

# Environmental Defense Institute

## News on Environmental Health and Safety Issues

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### INL Safety? Let's debate

The *Idaho Falls Post Register* printed this guest editorial by Jack Lewis Stanton on January 10, 2016. The editorial byline was: "Transparency is the INL's new buzzword? Prove it by addressing safety concerns head on, writes Jack Lewis Stanton."

I read with curiosity opinion pieces written by the Idaho National Laboratory's Deputy Director Dr. Kelly Beierschmitt and INL Director Mark Peters. Much of what they said rings true: the INL IS full of talented people doing great things for Idaho's economy, as well as working on problems that face not only our nation, but the Earth as well.

But based on several incidents at the INL over the past 15 years, the treatment of those affected and the 20,000+ pages of documents I've collected over the past four years, I don't agree with their assessment that the safety and well-being of the INL workforce is their primary concern.

My brother, Ralph Stanton, learned this after he was involved in the Zero Power Physics Reactor plutonium/americium release of Nov. 8, 2011. Unfortunately for him and other victims, there was a failure in two safety devices being used that day, devices singled out in a White Paper two years prior to the accident, but ignored by Battelle Energy Alliance management. Over the course of nearly four minutes, workers were exposed to airborne plutonium and americium alpha contamination. After initial lung counts and other tests, workers were sent home un-showered. The INL's emergency response failed at nearly all levels.

Over the following days, multiple medical tests were botched, mishandled, or not done as procedure dictated. The doctor at the INL said the vomiting, diarrhea, and nausea exhibited by the affected workers was from a bad case of the flu (untested) and not radiation sickness from the accident.

When my brother asked months later to take a hand-held alpha detector home to check his house for radioactive contamination, his request was denied by the Director of Nuclear Operations. At the cost of thousands of dollars to him and others [other exposed workers from the ZPPR accident], independent tests proved their homes were contaminated.

One of my brother's clearances was revoked when he refused to agree with medical and accident reports.

In early Dec. 2013, he responded to an email by asking for transparency regarding businesses that may have been inadvertently contaminated after accident victims visited them before coming

home the day of the accident. He CC'd this response to several BEA and Department of Energy officials. None responded.

The person who wrote the email drove through a blizzard to confront him over his response instead of answering his questions via email. A couple of weeks later, he was fired for sleeping during a Rad Watch test, a charge the Department of Labor later proved unfounded.

Mr. Beierschmitt, is this how you treat valued employees? Is this how you treat a former military vet because he asked for transparency?

Mr. Peters, you state that transparency is the INL's new buzzword. My brother tried to get managers to be transparent. Instead, he was fired. Are you willing to prove your words true and address safety concerns head on?

If so, I invite both of you, along with DOE-ID manager Rick Provencher, to a publically-televised debate centering on INL safety issues from the past 15 years.

*Stanton is a truck driver, freelance writer and works with fantasy artists in the gaming industry.*

## **Battelle to Conduct Borehole Research**

Reporter Luke Ramseth for the Idaho Falls Post Register reported that the primary parent company of Idaho National Laboratory's contractor, Battelle Energy Alliance was recently awarded a \$35 million, five-year U.S. Department of Energy contract to drill a test borehole more than 16,000 feet, or a little more than three miles, into a crystalline rock formation in North Dakota. Further excerpts from the article:

The goal is to learn more about whether such extremely deep boreholes might be useful for the disposal of high-level radioactive waste.

The research will examine various drilling techniques, borehole stability and sealing, and geology far below the surface to see if it may be appropriate for safely disposing radioactive waste, a DOE news release said.

"This is an important first step to increasing our scientific understanding of the potential uses for crystalline rock formations, including the feasibility of boreholes as an option for long-term nuclear waste disposal," Secretary of Energy Ernest Moniz said in a statement.

Boreholes "basically represent another tool in the toolbox as we try and figure out this waste management problem," said Richard Provencher, manager of DOE's Idaho operations office.

No nuclear waste will be used in the research project, Provencher said. *Luke Ramseth can be reached at 542-6763. Twitter: @lramseth*

DOE has discussed spent nuclear fuel, high level waste at the Hanford facility, and calcine waste at the Idaho National Laboratory as potential candidates for borehole disposal.

