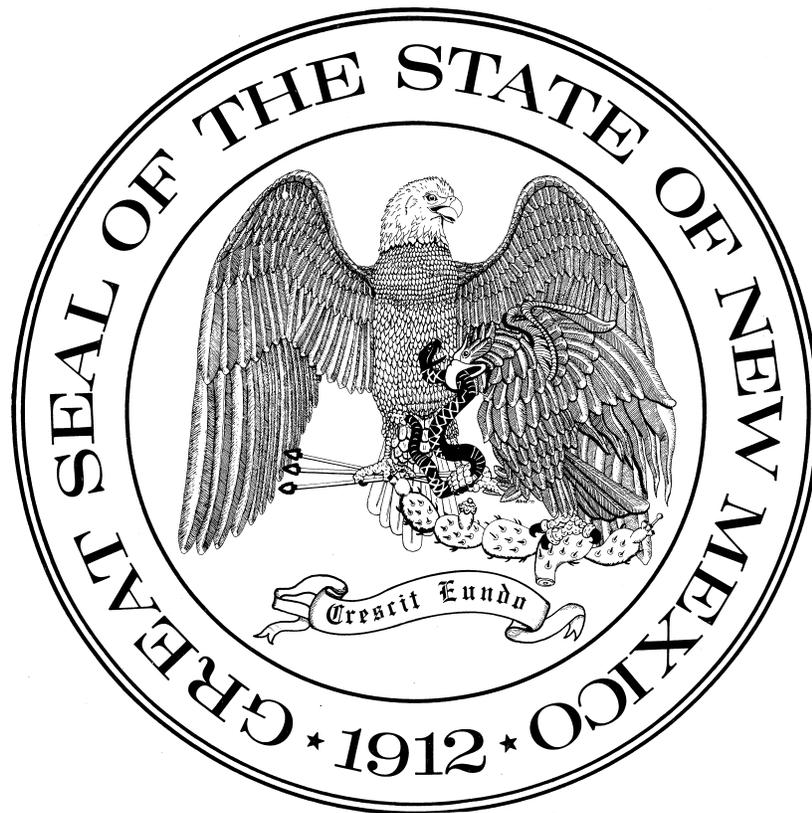


RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

2014 INTERIM FINAL REPORT



**New Mexico Legislative Council Service
Santa Fe, New Mexico
December 2014**

RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

2014 Interim

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WORK PLAN AND MEETING SCHEDULE

**2014 APPROVED
WORK PLAN AND MEETING SCHEDULE
for the
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE**

Members

Sen. Peter Wirth, Chair
Rep. Eliseo Lee Alcon, Vice Chair
Rep. Thomas A. Anderson
Rep. Cathrynn N. Brown
Sen. Carlos R. Cisneros
Rep. David M. Gallegos

Rep. Stephanie Garcia Richard
Sen. Gay G. Kernan
Sen. Carroll H. Leavell
Sen. Richard C. Martinez
Sen. John Pinto
Rep. Jim R. Trujillo

Advisory Members

Rep. Donald E. Bratton
Sen. William F. Burt
Rep. Brian F. Egolf, Jr.
Rep. William "Bill" J. Gray
Sen. Ron Griggs
Sen. Stuart Ingle
Sen. Daniel A. Ivey-Soto

Rep. Emily Kane
Sen. Michael Padilla
Sen. William H. Payne
Sen. Nancy Rodriguez
Rep. Nick L. Salazar
Sen. Clemente Sanchez

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 2014 interim, in concert with the duties identified in Section 74-4A-11 NMSA 1978, the committee will review:

1. Waste Isolation Pilot Plant (WIPP) operations and management;
2. federal nuclear energy initiatives;
3. U.S. Department of Energy "energy park" initiatives for Los Alamos National Laboratory (LANL), WIPP and Sandia National Laboratories;
4. Department of Environment programs and operations;
5. LANL progress on uranium legacy site cleanup and shipment of waste to WIPP;
6. renewable energy initiatives;
7. legacy military waste disposal;
8. small modular reactors;
9. Kirtland Air Force Base fuel spill status; and
10. environmental implications of the sale of mercury-containing light bulbs.

**Radioactive and Hazardous Materials Committee
2014 Approved Meeting Schedule**

<u>Date</u>	<u>Location</u>
June 10	Santa Fe
July 23	Los Alamos
September 16-17	Carlsbad
November 7	Santa Fe

SUMMARY

RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE 2014 SUMMARY

The Radioactive and Hazardous Materials Committee (RHMC) spent much of its time in the 2014 interim hearing testimony related to the rupture of a waste drum from Los Alamos National Laboratory (LANL) shortly after its placement in the Waste Isolation Pilot Plant (WIPP) facility and a truck fire at WIPP. The accident investigation board had not yet completed its review at the end of the committee's interim schedule, so no action by the committee was proposed or taken other than expressions of concern from members and an appeal to the U.S. Department of Energy (DOE) to conduct investigations and prepare remedies expeditiously.

In testimony heard throughout the interim, the RHMC learned of the various regulatory agencies that play a role in the shipment of waste from LANL and oversight at WIPP, which has a complex regulatory structure since it is both a mine and a disposal facility. Also, the RHMC heard testimony on the four administrative orders that New Mexico's Department of Environment (NMED) issued since the radiological release occurred on February 5 and for which the primary use of the orders is to provide immediate direction to address noncompliance of the NMED's permit. LANL representatives gave testimony on LANL's investigation into the breaching of the waste drum. They said that there were technical teams, engineers and chemists all looking at the issue from the view of chemical reactivity, as well as broader issues that could have led to the breach, although to date, none have been clarified. The RHMC was assured by LANL that it had taken rigorous action to secure all nitrate salt waste drums and initiated a container-isolation plan. In July, LANL self-disclosed noncompliance with the hazardous waste permit.

The RHMC's questions revealed that communication between federal and state authorities needs much improvement. Although the workers at WIPP were responsive and cooperative, many programs and responses were deemed inadequate — such as the maintenance, fire protection and emergency management programs and oversight from government agencies. What was also revealed in discussions with the RHMC is the complacency in the WIPP culture after its relative success for 14 years.

The need for a means of independent investigations at WIPP was highlighted, as there is no system currently in place that could serve as a cross-check for the DOE's findings and to give independent credibility to the public that is technical and informative. The Carlsbad Environmental Monitoring and Research Center (CEMRC) monitors air, water and soil around the WIPP facility and has been doing so for the past 15 years. In addition to hearing updates from the CEMRC, the RHMC learned that the agency has volunteered to be the lead in getting all of the agencies to the same table. Other issues that were raised in testimony and ensuing discussion included the need for the RHMC to continue to assert its oversight role so that the legislative perspective continues to be heard; that documentation and reporting are a crucial piece of the solution; and that there needs to be a means of disseminating information to the public expediently.

Other topics of previous interest by the RHMC were also considered, such as status updates on the Carlsbad brine well, including a feasibility study and possible remedies; the mitigation of chromium contamination in Mortandad Canyon; the role of small modular reactors

in providing options for nuclear energy; investigations in renewable energy through solar lighting; the regulation on the purchase and use of mercury bulbs; and presentations on proposed legislation to provide for the right of first refusal to public utilities or generation and transmission cooperatives.

No legislation was considered or endorsed by the RHMC.

AGENDAS

**TENTATIVE AGENDA
for the
FIRST MEETING
of the
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE
June 10, 2014
Room 311, State Capitol**

Tuesday, June 10

- 10:00 a.m. **Call to Order and Introductions**
 —Senator Peter Wirth, Chair
- 10:10 a.m. (1) [WIPP Status Report and Department of Environment \(NMED\) Update](#)
 —Ryan Flynn, Secretary, NMED
- 11:30 a.m. (2) [2014 Interim Work Plan and Meeting Schedule](#)
- 12:00 noon **Adjourn**

Revised: July 15, 2014

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

**July 23, 2014
University of New Mexico (UNM) - Los Alamos Campus
Lecture Hall 230, 4000 University Drive
Los Alamos**

Wednesday, July 23

- 9:30 a.m. **Call to Order and Introductions**
—Senator Peter Wirth, Chair
- 9:40 a.m. **Welcome**
—Dr. Steve Boerigter, Chair, UNM-Los Alamos Advisory Board
—Dr. Cynthia Rooney, Chief Academic Officer, UNM-Los Alamos
- 10:00 a.m. (1) **[Los Alamos National Laboratory \(LANL\) Waste Drum
Characterization Process](#)**
—Nancy N. Sauer, Associate Director of Chemistry, Life and Earth
Sciences, LANL
- 11:00 a.m. (2) **[LANL Legacy Waste Cleanup Status](#)**
—Pete Maggiore, National Nuclear Security Administration, U.S.
Department of Energy (DOE)
- 12:00 noon **Lunch**
- 1:30 p.m. (3) **[Department of Environment View](#)**
—Ryan C. Flynn, Secretary of Environment
- 2:30 p.m. (4) **[Waste Isolation Pilot Plant Report](#)**
—Joe Franco, Manager, Carlsbad Field Office, DOE
- 3:30 p.m. (5) **[Chromium Contamination Mitigation](#)**
—Jeff Mousseau, Associate Director, Environmental Programs, LANL
- 4:30 p.m. **Public Comment**
- 5:00 p.m. **Adjourn**

Revised: September 12, 2014

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

**September 16-17, 2014
Western Commerce Bank Community Room
3010 National Parks Highway
(U.S. Highway 180)
Carlsbad**

Tuesday, September 16

- 10:00 a.m. **Call to Order and Introductions**
—Senator Peter Wirth, Chair
- Welcome**
—Dick Doss, Mayor Pro Tem, Carlsbad
- 10:30 a.m. (1) **[Waste Isolation Pilot Plant \(WIPP\) Status Report](#)**
—Dana Bryson, Deputy Manager, Carlsbad Field Office, Department of
 Energy
- 11:30 a.m. (2) **[Los Alamos National Laboratory \(LANL\) Update](#)**
—Terry Wallace, Principal Associate Director for Global Security, LANL
- 12:30 p.m. **Lunch**
- 1:30 p.m. (3) **[Department of Environment Update](#)**
—Trais Kliphuis, WIPP Staff Manager
- 2:30 p.m. (4) **[WIPP Monitoring](#)**
—Russell Hardy, Director, Carlsbad Environmental Monitoring and
 Research Center, New Mexico State University
- 3:30 p.m. (5) **[Environmental Response](#)**
—Don Hancock, Southwest Research and Information Center
- 4:30 p.m. **Public Comment**
- 5:00 p.m. **Recess**

Wednesday, September 17

- 9:00 a.m. (6) **Right to Deploy Transmission by Distribution Utility**
—Varney Brandt, Xcel Energy
—Duane Ripperger, Xcel Energy
—Bill Grant, Xcel Energy
—Sharon Segner, LS Power
—Suedeen Kelly, LS Power (invited)
—Simon Whitelocke, Vice President of Regulatory and External Affairs,
ITC Great Plains
—Michael White, Manager, State Governmental Affairs, ITC Great Plains
- 11:00 a.m. (7) **Carlsbad Brine Well Status**
—David Martin, Secretary of Energy, Minerals and Natural Resources
—Jim Griswold, Senior Hydrologist, Energy, Minerals and Natural
Resources Department
—John Lommler, Ph.D., Principal Geotechnical Engineer, AMEC
Environment & Infrastructure, Inc.
- 12:00 noon **Adjourn**

Revised: October 23, 2014

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

**November 7, 2014
Room 311, State Capitol
Santa Fe**

Friday, November 7

- 10:00 a.m. **Call to Order and Introductions**
 —Senator Peter Wirth, Chair
- 10:10 a.m. (1) **[Carlsbad Community Assurance Program](#)**
 —John Heaton, Chair, Carlsbad Nuclear Task Force
- 11:30 a.m. **Lunch**
- 1:00 p.m. (2) **[Small Modular Reactors](#)**
 —Paul Genoa, Senior Director for Policy Development, Nuclear Energy
 Institute
- 2:00 p.m. (3) **[Inovus Solar; Renewable Energy Opportunities](#)**
 —Bruce Eastman, Chief Operating Officer, Inovus Solar
- 3:00 p.m. (4) **[Mercury Waste Stream Management](#)**
 —Steve Pullen, Department of Environment
- 4:00 p.m. **Public Comment**
- 5:00 p.m. **Adjourn**

MINUTES

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

**June 10, 2014
Room 311, State Capitol
Santa Fe**

The first meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Senator Peter Wirth, chair, on Tuesday, June 10, 2014, at 10:05 a.m. at the State Capitol.

Present

Sen. Peter Wirth, Chair
Rep. Eliseo Lee Alcon, Vice Chair
Rep. Thomas A. Anderson
Rep. Cathrynn N. Brown
Rep. David M. Gallegos
Rep. Stephanie Garcia Richard
Sen. Richard C. Martinez
Rep. Jim R. Trujillo

Absent

Sen. Carlos R. Cisneros
Sen. Gay G. Kernan
Sen. Carroll H. Leavell
Sen. John Pinto

Advisory Members

Rep. Donald E. Bratton
Sen. Michael Padilla
Sen. William H. Payne
Sen. Nancy Rodriguez
Rep. Nick L. Salazar

Sen. William F. Burt
Rep. Brian F. Egolf, Jr.
Rep. William "Bill" J. Gray
Sen. Ron Griggs
Sen. Stuart Ingle
Sen. Daniel A. Ivey-Soto
Rep. Emily Kane
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 written testimony are in the meeting file.

Tuesday, June 10

After RHMC members introduced themselves, Senator Wirth commented on the importance of the oversight role of the committee, now more than ever. He expressed appreciation for Secretary Ryan C. Flynn and the Department of Environment (NMED) for the great job they have been doing representing the state regarding the radioactive release at the Waste Isolation Pilot Plant (WIPP) and said that the RHMC wants to be in partnership with the NMED.

