENCO to operate. He spoke of the bipartisan support that exists for the company across the state. He said that URENCO's SWU capacity is currently at 4.8 million.

Engagement with the community has been paramount to URENCO, Mr. Williamson said. This includes conducting public tours, which helps to take the mystery out of what is done at URENCO, he added. The company is also very active with professional associations and seeks a presence in key community events. He added that last year URENCO hosted a volunteer fair so that its employees could learn about where they could volunteer in the community and that URENCO allows every employee to give eight volunteer hours per month. This has amounted to URENCO employees volunteering almost 1,300 hours in 2016. The company also hosts a 9/11 day of service in which employees repair homes of the elderly in the community. As well, URENCO employees have been the largest contributors to the Lea County United Way since 2008. URENCO awards about \$150,000 annually in scholarships to students, offers paid internships to college students and provides summer enrichment programs for elementary schoolchildren, he added.

Committee members asked questions and the following points arose:

- appreciation expressed for URENCO's partnership with the community and its revitalization of Eunice;
- the Eunice Community Foundation's work in getting schoolchildren to visit the legislature; and
- bipartisan support in the legislature for URENCO.

**Adjournment**

There being no further business, the committee adjourned at 4:04 p.m.



Revised: October 24, 2016

**TENTATIVE AGENDA  
for the  
FOURTH MEETING  
of the  
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

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

**Monday, October 31**

- 9:00 a.m.           **Introductions**  
                          —Representative Cathrynn N. Brown, Chair
- 9:15 a.m.       (1)    [Carlsbad Environmental Monitoring and Research Center Update](#)  
                          —Russell Hardy
- 10:15 a.m.       (2)    [Proposed Legislation](#)  
                          —Carlsbad Brine Well Remediation Authority
- 11:30 a.m.           **Lunch**
- 12:30 p.m.       (3)    [Investing in Smart Energy Infrastructure Through a Reliable Energy Mix](#)  
                          —Sayuri Yamada, Federal and State Government Affairs, Public Service  
                              Company of New Mexico (PNM)  
                          —Matthew Jaramillo, Federal and State Government Affairs, PNM
- 1:30 p.m.       (4)    [Nuclear Energy Inclusion in RPS](#)  
                          —Revis James, Vice President, Policy Development and Planning, Nuclear  
                              Energy Institute
- 2:30 p.m.       (5)    [Small Modular Reactor Technology Progress](#)  
                          —Van Romero, New Mexico Institute of Mining and Technology
- 3:00 p.m.       (6)    [Tularosa Basin Health Impact Assessment Report](#)  
                          —Joni Arends, Concerned Citizens for Nuclear Safety  
                          —Holly Beaumont, Interfaith Worker Justice  
                          —Tina Cordova, Tularosa Basin Downwinders Consortium
- 4:00 p.m.       (7)    [Radiation in the Natural Environment](#)  
                          —Norbert Rempe
- 5:00 p.m.           **Adjourn**





**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.

## ENDORSED LEGISLATION



underscored material = new  
[bracketed material] = delete

HOUSE BILL

**53RD LEGISLATURE - STATE OF NEW MEXICO - FIRST SESSION, 2017**

INTRODUCED BY

FOR THE RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

AN ACT

RELATING TO PUBLIC SAFETY; PROVIDING FOR REMEDIATION OF THE  
DANGER POSED BY THE CARLSBAD BRINE WELL; CREATING THE CARLSBAD  
BRINE WELL REMEDIATION ADVISORY AUTHORITY; CREATING THE  
CARLSBAD BRINE WELL REMEDIATION FUND.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO:

SECTION 1. [NEW MATERIAL] CARLSBAD BRINE WELL REMEDIATION  
ADVISORY AUTHORITY--CREATED--MEMBERSHIP--ADMINISTRATION OF THE  
CARLSBAD BRINE WELL REMEDIATION.--

A. The "Carlsbad brine well remediation advisory  
authority" is created. The membership of the board of  
directors of the authority shall consist of the following seven  
members:

(1) the mayor of the city of Carlsbad, who  
shall serve as chair of the board, or the mayor's designee;

.204605.2

1 (2) the chair of the Eddy county board of  
2 county commissioners or the chair's designee;

3 (3) the secretary of energy, minerals and  
4 natural resources or the secretary's designee;

5 (4) the secretary of environment or the  
6 secretary's designee;

7 (5) the secretary of transportation or the  
8 secretary's designee;

9 (6) the manager of the Carlsbad irrigation  
10 district or the manager's designee; and

11 (7) the attorney general or the attorney  
12 general's designee.