## Illinois Nuclear Fuel Shipment Remains in Play

The *Idaho Falls Post Register* reporters Bryan Clark and Luke Ramseth write that officials remain hopeful that a shipment of commercial spent nuclear fuel from Illinois will make its way to Idaho National Laboratory in the coming months. Excerpts from the article:

An initial shipment from a reactor in Virginia, also intended for research at INL, was rerouted by the U.S. Department of Energy in October after negotiations between DOE and the state broke down.

DOE and lab officials hope that scenario doesn't play out again, despite continued problems at a radioactive waste treatment facility, the Integrated Waste Treatment Unit, west of Idaho Falls. Issues with the facility have been a key sticking point to the negotiations thus far.

While DOE and lab officials say the shipments are critical to the lab's research future, others, including former Idaho governors Phil Batt and Cecil Andrus, argue the proposed shipments fly in the face of the 1995 Settlement Agreement, which governs nuclear waste cleanup in Idaho.

DOE is out of compliance with that agreement, largely because of delays at the Integrated Waste Treatment Unit.

Otter has supported granting a waiver to allow in the spent fuel shipment even if the treatment facility isn't operating, but Idaho Attorney General Lawrence Wasden has thus far opposed the idea. Both would need to sign off on the waiver.

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## Trouble Continues for INL's Integrated Waste Treatment Facility

Idaho Falls Post Register reporter Luke Ramseth reported that more problems have surfaced at the Integrated Waste Treatment Unit. Excerpts from this article below:

The facility was constructed about five years ago on the U.S. Department of Energy's desert site to treat 900,000 gallons of liquid radioactive waste stored in three 50-year-old steel tanks. But the plant, utilizing a first-of-its-kind steam technology to transform the waste into a more manageable powder, has been plagued with clogs and other issues from the get-go.

It has yet to treat any of the real sodium-bearing radioactive waste. There are growing concerns that the facility may never be able to work as planned, and that DOE will have trouble meeting a Sept. 30 state-mandated deadline to have treatment operations underway.

About half of the 60,000 gallons of simulant had circulated through the system when, just before Christmas, operators noticed that a formation resembling tree bark was clogging up a treatment vessel. The bark has been a "recurring issue," for the facility.

The project is hundreds of millions of dollars over budget. Total costs had exceeded \$800 million as of last May, and as much as \$5 million has been spent on the project each month since then.

There have also been several blown state deadlines for the project. Those deadlines were set by the Idaho Department of Environmental Quality as well as the 1995 Settlement Agreement, which laid out milestones for cleaning up radioactive waste in Idaho.

According to the latest set of deadlines negotiated with Idaho DEQ early last year, DOE must have the facility treating waste by Sept. 30, and the job completed by Dec. 31, 2018.

Facility delays have also meant Idaho Attorney General Lawrence Wasden hasn't allowed DOE to bring research quantities of spent nuclear fuel to Idaho National Laboratory.

DOE "hasn't given up on this approach yet," Provencher said. "But there is an effort to look at improvements to the (current) process. We haven't taken that final step, but we understand the time may come to go there."

### **Richardson: Weapons grade plutonium at WIPP bad policy**

*The Las Cruces Sun-News editorial by Bill Richardson on January 11, 2016 tells New Mexicans that putting the Department of Energy's failed MOX program weapons grade plutonium at WIPP is bad policy.*

New Mexicans and anyone else who cares about the safe reopening of the Waste Isolation Pilot Plant near Carlsbad should be concerned about recent reports of plans to move tons of dangerous nuclear weapons-grade plutonium to WIPP, and overwhelm WIPP's capability to clean up Cold War waste from sites in Washington, Idaho and elsewhere.

This is not a good idea for a variety of reasons, but mainly that WIPP is not suitable to be a high-level waste dump and New Mexico has done its share of accepting nuclear waste.

By now, most people are aware that there is no firm and verified reopening date for WIPP, the nation's only underground nuclear waste repository. WIPP has been closed since February 2014, first because a truck caught fire, and then a container drum burst underground, releasing radioactivity to the surface.

As a congressman, I opposed White House efforts to administratively withdraw public land for WIPP. In 1992, we passed the WIPP Land Withdrawal Act which provided for both safety standards and a mission restricted to low level waste.

WIPP opened 16 years ago with my approval as secretary of energy, but only to accept low-level defense "transuranic waste," or TRU, which is mainly contaminated gloves, tools, rags, assorted machinery and sludge.

