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## Defense Nuclear Facilities Safety Board Public Hearing on cleanup, increased weapons pit production and heat source Pu-238 accident risks at the Los Alamos National Laboratory

The Defense Nuclear Facilities Safety Board held a meeting on November 16 on legacy cleanup, on existing heat source plutonium (Pu-238) for space missions, and on increased nuclear weapons pit production at the Los Alamos National Laboratory (LANL) in New Mexico. [1]

The DNFSB is a government agency created by Congress to review nuclear weapons making operations conducted by the Department to Energy, but it has no authority to enforce its recommendations. On the DNFSB.gov website, it is stated that the DNFSB is an independent organization within the executive branch of the United States Government, chartered with the responsibility of providing recommendations and advice to the President and the Secretary of Energy regarding public health and safety issues at Department of Energy defense nuclear facilities.

Regarding above-ground transuranic waste, LANL has 2200 transuranic waste drums with 450 waste drums deemed shippable to WIPP. Of the 450 waste drums, about 170 waste drums have been certified as meeting the criteria for WIPP. The remaining 1550 transuranic waste drums — and this does not include buried waste — require remediation. LANL has goals of sending 30 to 40 shipments of perhaps 17 drums per shipment to WIPP each year.

The processes and facilities for remediation of above-ground waste drums at LANL do not exist. And the processes and facilities for addressing the buried waste at LANL do not exist. The amount of buried waste at LANL was not discussed.

The now planned expansion of nuclear weapons pit production will greatly add to amount of newly generated waste. LANL officials refused to disclose the current amount of LANL's newly generated waste from existing operations.

Hiring new workers is already challenging at LANL and it takes time to train workers and even longer for workers to mature and understand their safety roles. Attrition is high, with

[1] Defense Nuclear Facilities Safety Review Board website at dnfsb.gov, November 16, 2022 meeting on the Los Alamos National Laboratory, see meeting agenda, videos, exhibits for cleanup and increased pit production and other information on the dnfsb.gov webpage https://www.dnfsb.gov/public-hearings-meetings/november-16-2022-public-hearing. As of November 30, 2022, no meeting transcripts had been provided yet. Announced during the meeting but not on the website, public comment is allowed until December 16, 2022 to hearing@dnfsb.gov

worker attrition acknowledged to be 25% at LANL's cleanup project. Increased pit production work at LANL will require even more workers. The importance of a mature and well-trained workforce in preventing accidents at nuclear facilities cannot be overstated.

Wildfire risks at LANL are claimed to be addressed by removal of brush and vegetation. And yet, the standoff areas appear to be far too small to protect facilities. (See DNFSB exhibits 2 and 9 for the EM session.)

The plutonium glovebox work for the heat source (Pu-238) production work used for space missions creates the risk of very high radiological releases to the offsite public (stated in the meeting as **roughly 200 times higher than for weapons pit production**). An August 2022 letter from the DNFSB to DOE states that the National Nuclear Security Administration (NNSA) has accepted **the extraordinarily high mitigated offsite dose consequences range from 490 to 3175 rem.** !!!!!!!!! [2] Doses above about 400 rem are considered lethal.

The Department of Energy's Evaluation Guideline of 25 rem total effective dose establishes the level of offsite public dose that should require safety class systems. The safety systems needed should be designed to keep the offsite public doses below 25 rem. While 25 rem might be considered by some people to be a benign dose, with transuranic waste, the extensive contamination of extremely long-lived radioactive airborne contamination would mean permanent evacuation of areas of land, with perhaps higher local and long-lived contamination than might ensue following a reactor fuel melt release.

The true horror of the extraordinarily high radiological risks from radiological releases to the offsite public that may far exceed 25 rem from PF-4 operations that the NNSA is accepting at LANL was not made clear during the meeting. What was made clear was that the NNSA administration, Jill Hruby, is confident that the risks being accepted are reasonable despite using the exigent conditions process to far exceed 25 rem without providing proper safety systems at LANL.

New Mexico's citizens are being offered excuses by NNSA that proper safety class and seismically capable nuclear facilities are too expensive and too difficult to construct. NNSA doesn't see New Mexico citizens or environment at worth the effort. This meeting reveals some of the problems but with language that tended to obscure what is truly at stake should NNSA's stubborn gamble be wrong.

LANL has made improvements to the plutonium facility called PF-4, including structural upgrades so that the 40-year-old building won't collapse in a moderate seismic event.

Despite some seismic upgrades, including upgrades recognized as needed since before 2009, (see the DNFSB letter to DOE for LANL dated November 15, 2019) it has long been recognized that seismically stable glove boxes are needed, and are needed for the currently conducted Pu-

[2] A "Chuck Broscious-worthy number of exclamation points!!!!!" The exclamation points are highlighting a completely bat-shit crazy acceptance of high radiological release to the off-site public and environment from Department of Energy operations.

