

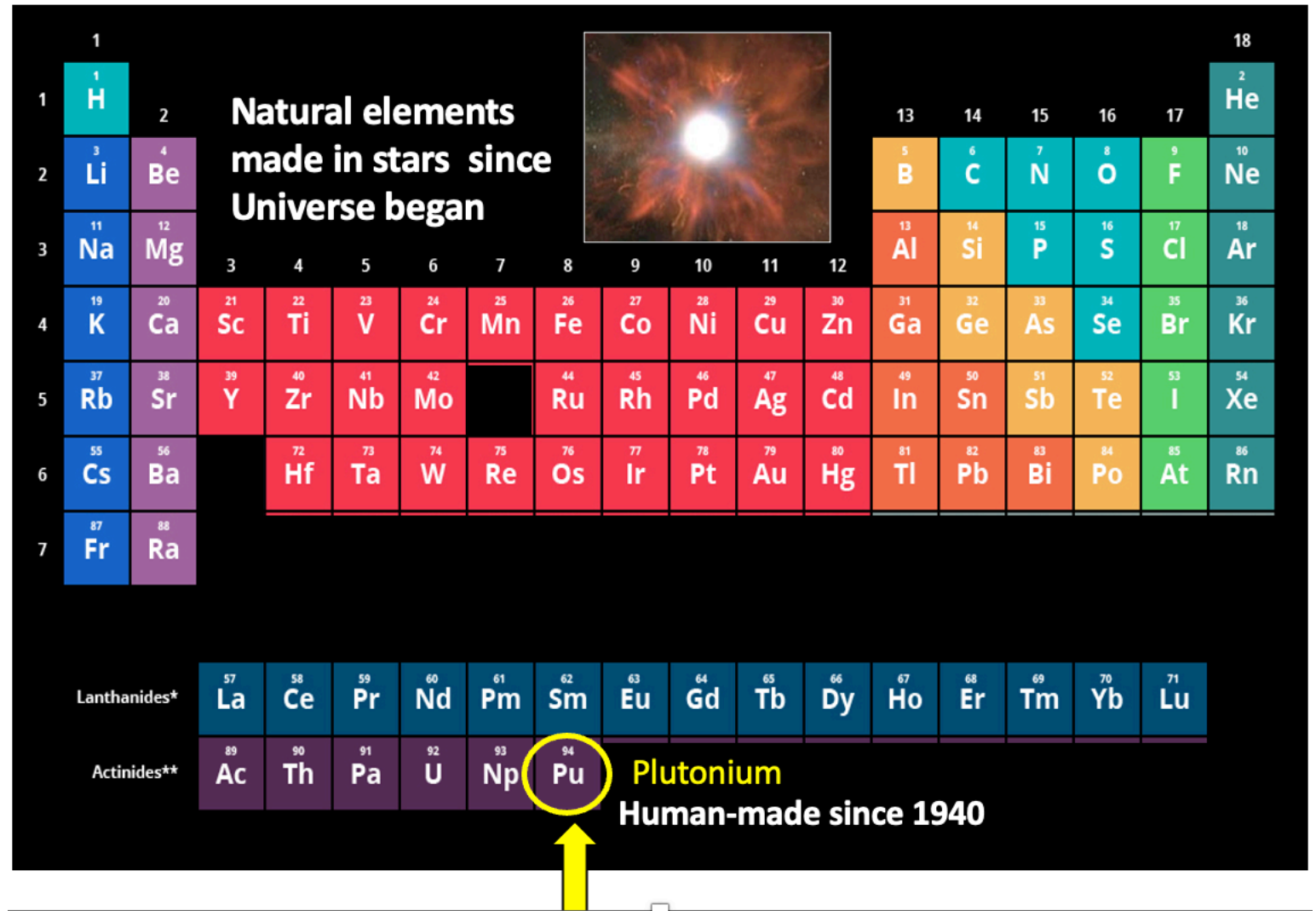
RADIOACTIVE & HAZARDOUS MATERIALS COMMITTEE
TRANSPORT OF WEAPONS GRADE PLUTONIUM
Nov. 15, 2024

Cynthia Weehler & Roger Taylor
Co-Chairs, 285 Alliance

Most nuclear weapons' waste is plutonium-239



Completely man made
Very radioactive



Fact #1: Human-made elements are recent

Elements made in stars formed the Earth 4.6 billion years ago



Element plutonium made by humans 80 years ago



4.6 billion yrs. vs 80 yrs.



↓
Elements that life evolved with & needs to survive

↓
Elements that threaten life

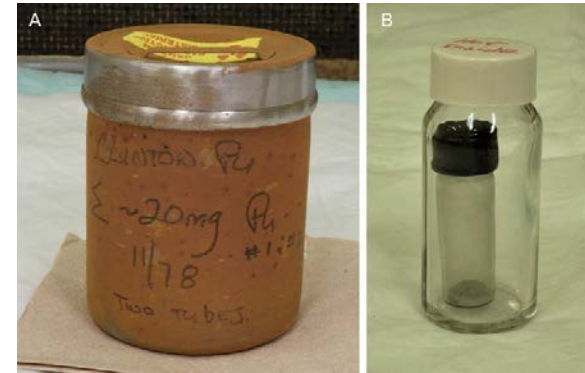


When something's new, the bugs haven't been worked out:

At the beginning



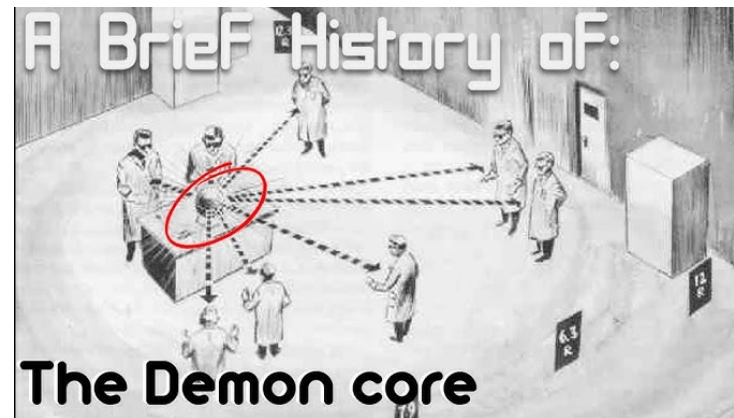
Ford Edsel



Manhattan legacy waste in inappropriate containers

<https://link.springer.com/article/10.1007/s10967-021-07924-4>

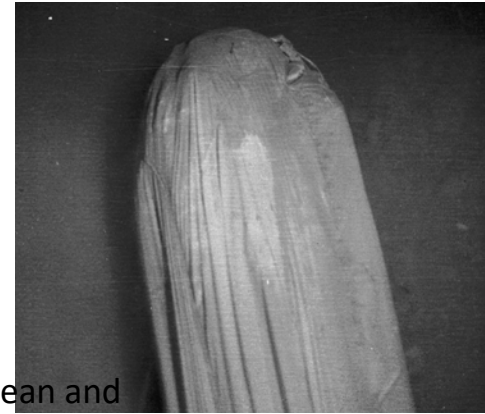
[Found in the Trash: A Jug of Plutonium \(Vintage '44\) - The New York Times](#)



1946 Plutonium Demon Core & Strange Death of Louis Slotin

<https://www.newyorker.com/tech/annals-of-technology/demon-core-the-strange-death-of-louis-slotin>

More recent



The 4th bomb went into the ocean and was lost for months. Finally the submersible Alvin found & recovered it.
<https://www.whoi.edu/oceanus/feature/little-alvin-and-the-lost-h-bomb/>



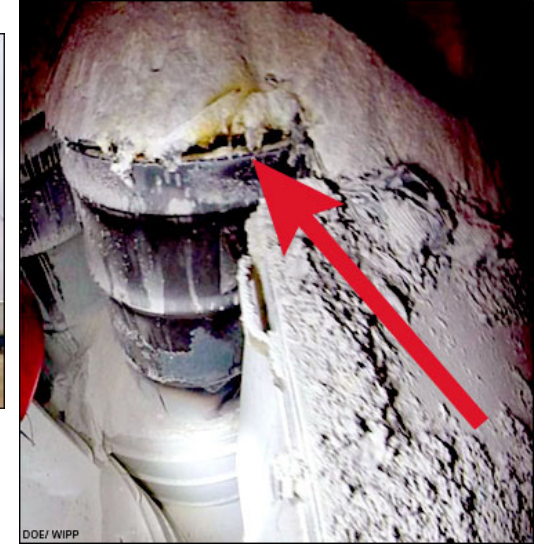
1961 Goldsboro, NC bomb drop from B 52 incident
[https://commons.wikimedia.org/wiki/File:Goldsboro Bomb Weapon 1 \(LA-UR-20-22180\).jpg](https://commons.wikimedia.org/wiki/File:Goldsboro_Bomb_Weapon_1_(LA-UR-20-22180).jpg)



1966 Palomares, Spain, 4 bombs lost during refueling of aircraft over tomato fields and pastures, 4 died, many searchers developed cancers. Two weapons detonated upon impact and dispersed radioactive [plutonium](#), [contaminating](#) 2 km².
Not until 2015 did US agree to remove Spain's contaminated soil to bury in Nevada. To date, **nothing has been done.**
https://en.wikipedia.org/wiki/1966_Palomares_incident

In 1980, a [W53 thermonuclear](#) warhead was launched 100 feet. Its safety features prevented any loss of radioactive material or nuclear detonation. 1 died, 21 injured, silo destroyed
[https://en.wikipedia.org/wiki/1980_Damascus Titan missile explosion](https://en.wikipedia.org/wiki/1980_Damascus_Titan_missile_explosion)

More recent still



In 2011 a near disaster at LANL almost caused plutonium to go critical by putting too much, too close, together.

<https://apps.publicintegrity.org/nuclear-negligence/near-disaster/> & <https://nuclear-news.net/2017/06/21/los-alamos-national-laboratorys-poor-handling-of-plutonium-rods-near-disaster/>

In 2014 a chemical explosion spread radiation throughout WIPP, & closed it 3 years. 21 workers were contaminated above ground. The culprit: the wrong kitty litter in the drum.

In 2017 a small amount of plutonium found in urine of 5 workers in Japan. Americium found in lungs of one.