Since its opening, WIPP has fulfilled its purpose and the towns of Carlsbad and Hobbs have been responsible and worthy stewards. To shoulder WIPP with a highly charged new role makes no sense at a time when WIPP needs to fix its current problems.

Of great importance today, Congress limited WIPP's capacity to 175,600 cubic meters. That was the deal with New Mexico – fixed and forever. Or so we thought.

There are disturbing reports that some in the Department of Energy are attempting to alter WIPP's vital focus by canceling the "Mixed Oxide Fuel Fabrication Facility" (MOX), a major nonproliferation project between the United States and Russia, signed under my watch as secretary, which is nearly 70 percent complete in South Carolina.

Each country agreed to destroy at least 34 metric tons of plutonium from dismantled nuclear weapons – enough for about 17,000 warheads. MOX would combine the plutonium with low-grade uranium to make fuel that's "burned" to generate electricity.

But the Bush administration rushed MOX's construction when its design had just started. Hundreds of DOE-ordered changes followed, and costs predictably rose. Though MOX is solidly on track, DOE now has buyer's remorse and would like to send the 34 metric tons of plutonium from U.S. nuclear weapons to WIPP for permanent disposal in New Mexico.

The problem is there isn't any room left at WIPP, since only 19,000 cubic meters of space are left over from what's been reserved by TRU waste from Washington state, Idaho, and by our labs in New Mexico. MOX plutonium, along with its containers, would require, at minimum, an additional 34,000 cubic meters of capacity – and that easily blows through what Congress required in 1992.

There is a very important reason to limit nuclear material underground in a fixed space such as WIPP – a recent analysis has raised more troubling questions about placing so much plutonium from nuclear weapons in such a tight space. There are very real safety issues that must be studied to ensure a nuclear fission reaction doesn't occur.

Those at DOE who want to cancel the MOX project ignore the problems and analyses, leaving it all to be solved at some point in the future.

DOE released another study, that to its credit found MOX viable, even at low funding levels, but still recommended WIPP. Problems weren't ignored this time, but solutions appeared by magic.

The report assumed many things: Congress would willingly change the law, WIPP would easily be enlarged, and the Russians would happily renegotiate the PMDA. Clearly, scientists and engineers don't know much about politics and international nonproliferation agreements.

It would take years, maybe decades, for a divided Congress and a skeptical New Mexico to accept such a scenario, and if the Russians agree to renegotiate the nonproliferation agreement in question, it would come at a very high price for the U.S.

New Mexico could change WIPP's accounting so only the volume of the waste, and not its containers, counts against the cap. But WIPP's Environmental Impact Statement is based on its radioactive inventory. Even after 1,000 years, the added MOX plutonium would still cause WIPP to exceed its EIS curie basis by 430 percent.

New environmental analyses and litigation would start again and compromise the core mission of cleaning up our own Los Alamos waste. This is not smart.

What does not make fiscal sense is abandoning \$4.5 billion in construction costs at MOX, but also a key nonproliferation agreement with Russia that is actually working.

Let's finish MOX and not saddle WIPP with fanciful notions of vastly expanding and burdening its real mission. That is the best option.

*Bill Richardson is a former two-term governor of New Mexico and served as secretary of energy and ambassador to the United Nations during the Clinton administration.*

## **WIPP Status: Everybody Wants to Put Waste at the Currently Closed WIPP**

Let's see, Idaho, Hanford and other states have waste slated to be placed at the struggling to re-open deep salt mine facility in New Mexico.

LANL's own "difficult waste team" had warned that nitrate salts should not be mixed with organic matter, and yet **hundreds of drums** containing the salts were packaged with an organic wheat-based cat litter and sent to the Waste Isolation Pilot Plant for permanent disposal. The organic was known to create an explosive hazard and was forbidden but was used anyway to absorb liquid in the drums. <sup>1</sup>

Some have recommended that the over-budget and past-schedule Department of Energy MOX facility put the excess weapons plutonium in WIPP. <sup>2</sup>

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<sup>1</sup> Lauren Villagran and Mark Oswald, *Albuquerque Journal*, "LANL, DOE blamed in WIPP leak," April 17, 2015. <http://www.abqjournal.com/570812/news/final-report-on-wipp-leak-blames-lanl-doe.html> I noted that when the INL Citizens Advisory Board specially asked DOE how many drums were incorrectly loaded with organic kitty litter, DOE refused to answer. But DOE knew it was hundreds of drums.