238 work. But although recognized as needed, the seismically stable glove boxes have been deemed by NNSA as too costly to obtain and it would impede ongoing work.

As recently as 2017, the National Nuclear Security Administration (NNSA) had committed to providing a Safety Class confinement ventilation system at PF-4 that would meet stringent seismic criteria, meeting Performance Category 3 seismic criteria. (It should be noted that even more stringent Performance Category 4 would be required for a nuclear reactor.)

But NNSA now says that's too time consuming and costly to meet modern and stringent seismic safety design criteria. So, they plan to rely on the building structure to **passively** confine the radiological release, except that the doors of the building must actively close and be verified closed after workers evacuate. Worker evacuation is assumed to take under 5 minutes. The PF-4 facility currently has 1000 workers and that number is expected to grow.

Following a severe seismic event followed by a fire, the doors of the building are then assumed to remain closed — and then what happens after that is not considered in the accident analysis. Opening the doors again or the need for emergency responders to re-enter the building isn't considered, apparently. LANL officials punted on this and several other questions, responding that they would get back to the DNFSB later with a response to the question in writing.

A safety class confinement ventilation system would be designed to pull the contaminated air toward the HEPA filters and retain the radioactive material in the filters. The PF-4 facility is said to have a safety class confinement ventilation system but it is seismically vulnerable.

Upgrades to the fire suppression system are said to be taking place and this is important. A fire that destroys the building will fail even a confinement ventilation system, whether or not it is a seismically qualified safety class ventilation system.

But the DNFSB on a tour of the PF-4 facility prior to the meeting noted several obvious concerns such as large tool boxes that were unrestrained and could impede the evacuation of workers from PF-4 following a seismic event. For decades now, what is sometimes called "two-over-one" evaluations have been known to be required — which simply means looking at non-safety equipment seismic vulnerability that might affect safety functions following a seismic event. This reveals that despite LANL's recent seismic upgrades, LANL officials lacked the understanding of thorough evaluation of seismic safety issues such as needing to prevent the toppling of toolboxes, etc. that might impede worker evacuation.

The Department of Energy approved nuclear safety analyses are relied on to protect workers and the public and to prevent a radiological release to the offsite public.

The overall tardiness of Department of Energy facilities at LANL to meet current DOE standards for the safety analysis for the facilities was also an important issue that the DNFSB presented questions for the panelists.

Also, the creative but perhaps technically indefensible ways that LANL has tried to analyze away the problems rather than provide needed safety equipment was also an issue. (See DNFSB/TECH-44 concerning problems with a previous LANL Plutonium Facility (PF-4) Leak Path Factor analysis.) Potentially high offsite radiological doses tend to lead to pressure from the Department of Energy on its contractors to develop creative approaches to "pencil-whip" the doses down and this has occurred at other DOE sites as well. The pressure to avoid admitting the size of the offsite dose, coupled with the pressure to avoid the costs of safety class systems to mitigate the dose can be the driving force in the years of delays to complete the "documented safety analysis" for a DOE nuclear facility.

Much of the questioning by the DNFSB to the panelists was directly about these issues. The LANL officials, including NNSA Administrator Jill Hruby clung on tenaciously to the strategy of defending the serious shortcutting of safety at LANL because it would be too costly and take too long to adequately address safety at LANL's PF-4 facility.

More detail of the DNFSB meeting is provided below for the LANL cleanup session and the pit production sessions.

Public comment regarding concerns for the lives and homes of citizens and of worker safety was given. Jill Hruby, NNSA administrator, however, did not stay to listen to public comment.

**The DNFSB LANL Cleanup Session**

During the LANL cleanup session, DNFSB chair Joyce Connery and board member Jessie Roberson asked questions of the three cleanup panelists: DOE EM Los Alamos Field Office Manager, Mr. Michael Mikolanis, DOE Contractor for cleanup, N3B Los Alamos President, Ms. Kimberly Lebak, and N3B Program Manager, Mr. Gerald O'Leary. The Los Alamos National Laboratory legacy waste and transuranic waste storage area is in Technical Area 54, Area G. The cleanup contractor is called "N3B," a name for Newport News Nuclear BWXT-Los Alamos, LLC.

The panelists acknowledged increased problems in hiring workers for cleanup due to high demand for workers throughout the country. **The high attrition rate for cleanup workers at LANL, 25 percent, also added to the problem of keeping a skilled work force.**

Progress has been made in reducing the amount of waste stored outdoors as shipments to the Waste Isolation Pilot Plant (WIPP) have resumed. Incompatible nitrate and plutonium wastes packaged by LANL were the cause of the February 2014 explosion in the underground WIPP facility.

When asked how the public would find out the amount of "newly generated waste" being shipping from LANL to WIPP, LANL DOE EM's Michael Mikolanis responded that the information was not tracked. In other words, DOE does not want the public to have any idea how much newly generated waste will be shipped to WIPP in comparison to shipments of existing legacy radioactive waste or to have the ability to trend this in the future.

