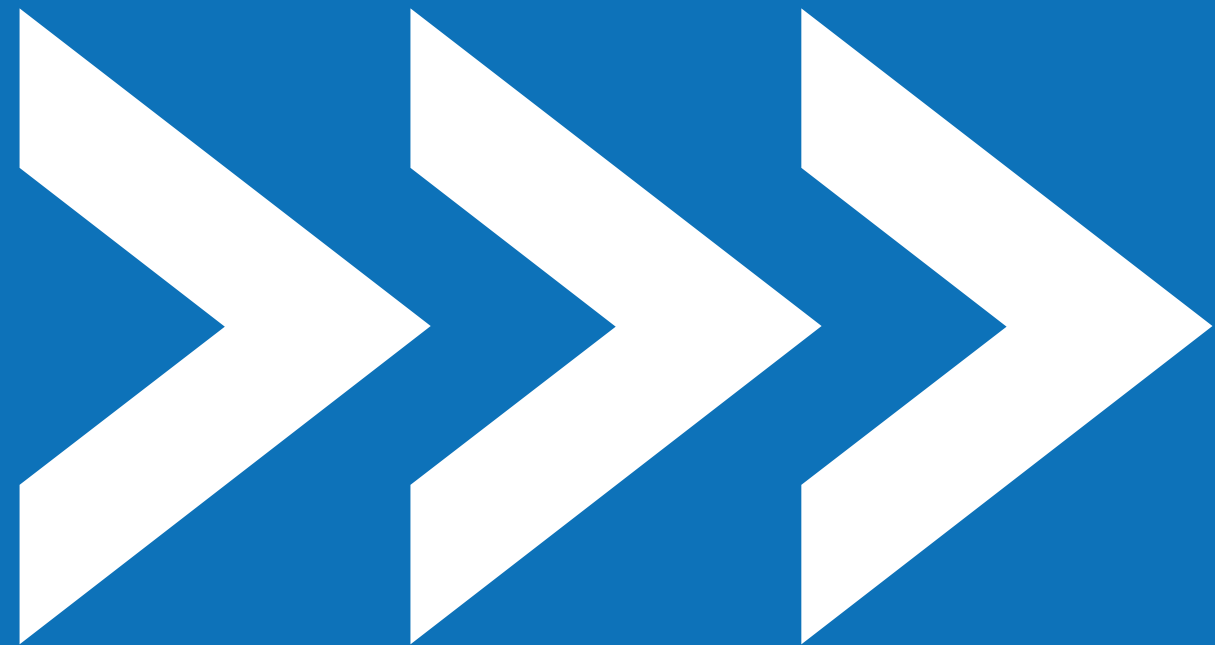


TAKE ACTION! WITH



HANFORD
CHALLENGE



Stabilization of Structures at Risk of Failure

COMMENT DEADLINE: JUNE 29, 2020

*FOR WASTE SITES 216-Z-2 & 216-Z-9 CRIBS AND 241-Z-361 SETTLING TANK IN
THE PW-1 OPERABLE UNIT ON HANFORD'S CENTRAL PLATEAU*