Mr. Meeks gave a brief history of the RHMC, which was created in 1979 by then-Senator Joseph E. Gant, Jr., from Carlsbad, a retired mining engineer who advocated in the state and nationally for the viability of salt as a good repository for radioactive material.

WIPP Status Report and NMED Update

Secretary Flynn introduced his staff, thanked exiting legislators Representatives Bratton and Anderson for their service and advice and congratulated Representative Salazar on his primary victory. He then spoke of the hard work of his staff and the strong presence of the NMED in Carlsbad since the WIPP incident. He assured the RHMC that the NMED would provide the committee with as much information as it can handle, and he spoke of the ongoing nature of the investigation and the current lack of clear answers. He added that the precise cause of the WIPP release has not yet been identified, although various theories have been eliminated and information gathered. Until the breach in the drum can be identified, he said, the root cause of the event cannot be determined. Among the parties engaged in the investigation are teams at Los Alamos National Laboratory (LANL) and an internal investigation team consisting of experts looking at what caused the release, the regulatory process and operational procedures. Secretary Flynn said that the U.S. Department of Energy (DOE) formed a technical assessment team and an accident investigation board, which are also on the scene. The reports released thus far show findings from part of the WIPP investigation, with the first part focused on the underground fire and a second report that reviews the DOE's response to the release. The third report will focus on what actually caused the release, he mentioned, and information is being gathered on a daily, and even hourly, basis toward that end.

Trais Kliphuis, manager of the Hazardous Waste Bureau (HWB), NMED, and Thomas Skibitski, chief of the DOE Oversight Bureau, addressed the committee on the NMED's role at WIPP, recent incidents there and how the NMED has responded. Ms. Kliphuis clarified that the NMED has 20 bureaus, of which six play a role at WIPP, two of those crucial ones: the HWB and the DOE Oversight Bureau. She spoke about the HWB's regulation of the hazardous waste component of mixed waste stored at WIPP as well as the hazardous waste permit, which was originally issued in 1999 and renewed in 2010 and is up for another renewal in 2020. Mr. Skibitski then spoke of the DOE Oversight Bureau's responsibilities, which include oversight and monitoring of activities at WIPP, programs that evaluate impacts to the environment and public health and environmental sampling and analysis.

Ms. Kliphuis gave an overview of the current time line of NMED involvement related to the radioactive release at WIPP, which shows a lag of five days between the release and when the NMED was notified and includes dates for the four administrative orders to WIPP and

LANL. The time line shows that the last underground entry was on May 30 to replace and maintain the filtration system to ensure that released radioactivity is contained.

The NMED does not have any regulatory authority over the maintenance of the salt truck that caught fire, Ms. Kliphuis said. Because WIPP is both a mine and a disposal facility, it has a complex regulatory structure, Secretary Flynn added. The radioactive release happened at night in a drum near Panel 7 in Room 7, he said, which is a panel that had just begun to be filled. Another notable fact is that the locations of the fire and the release were 2,300 feet apart, so the DOE does not believe that these events are related. In further explaining what occurred in Panel 7, Secretary Flynn said that the material holding the bags of magnesium oxide together that had been on top of the drums just disintegrated. By all indications, he added, the area got very hot very quickly, and because all of the material was still neatly stacked, they knew it could not have been an explosion. Before anyone entered the underground, he explained, the leading theory was that there was a structural issue that caused the container to breach, but later information eliminated a structural issue. Secretary Flynn said that investigators are still gathering information, but they have more and more evidence that rules out what did not happen. He added that the focus has now turned toward the chemical reaction inside the drum.

Secretary Flynn and Ms. Kliphuis then responded to a series of questions and concerns, as summarized below:

- the NMED does not fault the weight of the magnesium oxide sacks as the cause of the event (magnesium oxide is designed to absorb carbon dioxide, gases and pressure that comes from decomposition of the waste over time);
- based on all current information, which includes the distance apart and the time between events, the NMED believes it is highly unlikely that the fire in any way triggered a reaction in one of the drums;
- what occurred was not an explosion in the NMED's eyes, but a heat or energetic event, which is an important distinction;
- the "suspect drum" was midway back in the panel, and areas in front and behind the drum were undisturbed;
- the salt behaved well under the pressure, with no burn scarring and no issues of structural integrity of the mine;
- what actually dissolved is the polypropylene of the sacks, which only melted at the point of the heat release;
- the role of the NMED is to monitor and study impacts of the release on the environment, but it does not conduct the investigation itself. The DOE has teams of outstanding scientists looking into what could have triggered the release;
- until the root cause of the release is determined, the NMED cannot evaluate what changes will be needed to move forward;
- the belief is that a chemical reaction occurred, and the work being done now is to re-create that reaction, but to date this has not been achieved;
- using the organic kitty litter acted as a fuel to this event, but simply switching from inorganic to organic did not cause the release. Staff experts and a chemist are investigating;
- once the DOE completes its investigation, the NMED will require an internal investigation as well;

- the NMED is concerned over what isotopes have been released, and the DOE, NMED and Carlsbad Environmental Monitoring and Research Center (CEMRC) are conducting analytical suites to pinpoint exactly which radioactive isotopes were involved; and
- there were two components to the heat event: a radioactive release and the chemical reaction itself that caused the heat event.

Mr. Skibitski continued with the presentation by speaking about the sort of monitoring that the DOE Oversight Bureau accomplishes at WIPP. He spoke of Station A originally being the point of compliance for air emissions; Station B is located downstream from the filtration system and is currently the point of compliance. Since the release, he indicated that soils, sediments, vegetation and surface water have all been sampled. He added that monitoring along the WIPP transportation route has shown that no change has been observed related to this event.

Highlighting the sampling locations for both the region around the site of the release and around the WIPP facility itself, Mr. Skibitski gave details on the type of sampling done at each point on the map and also said that the "B1-1" location is the presumed point of origin for the release (see handout). He also stated that since the release on February 14, the frequency of filter changes increased to three times per day, and each group of filters is analyzed individually by different departments. Both the CEMRC and the NMED do samples and analysis and then compare notes, he added. Samples from January and February at Stations A and B and quality control samples are currently at the analytical lab, and data should be available by June 25, he stated.

Mr. Skibitski said that ambient air monitoring checks air in the general environment for radioactive particulate. In reviewing the monitoring that has been accomplished, he said that 32 air samples were submitted for isotopic analyses, that draft air monitoring reports for periods in February and March are under technical review, that data are in for dates in March and April and the NMED is analyzing them and for May samples, the data are expected before the end of June.

He then highlighted the soil and vegetation monitoring that has occurred after the release, with 18 of these in the plume area itself, and he gave statistics on the number of samples submitted for analysis and the funding received, mainly for additional costs associated with sampling and analysis related to the release. Mr. Skibitski said that the NMED is collaborating with the CEMRC, the DOE and the U.S. Environmental Protection Agency (EPA) on its environmental monitoring and that the data can be used to sort out the extent of contamination and the impact of it on the environment and on humans. Mr. Skibitski then described the lengthy process by which data are collected and analyzed.

Ms. Kliphuis gave details on four administrative orders that the NMED has issued since February 5, which are all posted on the NMED's web site. She said that the primary use of the orders is to provide immediate direction to address noncompliance of the permit. She added that because the second order involves a storage plan for underground waste, and since the NMED cannot currently go underground, not much of this order can be addressed underground, but it is being accomplished above ground for now. The third and fourth orders address waste similar to the suspected drum waste and involve LANL developing a nitrate-bearing waste container isolation plan.

Secretary Flynn said that the NMED continues to evaluate and to narrow the scope of the orders to drums that are the highest risk. He said that the highly acidic drums are the highest risk and that these have been isolated and secured by being packed into metal standard waste boxes and stored at Area G. These drums are all nitrate salt waste-bearing drums and are stored where fire suppression, air filters and monitors are housed so that if a release occurs, the air would be filtered and LANL and the NMED would know immediately.

In addition, Secretary Flynn indicated that with the drums at WIPP, the highest risk is in transportation of these drums, when there is the least control over the most amount of variables. He said that it is not feasible to take the WIPP waste and remove it from the underground area because this would increase risk. The NMED has also identified drums of concern in Panel 6, and he said that the NMED wants an expedited plan to close these panels, which will have to happen before resuming operations at WIPP, and there is no reason for delaying this. Also, he made clear that the NMED does not approve DOE procedures as it is not the NMED's regulatory role to do so, but the procedures need to be clearly articulated and in place and areas of improvement need to be addressed. The NMED will be pushing the DOE to make the needed changes to procedures and to stay involved with the appropriate scientific personnel.

In response to questions about employee contamination, Secretary Flynn said that the primary concern is protecting the public and the workers and that the DOE also takes the safety of workers seriously. He stated that no one was working in the underground area at the time of the release, and the next morning, people at the site were vulnerable to contamination. He emphasized that once the monitor had alerted of the leak and the filtration system had kicked in, there should have been precautions taken. The response should have been for management to treat it as a radiation release and to limit any exposure because of the contamination. Secretary Flynn spoke of the active monitoring of workers for exposure levels that occurs at WIPP due to the limits in place on how much radiation a worker can be exposed to on an annual basis. In the case of this release, there were very sensitive tests given over time to monitor these levels in the workers, and 21 workers were found to be exposed, he added. A small percentage of air that did not go through the filtration system came through the exhaust system after the release, through dampers that do not fully close, and that is the pathway to exposure, the secretary explained.

In response to committee questions and concerns, the following points were made:

- the fourth order states that Panel 7 cannot be closed until the nature of this release has been identified and the chemical reaction named;
- it is in the long-term interest of the state, the local community and the nation first to know what happened at WIPP, then to make needed changes to get the facility running again;
- there are five other drums with a high acidity content similar to the drum that breached, all of which are located at the Waste Control Specialists site in Texas (this was reported differently at the meeting, but corrected later in the day by the DOE);
- the NMED is proceeding cautiously and being both conservative and aggressive with the DOE to ensure that the public will not be exposed to any further release;
- the air in the filtration system moves along a one-way path, and the leakage is suspected to have happened at the point where the system splits; when the switch to the filtration system happens, the exhaust system is shut down so the air can only

- travel through the filtration system; the problem was that there was a leak that allowed air to bypass the filtration system;
- funding for environmental cleanup at LANL comes from the Office of Environmental Management (EM), which is part of the DOE, although LANL is a National Nuclear Security Administration (NNSA) site and the money is directed to the NNSA and it is necessary for EM to play a more active role; and
 - communication has improved between the DOE and the NMED, although initially the NMED was not notified in a timely manner of the release and had to make several demands to gain a constructive working relationship and to ensure that the public was being kept informed through town meetings.

2014 Interim Work Plan and Meeting Schedule

Senator Wirth requested the committee's input regarding topics on the work plan as well as meeting days and travel locations. After discussion, the RHMC approved the proposed work plan with additions and deletions as discussed, and the meeting schedule was approved as well.

Adjournment

There being no further business, the committee adjourned at 12:58 p.m.

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

**July 23, 2014
University of New Mexico-Los Alamos Campus
Lecture Hall 230, 4000 University Drive
Los Alamos**

The second meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Senator Peter Wirth, chair, on Wednesday, July 23, at 9:38 a.m. at the University of New Mexico-Los Alamos (UNM-LA) campus.

Present

Sen. Peter Wirth, Chair
Rep. Eliseo Lee Alcon, Vice Chair
Rep. Thomas A. Anderson
Rep. David M. Gallegos
Rep. Stephanie Garcia Richard
Sen. Carroll H. Leavell
Sen. Richard C. Martinez
Rep. Jim R. Trujillo

Absent

Rep. Cathrynn N. Brown
Sen. Carlos R. Cisneros
Sen. Gay G. Kernan
Sen. John Pinto

Advisory Members

Rep. Donald E. Bratton
Sen. Nancy Rodriguez
Rep. Nick L. Salazar

Sen. William F. Burt
Rep. Brian F. Egolf, Jr.
Rep. William "Bill" J. Gray
Sen. Ron Griggs
Sen. Stuart Ingle
Sen. Daniel A. Ivey-Soto
Rep. Emily Kane
Sen. Michael Padilla
Sen. William H. Payne
Sen. Clemente Sanchez

Staff

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

Guests

The guest list is in the meeting file.

Handouts

Handouts and written testimony are in the meeting file.

Wednesday, July 23

After expressing appreciation for UNM-LA's hospitality, Senator Wirth handed the gavel to Representative Garcia Richard, who welcomed all to the meeting and asked legislators to introduce themselves.

Welcome from UNM-LA

Dr. Steve Boerigter, chair of the UNM-LA advisory board, and Dr. Cynthia Rooney, chief academic officer at UNM-LA, welcomed the RHMC. Dr. Rooney emphasized that UNM-LA's degrees and business programs educate students to transfer to four-year institutions. She said that UNM-LA instills a passion for lifelong learning in its students. At present, it offers 20 associate degrees and will be adding a degree in environmental technology this fall. In addition, there are programs in community education and enrichment and summer programs for youth. The UNM-LA campus contains a small business development center and an adult basic education program. It serves more than 900 credit students per year and more than 1,000 noncredit students. The student population is 45% Hispanic and has an average age of 32; this includes students as young as 14 (math wizards) and retirees as old as 84. The average demographic served is a 26-year-old Hispanic female enrolled part time.

Dr. Boerigter highlighted the fact that UNM-LA is a high-quality community college branch campus with an 82% placement rate and a 59% completion rate in degree-seeking students who complete a degree or certificate program or transfer to a four-year school. He said that UNM-LA has a high faculty-student ratio in addition to its high success rate.

