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**Trace of plutonium is detected outside WIPP**

ABQ Journal

February 20, 2014

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An independent analysis has uncovered trace amounts of plutonium in an air sensor a half mile from the Waste Isolation Pilot Plant in southeastern New Mexico -- the first time plutonium is believed to have leaked outside from within the facility.

It also was the highest levels of plutonium ever detected near the nuclear waste storage facility in its 15 years of operation, according to Russell Hardy, director of the Carlsbad Environmental Monitoring and Research Center.

"It's still below what EPA considers actionable levels, but it's important to know that some material did get out of the facility," Hardy said.

A WIPP air monitor detected airborne radiation underground on Friday just before midnight, setting off an alert. WIPP reported the next day that

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its ventilation system had immediately switched to filtration mode, minimizing any potential release of radiation.

Plutonium and americium are cancer-causing when inhaled or consumed, Hardy said. The levels detected by CEMRC are below those considered unsafe by the Environmental Protection Agency.

WIPP said in a statement Wednesday that its filters remove at least 99.97 percent of contaminants from the air, "meaning a minute amount still can pass through." WIPP previously said that there is no danger to human health.

CEMRC pulled its air sampling station filter on Sunday for testing. The center found 0.092 Becquerels (bcq), a measure of radioactivity, of plutonium and 0.64 bcq of americium on the air filter stationed about half a mile from the WIPP facility, well above the highest levels of those radioactive elements previously detected near WIPP.

CEMRC, a division of the College of Engineering at New Mexico State University, has detected plutonium and americium particles on four other occasions, Hardy said, all attributed to trace amounts of plutonium likely stirred up by heavy winds from sources outside WIPP. The highest level previously tested was 0.004 bcq of plutonium and 0.0005 bcq of americium.

"There is a lot more that needs to be known," said Don Hancock, director of the Nuclear Waste Safety Program at the Southwest Research and Information Center in Albuquerque. "The big problem is, does anybody really know what happened in the underground and how much was released or is continuing to be released? And therefore how much is being captured by the filters and how much is getting into the environment?"

WIPP said Wednesday that it is developing a plan to safely re-enter the underground facility. Radiological professionals from other Energy Department locations and national laboratories are also assisting in the recovery, WIPP said.

The radiation alert comes in the wake of a different emergency that shut down the facility earlier this month, in which a truck used to haul salt caught fire underground. No workers were hurt, and the fire did not occur near the waste container storage areas.

WIPP halted shipments to the facility after the fire. No waste shipments to WIPP were scheduled for Feb. 14 through March 10 due to an annual maintenance outage, WIPP said, and shipments remain suspended.

WIPP stores radioactive leftovers of nuclear weapons research and testing from the country's past defense activities -- such as gloves and boots -- in sprawling underground salt mines. The salt is excavated and waste is stored below ground in sealed containers. It is the first and only disposal facility of its kind.

A second CEMRC air sensor about 12 miles from the facility detected no radioactive particles. Hardy said CEMRC is in the process of testing 10 additional filters from an exhaust shaft at WIPP.

## **WIPP leaks 'should never occur'**

ABQ Journal

February 21, 2014

[LINK](#)

"One event is far too many."

That's how New Mexico Environment Secretary Ryan Flynn characterized last week's radiation leak from the Waste Isolation Pilot Plant near Carlsbad. Although deemed not harmful to human health, the elevated levels of plutonium and americium detected outside the nuclear waste depository has prompted an investigation.

"Events like this simply should never occur," Flynn said during a news conference on Thursday. "From the state's perspective, one event is far too many."

U.S. Department of Energy Carlsbad Field Office Manager Joe Franco said it could take three weeks to get investigators underground to uncover the source of the Feb. 14 leak - the first time radiation has escaped the facility in its 15 years of operation, he said.

Franco said WIPP is working on a "comprehensive plan to re-enter the underground." An Accident Investigation Board is handling the inquiry, according to a WIPP spokeswoman.

Flynn said the state Environment Department's primary concern is to "assure there are absolutely no threats to public health."

It's the second safety breach at WIPP in less than a month, after a truck used for hauling salt from mines caught fire underground and prompted an emergency response in early February. No one was hurt.

The issues have thrown into question proposals to expand WIPP's available underground storage space as well as the type of nuclear waste it handles.