13 B. The advisory authority:

14 (1) shall set policy for and advise the oil  
15 conservation division of the energy, minerals and natural  
16 resources department on the remediation of the Carlsbad brine  
17 well located at: Unit Letter M (SW/4 of the SW/4) in Section  
18 17, Township 22 South, Range 27 East, NMPM; Eddy County, New  
19 Mexico; and

20 (2) is granted all powers necessary and  
21 appropriate to provide advice to the division for a revenue  
22 source dedicated to the Carlsbad brine well remediation fund.

23 SECTION 2. [NEW MATERIAL] CARLSBAD BRINE WELL REMEDIATION  
24 FUND--CREATED--PURPOSE--CONDITIONS.--

25 A. There is created the "Carlsbad brine well

.204605.2

1 remediation fund". The fund shall be used by the oil  
2 conservation division of the energy, minerals and natural  
3 resources department to the extent that revenues are available  
4 to remediate the Carlsbad brine well.

5 B. Money in the fund may consist of federal grants,  
6 appropriations, donations, earnings from investment of the fund  
7 and other revenue that from time to time may accrue to the fund  
8 from other sources for remediation of the Carlsbad brine well.

9 C. Money in the fund shall be subject to  
10 appropriation by the legislature and shall not revert at the  
11 end of any fiscal year.

12 SECTION 3. [NEW MATERIAL] TERMINATION OF AGENCY LIFE--  
13 DELAYED REPEAL.--The Carlsbad brine well remediation advisory  
14 authority is terminated on July 1, 2029 pursuant to the Sunset  
15 Act. The advisory authority shall continue to operate  
16 according to the provisions of this act until July 1, 2030.  
17 Effective July 1, 2030, this act is repealed.

18 SECTION 4. EFFECTIVE DATE.--The effective date of the  
19 provisions of this act is July 1, 2017.





underscored material = new  
[bracketed material] = delete

HOUSE BILL

**53RD LEGISLATURE - STATE OF NEW MEXICO - FIRST SESSION, 2017**

INTRODUCED BY

FOR THE RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

AN ACT

MAKING AN APPROPRIATION TO THE OIL CONSERVATION DIVISION OF THE ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT TO DEVELOP A REQUEST FOR PROPOSALS FOR DESIGN-BUILD SERVICES TO REMEDIATE THE CARLSBAD BRINE WELL CAVERN AND VICINITY AT U.S. ROUTES 285 AND 62 IN CARLSBAD; DECLARING AN EMERGENCY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO:

SECTION 1. APPROPRIATION.--Five hundred thousand dollars (\$500,000) is appropriated from the general fund to the oil conservation division of the energy, minerals and natural resources department for expenditure in fiscal years 2017 through 2019 to develop a design-build request for proposals for services to remediate the Carlsbad brine well cavern located at: Unit Letter M (SW/4 of the SW/4) in Section 17, Township 22 South, Range 27 East, NMPM; Eddy County, New

.205050.1

1 Mexico. The division shall act pursuant to the advice of the  
2 Carlsbad brine well remediation advisory authority. Any  
3 unexpended or unencumbered balance remaining at the end of  
4 fiscal year 2019 shall revert to the general fund.

5 SECTION 2. EMERGENCY.--It is necessary for the public  
6 peace, health and safety that this act take effect immediately.

7 - 2 -  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25





LEGISLATIVE COUNCIL SERVICE  
SANTA FE, NEW MEXICO