Los Alamos National Laboratory (LANL) Waste Drum Characterization Process

Nancy N. Sauer, associate director of chemistry, life and earth sciences at LANL, introduced herself, emphasizing her strong chemistry background and the fact that she came to LANL in 1986 as a postdoctorate fellow in chemistry.

Ms. Sauer reviewed the events surrounding the radioactive release that first caused the alarm to sound at the Waste Isolation Pilot Plant (WIPP) on February 14, 2014 and, prior to that, the underground fire on February 5 that caused WIPP operations to be suspended. She spoke about the transuranic (TRU) waste generated at LANL as a variable stream of waste consisting of debris, clothing, equipment and other residue and liquids contaminated mostly with plutonium, the majority of which is legacy waste created prior to 1991 as the United States nuclear stockpile was being built. Ms. Sauer then reviewed the entire time line from February 14 through May 30, during which time, an accident investigation board (AIB) completed its investigation; traced the radiation release to panel 7, room 7; and confirmed the damage to the LANL waste drum. The U.S. Department of Energy (DOE) notified the Department of Environment (NMED) that the "3706 Campaign" to remove above-ground TRU waste would not be completed by the deadline.

In reviewing the scene in panel 7, Ms. Sauer explained that the waste was stacked close to the ceiling, and the breached drum was shown with its lid lifted. She said that Technical Area (TA) 54 is the original storage area for TRU waste and that, early on, materials were put into drums before the waste acceptance criteria were in place. She explained that with legacy waste,

the drums have to be opened and examined and the prohibited materials removed. This might include removing aerosol cans, downsizing a glove box and placing it into a suitable container or removing or absorbing liquids in containers. The waste can then be certified for shipment to WIPP, she added.

Ms. Sauer then spoke about the waste in the suspect drum (drum 68660) being waste from plutonium processing that consisted primarily of nitrate salts. Once processing occurred and the solutions cooled, the salt was packaged and placed in drums, which were then packaged in TA 54 and stored in Area G in the mid-1980s. They have remained there until now. LANL had been reviewing how to remediate these wastes for WIPP, she added, which consisted of moving the waste into open drums, removing the liquids (which were neutralized and absorbed in kitty litter), then placing the resulting solids into drums. She explained that a "parent" drum contains the starting materials and the "daughter" drum contains the stabilized or absorbed liquids, as well as the remaining solids. Often, a parent drum can generate more than one daughter drum. These drums were then characterized and certified for acceptance at WIPP.

The history of drum 68660 began with LANL's purification of weapons-grade plutonium for the Rocky Flats nuclear weapons plant in the mid-1980s, Ms. Sauer explained. Two daughter drums were formed from drum 68660, which were characterized in the normal fashion, then shipped to WIPP and placed in panel 7.

LANL took steps immediately after learning of the radioactive release from one of its drums, she added, which included: suspending LANL shipments to Waste Control Specialists (WSC) in Texas; remediating or isolating drums into safe storage; responding to the NMED's administrative order; working closely with the AIB at WIPP; coordinating a multi-laboratory technical analysis team to look at the release event; and designating a recovery manager, Dr. Terry Wallace, at WIPP.

Ms. Sauer then talked about the investigation into the breaching of drum 68660. She said that there are technical teams, engineers and chemists looking at this question from the view of chemical reactivity as well as broader issues that could have led to the breach. Chemical reactivity could include the drum's appearance, the mixture of materials and any process changes, she said, while the broader issues include what other materials were involved, any relationship to external events, such as the truck fire, and issues with other waste containers. In looking at chemical reactivity issues, she stated, the drum contained a nitrate salt, wheat-based kitty litter and other materials from evaporator bottoms, such as lead, iron and chromium. They looked at what might trigger a reaction, since an initiator is required for a reaction to occur. She said that simple mixtures of kitty litter and nitrate salts are not reactive, but under some specialized conditions, and in the presence of strong acids or trace metals, there can be some reactivity.

Ms. Sauer also pointed out that the investigation has led to a narrowing down of the specific set of reactions in this drum, and an answer about the kind of chemical reaction that did occur is forthcoming. In thinking carefully about the waste stream, the investigators believe that this drum was unique in its combination of nitrates, fuel and glove box. The team is looking internally at the practices and roles at LANL and also its interface with WIPP. She said that the current priorities are to determine what happened, to share this information with the technical

teams, to conduct a peer review, to ensure that the TRU waste stream is safe and to restore operations at WIPP. Ms. Sauer opined that WIPP performed as it was supposed to in this event to protect the public and the environment.

In response to committee members' questions and concerns, the following points were discussed.

- LANL and WIPP are both reviewing how they handle TRU waste, from generation to repository of that waste.
- The AIB is studying an electrical event that happened before the breach of the drum, while LANL is focused on chemical reactivity issues.
- The original waste in the breached drum had been stored for over 30 years without an issue, then kitty litter and a glove were placed in that drum; a lot of reactivity is being traced to metals in that glove.
- All drums are being investigated for their contents in Area G, and none contains the contents that the breached drum had.
- Head space gas analysis in a drum is usually monitored once, but after the radioactive release, this is being conducted regularly on a variety of drums.
- It is speculated that a series of process changes occurred that were not adequately controlled; the original intent was to put nonreactive kitty litter in the drum as an absorbent, but what was used was a wheat-based Swheat kitty litter, which essentially added fuel to the drum.
- This kind of kitty litter will not be used any longer, and no waste is currently being treated until the next stage of remediation is completed.
- Swheat kitty litter was used to pack 250 parent containers and 707 daughter containers, but none contains the same components or exists under the same conditions of the breached drum.
- All shipment of TRU waste from LANL has been suspended, and any drums sent to WCS after the radioactive release were placed into standard waste boxes, then placed inside concrete containers that are in temporary underground storage.
- Some of the tests being conducted are aging tests to understand how such a chemical reaction evolves over time as well as the importance of moisture in the process.
- In attempting to identify a trigger that could have led to the radioactive release, it has not been determined if the initiator was external or internal to the drum; LANL is studying whether other chemical reactions could have contributed.
- Experiments are still being performed by LANL and the AIB to determine if there was causality between the truck fire and the breach.

LANL Legacy Waste Cleanup Status

Pete Maggiore, assistant manager for environmental programs, National Nuclear Security Administration (NNSA), DOE, reviewed the 2005 consent order governing cleanup at LANL, the creation of the 3706 Campaign and the current suspension status of that campaign and actions taken at LANL after the radioactive release at WIPP. He described the consent order as the first legally enforceable order between the DOE and the state that stated that all cleanup was to be completed by December 2015. But in 2012, the DOE acknowledged that it could not meet this deadline due to the degree of work involved and the lack of funding.

Mr. Maggiore focused on the concern raised about the TRU waste stored in TA 54 when the Cerro Grande and Las Conchas fires hit the area in 2000 and 2011. Then, the focus of the framework agreement shifted to a risk-reduction approach and setting priorities. He said that despite funding challenges, the 3706 Campaign was 90% completed and on track for full completion when activities at WIPP were suspended. On May 30, the NNSA announced that it would not be able to complete this campaign on schedule because all TRU waste operations had ceased.

Mr. Maggiore reviewed the chronology of events at WIPP, which included the locations of LANL's nitrate salt waste drums. He assured the committee that LANL has taken rigorous action to secure these drums, which action includes secondary containment. He added that on May 19, the NMED issued an administrative order to which LANL responded with its container-isolation plan. LANL then answered further requests for information from the NMED related to the generation and treatment of hazardous waste at LANL. Then, on July 1, LANL self-disclosed noncompliance with the hazardous waste permit (HWP), Mr. Maggiore revealed. The two highlighted areas in the disclosure were unpermitted treatment that included neutralizing waste without a permit or not remediating the waste appropriately and a failure to reevaluate the acceptable knowledge (AK) determination.

Mr. Maggiore stated that a lot of important work is still being done at LANL to complete the cleanup and that the NNSA is working collaboratively with WIPP, the AIB and the DOE's technical assistance team (TAT) to find out the cause of the radioactive release. Other environmental work is being performed at LANL, he said, such as soil and water remediation. This work includes completing nine out of 29 aggregate areas, he stated, as well as 11 of the 26 material disposal areas (MDAs), installing and maintaining ground water monitoring wells and monitoring well locations and surface waste locations.

Mr. Maggiore detailed the work that still needs to be done, which includes cleanup of the remaining TRU waste from the 3706 Campaign and the fiscal year (FY) 2012 and FY 2013 TRU waste and below-grade retrieval of waste as well as a variety of remediation methods. He stated that a risk-based approach is appropriate, as is the model from the 3706 Campaign, which aggregates the work that needs to be accomplished. He acknowledged that there is still a lot of work to be done to regain the public trust and the trust of regulators. He added that the highest priority work includes cleanup of chromium ground water contamination to restrict migration of the plume at the Pueblo of San Ildefonso, the royal demolition explosive contamination project, surface water boundary protection and storm water permit controls and compliance. He then talked about cleanup, related sampling and remediation work in the MDAs.

The FY 2014 budget and appropriation is \$225 million, Mr. Maggiore said, thanking committee members for all of their work in securing this funding. He stressed that the safety of the public, the environment and the workers is the first priority and that significant clean-up work has been accomplished and is continuing. He emphasized the need for community support and recognized that some trust has been lost and needs to be regained and that the DOE is committed to this process. He added that he often gets asked about the cost and time line of the total cleanup and said that the DOE is in the process of developing a life-cycle baseline that will help to answer these questions and that he would be more than willing to share this information with the RHMC.

In response to committee members' questions and concerns, the following points were discussed.

- The revised plan that LANL submitted on May 29 focused on making sure that the remaining drums at LANL are safe and that a process is in place with the NMED to verify safety. No dates for resuming have been established; a deadline to correct procedures is needed.
- There was concern about the chromium contamination and plume geometry, as well as its proximity to the Pueblo of San Ildefonso boundary and its effect on the regional water supply.
- Between 300 and 500 drums of TRU waste is generated each year, but much of this waste was integrated into the 3706 Campaign.

Committee Business

A motion was made and seconded for a letter to be drafted in support of additional funding for the continued removal of TRU waste from LANL. The motion was then unanimously approved by the RHMC. On a motion made and seconded, the minutes for the June meeting were unanimously approved.

Some discussion ensued regarding the Carlsbad meeting of the RHMC, which is scheduled for September 16-17, on whether the meeting will be for the scheduled two days or just one day. Senator Wirth said that the committee will meet for the two days if the agenda can fill those days and that he will come to a decision within the next two weeks.

NMED View

Ryan C. Flynn, secretary of environment, and Trais Kliphuis, program manager for WIPP, NMED, gave the RHMC the NMED's view of the shipping of waste from LANL to WIPP as well as the NMED's permitting authority.

Ms. Kliphuis talked about the several agencies involved in regulating the shipment of waste from LANL to WIPP, with the NMED having a minimal role and the other agencies being the state and federal departments of transportation, the Nuclear Regulatory Commission and the Environmental Protection Agency (EPA). She spoke about what is involved in preparing waste for shipment, which can include waste retrieval as it can be buried underground, as well as regulations and requirements related to WIPP's HWP and WIPP's disposal site and generator site regulations.

Characterization of the waste prior to shipment to WIPP is required, Ms. Kliphuis said, which includes AK, real-time radiography (RTR) and visual examination (VE). Each drum shipped to WIPP has to have the AK and one of the other two characterizations accomplished, she explained. Also, the LANL permit requires characterization of waste that is done by the Central Characterization Project.

The AK characterization is essentially the story or history of the waste, Ms. Kliphuis said. This is a lengthy process that includes hundreds of documents, she explained. In the VE process, lined metal gloves are used to prevent radioactive exposure while the waste is sorted inside a glove box and then removed and repackaged. With RTR, containers are run through an

x-ray scanning device. Next, a waste stream profile is created that verifies that all required elements are present and the waste as characterized meets the acceptance criteria. This then has to be approved before the generator site can ship. Ms. Kliphuis mentioned that the NMED does not have the authority to approve or deny this step, as it is contained in the permit. She then talked about the audit and surveillance program, which ensures that the sites that ship to WIPP conduct testing in accordance with the Waste Analysis Plan (WAP). She added that the DOE has a separate contractor that performs audits and that the NMED observes and validates implementation of WAP requirements. The NMED has to approve both the initial and final audits before shipment of waste can occur. Secretary Flynn added that the NMED does not audit the waste stream itself, but rather the site. Ms. Kliphuis further clarified that what the NMED does is audit the characterization process and progress.

In giving an overview of the process, Ms. Kliphuis said that after waste is characterized and confirmed for transportation, WIPP takes 7% of the data and reviews them again as a check and balance. When waste arrives at the WIPP site, the waste is divided and brought underground. She mentioned that contact-handled and remote-handled waste are transported differently for disposal.

In response to committee members' questions and concerns, the following points were discussed.

- Although the NMED is not involved in the characterization process for waste shipped to WIPP, if the waste does not meet permit requirements, it would be considered out of compliance and the waste could not be accepted if shipped; a shipment could be stopped by the NMED or return of the waste could be required by the NMED.
- What appears to have happened with the radioactive release is that the kitty litter was fuel for the release, but it did not actually cause it; rather, materials that were mixed together were reactive or ignitable and should not have been shipped to WIPP. The waste codes indicated that the materials did not have these qualities, so these materials were assigned incorrect waste codes.
- The NMED regulates the kind of container used only in that if it is changed, the NMED has to approve of the change; the state Department of Transportation regulates the containers in which the waste is shipped.
- The NMED regulates the liquid content of the waste, which has to be under 1% and verified as such.
- Waste codes are assigned by a federal regulatory authority, and the state does not have any authority as to how those codes are assigned.
- The NMED prohibits items that have particular waste codes, and if there is any indication that there is something ignitable, corrosive or reactive in the drum, it cannot be transported to WIPP.
- In self-disclosing some violations of regulations at the site, the DOE noted that it may have treated waste at a site without a permit. This went beyond simply removing the liquid content in a drum. Material that was considered to be a neutralizer for the highly acidic content was introduced, but rather than neutralizing, the introduced material may have contributed to the reaction.
- Much is not yet known or concluded regarding the radioactive release, but what is known is that communication between federal and state authorities needs to be better.