WIPP's underground chambers currently house some 3.2 million cubic feet of what's known as "transuranic waste," contaminated leftovers from the country's nuclear defense activities. The waste, stored in sealed containers, is stacked in underground rooms the size of football fields that have been hollowed out of salt beds about half a mile beneath the surface.

Commercial waste from nuclear power plants and high-level waste such as spent fuel is not permitted, but there have been efforts in recent years to expand WIPP's scope.

"WIPP is 16 square miles," said John Heaton, chairman of Carlsbad Mayor Dale Janway's Nuclear Task Force. "We're only using about two-thirds of the square mile floor as it presently exists. There is a large potential area for expansion if that is what the politicians choose to do. If the science demonstrates that we can expand into other arenas, then we

would favor that."

Flynn said the Environment Department will take the recent incidents into account as it evaluates future permits for expansion or additional streams of waste.

Last week, the department called for 60 days of public comment on plans to build new underground storage rooms, which would not increase the storage volume limit of 6.2 million cubic feet of waste.

"They've wanted to bring different types of waste and expand WIPP's mission and the size of WIPP," said Scott Kovac, operations and research director with Nuclear Watch New Mexico. "It's not the place. The problem is that WIPP is the only functioning geological repository in the country. What's lacking in the discussion is, what replaces WIPP?"

An independent analysis detected elevated levels of the radioactive elements plutonium and americium at an air monitoring station about a half mile from the WIPP facility after the underground radiation alert. The levels did not breach those deemed unsafe by the Environmental Protection Agency.

Russell Hardy, director of the Carlsbad Environmental Monitoring and Research Center, on Wednesday said readings from the air sensor were the highest recorded since WIPP began operating in 1999 and the first believed to have stemmed from a leak.

Radiation levels underground have waned, Franco said, suggesting that the leak was "a one-time event and is not still continuing."

"Until we get down there, we definitely don't know what it could be," he said.

WIPP halted shipments from labs and test sites around the country in the wake of the fire. Franco said shipments will likely remain stalled beyond March 10, the end of a pre-scheduled annual maintenance outage, while an investigation is ongoing.

Non-essential personnel are working at alternate locations, he said.

### **Sec. Moniz to Georgia, Energy Department Scheduled to Close on Loan Guarantees to Construct New Nuclear Power Plant Reactors**

DOE

February 19, 2014

[LINK](#)

Washington D.C. -- Building on President Obama's State of the Union address to Congress and the American public last month, U.S. Secretary of Energy Ernest Moniz today announced at the National Press Club that he will be traveling to Waynesboro, Georgia tomorrow, February 20, to mark the issuance of approximately \$6.5 billion in loan guarantees for the construction of two new nuclear reactors at the Alvin W. Vogtle Electric Generating Plant. The project represents the first new nuclear facilities in

the U.S. to begin construction and receive NRC license in nearly three decades. In addition, the deployment of two new 1,100 megawatt Westinghouse AP1000® nuclear reactors is a first-mover for a new generation of advanced nuclear reactors.

"The construction of new nuclear power facilities like this one - which will provide carbon-free electricity to well over a million American energy consumers - is not only a major milestone in the Administration's commitment to jumpstart the U.S. nuclear power industry, it is also an important part of our all-of-the-above approach to American energy as we move toward a low-carbon energy future," said Secretary Moniz. "The innovative technology used in this project represents a new generation of nuclear power with advanced safety features and demonstrates renewed leadership from the U.S. nuclear energy industry."

The two new 1,100 megawatt Westinghouse AP1000 nuclear reactors at the Alvin W. Vogtle Electric Generating Plant will supplement the two existing reactor units at the facility. According to industry projections, the project will create approximately 3,500 onsite construction jobs and approximately 800 permanent jobs once the units begin operation. When the new nuclear reactors come on line, they will provide enough reliable electricity to power nearly 1.5 million American homes.

Project partners include Georgia Power Company (GPC), Oglethorpe Power Corporation (OPC), the Municipal Electric Authority of Georgia (MEAG), and the City of Dalton, Georgia (Dalton).

President Obama announced the Energy Department's conditional commitments for the project in 2010, saying "To meet our growing energy needs and prevent the worst consequences of climate change, we need to increase our supply of nuclear power and today's announcement helps to move us down that path." At that time, the Energy Department made conditional commitments for a total of \$8.33 billion in loan guarantees. Tomorrow, the Department is scheduled to issue loan guarantees to GPC and OPC for a total of approximately \$6.5 billion. The Department continues to work on the remaining conditional commitment for a \$1.8 billion loan guarantee to MEAG.