<https://lucian.uchicago.edu/blogs/atom-icage/2017/06/19/plutonium-found-in-urine-of-five-workers-exposed-to-radiation-via-the-japan-times/>



Repeated safety lapses at LANL show lack of attention, 2023

<https://searchlightnm.org/safety-lapses-at-los-alamos-national-laboratory/>



Fact #2: Plutonium-239 lasts a long time

Plutonium: 480,000 years



WIPP repository: 10,000 years

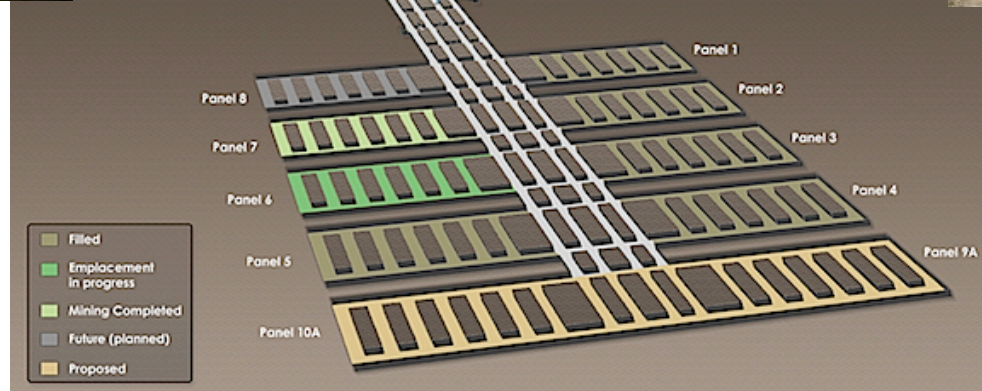
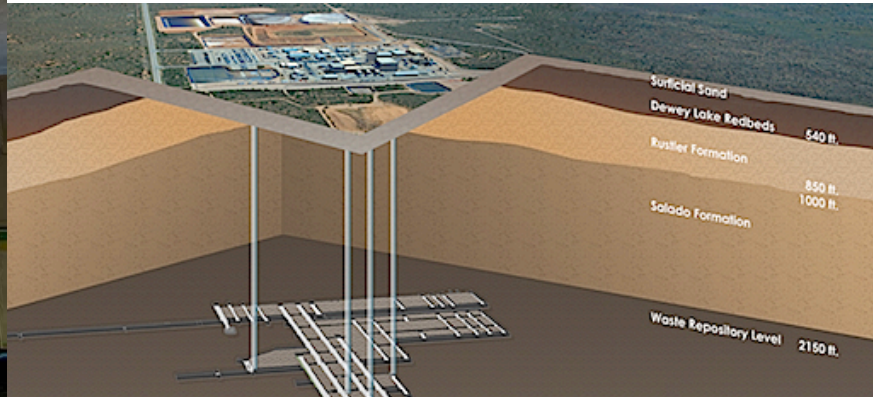


10,000 yrs. vs 480,000 yrs.

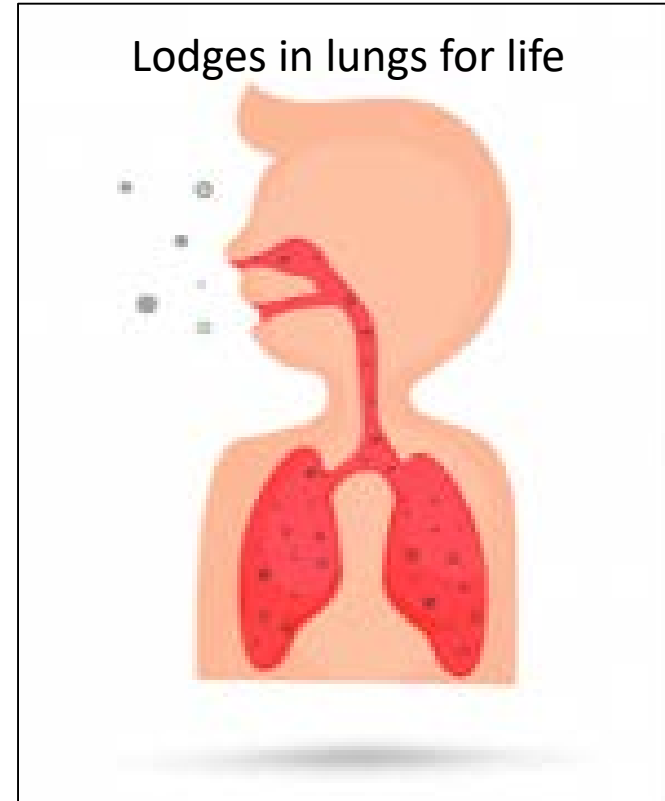
Plutonium lasts	480,000 years
WIPP may last	<u>-10,000 years</u>
What to do with the	470,000 years left?

Fact #3:

Transuranic waste is not low-level. TRU and high-level waste must both be disposed of in deep geologic repositories, showing that they share danger levels.



Fact #4: A very small amount is deadly



The Nobel Peace Prize winning *International Physicians for the Prevention of Nuclear War*: less than one millionth of an ounce of particulate plutonium inhaled causes cancer 100% of the time.

Internal radiation is the most harmful.

Particle of plutonium-239 in lung sending out deadly radiation energy.