<sup>2</sup> See <http://nukewatch.org/MOX.html> and <http://www.scientificamerican.com/article/mox-fuel-nuclear/> and CB&I Areva MOX <http://www.moxproject.com/>

WIPP has been cited in various environmental impact statements and Department of Energy presentations as being a candidate for Hanford high level waste disposal, DOE mercury disposal, DOE's failing MOX fuel plant for excess weapons plutonium, Naval spent nuclear fuel disposal, and DOE's Greater-Than-Class-C waste.<sup>3</sup>

The nuclear industry used to point to WIPP as a success story for disposing of radioactive waste, even though it was only slated for Department of Energy transuranic weapons waste. But public relations job they are doing to downplay the problems isn't finding the solution for disposing of spent nuclear fuel, Greater-Than-Class-C and other radioactive waste.

## Wide Spread Radioactive Disposal Woes

Radioactive waste disposal continues to be plagued with problems. Leaving aside for this discussion the difficulties of finding disposal for US nuclear reactor spent nuclear fuel, the record on disposing of "low-level" and/or plutonium-laden radioactive wastes is littered with rude-surprisingly rapid migration of radioactive wastes outside the boundaries of these dumps.

Just focusing on recent radioactive waste disposal problems from New Mexico's underground salt mine, WIPP, to a recent explosion at a closed low-level radioactive waste facility in Beatty Nevada,<sup>4</sup> to problems at Sandia Laboratory's mixed radioactive and chemical waste trenches<sup>5 6</sup>

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<sup>3</sup> Don Hancock, Southwest Research and Information Center, *La Jicarita*, "WIPP: Expanding Threat to Public Health," March 12, 2013. <https://lajicarita.wordpress.com/2013/03/12/wipp-expanding-threat-to-public-health/>, see also INL Citizens Advisory Board meeting minutes regarding Hanford waste, and Naval Reactor Facilities presentations.

<sup>4</sup> Ken Ritter, AP, *Las Vegas Sun*, "Fire marshal: Seeping water caused radioactive dump blast," November 27, 2015. <http://lasvegassun.com/news/2015/nov/27/fire-marshal-seeping-water-caused-radioactive-dump/> The buried low-level radioactive federal waste dump near Beatty, Nevada, opened in 1962 and closed in 1992. Unusually heavy rain puddled and drained through cracks in the engineered 10 ft thick cover over the waste burial trenches. On Oct. 18, an explosion occurred when water contacted metallic sodium buried in drums filled with oil. The blast created a crater and blew several 55-gal. drums beyond the facility fence, but no radiation was detected after the blast.

<sup>5</sup> Bob Klein, *ABQ Free Press*, "State, Sandia Just Cover Up Nuke Waste at KAFB." December 2, 2015. <http://www.freeabq.com/wp-content/uploads/2015/12/Vol-II-Issue-24-December-2-2015.pdf> The radioactive landfill at New Mexico's Kirtland Air Force Base has been leaking radioactive and hazardous chemicals for decades. The landfill contains drums of plutonium and americium-contaminated waste, hundreds of tons of depleted Uranium-238, and portions of nuclear fuel rods. Metallic sodium is also buried with the radioactive waste at the KAFB landfill. Eric Nuttal, who was appointed to serve on the WERC Panel, testified, "Those conclusions [that human health risk and the ecological risk screening assessment for the [mixed waste landfill] is adequate] would have been impacted and altered had Sandia disclosed the nuclear meltdown experiments and the related radioactive and toxic waste disposal sheets. . . Those documents were never submitted from the SERC panels' review and would have substantially altered their conclusions. . . The Sandia risk assessment reports omitted key information." The Environmental Protection Agency and New Mexico Environment Department say that everything is in order, including the reliability and appropriateness of the "vegetative soil cover with bio-intrusion cover."

<sup>6</sup> Bob Klein, *ABQ Free Press*, "Nuke Dump Explosion Risk?" December 30, 2015. <http://www.freeabq.com/2015/12/30/nuke-dump-explosion-risk/> Metallic sodium is believed to be in the Sandia landfill and it could explode like the recent explosion at Nevada's Beatty closed low-level radiation active waste dump. Marvin Resnikoff, a nationally recognized toxic-waste storage expert, testified at a public

to Idaho National Laboratory's Radioactive Waste Management Complex (RWMC) and a recent study of contamination near landfills in St. Louis, Missouri,<sup>7</sup> gives plenty of problems to discuss.