The NMED will be reviewing the authority it has in its permit and will report back to the RHMC.

- The AK form should have documented any change in materials added to that drum, but the history of that waste did not show that organic kitty litter was part of that waste stream.
- Under the NMED's regulatory authority, if an administrative order is issued and the receiving entity does not follow it, there are financial penalties and the order can be court-enforced, although the NMED has never had to do this with a federal contractor.
- The NMED issued two administrative orders immediately on finding that there was potential risk to the public; the orders were complied with immediately at great cost to the federal government.
- The waste that is shipped to WIPP is highly tracked every step of the way, and all streams of waste going to WIPP are governed by the WIPP permit.
- All shipments of waste to WIPP have been suspended. The NMED will reinspect the facility, and waste cannot be shipped or disposed of until the facility is reauthorized by the NMED.
- The self-disclosure by the DOE indicates that the waste was treated with "colorspace", which is a violation of the permit; the waste would have had to be shipped out of New Mexico to a licensed and permitted facility for treatment to avoid violation.

WIPP Report

Joe Franco, manager at the Carlsbad Field Office of the DOE, gave more details on the two events at WIPP, the vehicle fire and the radioactive release. He reiterated the importance of safety and said that the WIPP ventilation system worked as designed, but it allowed for contaminants to be released. He said that thousands of samples have been taken and posted on the DOE's web site; weekly (now biweekly) town halls have been held; news releases have been published and sent to surrounding communities; and the Carlsbad Environmental Monitoring and Research Group (CMERG) has conducted monitoring around the facility that confirms the DOE's data.

In the recovery process, the first step is identifying the source of contamination and getting there safely, working through the emergency and beginning recovery and decontamination of the mine. Mr. Franco assured the RHMC that all concerns are addressed before sending teams underground and that over a dozen entries have been completed safely.

Mr. Franco said that panel 7, room 7, is about 10% full, that filters affected by smoke and contamination have been changed, that the mine is stable and that magnesium oxide bags melted during the radioactive release. He clarified that the power company did not show any power surges, as was reported earlier in the day. Clean-up activities are continuing, and although panel 7 is contaminated, the majority of the yellow, green and blue panels of the handout's diagram are not. He stressed the importance of going back underground to bolt areas of concern for safety.

He indicated that the AIB has been at LANL for the past three weeks, focusing on the cause of this radioactive release, especially the response to procedures, the correspondence among offices and communication issues. Questions such as what created the release, whether

there are other damaged containers and how the agencies responded are still on the table. Review by experts on TATs and independent review from other national laboratories are still occurring, and TATs and the AIB are in contact with Mr. Franco and his staff, he said.

Mr. Franco spoke about the lack of oversight from the Carlsbad Field Office and subsequent reorganization of the federal work force to bolster oversight. This includes adding 12 positions to the office, which had been suffering from a drop in numbers of staff members. The Nuclear Waste Partnership LLC (NWP) also made organizational changes, he added, which included hiring several people, including a maintenance and operating contractor. Mr. Franco indicated that the NWP is anticipating receiving recovery funding, but there is also the lingering possibility that the NWP could obtain a resolution to continue operations without receiving an accompanying appropriation. He reiterated that adequate funding is crucial to move forward on the WIPP recovery plan and that state approval and EPA approval is always needed before anything can be done. He said that all issues raised by the AIB are being addressed and that no shipments will be made until all investigations and subsequent improvements are completed.

In response to committee members' questions and concerns, the following points were discussed.

- The CMERG detected radiation only within 16 square miles of the WIPP facility, and employees were exposed to a calculated dose of radiation that is equal to less than one air flight from Albuquerque to Washington, D.C.
- WIPP is critical to the cleanup of nuclear waste nationwide.
- The approach to the investigation of the radioactive release at WIPP is a phased one and includes new procedures, drills, exercises and responses that take time to incorporate and to have the effectiveness reviewed.
- The contract with the NWP began in October 2012 and is a five-year contract with an option to extend it annually for up to 10 years; the first five years' focus is on maintenance and operations and costs about \$150 million per year.
- Through the DOE, a contractor can earn a bonus each year if it meets certain measurements. In 2013, work was geared toward waste and placement of that waste underground; the measures for this year are focused on fixing the WIPP facility.
- Panel 7 has a separate ventilation system, and the flow of air goes out to a common exhaust shaft and is drawn out of the mine through a set of filters. The contamination is around the panel 7 area and is being constantly monitored.
- Although there is a program in place, training drills have not been conducted as often as they could be.

Chromium Contamination Mitigation

Jeff Mousseau, associate director of environmental programs, LANL, described the complex problem of chromium contamination and the remediation that is taking place in Mortandad Canyon, the site of the chromium plume in the regional aquifer. The chromium was originally used as a corrosion inhibitor in cooling towers at LANL between 1956 and 1972, and this chromium was sometimes flushed out of the system with quantities of water, which then flowed down the canyon as surface water, he explained. In 2005, LANL discovered a significant amount of Chromium 6 in the regional aquifer when it installed a ground water monitoring well in the area. The chromium is at 900 feet to 1,000 feet below the canyon bottom, and it is also

present in wetland soils and rock layers beneath the canyon floor. He added that the closest drinking water well to the plume is one-half mile away.

Mr. Mousseau described the monitoring wells that are in place and said that data from these wells show increases in chromium. He stressed the importance of taking action because chromium is still making its way into the ground water. He talked about a perchlorate plume that is also in Mortandad Canyon and that is associated with legacy plutonium processing, but he said that there is no plutonium in that plume and that rates have declined over time. Despite this, he added, LANL still wants to consider corrective action for this plume.

Much monitoring has occurred since 2005, and now tests are occurring to begin corrective measures, he explained. Field activities have included collecting hydrologic data and evaluating the process of mass removal of contaminated water from wells. He said that a pumping treatment will be part, but not all, of the remediation and that in addition to pumping and treating water, there are reductants and biological treatments that can be explored. Mr. Mousseau stated that LANL has worked with the NMED to set up an acceptable remediation plan that includes plume control, establishing a hydraulic capture zone and pumping and treating water, then reinjecting it into the aquifer. The next step involves establishing a flush process, then returning the water to its natural environment. He described the goals of remediation as using a hydraulic capture of chromium-contaminated ground water to get below 50 parts per billion at the laboratory boundary and to remove contaminated ground water from the area.

One measure currently in use is drilling extraction wells and installing treated water effluent pipelines. Mr. Mousseau said that nearly 30 people are working full time on this project. Drilling is also occurring to study contamination in soil or on rock surfaces. Interim measures to maintain hydraulic control of the plume are also in place. Mr. Mousseau reviewed the schedule and budget from FY 2013 through FY 2015; the schedule includes evaluating the data in 2015 from the aquifer testing and the test pilots of the plume control wells that were accomplished in 2013 and 2014. The budget for capital expenditures and operations is estimated at \$190 million. He said that LANL is working in collaboration with the Pueblo of San Ildefonso, Los Alamos County and the Northern New Mexico Citizens' Advisory Board, as well as regularly coordinating with the NMED.

The discussion included dialogue with Dave McEnroy, program manager, Corrective Actions Program, LANL, and Dr. Danny Katzman, chief scientist for environmental programs, LANL. In response to committee members' questions and concerns, the following points were discussed.

- Although the aquifer is large and complex and extends far north and south, LANL believes that the Buckman Well Field is independent from this aquifer and that the plume sits within a relatively small portion of the aquifer under Los Alamos County.
- The velocities of ground water movement are not the same as those of chromium movement.
- The federal government under the environmental management budget pays for this cleanup, and the chair requested that a letter to be written regarding clean-up funding be inclusive of this area of cleanup.

- Enough samples of ground water have been taken over time, making it possible to correlate contamination levels to distances among the 20 monitoring wells in place in the area.
- The chromium levels can be reduced, but chromium can never be completely eliminated. The focus is on getting below the 50-parts-per-billion mark.
- The recent increase in chromium activity in the plume occurred along the margin, which is likely due to contamination along the water's route.

Public Comment

Eletha Trujillo, WIPP program coordinator, NMED, assured the RHMC that mechanisms are in place, such as inspections and proper documentation, to ensure the validity of shipments coming into the state and that she would not hesitate to stop a shipment of TRU waste if it does not meet the criteria.

In answering questions, Ms. Trujillo said that she is responsible for monitoring shipments alongside WIPP coordinators and state police and that training is also provided to locals along the WIPP route. Secretary Flynn added that if at any time under his authority it is determined that there is a danger to public health or even the potential for danger, the NMED can take unilateral action in the form of administrative orders. He said that this power is rarely used, but he has used it four times in the past few months as a direct result of the radioactive release at WIPP. If he thinks there is a threat, he certainly exercises the power he has to protect the public. He added that Carlsbad and surrounding communities have all been very supportive and cooperative.

Adjournment

There being no further business, the committee adjourned at 4:15 p.m.

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

**September 16-17, 2014
Western Commerce Bank Community Room
3010 National Parks Highway
Carlsbad**

The third meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Senator Peter Wirth, chair, on Tuesday, September 16, at 9:58 a.m. at the Western Commerce Bank in Carlsbad.

Present

Sen. Peter Wirth, Chair
Rep. Eliseo Lee Alcon, Vice Chair (9/16)
Rep. Thomas A. Anderson
Rep. Cathrynn N. Brown
Rep. David M. Gallegos
Rep. Stephanie Garcia Richard (9/17)
Sen. Gay G. Kernan
Sen. Carroll H. Leavell
Sen. Richard C. Martinez
Sen. John Pinto
Rep. Jim R. Trujillo

Absent

Sen. Carlos R. Cisneros

Advisory Members

Rep. Donald E. Bratton
Rep. William "Bill" J. Gray
Sen. Ron Griggs
Sen. Michael Padilla
Sen. Nancy Rodriguez

Sen. William F. Burt
Rep. Brian F. Egolf, Jr.
Sen. Stuart Ingle
Sen. Daniel A. Ivey-Soto
Rep. Emily Kane
Sen. William H. Payne
Rep. Nick L. Salazar
Sen. Clemente Sanchez

(Attendance dates are noted for members not present for the entire meeting.)

Staff

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

Guests

The guest list is in the meeting file.

Handouts

Handouts and written testimony are in the meeting file.

Tuesday, September 16

Welcome

After thanking former Senator Don Kidd for use of the space and Cindy Elkins for all of her help setting up, Senator Wirth introduced former Representative Jim Ott, who was also a former chair of the RHMC. Then Senator Kidd introduced Dick Doss, mayor pro tem of Carlsbad, who he described as being one of his harshest competitors and someone he respects greatly. Senator Kidd joked that his own judgment had been brought into question, however, when Mr. Doss ran for city council, but that he has brought a sense of reason to the council.

Mr. Doss explained that the mayor and his "sidekick", John Heaton, are in Washington, D.C., lobbying for the cleanup of the Waste Isolation Pilot Plant (WIPP); that Carlsbad supports WIPP 100% as a facility that is crucial to the nation; and that although the city was shocked at this year's accidents and feels they could have been prevented, the main concern is with preventing any recurrence. Carlsbad has been engaged in meetings first weekly, then biweekly and now monthly, related to the accidents at WIPP, and updates are posted on its web site, he mentioned. In addition, the Carlsbad Environmental Monitoring and Research Center (CEMRC) coordinates weekly meetings with the mayor's task force, which is similar to the committee formed when WIPP opened, which worked very well, he said. Mr. Doss was glad that the U.S. secretary of energy visited Carlsbad and reiterated the city's wish for WIPP's safe and timely recovery. He thanked the RHMC for meeting in Carlsbad.

The chair then asked committee members to introduce themselves, and within these introductions, Representative Bratton introduced his replacement, Larry Scott, who accompanied him to the meeting.

WIPP Status Report

Dana Bryson, deputy manager of the Carlsbad field office of the U.S. Department of Energy (DOE), started his job at WIPP in December 2013, only two months before both the salt haul truck fire and the radiological release, so much of his work has been related to the recovery. He gave some details of the truck fire, which include the following.

1. The truck fire occurred on February 5 and first burned hydrologic fuel and then tires.
2. Within an hour after the fire started, full accountability of the underground was achieved, which included evacuation of workers and the ventilation being changed to filtration mode.
3. Although it was clear from the response time and effectiveness that the workers know the mine and its ventilation system and assisted each other during the evacuation, many programs and responses were deemed inadequate, including the maintenance program and fire protection programs, emergency management programs, oversight from government agencies and the differing treatment of waste and non-waste

handling equipment by the differing cultures in the facility (mine versus nuclear mind-sets).

Mr. Bryson reported that in terms of the radiological release, the shift to high-efficiency particulate air (HEPA) filtration happened within a minute of the alarm being received in the central monitoring room and Station A showing significant radiological contamination. Then a visual examination of the waste face showed a breached container, with all indications that a heat-producing event caused the breach. Mr. Bryson gave details of the work required since the breach up to the present, which included sealing dampers around the HEPA filters, taking samples and conducting visual inspections of all of the drums. He said that a 90-foot boom will be installed underground for visual mapping. In what he called the "radiological rollback" phase, surveys of impacted areas have been done and buffer zones identified so that now workers can go underground in street clothes in certain areas. He also explained the areas on a map of the recovery plan, which shows areas of contamination in yellow, the buffer areas where surveys have been completed that indicate no contamination in green and the no-color zones that have high contamination. He clarified that the Accident Investigation Board's (AIB's) review is completely independent of his office.