PRESENTATION PROVIDED BY HANFORD CHALLENGE ON FRI, JUNE 26, 2020

Overview

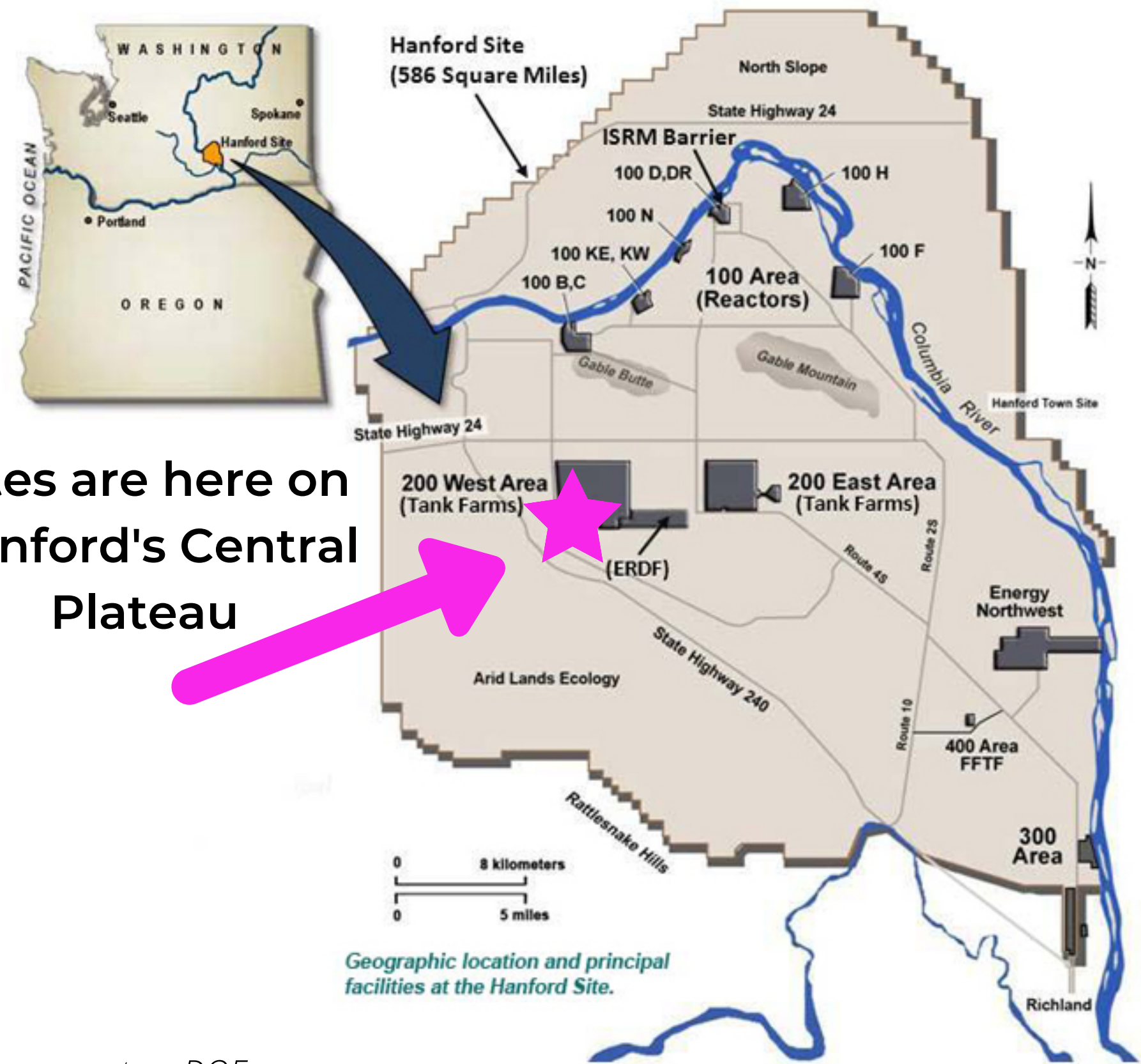
The U.S. Department of Energy (DOE) is holding a public comment period to get your input on its plan to fill three waste sites at Hanford with grout.

The sites contain highly contaminated plutonium waste. DOE intends to remove, treat and dispose of the plutonium contaminated waste around the year 2030. This stabilization action is being taken because DOE wants to prevent these sites from collapsing over the next ten years.

Public comments are due by midnight PST on Monday, June 29, 2020 and can be emailed to Jennifer Colborn at AgingStructures@rl.gov.

