RADIOACTIVE & HAZARDOUS MATERIALS COMMITTEE
TRANSPORT OF WEAPONS GRADE PLUTONIUM

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Thank you for your interest in the public's safety about the transport of nuclear waste.

Plutonium-239 is the main weapons grade waste being transported. The physics of the Universe didn't produce it; humans did. There is much we don't know about this new material we made and, if we're going to use it or make policy with it, especially if it puts the public at risk, we have to know what we can.

Plutonium is deadly in many ways: it is a heavy metal, it can spontaneously burst into flames, too much in one place spontaneously creates a nuclear chain reaction, and it is very radioactive.[1] The kind of radiation it produces can't penetrate the skin, so you could stand next to it, although I wouldn't recommend it. But when it gets inside, which is surprisingly easy, it's a killer. How it gets inside is important: if you ingest it, it can go through your digestive system and out without a great deal of damage. Again, I wouldn't recommend eating it for breakfast, as WIPP workers sometimes joke. But when it's inhaled or enters through a wound, it gets in the body and doesn't let go.[2] More on that in a minute.

Plutonium is a threat when it's used to detonate bombs but it's also a threat when it's being moved for those along the route. None of us thinks every transport will end in disaster. But we're adults and know that over time, long distances, and many transports, an accident becomes an inevitability. For the community where that happens, it will be devastating and permanent.

Shipments will increase many times over for the next 60 years if New Mexico allows the Department of Energy to implement new missions. This element didn't even exist until we created it to trigger the atomic bomb in 1940. It's not a natural element; it's essentially new to Earth and the Universe.[3]

The subjects I taught for 25 years, astronomy and chemistry, tell us that all natural elements are made in stars as they die; everything in your body and everything around you are made of elements that first formed in stars.[4] *All except the ones that make nuclear waste*. They're man-made. Plutonium has only existed 80 years. Natural elements have existed on Earth for 4.6 billion years. Life grew up with those natural elements and needs them to survive. But we're still working out the bugs with plutonium. When something's new, you don't know which consequences to anticipate; you have to learn what it can and can't do piecemeal, by trial and error.

I want to clarify some common misunderstandings by looking at four facts about plutonium through the lens of common sense. This will make it easier to choose transportation policies that are safest.

Facts and Common Sense

Fact #1: Plutonium new to the planet, an unnatural substance that has unique

Common sense: tells us that something we've transported for only 24 years hasn't taught us everything we need to know to do it safely. DOE treats nuclear waste transport as if all its risks are known. They aren't.

Fact #2: Plutonium lasts half a million years.[5,6] The WIPP repository promises to dispose of it safely for 10,000 years.

Common sense: tells us that DOE can't keep this promise. Neither can nuclear physicists or engineers, and they know it. WIPP is a 10,000-year experiment. That's why it's called a "pilot" plant.

In 80 years, we've made over 100 tons of plutonium and, because it decays so slowly, we still have the first cupful. It will take 480,000 years before all of it is gone. [6]

Even if WIPP could safely hold the waste for 10,000 years, no one has even thought about what to do with it for the remaining 470,000 years. The last plutonium to decay will be as deadly as it was on the day it was made.

We keep making more of something deadly, that we don't know how to get rid of. Our solution to this half million-year problem is to, unforgivably, pass it on so that our problem becomes someone else's. DOE has the world embarking on an experiment that ***we*** won't know the answer to, ever.

Fact #3: Transuranic or TRU waste is *not low-level waste*. Some countries consider plutonium high level waste, none, including the US, consider it low-level.[7]

Common sense: The US calls plutonium high-level when it's made in nuclear reactors but transuranic or TRU when it's made for weapons. Common sense tells us that plutonium atoms are plutonium atoms. They aren't magically less dangerous because the US classifies them as transuranic or TRU waste. Whether as bomb triggers or fuel rods in nuclear reactors, the radioactivity and heat are the same for all atoms of plutonium-239. Plutonium from both sources has to be disposed of in deep, geologic repositories, which tells us how dangerous both are. [8]

Only the US uses the innocuous sounding category TRU or transuranic for weapons' waste mixed with contaminated materials. This confuses rather than clarifies and leads the public and policy makers, like yourselves, to think it's safer than it is.

Fact #4: Powdered plutonium, when inhaled, causes cancer 100% of the time.[9] *(Nobel-Prize-winning Physicians for the Prevention of Nuclear War)* Inhaled powdered plutonium isn't exhaled but lodges in the lungs and keeps on irradiating tens of thousands of nearby cells for decades.[10] DOE is transporting it past unsuspecting communities that have limited emergency resources.

Common sense: Plutonium becomes tiny particles that can be inhaled in explosions like the one in WIPP, traffic accident fires, forest fires, or when it's purposely powdered as it is at LANL. One of DOE's new missions is to ship 26 T of plutonium pits from Pantex to LANL so it can be powdered and then ship it again past the same New Mexico communities, twice. These are the routes and communities involved. Northern New Mexico routes include 5 pueblos and their farmlands, more than 60 neighborhoods in Santa Fe, and 25 neighborhoods along Hwy 285. Southern NM communities will mostly become major shipping lanes from the waste of the second DOE new mission, plutonium pit production. Both missions will affect the northern route. Once it's shipped back to Pantex, it will cross the country to South Carolina, and then back again to WIPP. That's a lot of property and lives at risk.