Mr. Bryson reiterated that safety is paramount in the recovery process. He said that WIPP's operations will transition into a facility with a contaminated area and a clean area, like most other nuclear facilities. He added that the AIB's findings will be prioritized and corrected before full operation and that a phased approach to recovery will be applied. As related to safety, compensatory measures will be put in place if corrective actions, such as roof bolting and stabilization of the mine, cannot be completed before the work begins. He added that his office is committed to transparency in its dealings with regulators.

Funding is, of course, a crucial aspect of the WIPP recovery; and in this regard, Mr. Bryson stated that the appropriation process continues for fiscal year 2015 and that recovery funding as well as base operational funding are needed to fix both maintenance and infrastructure issues in the best of times and even more so with the accidents. He said that his office is committed to follow-through after the AIB's findings and to ensuring the safety of the workers, the public and the environment as this process is worked through. Although this process has been difficult in some ways, because of the support of the congressional delegation and the good partnership with New Mexico's Department of Environment (NMED), Mr. Bryson remains positive regarding prospects for WIPP's full recovery.

In response to committee members' questions and concerns, the following points were discussed.

- There are more than a dozen oversight groups for WIPP, and there is a need for cohesive oversight rather than every group having its own "swim lane" where there is not communication across the whole pool of oversight groups.
- No personnel have been laid off at WIPP due to the accidents, which is due to the willingness of workers to work on recovery efforts in other areas of the site.
- The priority of the DOE is to remove waste from the waste-handling building into the underground and to get waste out of the Waste Control Specialists (WCS) site as well.

- The DOE wants procedures in place as part of an emergency management program before normal operations at WIPP are resumed so that when an emergency occurs, all are prepared to respond skillfully and correctly to ensure safety.
- Continuous air monitoring is in place at WIPP to detect further contamination as well as temperature analysis of the waste, which would be a precursor to any combustion of internal materials.
- WIPP does not have funding set aside for emergencies, but it does analyze risk and identify contingency funding.
- There is some bowing in the ceiling of the WIPP mine that has been deemed natural, but WIPP will resume bolting to ensure safety in the mine.
- What happened in the breached drum is an exothermal reaction or a chemical reaction that generated both heat and pressure, but it is not being termed an explosion.
- From the Carlsbad field office's perspective, containers in Room 7, in Panel 7 and in Panel 6 are of concern, and it is expediting the closing of those areas, per an NMED order.
- It is likely that a steady degradation of the "safety culture" at WIPP has been happening for the last 10 years.
- The recovery time frame is about 18 months.
- The truck fire was due to maintenance not being done at the appropriate level and combustibles built up, and this, combined with a hydraulic line rupture, caused a fire; hand-held extinguishers were ineffective and the fire spread to the tires.
- Some drums at the WCS are at varying levels of risk because the acceptable knowledge (AK) review process was not properly implemented and some of the drums containing nitrates also contain organics, which are essentially fuel.

Los Alamos National Laboratory (LANL) Update

Terry Wallace, senior intelligence official and principal associate director for global security with LANL, said he is in charge of all but the nuclear weapons operations at LANL and is the lead in recovery operations for WIPP activities. His work is to make sure that the transuranic (TRU) waste that is transported is safe, to create a remediation strategy and to facilitate the overall recovery at WIPP.

Mr. Wallace reviewed the time line as related to LANL's response to the radiological release and said that LANL has reviewed not only the science behind the release but also where LANL may be in violation. The technical assistance team was assigned as an independent check on what happened, but he is ultimately responsible for operations. He said that a large team of scientists is working on the problem and will probably wrap up its report in the next six to 10 weeks.

In giving a brief history of the waste in the breached drum, Mr. Wallace said that this waste was generated by purifying scrap from the site at Rocky Flats during the Cold War era. The plutonium from this scrap needed to be contained, and most of it was not clean; so LANL had the job of cleaning it up and then sending it back to Rocky Flats, which ultimately produced the nitrate waste stream that was stored on site at LANL for 30 years. Mr. Wallace stressed that when the first fire occurred in Los Alamos in 2011, it became very clear that this material could not be stored above ground, and thus, the 3706 campaign was born, which set a time line for moving this stream of waste to WIPP. The breached drum was processed at the end of 2013, he

indicated, neutralized, repackaged and sent to WIPP. It was placed there at the end of January, and 14 days later, the breach occurred. He said that there is still the question of whether the temperature change was generated internally or externally and that although the expectation was that there would be specific combustion products in the drum, that has not been found to be so as yet. He emphasized that the waste sat in this drum for over 30 years and nothing happened, but when the absorbent was added to this already complicated waste stream, a chemical reaction occurred. He admitted that it is clear that the LANL team did not comply with its Resource Conservation and Recovery Act permit for TRU waste characterization and treatment.

Mr. Wallace clarified that it is actually difficult to make drums react and that a key element in such a reaction is the presence of nitric acid, which is present in 678 drums, as well as nitrate salts, an organic absorbent, and metal impurities such as lead. Sixteen of those drums contain absorbed free liquid, and he said he cannot ensure that those drums were neutralized; eight drums have an absorbed free liquid with an organic liquid neutralizer; two of those drums contain a glovebox glove, as did the breached drum. He said that LANL will continue to work closely with the state to define the final remediation methods to make sure that the drums do not react and that the waste will need to be repackaged when a remediation strategy is determined. In addition, Mr. Wallace expressed frustration that even with the world's best scientists assigned to solve this, they have not been able to reproduce the conditions that caused the drum to breach.

In response to committee members' questions and concerns, the following points were discussed.

- The waste acceptance criteria were carefully constructed and are more than adequate; the failure was with LANL.
- WIPP has been very successful for 14 years, which likely bred some complacency in its culture.
- Although the drum in Panel 6 does not have the same characteristics as the breached drum, it is probably at risk and there is likely a glove in that drum as well, but it is not known whether that glove contains lead or not.

The RHMC recessed at 12:22 p.m., and when it reconvened at 1:30 p.m., it voted to approve the minutes from the July 23 meeting in Los Alamos.

NMED Update

Trais Kliphuis, former WIPP staff manager, NMED, was recently promoted to acting director of the Resource Protection Division, NMED, she announced, but she is still very involved with the oversight of WIPP in her new position. Ms. Kliphuis introduced two of her colleagues, Dr. Coleman Smith, who is on the WIPP team at the Hazardous Waste Bureau, NMED, and Dr. Michael Simon, who works out of the Carlsbad office. As an overview, she said that she would speak about the NMED's hazardous waste permit and the activities of the agency's DOE Oversight Bureau.

Ms. Kliphuis stated that there are many regulatory agencies involved in the shipment of waste from LANL to WIPP in addition to the NMED, and these include the New Mexico and the U.S. departments of transportation, the U.S. Nuclear Regulatory Commission (NRC), the U.S.

Environmental Protection Agency (EPA), the Energy, Minerals and Natural Resources Department (EMNRD) and the NMED.

Next, Ms. Kliphuis reviewed the process of shipping waste from the generator site, which includes characterization and confirmation of that waste, to the WIPP site. She said that the waste is either contact- or remote-handled, that it is conveyed 2,150 feet underground into disposal rooms and that the waste is characterized prior to shipment to the WIPP site to ensure the absence of prohibitive items. This characterization process is required by permit and includes ensuring that the waste is not ignitable or corrosive and includes the quality control processes of AK, real-time radiography (RTR) and visual examination (VE). She added that other characterization techniques are regulated by the EPA, NRC and federal Department of Transportation. In addition, Ms. Kliphuis stated that the NMED asked LANL about the gloves this summer and that the AK review for that waste stream did not indicate whether the gloves were lead- or tungsten-lined.

After noting that there is a lot of checking and feedback that occurs in the confirmation process, Ms. Kliphuis reviewed the procedures related to the waste stream profile forms. What is verified at this stage is that the waste characterization information given meets the acceptance criteria required for waste analysis plan (WAP) compliance. Both RTR and VE data are obtained and the forms are submitted for the DOE's approval. Prior to the waste being shipped, the approved, completed forms must be sent to the NMED, she added.

Ms. Kliphuis then briefed the committee on the audit and surveillance program, which ensures that sites that transport waste to WIPP conduct testing according to the WIPP WAP and that the information given is in line with the waste screening and acceptability requirements of the WAP. After NMED staff validates the implementation of WAP requirements, an audit report has to be submitted for review and approval by the NMED, without which a site cannot ship the waste to WIPP. She added that the NMED is carefully studying this process to assess its adequacy and efficacy. In addition, the DOE Oversight Bureau does environmental monitoring at WIPP, which includes monitoring of the exhaust air, ambient air, general environment and penetrating radiation. She reported that 158 filter samples have been obtained and submitted for isotopic analysis from the monitoring of exhaust air at Stations A and B and that 40 samples have been submitted for ambient air. She emphasized that the NMED has to make sense of these raw data and that the data are first reviewed with the DOE before being released to the public.

General environmental monitoring has also been occurring at the WIPP site and surrounding areas, which includes sampling sediment, surface water, soil and vegetation, she said. Also, penetrating radiation monitoring at 20 total locations has been accomplished, and results will be posted soon, she added. She referred members to a map showing where all the monitors reside, including the direct penetrating radiation monitors.

Ms. Kliphuis spoke about what the data reveal, which includes the extent of contamination and impact of the radiological release on the environment and the subsequent impact on human health, which can provide information to policymakers. She indicated that she is in full support of finding ways to get all of the agencies to work together and that the NMED is communicating well with WIPP. What is not working is the implementation of a recovery

plan; the NMED does not yet have a copy of that plan, and the NMED has asked for an underground compliance plan but still has not seen one.

In response to committee members' questions and concerns, the following points were discussed.

- Although the NMED approved the initial portion of the closure plan submitted by WIPP for Panel 6, it asked for a modification of the plan the same day as the radiological release. The proposed plan has not gone through a public process yet, so the NMED is not comfortable using that design, and there is not yet a new design in place.
- The NMED is stressing the importance of communication with LANL to have a successful regulatory relationship, but LANL continues to withhold information.
- Audits do not include the waste treatment done at generator sites, only the repackaging and characterization process done afterward; the permit could be made clearer by including the generator site and a time line for these procedures.
- "Acceptable knowledge" is a questionable term at best; perhaps it needs to be named "process knowledge" and then leave the acceptability part up to the NMED to determine.
- Panels 1 through 5 are not sealed and Panel 7 is not yet full, so there could be transition areas in Panel 7 for other contaminated equipment to be stored before closing it. Also, mining of Panel 8 will resume at some point, but it has not been determined how this works with the recovery plan for WIPP.
- Explosion isolation walls exist on Panels 1, 2 and 5, but the use of such walls is still being debated for Panels 6 and 7.
- The recovery plan is still in draft form and not yet ready for public release.
- To get WIPP running again, the waste hoist should be completed at the beginning of October, and the waste voice tower needs to be completed as well as miles of ventilation system, repair of diesel equipment and the fixing of sheered bolts outside of Panel 6.

WIPP Monitoring

Russell Hardy, director, CEMRC, New Mexico State University, told the committee that CEMRC was initiated in 1991 at the request of a local citizen group that wanted to ensure independent monitoring of air, water and soil around the WIPP facility, and this has been reported by CEMRC for the past 15 years. Over time, the CEMRC has reported the presence of americium in its ambient air sampling but has determined that this radioactivity came from legacy fallout. In other instances of detection of trace amounts of plutonium in its sampling, the CEMRC concluded that these came from an outside source. The CEMRC was the first agency to detect and report a minor trace amount of radioactivity that was one-half mile from WIPP.

Mr. Hardy explained what occurs in Stations A and B, where air samples are collected in paper filters, isotopes of interest are separated out and filtration forces air into a building where the HEPA filters reside. In this way, the CEMRC can determine, for example, the amount of americium and plutonium flowing into and out of the system. He reported high amounts of americium in both stations during the first week after the radiological release at WIPP. The drastic drop in the amount recorded in week two, he explained, signaled that this was a one-time

event because of the speed with which it settled. He said that in the last week of June, the amount is shown as quite low; and in terms of impact to public health, this is "a non-issue".

The ambient air monitors are high-volume samplers located at the WIPP site and 12 miles east of the WIPP site and both northwest and southeast of the WIPP site as control. Mr. Hardy said that these ambient air stations will be doubled in number, placing others in Loving, Hobbs and behind the CEMRC facility. The ambient air chart also shows activity at its highest in the first week, especially directly at the WIPP site, with 1.3 disintegrations per second of americium at the exhaust shaft itself. Activity was reported as half that much in the WIPP near-field sample and close to normal detection at the far sampling site, he explained.

Mr. Hardy detailed the collection of soil samples of Grids A-1 through A-8, and the CEMRC concluded that although there was fallout from a WIPP event that landed in the tested areas, the activity was not high enough to determine if this americium and plutonium was from WIPP or just from this area generally. He spoke of the Gnome site southwest of WIPP, which has been remediated twice, and noted that the CEMRC's current sampling, compared to the Gnome averages, shows that there is nothing in the soil other than what legacy waste caused. He then talked about the whole body counter at the CEMRC, which calculates radiation amounts in the body and lungs. Usually, the CEMRC counts 30 people annually, but since the February radiological event at WIPP, it has counted 47, of which none had a positive detection of americium or plutonium.