The problem of addressing many dozens of transuranic waste drums of chemically incompatible waste or waste at LANL that cannot be accepted at WIPP is recognized but no "shielded glovebox" or appropriate process has been designed for addressing the problematic explosive and radioactive waste. N3B is only beginning to review how the needed facility or equipment would need to be designed.

Worth noting is that nitrate-laden wastes at the Idaho National Laboratory from weapons production, the nitrate-laden uranium wastes were left stacked on asphalt pads at Pad A at the Radioactive Waste Management Complex, and never buried and never removed. At INL, the waste drums at Pad A have been covered with a few inches of soil and the 30 ft high stack of drums at Pad A dictated the soil cap design for the Radioactive Waste Management Complex, requiring the soil cap to be on the order of 30 ft deep in places. For this reason, I am not optimistic that LANL will come up with a way to address the nitrate-laden plutonium waste drums any time soon.

Kimberly Lebak of N3B, the cleanup contractor at LANL, when asked about the status of updating to modern safety analysis standards, defended the existing safety analyses as adequate — saying it was "older" but just not "modern." Then it was acknowledged that a few dozen instances of formally documented determinations of inadequacies in the older safety documentation had been discovered. These cases are called "potentially inadequate safety analyses" or "PISAs."

The DOE's nuclear safety analyses are relied on to protect workers and the public and to prevent a radiological release. At LANL, the large number, two dozen case-by-case discoveries of inadequate safety analyses, or PISAs, over time show that the Department of Energy never should have delayed conducting "modern" safety analyses.

Not stated was that modern safety analyses were to have been developed and implemented about two decades ago, around 2002, when the 10 CFR 830 regulations were to have been implemented.

Despite its own Code of Federal Regulations for requiring modern nuclear safety basis documents two decades ago, 10 CFR 830, the Department of Energy can bypass and ignore the regulations. So, whenever DOE says its meeting all requirements, it must be remembered that it can exempt or find a loop hole to avoid practically any regulation.

The new safety basis for existing above-ground waste at LANL is still being developed and will have to be reviewed and approved by the Department of Energy, a process that has sometimes taken years. The new safety basis will not address retrieval of waste stored or buried below ground, as a technical approach for exhuming the waste at LANL has not been developed and the risks would depend on the specific materials in the waste and condition of the containers.

**LANL cleanup has experienced "stop work" on its newer cleanup processes even though it had completed extensive readiness assessments. While it is positive that N3B was willing to stop work and review its processes, it took about 2 years to resume work on**

**headspace gases in drums. This indicates to me that the cleanup contractor's and Department of Energy's initial readiness assessments were not effective at ensuring that the facilities could be safely operated.**

Here is some background regarding the Los Alamos National Laboratory.

The Los Alamos location was selected in 1942 as an isolated place for nuclear weapons development as part of the Manhattan Project for atomic bombs used in World War II by the U.S. on Japan. The plutonium bomb, the Trinity Test, in 1944 was detonated in New Mexico, near Alamogordo located miles south of LANL, showering unsuspecting citizens with radioactive fallout.

The Los Alamos National Laboratory has decades of radioactive waste including buried and continuing transuranic waste generation referred to as "newly generated waste." The LANL has poisoned workers and the public for decades with its ongoing operations.

The Los Alamos National Laboratory came into the spotlight in 2014 because the barrel of transuranic waste that exploded in the underground Waste Isolation Pilot Plant (WIPP), also in New Mexico, had improperly combined chemically incompatible materials in the drum. The contractor responsible for the incompatible waste and other safety lapses has been replaced by new cleanup contractor N3B. But many drums of incompatible waste remain in Texas and at LANL Technical Area 54, Area G along with other legacy waste including buried waste.

Transuranic waste generated by defense programs is designated for disposal at the WIPP facility, but shipments were on hold for several years as the costly and slow investigation and recovery from the 2014 accident at WIPP took place.

The issue of what to do about drums of incompatible waste still in Texas was stipulated as outside the scope of this meeting, as was the venting of tritium at Area G, the negotiations of legacy waste cleanup at LANL with the State of New Mexico, and the allotment of shipments of radioactive transuranic waste to WIPP.

Outdoor storage of above ground transuranic waste poses the risk of a radiological release if a drum were to release its contents. Indoor storage of the waste, typically in 55-gallon drums, could be confined inside a building and the building could have a HEPA filter system, but the large fabric enclosures at LANL apparently lack safety systems such as HEPA filter systems. Recently, the number of waste drums stored outside at LANL has decreased as WIPP has accepted more shipments of waste.

While some of the LANL waste is certified or is expected to certified to ship to WIPP, there is transuranic waste at LANL that currently cannot be shipped to WIPP. The panel for waste issues stated that there are drums of waste that need removal of liquid from the drum using the "drill and drain" process. Where the liquid from the drums will go remained an unanswered question in the meeting.