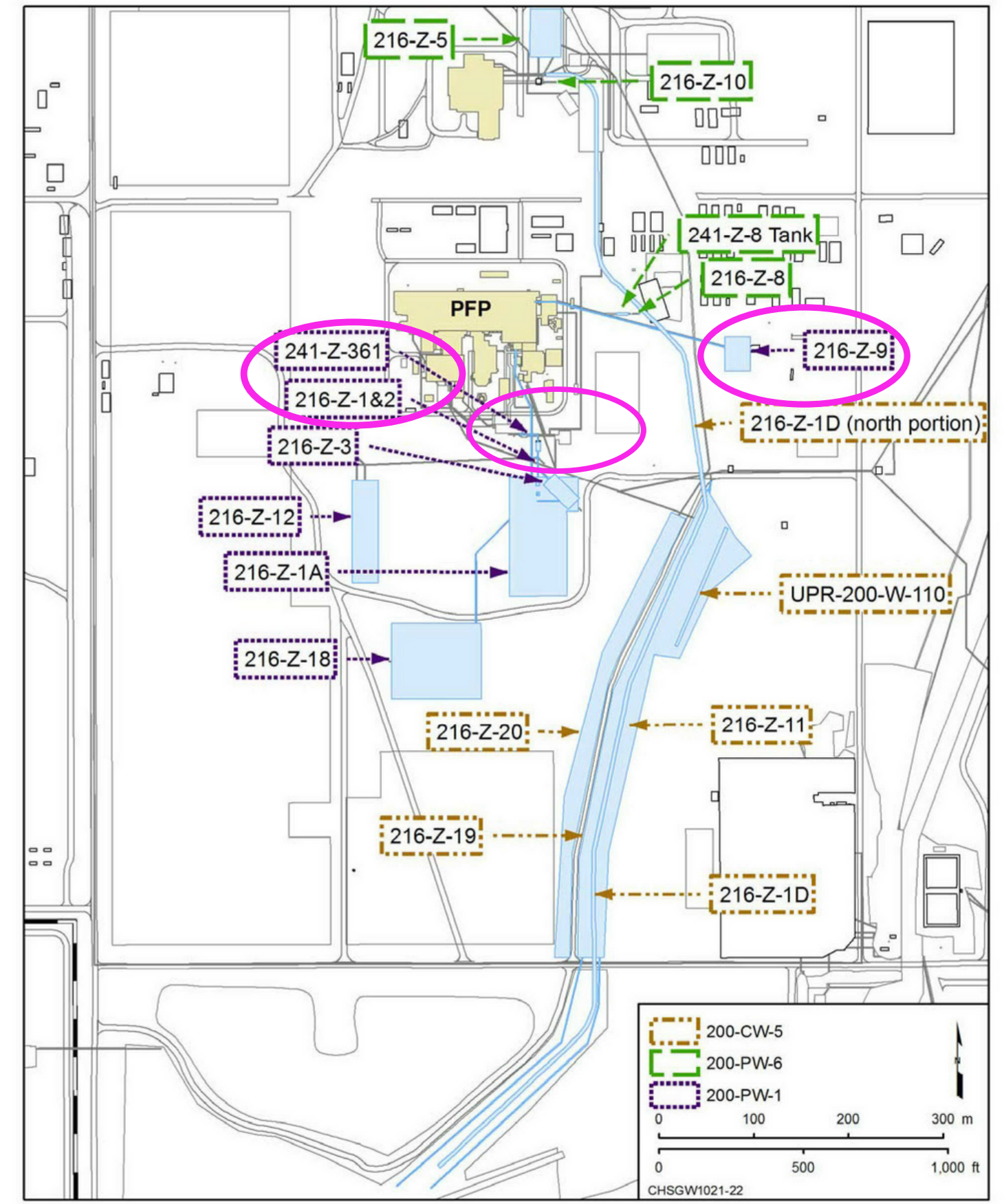


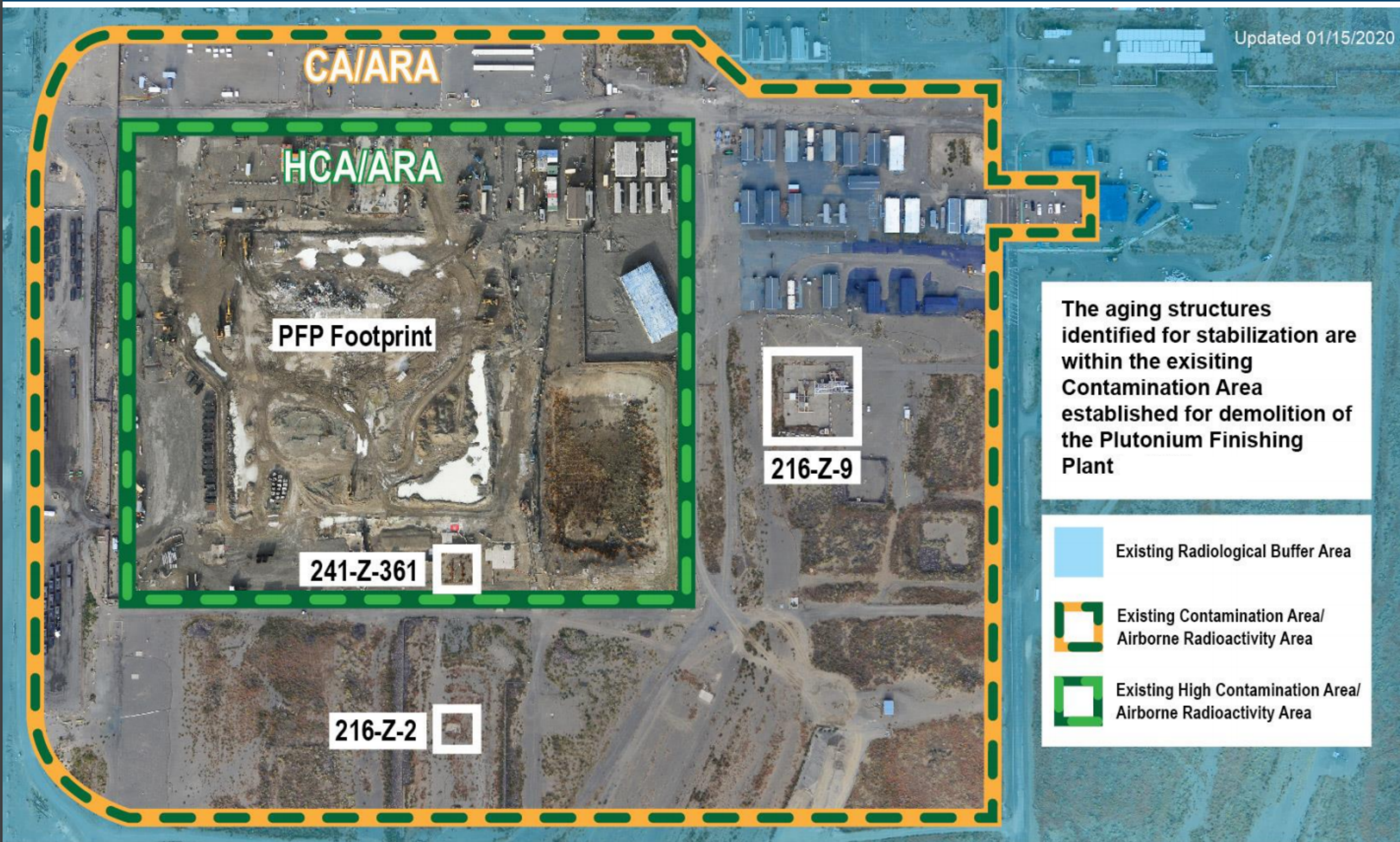
Where are the sites DOE is planning to fill with grout?



Sites are here on Hanford's Central Plateau

Figure 6. Location of the 200-CW-5, 200-PW-1, and 200-PW-6 OUs Waste Sites in the 200 West Area





The Plutonium Finishing Plant was the final step in Hanford's plutonium making process. Two-thirds of the nation's stockpile of plutonium for atomic bombs was made here. This part of the Hanford Site is extremely contaminated.

How did we get here?

- **2017 Collapse of PUREX Tunnel #1:** A Hanford tunnel collapse made Hanford's increasing risk from aging sites international news in May 2017. This triggered DOE to look at other at-risk sites.
- **2018 Broad Evaluation of At-Risk Sites:** DOE's evaluation of at-risk sites turned up 27 structures that needed attention.
- **2019 Deeper Dive Evaluation of At-Risk Sites:** 11 of those structures were analyzed further.
- **2020 Time-Critical Removal Action Chosen for Three Sites:** DOE issued an Action Memo to stabilize 216-Z-2, 216-Z-9 and 241-Z-361.