The CEMRC will add three new ambient-air monitoring stations by the end of the month and will also be able soon to perform whole body counting on children ages 12 through 18. Mr. Hardy said that he serves on the mayor's nuclear task force, that part of the task force's work is to get agencies to communicate and that the CEMRC has volunteered to be the lead agency to get the other agencies to the table.

In response to committee members' questions and concerns, the following points were discussed.

- A continuous air monitor underground serves to send a signal that triggers the shift to filtration; in the case of this shift, Station A fans shut off and Station B fans come on and then the air gets forced through to the HEPA filtering system.
- During the truck fire, this switch was manually initiated, so there is a need to better employ the emergency response procedures at WIPP.
- Although the CEMRC does not have a statutory responsibility to report its findings, its role is to report all of its findings. After the February release, the CEMRC took its samples on February 16 and reported results in three days, which were then released to the DOE and the media that same day.

Environmental Response

Don Hancock, Southwest Research and Information Center, presented the committee with an alternate view on some issues regarding WIPP, including speaking about some gaps in what the RHMC heard earlier in the day. Mr. Hancock said that last year, he discussed WIPP's mission of providing safe operations and transportation of TRU waste, meeting time frames for cleanup of that waste and closing and decommissioning the WIPP site by 2030. He stressed that

WIPP has not been able to fulfill its mission in terms of the amount of waste it was to dispose of and that these problems existed long before the February 14 radiological release.

Mr. Hancock reiterated that there is no recovery plan, but he said that clearly there is an impact on Panel 7 and the amount of waste it can hold. He spoke of credibility issues in terms of fulfilling the mission and how the DOE misinformed the public. In addition, he reported that 22 workers were eventually told they were contaminated, but it took from 12 days to three months for them to be informed. Also, in the fire, one worker who suffered from smoke inhalation is still receiving treatment and may be permanently disabled because of it, Mr. Hancock said. Although the public was told there were no releases from WIPP in February, the public found out on February 19 that this was not so, when the CEMRC reported its findings. He then reviewed the amounts of radiation found in the underground area and spoke of the contamination not being limited to Panel 7 and the likelihood of contamination in all of the other panels and rooms. Mr. Hancock also stressed the importance of full disclosure in the release of information to the public, stating that since May 30, the DOE has not released its sampling data from Panel 7.

Mr. Hancock identified other major issues regarding lack of information, chiefly that the cause of the radiation release is still not known eight months after the event. He also spoke of the importance of identifying the standard to which WIPP is recovering; before the release, there was no contamination underground and now there is, so he questions which standard will be used and said that this needs to be made clear. He also stressed that the relationship of the amount of contamination and worker exposure to that contamination needs to be addressed. The DOE has informed Congress that a new ventilation system and exhaust shaft are needed, but it is not clear what the cost will be or what sort of system is adequate, he added.

In reviewing the DOE's environmental management budget, Mr. Hancock said that 65% of all money is appropriated to two sites: Hanford and Savannah River, where there is a lot of high-level waste contamination. He reminded the RHMC that the amount of money being appropriated in this Congress is declining, which means that if some sites get more money, others get less; that is, it is likely that as WIPP gets more funding, LANL will get less. He surmised that what affects how Congress looks at a future budget is directly related to how WIPP is spending its money. Mr. Hancock said that in this regard, the Nuclear Waste Partnership did not fulfill its contract and that another part of the failure is with LANL. He also pointed out that WIPP has two contracts with companies to transport waste to WIPP and that CAST Specialty Transportation, Inc., for example, is currently earning over \$6 million to ship nothing.

Mr. Hancock believes that because of the failures and the continuance of inaccurate and insufficient information deriving from the current investigation, the DOE's investigations are not sufficient and that an independent investigation is needed. He delineated the scope of work for such an investigation. He then focused on the declining safety culture at WIPP and the speculation that after years of success, there is now complacency. He said that there has been much focus by the DOE on expansion rather than safety and that all of this should be dropped until the facility can be operated safely.

In response to committee members' questions and concerns, the following points were discussed.

- There is no system in place at WIPP for independent investigations to be conducted and to serve as a cross-check for the DOE's findings and to give independent credibility to the public that is both technical and informational.
- There are areas in underground where no one has been since the radiological release, and there are many areas of suspected contamination of the shafts, but this information has not been made public as it is still with the AIB.

Public Comment

Norbert T. Rempe, a resident of Carlsbad who worked at WIPP for 23 years as a geologist, spoke of his concern for his former colleagues at WIPP during the radiological release. Yet, he opined, the real hazards to WIPP employees come in the form of driving to and from work and having an accident; the highest risk is on the roads. The next highest risk, he said, is from underground fire and the third highest is a radiological release. Mr. Rempe questioned the accuracy of the AIB's reporting on the truck fire, which he said did not contain all of the relevant information needed for analysis. He mentioned that the report spoke of the change in ventilation from regular mode to (reduced) filtration mode. However, nothing was said about the employees who called up from the underground when the smoke started going in unplanned and unexpected directions, requesting the ventilation being returned to its regular mode. This request from the underground was denied, which was also not reported. Mr. Rempe expressed his concern that these reports cannot be trusted.

Mr. Rempe stated that although he does not consider what happened on February 14 to be a catastrophe or a tragedy, the truck fire very well could have been, and the real risk is being overlooked. He spoke of how the transparency and openness of the DOE has been put into question several times, and he asked the RHMC to consider advocating for one person from the DOE to take charge of and report on its findings. He added that many problems are the result of long-term trends, that WIPP has diminished its communication with the local community and nationwide and that some management at WIPP has discouraged dissent. The emphasis has been placed on getting waste underground, with incentives to contractors who put the most waste in the ground, and some trends need to be reversed, he added.

In conclusion, Mr. Rempe reiterated that the figures given for radioactivity in the release are confusing because different presenters used different measurement units and that, anyway, the amounts are minute and not a hazard. He also clarified that the WIPP budget of \$220 million that Mr. Hancock spoke of is for the Carlsbad field office of the DOE as well, not just for WIPP, which uses a budget of \$80 million to \$90 million. He ended by saying that he wants WIPP to succeed in a smart, cost-effective fashion and that, as a taxpayer, he wants a list of what the public will get for a budget of \$130 million.

Mary Landreth said that she has heard that WIPP worked exactly as it should have during the radiological release but that she does not believe that to be so. She emphasized that people in the community were afraid and that plutonium, if inhaled, is very dangerous and lasts for 40 years in the lungs before causing harm. She said that she does not want plutonium in her lungs, that this is serious and that people are concerned. She implored the RHMC to ask the right questions, look into all the information provided and keep the residents safe.

The committee recessed at 3:45 p.m.

Wednesday, September 17

Right to Deploy Transmission by Distribution Utility

Varney Brandt, Duane Ripperger and Bill Grant of Xcel Energy presented to the RHMC on proposed legislation to provide for the right of first refusal (ROFR) to public utilities or generation and transmission cooperatives. Mr. Brandt reported that the proposal is similar to the legislation introduced in 2013. Mr. Ripperger explained that Xcel Energy is the holding company for four gas and electric companies that have a regulatory relationship: Southwestern Public Service (SPS), the Public Service Company of Colorado and the Northern States Power companies of Minnesota and of Wisconsin. He added that the SPS transmission grid is in New Mexico and Texas and that the company employs 1,700 people and operates 7,000 miles of transmission lines with 107,000 customers in New Mexico. He likened Xcel's transmission lines to a highway that moves power from where it is generated to the load centers for customer use. He spoke of the positive impact of transmission to both the WIPP and URENCO sites and said that SPS is constructing 300 miles of new transmission lines for southeastern New Mexico, which will provide both sites with additional transmission, increased reliability and an ability to serve additional load requirements.

Mr. Ripperger then spoke about the ROFR legislation, which essentially gives the public utility the first right of construction, as in the past. Currently, some large lines are subject to a bid process, and oversight of the new lines is the responsibility of a federal agency, not the Public Regulation Commission (PRC). He said that this legislation continues New Mexico's oversight of transmission in the state. Among the benefits are that the PRC maintains oversight of the cost of transmission, of its reliability and of the need for, and cost and routing of, new lines built. Also, this would promote job growth at local utilities, he said.

Mr. Grant spoke about the roles of the Federal Energy Regulatory Commission (FERC) and the southwest power pool (SPP) in expanding the grid. The FERC regulates interstate commerce in gas, oil and electricity and enacts regulations to provide energy services, he added. FERC Order 1000, which was issued to meet public policy and reliability needs, ensures the build-out of transmission and enables a robust energy market across the region, he said. The SPS was already doing much of this, but it does answer to the FERC, implements rulings from the FERC, operates the regional transmission grid, operates the wholesale energy market throughout the SPP footprint across eight states and administers tariff and cost allocation of regional projects.

In giving a history of the ROFR policies, Mr. Grant said that public utilities with an obligation to serve had the ROFR on transmission facilities in their area and that even under a competitive process, if there are needs in an area that no one else can build on, it is Xcel's obligation to be the builder of last resort. In 2011, FERC Order 1000 removed the ROFR for public utilities while deferring to state policy, he added. In 2015, the SPP will enter its first set of competitive projects by soliciting proposals. In reviewing FERC Order 1000, Mr. Grant said that a May 2012 rule was passed to expand the electric transmission grid and that the SPP already had its regional transmission process in place. The three areas of focus for FERC Order 1000 included encouraging regional and interregional planning and cost allocation and replacing the federal ROFR by a bid process, he said. Mr. Grant stated that if Xcel built a transmission

development company, it would be regulated federally, that what is needed is to form an unregulated company and that it is in the best interest of the state to maintain control. He added that the ROFR bill would apply to SPS, which would be responsible for building.

Mr. Ripperger then stated that the PRC oversight of rates keeps customer costs down and that the SPS profit margin is at 9.96%. He said that the FERC sets higher margins than are typically allowed by state commissions, which vary from 10% to 12.3%. He added that the ROFR bill maintains the PRC's oversight of the cost of transmission service and that the PRC is the customer's advocate for affordable and reliable service. Also, SPS has a lot of experience designing and owning lines, and, regardless of who builds the lines, the PRC is responsible for reliability of the system. The PRC also has oversight of the construction of new lines in the state; it validates need, cost and routing of lines before approval; and this ROFR legislation maintains such oversight by the PRC. In addition, Mr. Ripperger spoke about the jobs that SPS adds as the system grows, with SPS adding 46 positions over the past four and one-half years, which adds to the economic development of the state.

In summarizing the content of the ROFR legislation, Mr. Ripperger said that it provides public utilities, rural cooperatives and generation and transmission cooperatives the first option to construct new lines, given that it is approved by a regional transmission organization (RTO). The line has to be cost-allocated to all RTO customers. He added that this legislation only affects the current SPS service area and that El Paso Electric and PNM are not part of an RTO, so they are unaffected. The interconnection of new renewable generation or non-utility transmission lines are also not affected, he added, or not cost-allocated to members. So, non-utility lines such as SunZia or Tres Amigas would be free to cross the SPS footprint, he explained, and would not be affected unless they interconnected with SPS. Also, the legislation provides an ownership mechanism for lines between local utilities and cooperatives.

Mr. Ripperger informed the RHMC that seven other states have enacted ROFR legislation or have other laws that protect state oversight and that all states used to have ROFR but that the FERC eliminated that, recognizing the state's right to have its own legislation. He explained that the ROFR legislation is needed now to ensure that the PRC maintains control over the development of new transmission. He said that the SPP will request bids for transmission lines in 2015 and that SPS is well-positioned to compete as one of the lowest cost bidders. He added that although Xcel agrees with the FERC, it is important to expand the transmission system and this should not come at the cost of the PRC losing its control.

Sharon Segner of LS Power proceeded with updates on changes made in the last two years that could impact the ROFR legislation. She said that LS Power is one of the faces of transmission and is a large national energy company that raised over \$20 billion to support energy infrastructure across the U.S. She added that LS Power focuses on the generation and transmission side and, in the past two years, has completed 500 miles of competitively built transmission and a public utility in Texas and has applied to be qualified to develop transmission in the SPP. She expressed concern over the ROFR legislation because it is a complicated federal issue. After reviewing a map of New Mexico with its various transmission lines shown as well as the SPP's area, which is interconnected with several other states across the U.S. to supply transmission services, Ms. Segner said that in the last two years, the FERC voted 4-1 that competitive pressures should come into the transmission industry nationally because it is

anticipated that in the next 25 years, there will be \$300 billion in infrastructure needs nationally. She said that this is a policy matter and that because of the sheer amount of need, there should be competitive pressures to protect customers. She added that this issue is being hotly contested in Washington, D.C., with over 10,000 pages of legal arguments filed across the U.S. In addition, the FERC ruled that it believes it is in the best interest of the consumer that there be competitive pressure. She reported that last month, a court order was issued saying that utility interests across the country have to decide if they will appeal and that Xcel is a petitioner in this. She stated that the courts have spoken, that the FERC acted within its full legal authority and that the RHMC is being asked to weigh in on a federal issue. She added that from LS Power's standpoint, the state maintains full control under current law to say no in terms of permitting applications and that the federal government has not changed the state's ability to deny permits to any company, so no legislation is needed. She concluded that competitive markets are opening up all over the country and that LS Power has initiated the idea of a cost cap on its proposals, but ROFR legislation provides no incentive for cost caps. She opined that this legislation would shut off the state to competition.

Simon Whitelocke and Michael White of ITC Great Plains described how their company focuses on owning and operating transmission, has a good track record, has service territories like SPP's and has built transmission in other service territories. ITC feels that the proposed ROFR legislation is not necessary. Mr. Whitelocke and Mr. White reported that ITC operates in seven states and is the tenth-largest transmission-owning company in the country. ITC does not generate or sell electricity but serves as the conduit for transmission. ITC is a member of three RTOs and supports open and transparent regional planning processes led by the RTOs.