Other drums at LANL cannot be remediated without designing and building a new "shielded" glove box. LANL is beginning to look at how such a glove box would be designed. A compactor for some of the waste is also needed, which LANL doesn't currently have.

The exhumation of buried waste currently has no planning or safety basis documentation and no safety basis documentation is currently under development for waste exhumation.

The nuclear safety basis documentation for transuranic waste (excluding buried waste) was recognized as deficient in 2015. The current schedule for completing the safety basis documentation is next year, in 2023.

Once the safety documentation submittal is complete, called the "documented safety analysis" or "DSA," reviews by the Department of Energy will still be needed. Only after DOE completes its review and approves the DSA would the activities to implement the hazard mitigations be put in place.

Nuclear safety basis documents are fundamental to identify and implement needed hazard controls to protect workers and to prevent an offsite radiological release. During the meeting, N3B gave some of the same excuses for the non-compliant and inadequate nuclear facility safety basis documents that were given to defend inadequate and non-compliant nuclear safety basis documents that led to the accident at the Idaho National Laboratory accident at the Materials and Fuels Complex in 2011 (see the October 2022 Environmental Defense Institute newsletter).

In a Department of Energy independent assessment of LANL in 2020, it was found that the LANL's DOE field office's oversight of areas related to nuclear safety "is less than adequate." (See Exhibit 7 for the cleanup session.)

The specific issues raised by the DNFSB regarding transuranic waste included:

(1) adequacy of mitigation for outdoor wild fires that may threaten waste containers, fabric enclosures or other storage areas.

(2) the continuing tardiness of completion of 10 CFR 830 compliant documented safety analysis needed for protection of workers and the public.

(3) inexperienced staff and continuing hiring problems at LANL.

As the DNFSB posed questions about the status and planned safety status, the DOE and DOE cleanup contractor panelists did their best to give the impression that things are going very well and they have processes and plans for addressing current problems and future needs for solving far more difficult legacy problems.

Some of the answers or circuitous explanations offered by the panelists seemed given with the objective of deflecting the issue and creating mystification via long-winded responses to the extent that most of us listening forgot what the question was.

Just looking at the picture of LANL Area G in DNFSB Exhibit 9 for the environmental management (EM) session raises questions about the adequacy of the fire standoff areas of

vegetation to the fabric enclosures and other facilities. These questions about wild fire standoff area adequacy were also asked during the public comment period. Not mentioned during the meeting was that the large fabric enclosures apparently lack HEPA filter systems and any other safety systems.

The cleanup of buried waste from weapons production at the Idaho National Laboratory got a head start on LANL. The headlines have repeatedly stated that 100 percent of Idaho's buried waste cleanup is complete. But this misleadingly refers only to the small fraction of "targeted" waste. For Idaho's buried waste, less than 10 percent of the transuranic waste was exhumed and 100 percent of the non-transuranic waste remains buried.

Cleanup of legacy buried waste at LANL will likely be far more dangerous than people might suppose. Typically, waste containers are not reliably marked nor the material in the containers well characterized. Chemical incompatibilities are a serious issue that pose worker and offsite public radiological exposure, see DNFSB/TECH-46, *Potential Energetic Chemical Reaction Events Involving Transuranic Waste at LANL*, from 2020.

The pyrophoricity of plutonium and uranium depends on chemical form and size of the material, such as small fines. Conditions that allowed the formation of hydrides makes these radionuclides pyrophoric upon introduction of increased oxygen. These pyrophoric reactions, can be energetic, and even if surrounding structures are protected, can release greater amounts of airborne radionuclides than some DOE-approved nuclear safety analyses have predicted for operations. A breached waste drum, for example, may allow oxygen to react with the waste, and depending on the materials in the waste, can lead to energetic chemical reactions. Criticality risks are also a concern.

LANL is behind other DOE sites in addressing legacy radioactive waste. Now LANL is poised to create far more waste and continued — and increased — high risk of radiological accident releases that could forever extensively contaminate the Los Alamos and Santa Fe region of New Mexico.

## The DNFSB LANL Pit Production Session

During the LANL pit production session, DNFSB chair Joyce Connery and board member Jessie Roberson and others asked questions of the four panelists in Sessions 2 and 3: Jill Hruby, NNSA Administrator, James McConnell, NNSA Deputy, Ted Wyka, NNSA Los Alamos (NA-LA) DOE Field Office, and Dr. Thom Mason, Laboratory Director of Triad National Security, LLC.

The Los Alamos National Laboratory is only 0.6 miles to its site boundary and 990,000 people live within 60 miles. (See DNFSB Exhibit 13 for the NNSA Session.) A large radiological release of plutonium mixtures would take a very large release to cause early fatalities, yet may not be feasible to remediate and would allow the airborne spread of deadly toxic dust that could require permanent evacuation of affected areas.