216-Z-2 Crib

Operations: 1949 to 1969

Size: Excavated to 14 feet square and 21 feet deep; a 12-foot-square, 14-foot-tall open-bottom wooden box was installed within the excavation for support

Waste Disposed: Together with 216-Z-1, the cribs received about 10 million gallons of waste, mostly from the Plutonium Finishing Plant (PFP)

Contamination: Estimated discharge to cribs includes 6.8 kg of plutonium

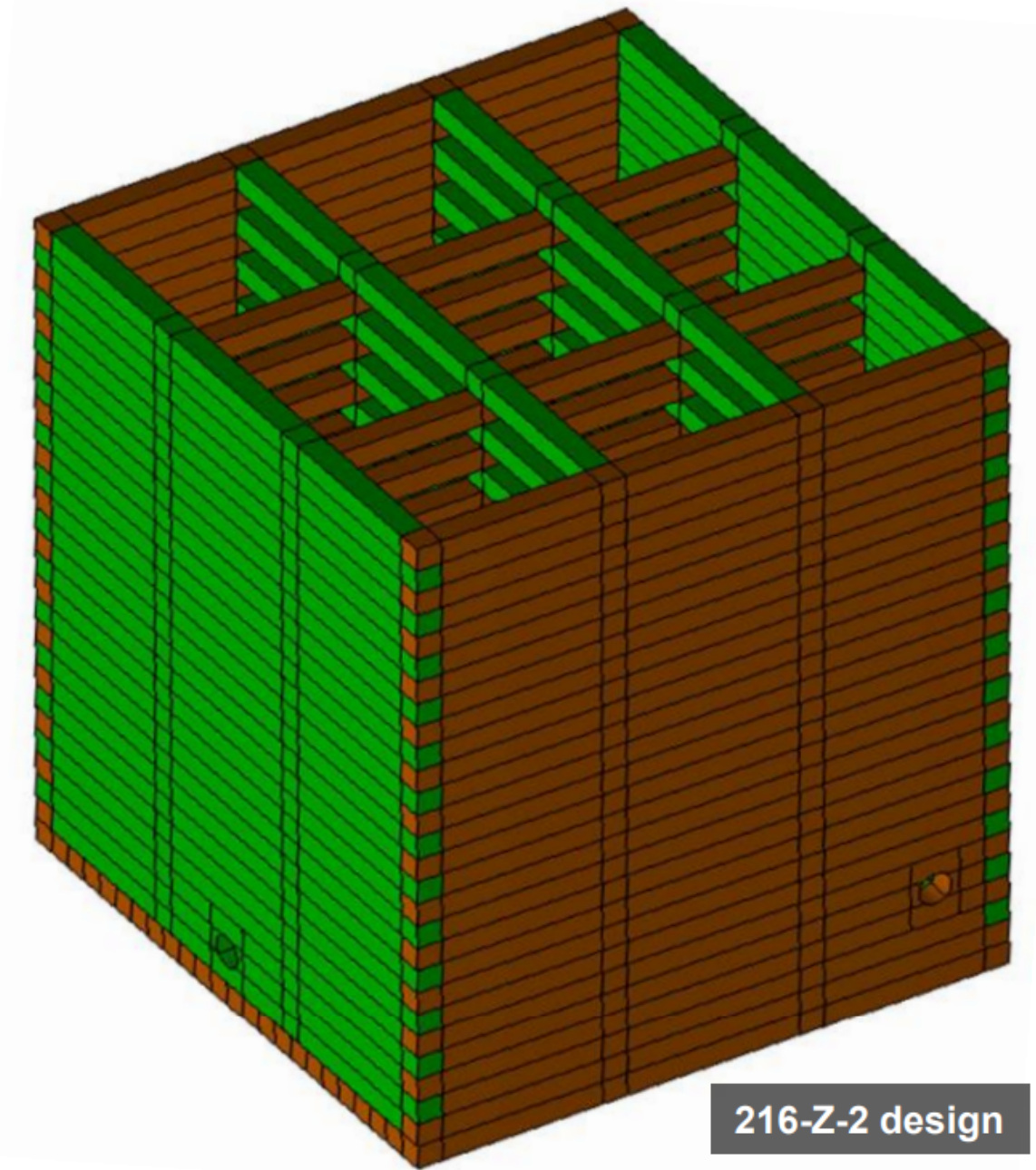
Estimated Grout Volume to Stabilize: 75 cubic yards

Estimated Completion: Summer 2020



Photo taken in (2016). Subsidence over Z-1 has been backfilled.