Mr. Whitelocke and Mr. White expressed ITC's support of the competitive model, with its own growth as an example, having grown from four to 20 employees since 2006. ITC is troubled by legislation that would prevent other utilities from competing in Xcel's territory, while Xcel would be competing in others' service territories. A state ROFR law would impede competition. They reiterated that the open and transparent transmission planning processes and competitive solicitation of the SPP are cost-effective and benefit customers. Also, RTOs have developed processes with the help of utilities to ensure that companies given bids are capable and that before, during and after a construction award, any company would have to conform to all state regulations of the PRC. They concluded by saying that the need for transmission investment is clear and that the SPP has an open process for the development of transmission, which will drive innovation, drive down costs and benefit customers. They asked, then, what problem are we trying to solve with this legislation?

In response to committee members' questions and concerns, the following points were discussed.

- Perhaps the SPP did not think there were enough transmission lines being built nationwide and doing away with ROFR legislation was the FERC's way of spurring transmission build-out, but the FERC's solution is a "one-size-fits-all" solution to a nationwide problem.
- The entity that constructs a transmission line maintains that line; there are both federal and state laws regarding reliability standards for companies awarded projects; and all companies have to be qualified by SPP standards.

- With ROFR legislation, the planning process stays the same as with the SPP; what changes is that it does not have to go out for a competitive bid process.
- Mainly for projects needed within three years, these would likely go to the incumbent utility, but further out, these projects are subject to a competitive bid process.
- Utility companies are responsible for repair and maintenance of the lines they construct.
- When the SPP awards a contract, the utility company has a time frame within which to accept it, and if it does not, the SPP goes to another company.
- The average cost of service depends on the terrain, and the federal government has created a mechanism whereby a company can go into a low-cost area and the cost-sharing is then picked up by the end user. Prices can be depreciated because of tax structure, too. But if there is a transfer of ownership, the rate is determined at cost, not at the market price; the FERC does not allow a utility company to pass on acquisition premiums.
- Xcel is creating its own company to compete in other areas as a transmission development company.
- All ROFR bills are not the same, and the language in the proposed New Mexico legislation is some of the broadest of any of the states.

Carlsbad Brine Well Status

Jim Griswold, senior hydrologist, EMNRD; David Martin, secretary, EMNRD; and John Lommler, principal geotechnical engineer for AMEC Environment & Infrastructure, Inc., presented issues related to the Carlsbad brine well. Mr. Griswold thanked the RHMC for inviting them and mentioned that presenting to the committee has been an annual event for six years running. He said that monitoring continues and includes bore-hole tiltmeters, microseismicity, cavern pressure gauges, ground water levels and canal and soil temperature monitoring. In thanking Representative Brown for her assistance in securing property access, he added that the microseismic monitoring system has been in operation since early in the year. Mr. Griswold reported that the expenditures from the reclamation fund of the oil and gas industry total over \$4 million, with over \$1 million of that reimbursed from the state, and the City of Carlsbad has been fully reimbursed for its expenditures. He said that AMEC is operating under a professional services agreement, with a contract that has been extended to June 2015. As well, the feasibility study is completed and totals 2,600 pages.

Dr. Lommler gave details on the study, saying that AMEC has spent over two years on it. The site was monitored using existing and new instrumentation. He said that rock and soil samples were taken, and it was determined that the geology is unique, which helped AMEC to understand why other brine wells have collapsed and this one has not. Alternatives for stabilizing the roof were also reviewed. The final report was delivered in August, he added. Some details from the feasibility study fact sheet for the I & W Brine Cavern include the following.

- The cavern is near the "south Y" in Carlsbad.
- The underground void in the Salado Formation from the production of brine by I & W Inc., is approximately 200 to 350 feet wide, 685 feet long and 110 to 80 feet high.
- The cavern roof will fail if not stabilized.
- There is a high probability of catastrophic failure of the cavern within 10 to 25 years.

Dr. Lommler said that AMEC tried to determine which portion of the cavern would collapse first, which turns out to be the central portion, two-thirds of the way down. He indicated that the roof is collapsing and debris is collecting at the cavern bottom. An arch is being formed in this process by the rounded chunks that are falling, which creates a critical situation if the cavern fails before the arch is completely formed. He stressed that there is time to take action, but not much time.

Among the remedies indicated on the feasibility study are the following:

- institutional controls (ICs) with monitoring;
- cavern abandonment with monitoring and ICs;
- controlled collapse; and
- in situ fill with monitoring and ICs.

He said that the feasibility study simply presents alternatives that need to be considered in protecting the public, the property and the environment. With the IC alternative, people would have to be kept off the property and the cost would be \$240,000 annually. Cavern abandonment with monitoring would be in the chamber itself and would not fully protect the public but could reduce the hazard; but the roof could still collapse, and this annual cost would be \$320,000. A controlled collapse would be a permanent remedy and would reduce the immediate hazard but could produce long-term problems, including cavern growth and a risk of contaminating the ground water and requiring the rerouting of both the road and canal, which would cost \$50 million. The final alternative of in situ filling and monitoring would also be a permanent remedy, would fill the cavern with something prior to its collapse to stabilize it and would then require monitoring. He indicated that if this is done within the indicated time frame, this should avoid roof collapse. This would cost between \$15 million and \$25 million.

In response to committee members' questions and concerns, the following points were discussed.

- There are no active brine wells in New Mexico at present.
- The reclamation fund has an unencumbered balance of \$6 million, and the fund was set up originally to plug abandoned wells and facilities, but then legislation modified the rate at which money went into the fund without a designation as to where the money was to be spent.
- Fill used would be aggregate fill, such as sand or gravel, with cement used to top it off; the bulk of the cost with this option is for materials and transportation.
- Federal resources are possible but cannot be tapped until and unless the cavern collapses.
- The EMNRD's view is that dealing with the potential collapse is a local issue, and there is not enough money in the reclamation fund to provide a remedy, although the EMNRD could assist with attaining funding.
- The brine cavern's proximity to the surface makes it less stable than deeper caverns, and time is certainly of the essence in dealing with this potential disaster.

Public Comment

Mr. Doss addressed the RHMC again, thanked the committee for its time, and he assured members that the city will find a solution quickly for this brine cavern problem. He added that Ned Elkins told the city that the collapse was imminent, that the city has been working on this issue and that the city appreciates the state's effort in helping Carlsbad solve this.

Mr. Elkins stated that when this potential collapse became known in Carlsbad, the community began aggressively working with its own resources to come to a solution and appreciates the work that the EMNRD has produced. He clarified that the sense is that the cavern would eventually collapse, and from early on, the city understood that there would be a slow failure of the arch. He stated that filling creates a load issue and that waiting until the end of the statistical period to fill is the worst option. He speculated that mine tailings have good characteristics for fill that should be considered. Mr. Griswold, though, replied that the cavern is not large enough to take the grain size and that the current backfilling model assumes 27 vertical holes would be used, none directional.

A field representative from U.S. Senator Tom Udall's office suggested that Eddy County could be declared a disaster area, which might allow the area to qualify for additional funding. Another suggestion, based on the city's strong cash flow stream, was to issue municipal bonds.

Adjournment

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

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

**November 7, 2014
Room 311, State Capitol
Santa Fe**

The fourth meeting of the Radioactive and Hazardous Materials Committee (RHMC) was called to order by Senator Peter Wirth, chair, on Friday, November 7, 2014, at 10:03 a.m. in Room 311 of the State Capitol.

Present

Sen. Peter Wirth, Chair
Rep. Eliseo Lee Alcon, Vice Chair
Rep. Thomas A. Anderson
Rep. Cathrynn N. Brown
Rep. David M. Gallegos
Sen. Gay G. Kernan
Sen. Richard C. Martinez
Sen. John Pinto
Rep. Jim R. Trujillo

Absent

Sen. Carlos R. Cisneros
Rep. Stephanie Garcia Richard
Sen. Carroll H. Leavell

Advisory Members

Rep. Donald E. Bratton
Sen. Ron Griggs
Sen. Nancy Rodriguez
Rep. Nick L. Salazar

Sen. William F. Burt
Rep. Brian F. Egolf, Jr.
Rep. William "Bill" J. Gray
Sen. Stuart Ingle
Sen. Daniel A. Ivey-Soto
Rep. Emily Kane
Sen. Michael Padilla
Sen. William H. Payne
Sen. Clemente Sanchez

Minutes Approval

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

Staff

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

Guests

The guest list is in the meeting file.

Handouts

Handouts and written testimony are in the meeting file.

Friday, November 7

Call to Order

Senator Wirth called the meeting to order and welcomed committee members and members of the audience.

Carlsbad Community Assurance Program

Former State Representative John Heaton, chair of the Carlsbad Nuclear Task Force, reviewed the Waste Isolation Pilot Plant's (WIPP's) accident history and status of oversight and the possible solutions to resolve the effects of the two major incidents that occurred at WIPP this year — the radiological release and truck fire. Mr. Heaton indicated that both incidents were the result of poor maintenance, poor response and poor training. In addition, the radioactive waste was not treated properly due to the failure to follow prescribed treatment procedures and to ensure that proper treatment occurred, as well as failures in the documentation of treatment and outcomes. Also, the federal Mine Safety and Health Administration (MSHA) had not visited WIPP in several years. Mr. Heaton stressed that the truck fire was the most life-threatening incident and that the 86 workers present in the mine were not prepared to handle the accident. The radiological release, he added, was minor. Some of the issues related to oversight that Mr. Heaton spoke about include the complacency in the mine's culture, the extent of deferred maintenance, the lack of accountability and the "siloes" nature of the oversight agencies.

In discussing an oversight solution, Mr. Heaton first spoke of creating a panel to independently oversee WIPP to ensure the safety of both the community and everyone at large. He added that the task force first looked at hiring an independent contractor for oversight but decided that there are already a lot of independent agencies as part of the system. The challenge is in getting all of the agencies together to identify gaps and conflicts. Mr. Heaton also indicated the importance of having observable accountability as well as a public reporting process. The task force determined that quarterly reporting is reasonable.

The oversight mission, Mr. Heaton continued, is to ensure compliance with federal Department of Energy (DOE) orders and to emphasize integrated safety management in relationship to changes needed to the contract. (Mr. Heaton noted that the current contract actually pays a bonus for how much waste the contractor puts in the ground, with little emphasis on safety or maintenance of the facility.) He added that there is a need to keep the WIPP facility at its best through identifying equipment and facility needs, ensuring that waste treatment and characterization is done properly and conducting competency-based training related to safety and crisis intervention.

In identifying "steps to success", Mr. Heaton emphasized the importance of bringing all of the oversight agencies together, clarifying each agency's role, establishing reporting mechanisms and garnering legislative, congressional, gubernatorial and local support. He concluded by emphasizing the importance of WIPP to national defense and to New Mexico's cleanup of waste.

In response to committee members' questions and concerns, the following points were raised and discussed.

- The DOE did not ensure that contractors were performing optimally, and there was no follow-through on corrective action reports; thus, there was a serious oversight problem at the WIPP facility.
- This year, the RHMC has asserted its oversight role, and it will remain important to continue oversight to ensure that the legislative perspective continues to be heard.
- The RHMC could routinely request documented evidence on improvements at WIPP; for example, of the MSHA's 52 indicated surface violations, 49 have been addressed.
- There were serious gaps in communication related to the waste stream that caused the breach; documentation and reporting are all part of the solution to ensure that this does not happen again.
- The MSHA had not visited WIPP in two years.
- The accident investigation reports can be found at www.wipp.energy.gov.
- A clearly defined pyramid structure is necessary so that all agencies can responsibly follow through to one entity that is in charge and ultimately responsible.
- Inspections must be provided, as well as penalties imposed, for noncompliance.
- Outside parties are needed to assess and review procedures; contingency plans must be in place; and corrective actions must be made.
- Information needs to be disseminated to the public to assure the public that oversight is happening.
- The central characterization program at WIPP looks at all documentation on waste preparation and treatment; yet the waste involved in the incidents was shipped based on information received from Los Alamos National Laboratory, but that documentation was incomplete.
- The ultimate responsibility rests with the DOE manager at the WIPP site.
- The underground washing station at the WIPP site was removed by a contractor, and it is possible that another one was on order for replacement, which would have proved instrumental in control of the truck fire.
- Even with an increase in oversight, it is still essential that people do their jobs correctly. It is likely that the safety culture at WIPP changed when emphasis was placed on accelerating shipments.
- Each agency involved in the community assurance program needs to have the authority to present information to the public, reporting on any deficiencies and whether these have been corrected. This would allow elected officials to gauge responsiveness. The independent agencies need to take the lead, not the DOE, since it is the agency being regulated.
- The New Mexico State University (NMSU) Carlsbad Environmental Monitoring and Research Center's role is to do environmental monitoring for WIPP, and adding the mission of convening all these groups would have to be cleared through NMSU.
- The Department of Environment (NMED) has substantial punitive authority within its permit for WIPP, and it has substantial control over WIPP.
- The WIPP budget, which once stood at \$240 million, declined over time, and Joe Franco, manager, Carlsbad Field Office, DOE, worked to bring it back up so the budget is now at \$220 million. WIPP recovery costs are estimated to be \$500

million. Ventilation is the critical issue and involves the crucial step of sinking a new shaft, which is likely to cost \$100 million.

- The accident investigation report describes a significant breakdown in the safety culture at WIPP, including employee dissatisfaction at the bureaucracy under which complaints were not addressed and an erosion of the sense of working toward excellence.
- WIPP is not within the jurisdiction of the state mine inspector.
- It is when processes at WIPP got expedited that problems occurred; and care needs to be taken not to rush to open the WIPP facility until questions are answered and procedures are in place for oversight and for how to handle future problems at WIPP.