The Department of Energy's Evaluation Guideline of 25 rem to the offsite public is a guideline for determining whether safety class equipment is needed. The "unmitigated" evaluation for determining if the public doses would exceed 25 rem are, in practice, under pressure to be reduced so that DOE can reduce costs and avoid requiring safety class equipment.

LANL came up with a creative way to lower the public doses through the use of weather dispersion for its PF-4 facility. Weather dispersion has long been used in air dispersion of radionuclides from an accident. But the DNFSB found that LANL's method of applying weather statistics lowered to estimated radiation dose to the public using methods that were not technically justified, basically, because the wind can and does change direction, see DNFSB/TECH-44, *Los Alamos National Laboratory Plutonium Facility Leak Path Factor Methodology*, issued November 2019. The estimated unmitigated dose was 218.6 rem to the public from the PF-4 plutonium facility at LANL.

The Department of Energy has opted for simplistic methods of evaluating its non-reactor nuclear facilities and only requires stylized safety analyses. The safety analysis documents for DOE nuclear facilities are withheld from the public, with the exception of the WIPP facility. It is difficult to ascertain the level of risk, overall, to the public that each facility poses and even with access to the DOE's documented safety analysis, there is no overall assessment of the level of risk posed.

To avoid costly safety system upgrades, DOE has tended to spend money and time to create special, unique, ad hoc site-specific analyses to justify not making physical improvements to buildings and equipment.

The DNFSB questions specifically asked about this issue at LANL. But the panelists deflected the question, extolling the virtues of "modeling." Perhaps the models are adequate but why are the models and their bases not described in documentation provided to the DNFSB?

Expensive safety class systems and thorough seismically capable buildings and equipment are needed despite the LANL Department of Energy and contractor staff denials.

But it must be emphasized that adequate safety equipment does not replace inexperienced staff so prevalent at LANL. With its high rate of worker attrition, this exacerbates the safety problems at LANL.

DNFSB chair Joyce Connery stated: "We're looking to understand the safety posture of the LANL's Plutonium Facility called PF-4…. As we'll will discuss, PF-4 is vital to our national security …and it is imperative that this work be accomplished both safety and securely. This will present NNSA with challenges, first and foremost that PF-4 was neither designed nor operated as a large scale [nuclear weapons pit] production facility. PF-4 is now over 40 years old and is showing its age in many ways…."

Regarding the National Nuclear Safety Administration's planned expanded nuclear weapons pit production at LANL's PF-4 facility, NNSA Administrator, Jill Hruby, responded, and doubled down on defending the refusal to provide adequate safety at LANL.

Hruby basically said safety improvements at LANL would take too much time and were too costly. Commitments to safety that were being made for the pit production work planned for the Savannah River Site's failed Mixed Oxide (MOX) plant were acceptable because that was a newer facility and more easily modified to modern safety standards.

It was clear that the NNSA is dedicated to the pit production goals from the Department of Defense no matter the level of risk to workers, the public and the environment. And it was painfully obvious that the Department of Energy at the Los Alamos National Laboratory and its contractors focus on whatever seems to please NNSA.

The panelists deflected DNFSB questions about the NNSA decision not to provide a seismically capable, performance category 3, confinement ventilation system at LANL's PF-4 facility. Previously, NNSA had committed to providing a safety class and seismically PC-3 rated confinement ventilation system. Cost and schedule are driving the safety shortcuts.

When Jessie Roberson, DNFSB, asked about possible increased pressure on PF-4 should the schedule for the Savannah River Site pit production slip occur (see the November 2022 Environmental Defense newsletter for a list of several failures of NNSA to succeed in its planned projects), NNSA Administrator Jill Hruby responded:

> *"We are working verry very closely with the Department of Defense. This was a requirement [for pit production] not because it could be done but because of their needs…it's just life. There's nothing I would rather do than meet all of the requirements. But we have to relook at it because of all the issues we've experienced. It's not just NNSA, this is a very difficult time in the United States of America for large construction projects. Its hard to get workers, its hard to get supplies. There's a lot of downtime due to COVID, the list goes on.*
>
> *So, we are trying to do things at a difficult time. We're trying to be as honest and realistic as possible about what we can do and can't do and we're working very closely with the Department of Defense. So, the scenario you laid out won't happen – we cannot commit, in a sincere way, to making more than 30 pits per year from PF-4, especially as we're getting started.*
>
> *So, you know, this is a work in progress, a lot of things as you probably can imagine that have to be thought about in terms of changing things in making sure our nuclear deterrent is second to none. But we're working it very very hard. We are, I mean, the statements that we made earlier about safety and the way we're viewing it… drive down risk that we can do in the time frames that fit the rest of the things that we need as effectively as possible, do things that position us in the future and to continuously improve. …That's the philosophy that we're using. …And…I mean I feel like we are very careful about the risk we are accepting. It's not*