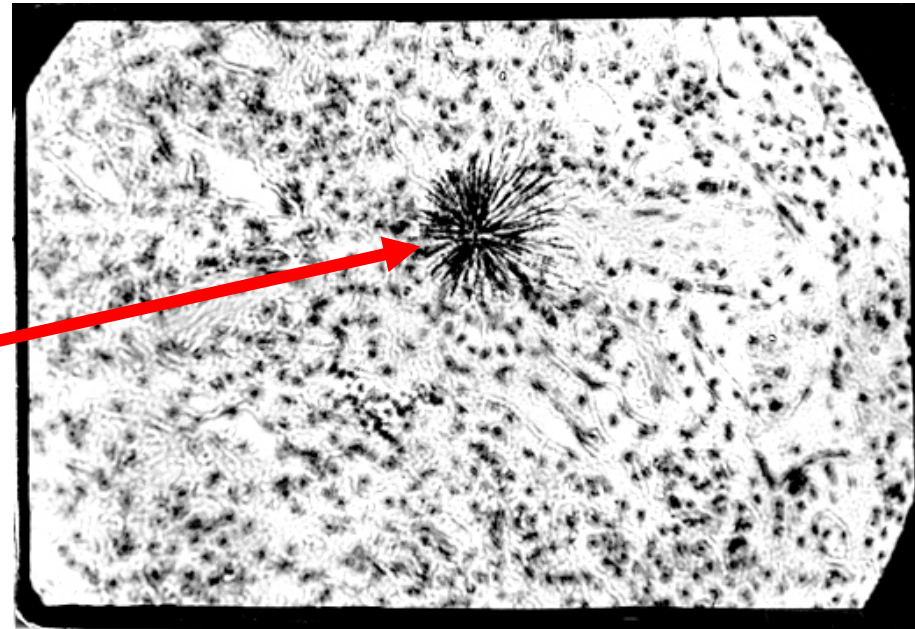
Skin absorbtion



Ingestion

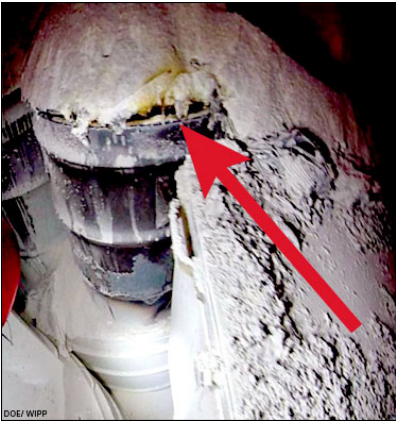


Inhalation



Continuous, on-going source of radiation;
Cancers of bone, lung, liver, gonads, brain

How does it become particles?



Explosion & fire like those at WIPP

Traffic accident

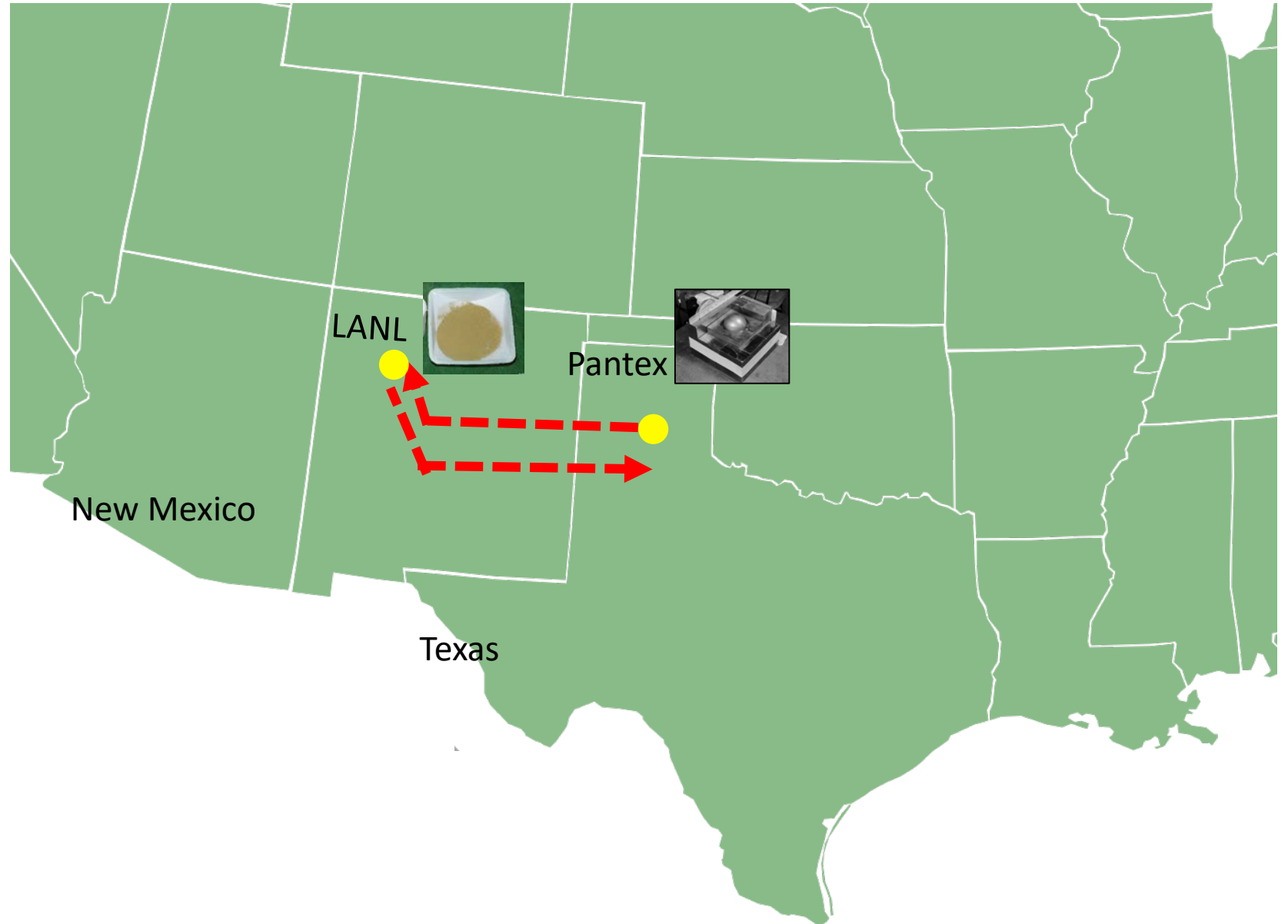
Forest fires at LANL



Made into powder at LANL to qualify for WIPP disposal

Powdered “surplus plutonium” shipments threaten many communities, starting with:

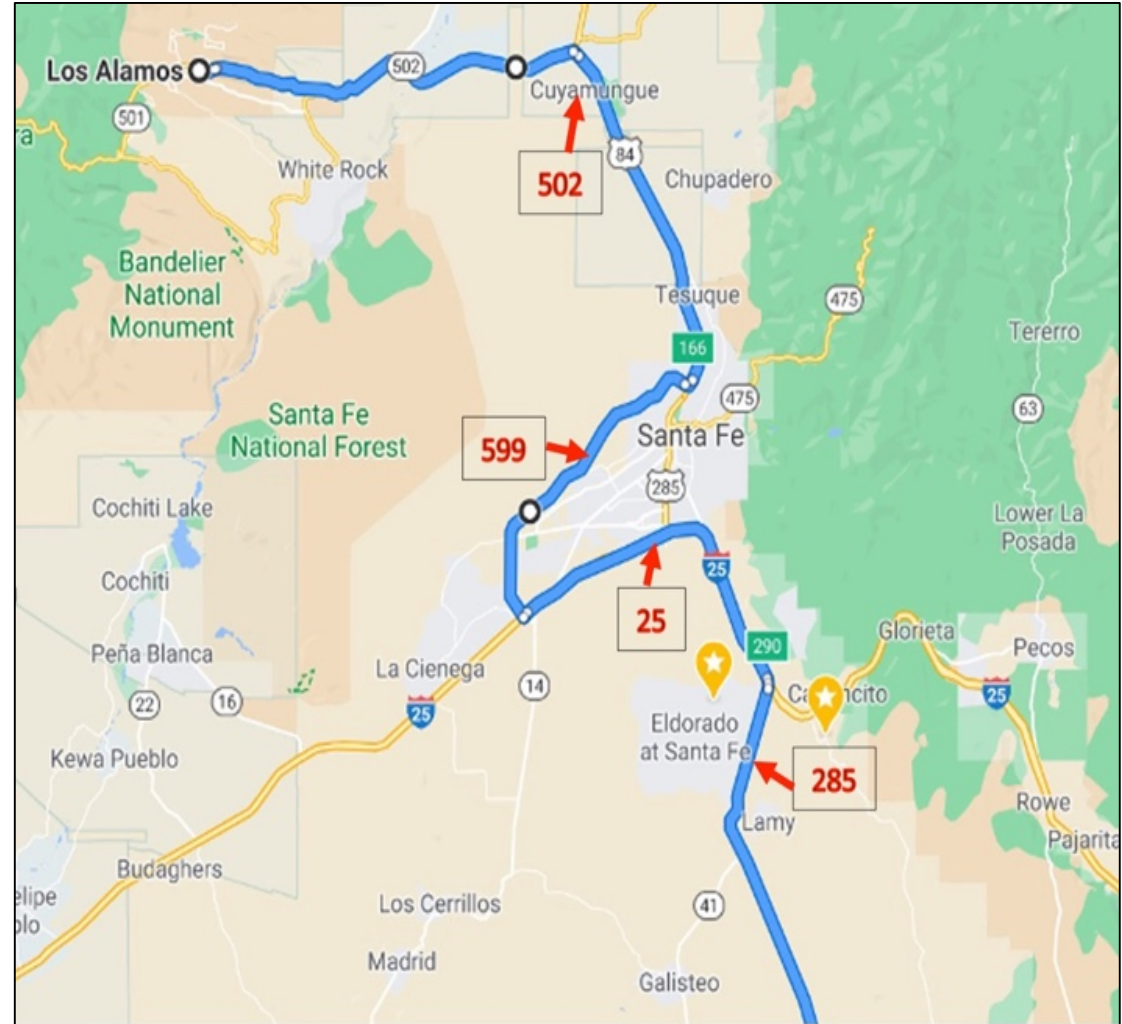
- 1st Ship concentrated plutonium at Pantex along IH-40 and Hwy 285 to LANL to powder into oxide
- 2nd Ship powdered plutonium back (past same neighborhoods) along IH-40