All radioactive landfills tend to suffer from the following problems:

1. **DON'T KNOW WHAT'S IN THEM:** Reliable records of what and how much was buried often don't exist. If the Department of Energy was involved, the record-keeping was deliberately inadequate. Even for DOE's extensive record keeping for the WIPP facility, the actual radionuclide content of the drum that exploded appears to have been significantly underestimated by several times.<sup>8</sup> Prohibited materials were knowingly packed with transuranic weapons waste sent to WIPP, in hundreds of barrels of waste, not just one.
2. **CONTAMINANT MIGRATION EXCEEDS PREDICTIONS (SHORT-TERM):** Contaminants have tended to migrate from these landfills within a few years, contaminating the surface soils, air and underground water. This has occurred at INL's RWMC, and essentially all licensed low-level radioactive waste dumps in the US.
3. **CONTAMINANT MIGRATION EXCEEDS PREDICTIONS (LONG-TERM):** Technically indefensible and inadequate models are used to argue that the trickle-out rate will be acceptable. The US Environmental Protection Agency is clinging to an arbitrary 10,000 year time frame for the INL's RWMC despite the rapid escalation of radiation ingestion dose above 30 mrem/yr (or 100 mrem/yr if the soil cap doesn't perform flawlessly for millennia). There is not enough conservatism in these analyses to provide any reasonable measure of protection of human health or environment. And this regulatory charade is only getting worse.

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hearing in Albuquerque that Sandia's dump has been seriously mismanaged and that that illustrates the need for a change in lab culture. Without a firm understanding of what's in the landfill and where in the landfill it's located and Without a firm understanding of what's in the landfill and where in the landfill it's located and what kind of containers it's stored in, "it is difficult to judge remediation alternatives," Resnikoff testified. "I therefore recommend that Sandia devote resources to determining the full radionuclide inventory of the MWL, as has been done at other DOE facilities [such as the Idaho National Engineering and Environmental Laboratory]."

<sup>7</sup> Marco Kaltofen, Robert Alvarez, Lucas Hixson, Science Direct, Journal of Environmental Radioactivity, Vol 153, Pages 104-111. "Tracking legacy radionuclides in St. Louis, Missouri, via unsupported Pb-210," March 2016. <http://www.sciencedirect.com/science/article/pii/S0265931X15301685>

Radioactive activity levels in the environment peaked around Manhattan project waste disposal sites for uranium . Of 287 urban soils and sediments sampled in a 200 Sq-kilometer area, the highest levels of unsupported Lead-210 and isotopic uranium and thorium were found in house dusts near disposal sites. The high levels imply there is an additional source of Radium, a decay product of uranium beyond natural soil levels that is from uranium disposal in landfills.

<sup>8</sup> US Department of Energy, Office of Environmental Management, "Accident Investigation Report, Phase 2, Radiological Release Event at the Waste Isolation Pilot Plant, February 14, 2014," April 2015. p. 164 [http://www.wipp.energy.gov/Special/AIB\\_WIPP%20Rad\\_Event%20Report\\_Phase%20II.pdf](http://www.wipp.energy.gov/Special/AIB_WIPP%20Rad_Event%20Report_Phase%20II.pdf)

4. **SOIL COVER AND SOIL CAP FAILURE IS VIRTUALLY ASSURED:** Flooding or unusually heavy rains, are very normal events; yet they have often foiled landfill designs in a short time. Flooding at the Idaho National Laboratory uncovered shallowly buried transuranic waste in the 1960s leaving high levels of americium-241 to blow in the wind. Heavy rains penetrated the engineered cover for the Beatty LLW landfill, leading to an explosion when water reacted with sodium metal waste.

So, how does the analysis of the waste migration “hold water” if the most modern and stringently controlled waste dump in the country, WIPP, does not actually have a clue how much radioactive material is in each barrel and can’t prevent prohibited materials in dangerous quantities from being packed in the barrels?

One thing is apparent: the Department of Energy and the states’ environmental quality departments that welcome the money that comes with embracing nuclear waste cannot be relied on to protect human health and the environment.

*WIPP and Radioactive Disposal Woes articles above by Tami Thatcher, February 2016.*