*– we have this mission to do and we're going to accept risk. We're not… I think we are approaching this in a very responsible manner.*

*We don't think its worth stopping for the three years or like what ever would be required to get to active confinement ventilation but…we're doing lots of other things to make sure things are safe." [my own rough transcription and apologies for any errors]*

Later, McConnell admitted that there could be increased pressure on PF-4 should there be delays in bringing the Savannah River Site's planned pit production online and also that, in regard to not providing previously committed to safety upgrades:

*"I would like to say, but I can't, that this will be the last time that we use the exigent conditions [processes]…" [The exigent conditions process is used to approve excessively high potential offsite radiological doses rather than provide appropriate safety systems.]*

Despite the panelists assertions of their reasonable choices under the circumstances, the reality is the NNSA's safety control strategy is not commensurate with the safety hazards at PF-4 and this was the case even before the decision to expand pit production at LANL. NNSA has been delaying needed safety upgrades on gloveboxes and other safety controls for over five years.

For example, there are only four gloveboxes needed for the higher consequence Pu-238 work, yet NNSA has made no attempt and plans to make no attempt to provide seismically stable gloveboxes for the Pu-238 work. The non-seismically stable gloveboxes are expected to topple over at very small, less than "moderate" earthquakes, less than Performance Category 2 earthquakes.

And NNSA could have taken steps to reduce the amount of Pu-238 that would be outside of safe storage during repackaging, but chose to put a high amount of material in each container, that once opened, is all at risk. The heat source Pu-238 is for National Aeronautics and Space Administration (NASA) missions and not for nuclear weapons. [3]

LANL continues to prepare safety analyses that may not be technically defensible or comprehensive (see the August 2022 letter from DNFSB to DOE).

The NNSA Administrator Jill Hruby, and the LANL officials dueled against the DNFSB's questions, but clumsily, especially in Session 2. The panelist's responses to DNFSB's questions tended to deflect the questions rather than provide direct answers. The preference of the panelists seemed to be to try to defend the current approach to safety as technically adequate and to portray the safety shortcuts as reasonable and necessary in order to meet Department of Defense pit production goals. NNSA and LANL officials continue on with years of neglectful and irresponsible decisions that put the citizens of New Mexico at risk and put their land at risk of becoming permanent exclusion zones.

[3] Defense Nuclear Facilities Safety Board letter to the Department of Energy, Secretary Jennifer Granholm, dated August 11, 2022, which transmits the DNFSB Staff Report "Receipt and Repackaging of Large Amounts of Heat Source Plutonium at the Los Alamos National Laboratory Plutonium Facility," May 27, 2022, at DNFSB.gov

# The NRC issues a Supplement to the final EIS on Holtec's Consolidated Interim Storage Facility for Spent Nuclear Fuel in New Mexico

The U.S. Nuclear Regulatory Commission (NRC) has issued Supplement 1 to a final Environmental Impact Statement (FEIS), NUREG-2237, "Environmental Impact Statement for the Holtec International's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico." [4]

Holtec International (Holtec) has requested a license to construct and operate a consolidated interim storage facility (CISF) for spent nuclear fuel (SNF) and Greater-Than-Class C (GTCC) waste, along with a small quantity of mixed oxide (MOX) fuel. The proposed CISF would be located in southeast New Mexico at a site located approximately halfway between the cities of Carlsbad and Hobbs. The proposed action is the issuance of an NRC license authorizing a CISF to store up to 8,680 metric tons of uranium (MTUs) of SNF in 500 canisters for a license period of 40 years.

Whether or not the NRC renews the license in 40 years, there will still be no place to ship this waste to, and so New Mexico will be stuck with the waste. The waste will likely require repackaging for continued storage or shipping, if repackaging were actually feasible. No repackaging capability will be provided by the project.

The NRC issued the FEIS for an application from Holtec requesting a license to authorize construction and operation of a CISF for SNF at a site located halfway between Carlsbad and Hobbs, New Mexico. The proposed CISF project would be built and operated on approximately 421 hectares (ha) [1,040 acres (ac)] of land in Lea County, New Mexico. The proposed project area is approximately 32 miles east of Carlsbad, New Mexico, and 34 miles west of Hobbs, New Mexico.

The NRC's licensing of the Holtec facility is yet another example of ill-conceived and deadly actions by the nuclear industry.