Small Modular Reactors

Paul Genoa, senior director for policy development at the Nuclear Energy Institute, gave an update on small-reactor development in the United States. In summarizing the nuclear industry in the U.S., he said that the levels of safety and reliability are consistently high; there is an increased ability to handle extreme nuclear situations; and the U.S. Congress is showing an interest in used fuel legislation.

Mr. Genoa said that there are five reactors under construction in the U.S. — at the Watts Bar Nuclear Power Plant, Vogtle Electric Generating Plant and Virgil C. Summer Nuclear Generating Station, and there are 73 under construction worldwide. He added that the Vogtle site is the largest construction project in Georgia's history, with 5,000 construction workers participating. He then spoke about diversity in the electric system, which is significant because of its impact on household income, and said that the industry is at risk of losing some of this diversity.

Mr. Genoa then talked about nuclear energy as a "clean power plan". He said that nuclear energy represents over 63% of clean energy in the country. He cited California as a state that leads in solar and wind power generation but added that during its last full year of operation, the San Onofre Nuclear Generating Station produced about 18,097 gigawatt hours (GWhs), while the total combined output of wind and solar generation in 2013 was 16,985 GWhs. Because all nuclear power plants were built in a short period of time, all of their licenses will expire soon, Mr. Genoa said. He added that nuclear energy provides a strong tax base and high-paying jobs and that much of the country is recognizing the value of nuclear energy.

In discussing the role of small modular reactors in providing options for nuclear energy, Mr. Genoa clarified that these reactors are not all that small; they are generally the size of a local shopping mall, about 20 to 30 acres. These would provide power for 100,000 people and are built in a modular fashion, which means additional components can be added at a later time. Also, these reactors are largely built with American components in American factories and then shipped around the world, he added. Mr. Genoa said that this technology advances U.S. policy in several important ways: by providing increased energy and national security (reactors run all the time); by expanding fuel and technological diversity; and by advancing a clean energy future. He said that U.S. growth is predicted to be relatively flat, as the demand is relatively flat, but that in the rest of the world, the demand is growing rapidly. Mr. Genoa said that the Nuclear Energy Institute cares about the leadership needed to provide clean energy technology to the world, and it wants to transfer a technology and safety culture along with that technology. He stated that

this market could amount to a \$500 billion to \$750 billion clean energy market over the next 10 years.

Mr. Genoa discussed several small-reactor applications, including light-water reactors; mini, distributed and fuel-cycle applications; and high-temperature gas reactors. He said there is a high level of interest across the U.S., that Alaska has repealed its moratorium on nuclear energy and that the State of Washington, South Carolina and Missouri all want to host fabrication facilities for small reactors. Light-water reactors will be the first to market, he added, since they are the closest to what is on the market today. The hope is that these designs will be deployed in the mid-2020s. Among the challenges Mr. Genoa cited are that the licensing alone will cost \$1 billion over 10 years, with another half billion dollars needed for engineering before being ready to enter the commercial market. He stated that the Nuclear Energy Institute is looking for domestic and international partners and that the federal government is supportive.

Mr. Genoa indicated that the DOE, under its former secretary of energy, Dr. Steven Chu, is supportive of small modular reactor development, and the DOE convened an advisory committee to look at small reactors in this country. He added that the safety and security culture around the world can be improved, and the U.S. can expand its leadership to nations that do not yet use nuclear power. He stated that under the Obama Administration, the DOE and the U.S. Congress approved a small nuclear reactor technology program, which is a cost-share program that was funded at \$452 million over six years. The first company to receive a cost-share award was Generation mPower, LLC, he added. The program is receiving continued national support and increased funding. The current DOE secretary, Ernest Moniz, is a big champion of these reactors, Mr. Genoa said, because of the innovation required alongside their "strong safety considerations". Also, at the end of last year, a second award was made to NuScale Power in Oregon, and both Westinghouse Electric Corporation and Holtec International are developing small modular reactors.

Licensing continues to be a major challenge, Mr. Genoa said, and involves addressing generic regulatory issues and preparing consensus positions for the industry, as well as ensuring that there are regular interactions with regulators. He spoke of the Nuclear Energy Institute's industry white papers, which have been submitted to the federal Nuclear Regulatory Commission (NRC). The NRC has indicated that it is working on design-specific review standards and is ready to begin reviewing small modular reactor applications. In describing time frames, Mr. Genoa said that once a license application is submitted, it takes 39 months to be granted approval for design certification; and building and operating takes another three years. He indicated that the Nuclear Energy Institute needs to engage in testing of infrastructure for design validation. Mr. Genoa concluded that to sustain licensing investment and development, a predictable regulatory framework is a necessity.

In response to committee members' questions and concerns, the following points were raised and discussed.

- Changing a fuel design would involve at least 18 years within the regulatory process, so as much as the radioactive element thorium might be a valid fuel to investigate, it would take an enormous amount of time to do so.

- Nuclear facilities close down when their licensing ends; there is a new U.S. Environmental Protection Agency (EPA) rule that is designed to encourage new nuclear facilities, but that rule expires in 2030.
- The nuclear industry is putting together a foundational organization to assist in building plants, but federal support and state partnerships are necessary.

Inovus Solar; Renewable Energy Opportunities

Bruce Eastman, chief operating officer of Inovus Solar, said that he is also a board member and investor in the company and finds the renewable energy market fascinating. Inovus Solar provides both on- and off-the-grid solar lighting installations, he said, with most installations done in the U.S. He said that Inovus Solar installed lighting around the world to demonstrate that its products would stand up to difficult situations. The company also added its solar capabilities to existing lighting for cases where infrastructure was already in the ground, he said.

Mr. Eastman then talked about the energy situation in California, where utility rates are increasing 8% per year after the state passed legislation to shut down coal-fired plants, which decreased the energy supply by 62%. The new energy capacity came at a much higher cost per megawatt hour, with higher fuel costs and price volatility, he explained. Inovus Solar, Mr. Eastman added, installs solar panels or LED lights on existing light poles to take advantage of existing infrastructure. In addition, key components of a solar panel system decrease in price over time, he said. Also, the solar panels can be oriented directionally to increase power generation, which is not possible when solar panels are installed on roofs. A key partner to Inovus Solar is Idaho Power Company, and Mr. Eastman noted that even in Idaho's weather of winter inversions, the solar panel system exceeded its annual energy generation forecast in less than 11 months. Also, the system can be remotely controlled and monitored, and the solar panel system generated more electricity than the LED lights consumed, he stated.

Mr. Eastman indicated that Inovus Solar can provide solar energy that is less expensive, easy to deploy and robust. He said that Inovus Solar takes advantage of the existing topology of lights; creates circuits comprising 30 light poles; and aggregates multiple circuits. He also said that community solar projects provide an opportunity for residents of apartments to participate in renewable energy, and many of these projects qualify for federal American Recovery and Reinvestment Act of 2009 funding. Mr. Eastman said that Inovus Solar advises customers to develop a pilot project to clarify the specific needs; work with the existing utility; identify permits and fees; and analyze locations. He stated that a public comment period should also be included in this phase.

In identifying whether these systems can be instituted under existing law in New Mexico, Mr. Eastman spoke of how different states handle different aspects of energy production. Senator Wirth asked for input from the utility companies in attendance at the meeting, which included Xcel Energy and Public Service Company of New Mexico (PNM). Both representatives expressed interest in the concept of using existing infrastructure and adding to it for energy gain, and both representatives found the concept of community solar to be interesting. Some concerns were expressed at the possibility of having to give up some lighting load in the evening and subsidizing costs through other ratepayers.

In response to committee members' questions and concerns, the following points were raised and discussed.

- As long as the solar source is generating energy, energy is put back into the grid; two separate instruments measure what the solar source generates during the day and what is then consumed.
- The main concern with the community solar power concept as it has been addressed thus far is the retail wheeling aspect. With a remote system that needs power to be distributed, this has to happen within PNM's distribution system, and the community solar entity that is generating power has not paid for that system.
- Community solar power can benefit a broad base; however, utilities need to be able to make money. The alternative to this model is for a city to create its own municipal utility, as Boulder, Colorado, has done.

Mercury Waste Stream Management

Steve Pullen, compliance manager at the Hazardous Waste Bureau at the NMED, said that his purview for regulation generally involves businesses, not households, and it is the vapor within mercury bulbs that causes mercury bulbs to be regulated at all. Highlights of his detailed presentation include the following (see handout for the complete details).

- Mercury bulbs are of two types, fluorescent tubes and compact fluorescent light bulbs (CFLs), and these bulbs have replaced incandescent bulbs because of their tenfold greater energy efficiency.
- Fluorescent lamps contain differing amounts of mercury, depending on lamp size and age; a four-foot fluorescent tube from 2006, for example, contains about 12 milligrams of mercury, whereas newer lamps contain less.
- A broken mercury bulb's mercury content is released into the atmosphere, where it becomes an invisible, toxic vapor. Mercury is a toxin that affects the nervous system.
- Approximately 50% of atmospheric mercury emissions comes from coal-fired power plants, and less than 1% of total mercury emissions comes from bulbs.
- Households are not subject to the hazardous waste regulations, but businesses and industrial facilities are regulated by the Hazardous Waste Bureau, which conducts oversight of the disposal and recycling of mercury bulbs at solid waste facilities.
- In 2006, the legislature passed House Memorial 5, which required the NMED and the Department of Health to develop a mercury reduction plan, including conducting a study, educating the public and supporting the Solid Waste Bureau of the NMED in funding disposal and recycling of mercury bulbs.
- Estimates from the national Association of Lighting and Mercury Recyclers indicate that 30% of regulated bulbs, and 2% of nonregulated bulbs, are recycled nationally.
- The New Mexico Recycling Coalition promotes a policy of producer responsibility by advocating that recycling costs are included in the sales costs of mercury bulbs.
- Most components of CFLs and fluorescent bulbs can be recycled.
- The NMED has devised best management practices for businesses and for homeowners in disposal of mercury bulbs.
- The NMED strongly urges businesses and individuals to use "green" lamps, which have reduced or eliminated the use of mercury.

- In September 2014, the EPA released a strategy to address mercury-containing products.

In the ensuing discussion, some concern was expressed regarding the difficulty in regulating the purchase and use of mercury bulbs and the relative ease of regulating their manufacture and sale, at least for businesses. The technology is, in a sense, regulating itself by the introduction of "green" bulbs and the transition to LED products, both of which are potentially less harmful, a committee member remarked. Also, most members of households do not understand the harmful effects of mercury bulbs and their proper disposal.

Committee Business

A motion was made and seconded to approve the corrected second version of the minutes for the September 16-17 RHMC meeting, and the minutes were unanimously approved.

Representative Anderson then moved to send a letter from the RHMC to the New Mexico secretary of environment and the Carlsbad Field Office manager of the DOE. After further discussion, a substitute motion was made by Representative Brown and seconded by Representative Anderson that a letter be sent that includes the following points:

- that there is value in the establishment of a community assurance program regarding WIPP;
- that the RHMC encourages that such a community assurance program has provisions to make periodic reports to the committee, given that the RHMC is the legislative oversight committee on nuclear activities in New Mexico; and
- that the existence of a community assurance program would be consistent with the consent-based model recommended by the President's Blue Ribbon Commission on America's Nuclear Future.

The motion was unanimously approved.

Public Comment

Norbert T. Rempe discussed the history of WIPP and cited an article that appeared in the *Albuquerque Journal* on November 7, 1971, which he described as the initial catalyst for WIPP. He said that former New Mexico Senator Joseph E. Gant, Jr., read that article, which described the State of Kansas and the Atomic Energy Commission (AEC) being embattled over the AEC wanting to use an abandoned salt mine for the disposal of nuclear waste from facilities across the U.S. Kansas' governor and congressional representatives opposed the AEC plan, and the article reported that the AEC was looking for alternative sites. The article motivated Senator Gant to follow up, given that New Mexico has salt mines in Carlsbad.

Mr. Rempe then presented a chart from a DOE publication that shows dosage ranges for ionizing radiation for cancer radiotherapy, acute radiation syndromes, cancer epidemiology, the DOE's low-dose program and medical diagnostics. The chart also includes DOE regulations and guidelines for dose limits. Mr. Rempe suggested that the RHMC ask the DOE some questions about this chart, such as: 1) where on this chart is the past or current contamination as a result of WIPP incidents?; and 2) where would it fall on the DOE's chart if all of the filters were removed

and the WIPP facility returned to regular ventilation? Mr. Rempe's believes that this action would have no consequences.

Mr. Rempe spoke of carrying his own Geiger counter to measure background radiation and that his measurements indicate that there is more radiation present in Santa Fe than in Carlsbad. He advocated looking at actual risks and hazards over bureaucratic rules and guidelines.

Scott Kovak of Nuclear Watch New Mexico emphasized his opposition to any lessening of safety standards at WIPP. He indicated that the estimates for WIPP recovery is closer to \$1 billion, an astronomical cost to taxpayers. He added that there were seven permit modification requests in the works at the time of radiological event, all of which would further erode the safety culture at the facility. He stated that more transparency is needed from the WIPP contractor.

Mr. Kovak indicated that New Mexico has some leverage with the opening of WIPP that is currently not being used. Given that WIPP is the gem of the DOE repositories, New Mexico has a lot of leverage in saying when WIPP should reopen, he opined. Mr. Kovak urged more oversight, public participation and quarterly meetings at WIPP that would include information on any updates at the facility, as well as permit modification requests. He concluded by stating that nuclear energy is only clean if the mining and waste aspects of the process are ignored.

Adjournment

There being no further business, the RHMC adjourned at 4:30 p.m.3:33 p.m.