The Energy Policy Act of 2005 authorized the Department to issue loan guarantees for projects that avoid, reduce or sequester greenhouse gases and employ new or significantly-improved technologies as compared to technologies in service in the United States at the time the guarantee is issued.

The nuclear facility is eligible for loan guarantees since it is expected to avoid nearly 10 million metric tons of carbon dioxide emissions annually, which is the equivalent of removing more than two million vehicles from the roads. In addition, the Westinghouse AP1000® reactor has incorporated numerous innovations resulting in significant operational and safety improvements.

Currently, the Department's Loan Programs Office (LPO) supports a large, diverse portfolio of more than \$30 billion in loans, loan guarantees, and commitments, supporting more than 30 closed and committed projects. The projects that LPO has supported include one of the world's largest wind farms; several of the world's largest solar generation and

thermal energy storage systems; and more than a dozen new or retooled auto manufacturing plants across the country.

## **Plutonium Disposition Program: DOE Needs to Analyze the Root Causes of Cost Increases and Develop Better Cost Estimates**

Government Accountability Office

February 13, 2014

[LINK](#)

The Department of Energy's (DOE) National Nuclear Security Administration (NNSA) identified various drivers for the close to \$3 billion increase in the estimated cost of the Plutonium Disposition program's two construction projects--the Mixed Oxide (MOX) Fuel Fabrication Facility and the Waste Solidification Building (WSB). These drivers included DOE's approval of the MOX facility's cost and schedule estimates before design was complete and schedule delays in construction of the WSB. According to NNSA, the cost of critical system components for the MOX facility averaged 60 percent higher than estimated as a result of approval of estimates before design was complete.

NNSA has not analyzed the underlying, or root, causes of the Plutonium Disposition program construction cost increases to help identify lessons learned and help address the agency's difficulty in completing projects within cost and schedule, which has led to NNSA's management of major projects remaining on GAO's list of areas at high risk of fraud, waste, abuse, and mismanagement. DOE's project management order requires that lessons learned be captured throughout a project to, among other things, benefit future endeavors. NNSA officials said that, because the order does not require a root cause analysis of cost increases, NNSA decides on a case-by-case basis whether to conduct one. Unlike a root cause analysis, the cost drivers NNSA identified provided few details about why the drivers existed, such as DOE's reasons for approving the MOX facility's cost and schedule estimates before the design was complete. Without a root cause analysis, it is uncertain whether NNSA will be able to accurately identify underlying causes of the increases to identify and implement corrective measures and identify lessons learned to apply to other projects.

After determining that the performance of the contractors for the MOX facility and WSB contributed to cost increases, NNSA took steps to hold the contractors accountable by withholding fees specified under the contracts. In particular, as of November 2013, NNSA withheld \$45.1 million or close to one-third of the MOX contractor's fees, including fees tied to meeting the MOX project's cost and schedule estimates. In addition, NNSA withheld \$7.7 million or about 40 percent of the WSB contractor's fees tied to various performance measures for the WSB, such as completing construction milestones.

NNSA's most recent estimates for the Plutonium Disposition program did not fully reflect all the characteristics of reliable cost estimates (e.g., credible) and schedule estimates (e.g., well-constructed) as established by best practices for cost- and schedule-estimating, placing the program at risk of further cost increases. For example: (1) NNSA's draft April 2013

life-cycle cost estimate of \$24.2 billion for the overall program was not credible because NNSA did not conduct an independent cost estimate to provide an unbiased test of whether the estimate was reasonable. (2) Because the MOX contractor's September 2012 proposal for increasing the cost of the MOX facility did not include a formal analysis to examine the effects of changing assumptions, it was minimally credible. (3) The WSB contractor's February 2013 monthly update to its schedule estimate was minimally well-constructed in that it contained activities that were not properly tied with the start or end date of other activities, which could potentially obscure the critical path determining the project's completion date.

### **Fleischmann emphatic: 'We're going to build the UPF'**

Frank Munger's Atomic City Underground

February 20, 2014

[LINK](#)

Earlier this week, I had a chance to talk with U.S. Rep. Chuck Fleischmann at an ORNL ceremony for a new research collaboration on 3-D printing. I asked him what he thought about the current efforts by the National Nuclear Security Administration -- including a Red Team headed by ORNL Director Thom Mason -- to identify possible less-expensive alternatives to the Uranium Processing Facility.