Holtec has a history of problems but success at getting funding anyway. [5]

On November 25, 2022, a moderate earthquake of magnitude 5.4 occurred in West Texas, near the proposed Holtec facility in Lea County, New Mexico. A magnitude 4 can damage

[4] U.S. Nuclear Regulatory Commission, Docket ID NRC-2018-0052 at https://www.regulations.gov and see the Federal Register https://www.federalregister.gov/documents/2022/11/04/2022-23847/holtec-international-hi-store-consolidated-interim-storage-facility-project

[5] Matt Friedman and Ry Rivard, Politico, "Holtec, controversial recipient of huge tax credits, seeking more," September 15, 2022. https://www.politico.com/news/2022/09/15/holtec-controversial-recipient-of-huge-tax-credits-seeks-more-00056972

buildings. Importantly, oil and gas operations that inject saltwater contribute to increased seismicity, with higher likelihood of occurrence than predicted by seismic history of a region. [6]

## Department of Energy Secretary Jennifer Granholm gives DNFSB the finger regarding delays in addressing seismic vulnerabilities

The refusal from Department of Energy Secretary Jennifer Granholm to the Defense Nuclear Facilities Safety Board to provide timely reporting of suspected seismic vulnerabilities at DOE nuclear facilities basically gives the middle finger to the DNFSB. [7]

The DNFSB had requested clarification on timing expectations for entering the Unreviewed Safety Question (USQ) process when a probabilistic seismic hazard analysis (PSHA) update yields higher seismic hazard than previously assumed in DOE's safety analyses.

The Department of Energy has long history of ignoring new and unwelcome increases in seismic hazard. These increases mean that buildings and equipment are subject to higher seismic loads. Accidents may be more likely, or expensive upgrades may be needed.

What Secretary Grandholm states is that "There are often additional analytical processes that follow the completion of the PSHA…and it is frequently not appropriate or necessary to implement compensatory controls…"

In other words, she is saying it takes a long time to evaluate whether or not there is really an issue – and DOE is going to drag out and delay completing such an evaluation – and as DOE drags this out, there will be no reporting of the suspected seismic vulnerability and hence, less pressure on DOE to fix the problem. She is also saying that DOE does not have to follow its own regulations and it does not need to attempt to put in writing specifically why the USQ process will be deliberately delayed, perhaps for years, when seismic hazards are found to be increased.

DOE has a history of taking over a decade to get around to attempting to assess its seismic vulnerabilities when new seismic hazard evaluations yield higher seismic loading.

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[6] Ian, Palmer, *Forbes*, "A 5.4 M Earthquake Shakes Up Oil and Gas Disposal Wells And Nuclear Waste Plans In The Permian Basin Of West Texas," November 25, 2022. https://www.forbes.com/sites/ianpalmer/2022/11/25/a-54m-earthquake-shakes-up-oil-and-gas-disposal-wells-and-nuclear-waste-plans-in-the-permian-basin-of-west-texas/?sh=3ce398046cfc The article notes the moderate earthquake of magnitude 5.4 on November 16, 2022 in West Texas and that earthquakes greater than a magnitude 4 can damage buildings. Importantly, oil and gas operations that inject saltwater contribute to increased seismicity. The proposed nearby Holtec site is close to thousands of new oil and gas wells, according to the article. The Waste Isolation Pilot Plant (WIPP) is within about 30 miles west of the proposed Holtec site in New Mexico.

[7] Letter from Department of Energy, Jennifer Grandholm to Joyce L. Connery, Chair, Defense Nuclear Facilities Safety Board, November 2, 2022 [which was due August 1, 2022] at dnfsb.gov in response to the June 16, 2022 letter from the DNFSB requesting further clarification on the implementation of the unreviewed safety question (USQ) process following a probabilistic seismic hazard analysis (PSHA) update, specifically on timing expectations for entry into the USQ process where a PSHA update identifies an increased seismic hazard.

When new, higher seismic hazard is discovered, if DOE had any rational way to explain why their facilities remained safe, as safe as previously approved by DOE, there would be no need for DOE to avoid documenting that the situation was safe. Grandholm's refusal codifies its negligent and longstanding practice of foot dragging to address seismic vulnerabilities at defense nuclear facilities.

At the Idaho National Laboratory's Materials and Fuels Complex, formerly ANL-W, the approach many years ago was simply to "lose the document" that identified higher seismic vulnerability of a structure. At the Advanced Test Reactor, the approach was to actively delay the seismic hazard development's issuance of their report, for years. When finally issued, the approach was to avoid performing analysis of the impact of the new higher seismic loading on safety systems and buildings. It was all very sleezy and Secretary Grandholm is refusing to change these longstanding practices by the Department of Energy.

Secretary Grandholm is not just disrespecting the DNFSB. She is disrespecting the workers, citizens, and the environment her agency claims to protect. Is it because she doesn't live near these facilities?

She is declaring that citizens have no right to know just how long DOE plays to delay analyzing or fixing the seismic vulnerabilities at DOE defense facilities. Seismic accidents at defense facilities can mean permanently evacuated vast tracks of land due to the large release of long-lived radionuclides such as plutonium-239.