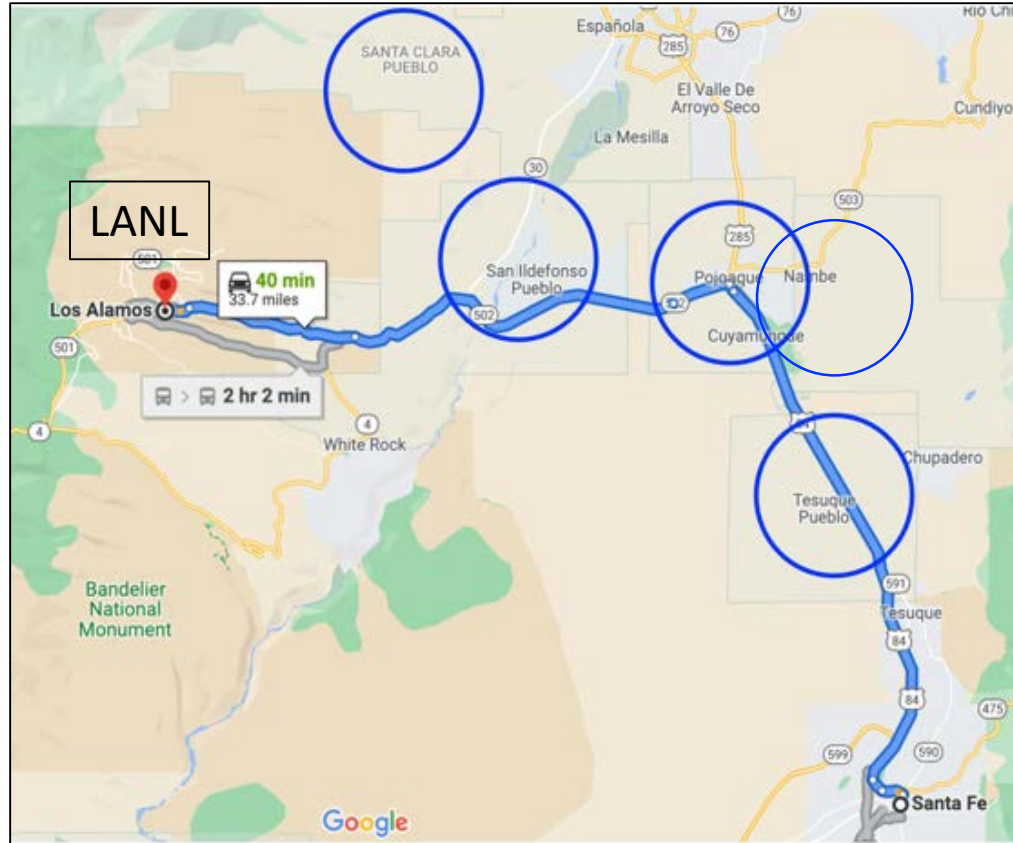
New Mexico Communities

Northern New Mexico waste transport shipments:

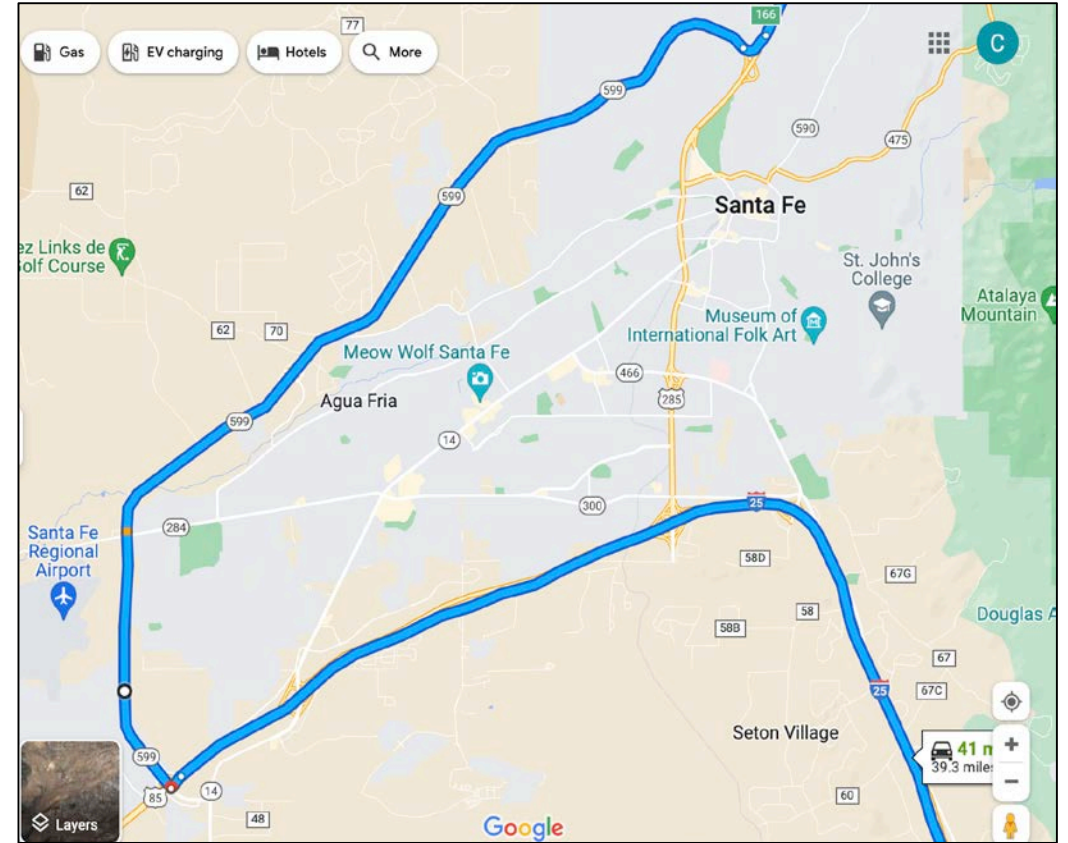
- new pit production
- new surplus plutonium (twice)
- old legacy waste