Fleischmann was animated and emphatic in his support of UPF, and he didn't want to talk about alternatives.

"Well, let me make this clear," the Republican congressman said. "I've had discussions with the Secretary (of Energy Ernest Moniz), with the (House Appropriations) committee. We are committed to UPF, I am committed to the UPF, our great community is committed to the UPF, so we're going to build the UPF."

No matter the cost?

"We have got to be fiscally responsible, we all agree. But the key is we're going to make sure that all the parties involved do their respective jobs. But I want to make it absolutely clear that there is no opposition to UPF being built. It is going to be built. The nation needs it, and it's going to be built in Oak Ridge."

I mentioned that there are discussions of potentially building the Uranium Processing Facility in modular stages to save money and proceed on an as-needed basis. I asked Fleischmann, whose congressional district includes Oak Ridge, if he was opposed to alternatives and if he was determined to have it built as originally envisioned.

"I want to see it built the way that it best serves the needs of our nation," he said. "We're all committed to that. But, as I say, there is no backing off from the fact that UPF is going to be built. As to the final design, we're going to want it to do the function that is supposed to do. But the currently facilities need to be replaced. And there is not only a local commitment but there is a national commitment to seeing UPF built."

Again, I said I asked him to clarify if he was opposed to doing it in an alternative fashion.

"Well, the UPF's mission is critically important right now. What Y-12 is doing is critically important for our nation. We have all got to be fiscally responsible in the way that we do this. I'm not an engineer, I'm not a nuclear physicist, but as an elected representative to the people of this district when after consultation with countless others, it is clear is UPF is going to be built and fulfill its mission.

"Do I want that done in the most cost-effective way? Obviously."

The current effort by NNSA is to find something that can be built between \$4.2 billion and \$6.5 billion, which was the earlier price range for UPF because there have been reports that projected the UPF costing more than \$10 billion.

"I've seen some of those reports," Fleischmann said, "but - again - we have a good strong team here working on it. Obviously, again, I've spoken with the secretary directly on this issue. I've spoken with the committee in which I serve, not just the (energy and water) subcommittee but the full committee. The nation is committed to building the UPF, and I'm committed to having it here in Oak Ridge and being it a great success, just like all our other facilities."

### **New Hanford cleanup price tag is \$113.6B**

Tri-City Herald  
February 19, 2014  
[LINK](#)

An estimated \$113.6 billion is the new price tag for completing the remaining Hanford nuclear reservation environmental cleanup, plus some post-cleanup oversight.

If the cost were spread evenly among everyone living in the United States today, each person would have to come up with \$359.

The new estimate of cleanup costs was included in the 2014 Hanford Lifecycle Scope, Schedule and Cost Report released this week. It's the fourth such report released since they became an annual requirement added to the legally binding Tri-Party Agreement in 2010.

The estimate is based on completing most cleanup work in 2060 and then some continuing oversight and monitoring until 2090. That oversight, called long-term stewardship, is listed as costing \$5.4 billion.

The total estimated cleanup cost has gone down from last year's estimate of \$114.8 billion after a year of cleanup work under a budget of roughly \$2 billion and some adjustment of estimates.

However, the report is required to be based on completing work to meet all of its regulatory and cleanup obligations and that results in some unrealistic annual budget projections.

In most recent years, the Hanford budget has been a little more than \$2 billion and large increases seem unlikely given the federal budget climate.

But the lifecycle cost report projects budgets of more than \$3 billion each of the next six years, including a budget of \$4 billion in 2019.

Projections show spending needs to remain above \$2 billion -- and most years above \$2.5 billion -- until 2046 to meet cleanup goals. Spending then would drop quickly to below \$1 billion in 2049.

Many decisions on how to clean up Hanford remain to be made. For those projects, the report is required to make a plausible, upper-range estimate.

Some estimates are based on projected costs that are expected to change. For instance, DOE has said that the costs for the \$12.3 billion vitrification plant are likely to increase as technical issues are worked through, but a definite number has not been calculated to include in the latest lifecycle report.

In the past the lifecycle reports have taken an in-depth look at a single project, but this year DOE and its regulators decided not to do that after considering the effort required to conduct those analyses and the benefits and insights gained from them.

A link to the new lifecycle cost report is posted at [www.hanford.gov](http://www.hanford.gov) on the rotating banner.