## Idaho's IWTU, if it ever operates, will need about double the waste storage vaults

On November 15, 2022, the Department of Energy announced that it has prepared a supplement analysis (SA) in consideration of a proposed action to construct a second Product Storage Building (PSB-II) at the Idaho Nuclear Technology and Engineering Center (INTEC) to support operations at the Integrated Waste Treatment Unit (IWTU). The analysis supplements the Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement (DOE 2002, DOE/EIS-0287).

Since "substantial completion of construction," the IWTU has been subject to numerous modifications, corrective measures, and improvements. The IWTU has been in the redesign, modify and test mode since 2012 when it was scheduled to have completed treatment of the high-level liquid radioactive sodium bearing waste.

Results obtained from ten years of system performance tests using a non-radioactive simulant material indicate that the treated waste will need almost double the storage vaults originally expected. It is currently estimated that the treated sodium bearing waste will need 78 vaults to store the processed waste if the IWTU is actually able to operate. The existing storage facility has room for only 37 vaults.

The supplement analysis for the EIS, prepared in accordance with the National Environmental Policy Act (NEPA), analyzes potential impacts of:

- Construction and operation of a second Product Storage Building (PBS-II) at the Idaho National Laboratory Site's INTEC facility.
- Modification of the existing Product Storage Building (PSB)-I to allow the transfer of product storage vaults into a connecting the breezeway between PSB-I and PSB-II.

As part of the facilities described in the Final EIS, the IWTU is located at INTEC on the Idaho National Laboratory Site. The IWTU mission is to treat the approximately 900,000 gallons of liquid radioactive waste that remain from past INTEC operations, package the solid product in canisters, and store these canisters in concrete vaults on site in the interim while they are awaiting final disposition to an as-of-yet non-existing disposal facility.

The DOE is not saying if "newly generated waste" is the reason for the increased number of storage vaults, or some other reason. I will be very surprised if the IWTU successfully starts, let alone, completes treating the liquid sodium bearing waste.

The supplement analysis to the Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement (DOE 2002, DOE/EIS-0287) is available at https://www.energy.gov/nepa/articles/doeeis-0287-sa-02-supplement-analysis

## The Stibnite Gold Project EIS, masterfully written – obscures how Perpetua's profits are prioritized over permanent destruction of Idaho wilderness

The more I read the Environmental Impact Statement for the Stibnite Gold Project [8] at the Yellow Pine mine, the sadder I am. Despite the lengthy EIS, precious land and wildlife will forever be lost in order for a few people to profit and walk away.

The agencies, including the Forest Service, claim they are powerless to stop Perpetua from greatly increased mining activities that will forever harm Idaho. Past mining has damaged the area around the Yellow Pine mine, and the Stibnite Gold Project will increase that level of mining about 10-fold.

[8] **Stibnite Gold Project Supplemental Draft Environmental Impact Statement, by United States Department of Agriculture and US Forest Service, released October 28, 2022.** Please state "Stibnite Gold Project" in the subject line when providing electronic comments, or on the envelope when replying by mail. Electronic comments must be submitted in a common digital format such as plain text (.txt), rich text format (.rtf), Word .doc, .docx) or PDF (.pdf). **Submit Electronic Comments To:** https://www.fs.usda.gov/project/?project=50516 The stated deadline is 75 days after October 28, 2022 [sometime in early January 2023, depending on how this is counted].**Project Website**: https://www.fs.usda.gov/project/?project=50516

Historical mining of Yellow Pine, Hangar Flats and the West End deposit mined about 12 million tons of ore and left much poison behind. The new project by Perpetua will mine over 115 million tons of ore.

The mining will require 60 megawatts of electricity to be brought in by new power lines. The costs to citizens over time will be staggering. Perpetua will profit. But many of the actions to hopefully, if feasible, minimize the poisoning land and streams forever, likely won't happen at all if any financial or geotechnical mishap occurs.

Perpetua's generous campaign donations to Idaho officials are clearly paying off. The Idaho Department of Water Resources obediently backed off on updating seismic design standards for tailings dams and also reduced other requirements, with the clear knowledge of how this saved Perpetua money.

Comments can be submitted throughout December on the Stibnite Gold Project EIS.

*Articles by Tami Thatcher for December 2022. Minor editorial corrections were made 11:32 12/01/2022. At 3:32 pm, a "Chuck Broscious-worthy number of exclamation points!!!!!" and bolding was added to page 2. The exclamation points are highlighting a completely bat-shit crazy acceptance of high radiological release to the off-site public and environment from Department of Energy operations. Page 2 was revised for bolding and addition of exclamation points: "*An August 2022 letter from the DNFSB to DOE states that the National Nuclear Security Administration (NNSA) has accepted **the extraordinarily high mitigated offsite dose consequences range from 490 to 3175 rem.** !!!!!!!!! Doses above about 400 rem are considered lethal." And also added was the reminder that many safety deficiencies at LANL were identified by 2009, in the DNFSB letter to DOE for LANL dated November 15, 2019.