Five pueblos and farmlands



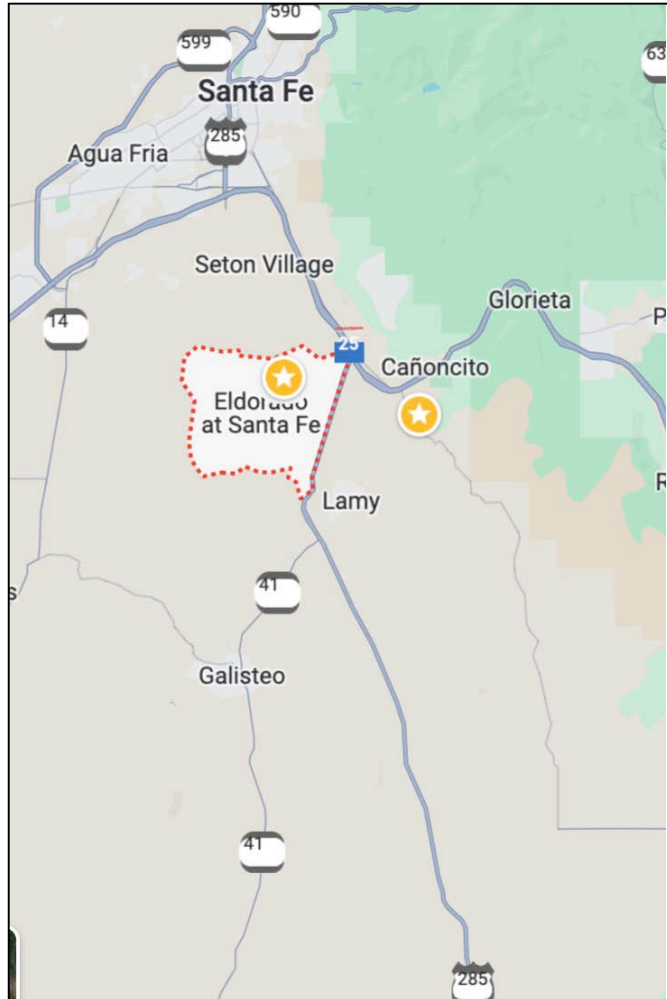
Over 60 Santa Fe neighborhoods



Waste Transport Shipments

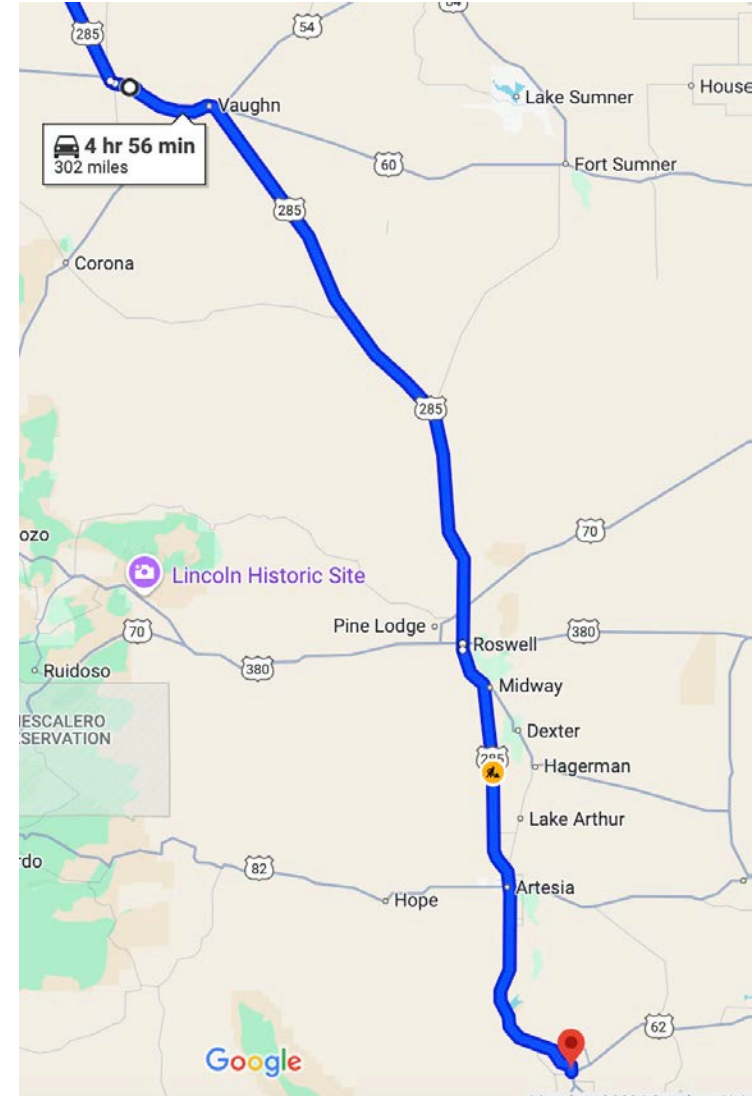
25 communities on Hwy 285 South:

- new pit production
- new surplus plutonium
- old legacy waste



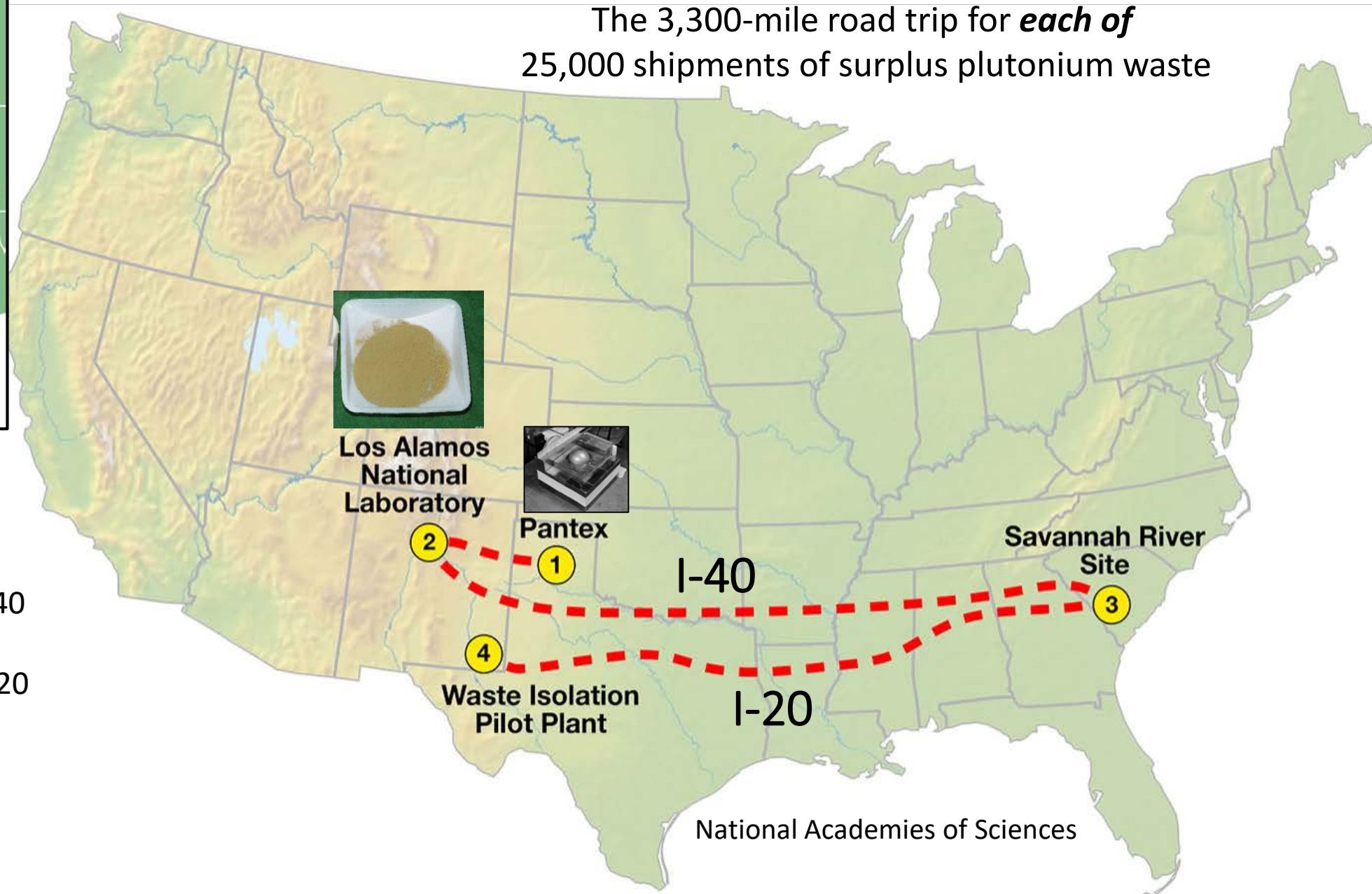
Southern New Mexico:

- new pit production
- old legacy waste



“Surplus Plutonium” –the whole route

The 3,300-mile road trip for *each of* 25,000 shipments of surplus plutonium waste



- 1st Pantex to LANL to powder into oxide
- 2nd back past same neighborhoods along IH-40 to S. Carolina
- 3rd return to WIPP via IH-20

Facts tell us what.
Common Sense tells us how.

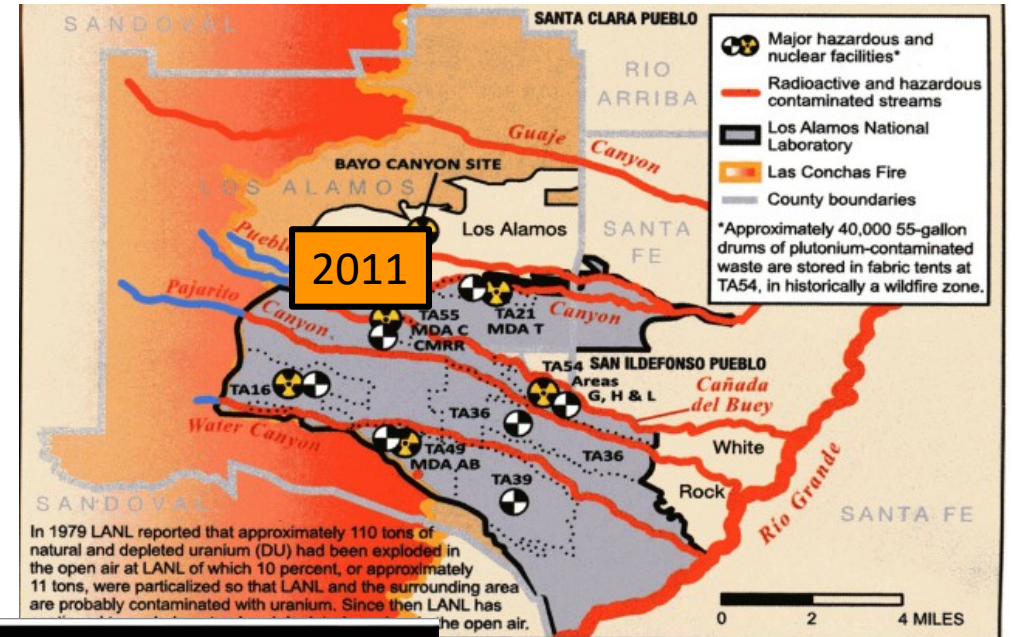
- Limit its transport.
- Inform communities being put at risk about the risk.
- Have robust emergency procedures in place.
- Stop making more.

DOE: Finish the original mission and close.

Old waste at LANL in tents in the forest.



Wildfires are a constant threat



Fire + plutonium
= disaster



It will be safer in WIPP than in a wildfire zone.