This is playing Russian roulette with people who don't know they're being played. Limit transport and educate the public, including first responders. A former fire chief flatly stated that he learned about the new waste transport plans when he heard it from me at a community presentation.

DOE knows the facts but doesn't want us to know them because we'll apply common sense to show how dangerous this plan is.

Facts tell us what the problems are. Common sense tells us how to use them. These would be sound policies:

- Limit its transport.
- Inform communities being put at risk about the risk.
- Have robust emergency procedures in place.
- Stop making more.

We recommend that DOE complete its mission and close.

DOE hasn't finished the one mission it was given when WIPP opened: dispose of the waste from the first weapons made. Even though WIPP isn't an adequate repository, this old waste will be safer there than where it is.

Some sits in drums in canvas tents at LANL, in a forest where wildfires have almost reached the plutonium four times in recent years. If that happens, it would vaporize the plutonium, blanket northern New Mexico, and make it permanently uninhabitable, like at Fukushima, Japan. This needs to happen safely and now.

No new waste should be put in WIPP. New waste— Don will talk about this—violates New Mexico's legal agreement with DOE and increases all the risks common sense tells us to avoid.

But DOE managers said, most recently at its Las Vegas Community Forum on October 24, that they plan to move new waste to WIPP before some of the old waste. They say the old waste requires more work and time. But DOE doesn't have the authority to change the mission without New Mexico's approval. It's New Mexico's responsibility to stop new missions for the safety of her people. I can make suggestions for possible committee actions and answer questions, if you wish.

Possible suggestions for the Committee about what it can do:

1. It's helpful that you invited Mr. Wachter from SERC to present. I'm sure he has given truthful information, but he would benefit from guided questions, such as:

- We've learned there is no more of the medical chelating agent, the compound used when someone is internally contaminated with plutonium, in hospitals. What is the alternative treatment? Is it available wherever plutonium is being shipped?
- How many Hazmat kits are available and where are they? Santa Fe County has none.
- How long would it take to inform people if powdered plutonium is released? They would need immediate instruction because of how quickly it becomes deadly through inhalation.
- How do you plan to inform the public ***before an accident*** to shelter in place if powdered plutonium has been released and to get indoors immediately?

2. Talk to our Governor.

   What you say matters because she knows it's coming from your constituents and from your experience on this committee. The Governor has been supportive, and we value that. But we need her to use the tools that she inherited from Governors King and Richardson, Senators Bingaman, Domenici, and Udall, and others, to deny the overreach of this mission by the federal government.

3. Members of this Committee are also powerful communicators to the Environment Department.

   Now that the WIPP permit has been renewed, NMED's job is to monitor DOE compliance, *as it is legally required to do*. Our NGO coalition worked on the permit with NMED and, as a condition of it, meets monthly with DOE officials. But NGOs need the state NMED to take the permit as seriously as they do.

[1] Plutonium, Deadly Gold of the Nuclear Age, Special Commission of The International Physicians for the Prevention of Nuclear War & the Institute for Energy & Environmental Research, 1992, pg. 5, https://www.ippnw.org/wp-content/uploads/2020/07/PlutoniumDeadlyGold1992.pdf

[2] Ibid pg. 10-13

[3] Plutonium, Wikipedia, https://en.wikipedia.org/wiki/Plutonium

[4] Jones, Andrew Zimmerman. (2024, September 2). Stellar Nucleosynthesis: How Stars Make All of the Elements. Retrieved from https://www.thoughtco.com/stellar-nucleosynthesis-2699311

[5] Caldicott, Helen, MD, Internal Radioactive Emitters -Invisible, Tasteless, and Odorless, https://www.helencaldicott.com/internal-radioactive-emitters-invisible-tasteless-and-odorless/
"The half-life of plutonium is 24,400 years, so it can cause harm for 500,000 years; inducing cancers, congenital deformities, and genetic diseases for the rest of time. Not only in humans, but in all life forms."

[6] Plutonium, Deadly Gold of the Nuclear Age, Special Commission of The International Physicians for the Prevention of Nuclear War & the Institute for Energy & Environmental Research, 1992, pg. 6-8, https://www.ippnw.org/wp-content/uploads/2020/07/PlutoniumDeadlyGold1992.pdf

[7] Makhijani, Arjun, Classifications of Nuclear Waste, 5/ 2012, Institute for Energy and Environmental Research, https://ieer.org/resource/classroom/classifications-nuclear-waste/

[8] Nuclear Waste Disposal, Government Accountability Office, https://www.gao.gov/nuclear-waste-disposal

[9] Nobel Prize-winning organization International Physicians for the Prevention of Nuclear War, Chazov, Yevgeny, USSR Cardiological Institute, co-founder of IPPNW, International Physicians for the Prevention of Nuclear War, Nobel Prize Lecture, 1985 https://www.nobelprize.org/prizes/peace/1985/physicians/lecture/

[10] Plutonium, Deadly Gold of the Nuclear Age, Special Commission of The International Physicians for the Prevention of Nuclear War & the Institute for Energy & Environmental Research, 1992, pg. 9-13, https://www.ippnw.org/wp-content/uploads/2020/07/PlutoniumDeadlyGold1992.pdf