Comments will be accepted until April 18. They may be emailed to [LCSSC@rl.gov](mailto:LCSSC@rl.gov) or mailed to Stephen Korenkiewicz, Lifecycle Report Project Manager, DOE Richland Operations Office, P.O. Box 550, MSIN: A5-16, Richland, WA 99352.

## **Materials Documenting Birth Of Nuclear Age To Be Digitized**

UC San Diego  
February 20, 2014

[LINK](#)

The papers of physicist and inventor Leo Szilard chronicling the birth of the nuclear age and the work of the Manhattan Project will soon be digitized by the UC San Diego Library.

Szilard played an essential role in the development of the atomic bomb as part of the Manhattan Project, yet he was also a passionate advocate for global arms control and argued for using the bomb as a deterrent -- not as a force for destruction. The Library will digitize Szilard's materials, which extend from 1938 to 1998, thanks to a \$93,000 grant from the National Historical Publications and Records Commission (NHPRC).

Principal Investigator for the digitization project, which is expected to take approximately two years to complete, is Brian E. C. Schottlaender, the Audrey Geisel University Librarian at UC San Diego. The project will be administered by Lynda Claassen, director of the Library's Mandeville Special Collections, which houses the Szilard papers.

"We are very pleased to have received this grant from the NHPRC to digitize these historically important and influential materials," said Schottlaender. "The Szilard papers are fascinating because they reveal the back story of how the atomic bomb was created, and the moral and ethical dilemmas that that powerful creation caused for Szilard and his fellow scientists."

More than 50,000 items will be digitized through the project, said Schottlaender, including some 550 photographs, as well as several hours of video and audio recordings. The papers include correspondence with numerous fellow scientists with whom Szilard collaborated, including Albert Einstein, Enrico Fermi, Jonas Salk, Edward Teller, and Linus Pauling. Also included are a variety of biographical materials, such as immigration papers and passports -- Szilard was born in Budapest, emigrating to the U.S. in 1938 -- and biographical articles and sketches.

In addition to manuscripts, scientific papers, and notebooks, the collection includes drafts, figures, and notes related to the Szilard's patents, including an early patent in refrigeration held with Albert Einstein and the patent for a "neutronic reactor" developed with Enrico Fermi. Materials related to Szilard's singular achievements on the "nuclear chain reaction" and "chemostat" are also part of the collection.

"While this collection has been well-used by scholars and researchers, making these materials available digitally will significantly increase their usage," said Claassen. "It will also expand awareness of Szilard's work, and the example he provided of how scientists can operate more fully in society, impacting not only the direction of science, but also the world of politics and humanitarianism."

The UC San Diego Library houses a substantial collection of materials on 20th century science and science policy, including the papers of some of the nation's most renowned scientists, such as Jonas Salk, Stanley Miller, and Leslie Orgel, as well as Nobel Laureates Harold Urey, Hannes Alfvén, and Maria Goeppert Mayer. The library is also the sole U.S. repository for the papers of world-renowned neuroscientist and Nobel Laureate Francis Crick.

## **Technology Transfer and Commercialization Efforts at the Department of Energy's National Laboratories**

DOE Inspector General

February 14, 2014

[LINK](#)

Since the Department of Energy National Competitiveness Technology Transfer Act of 1989, the Department has encouraged its national laboratories to enter into technology partnering activities with non-Federal entities and has authorized its facilities to patent and license

intellectual property that may arise from research and development activities. The Energy Policy Act of 2005 and the October 2011 Presidential Memorandum on Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses had specific requirements regarding the Department's technology transfer and commercialization efforts.

Our review revealed opportunities to improve the effectiveness of the Department's management of its technology transfer and commercialization efforts. Specifically, we found that the Department had not finalized quantitative performance metrics necessary for it to determine the success of its technology transfer and commercialization efforts, developed a forward-looking approach for investing the Energy Technology Commercialization Fund required by the Energy Policy Act of 2005, and ensured the national laboratories were consistently treating their equity holdings in licensees received as part of their technology transfer efforts. Due to turnover in key staff, we were unable to definitively determine why the Department had failed to finalize and transmit its Execution Plan to Congress.

In the absence of finalized performance metrics and forward looking budgets, the Department is at increased risk of failing to maximize its return on investment of limited technology transfer and commercialization funds. Management concurred with our recommendations and identified planned actions to address our recommendations.