Images and site description courtesy DOE



216-Z-2 design

*6.8kg of plutonium
Open-bottom wooden box.
75 cubic yards of grout needed to stabilize.
6 feet of soil overburden (soil on top of the tank).*

Z-2 Crib is the least worrisome site of the three. It was included because it's sister site caved in two years ago and also works as a kind of practice site for the other two sites which are more contaminated and more of a risk.

241-Z-361 Settling Tank

Operations: 1949 to 1973

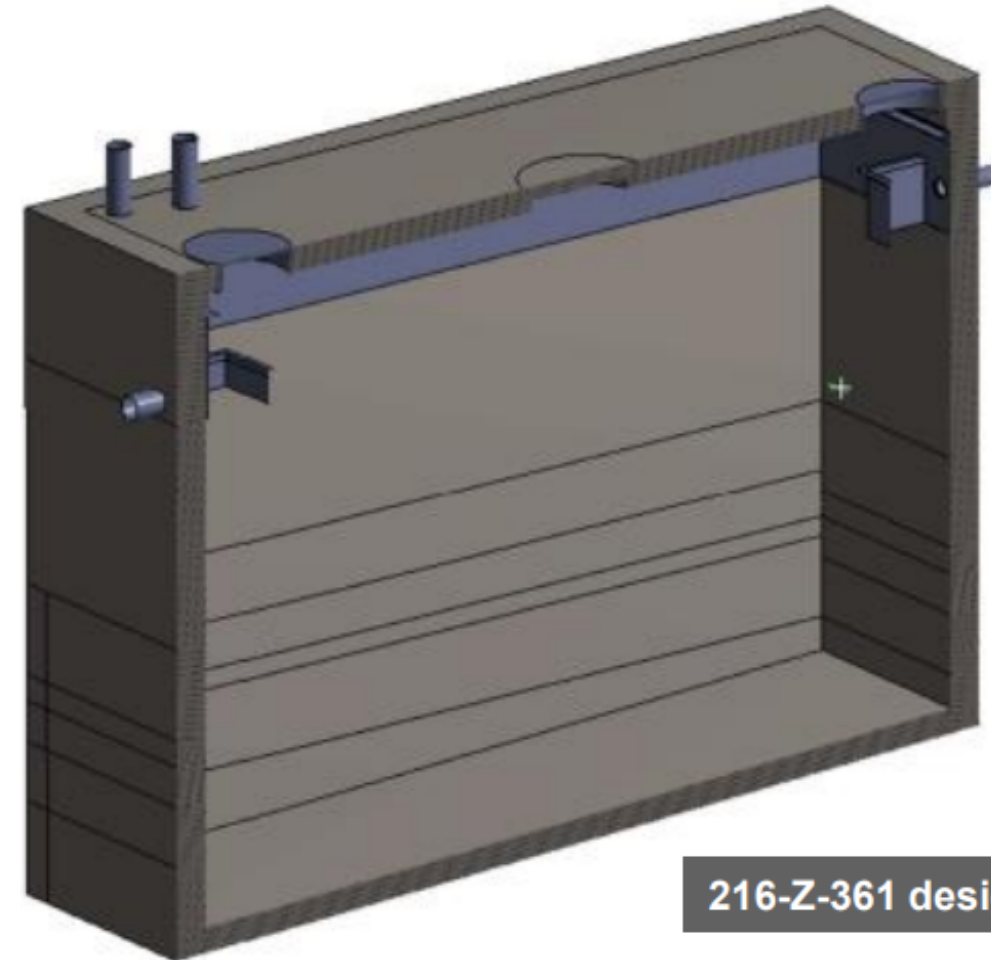
Size: Reinforced concrete structure 28 feet long and 15 feet wide, with a 3/8-inch-thick steel liner

Waste Disposed: Received liquid waste from the PFP complex, including the main processing facility and Plutonium Reclamation Facility

Contamination: An estimated 29 kg of plutonium remains in the tank

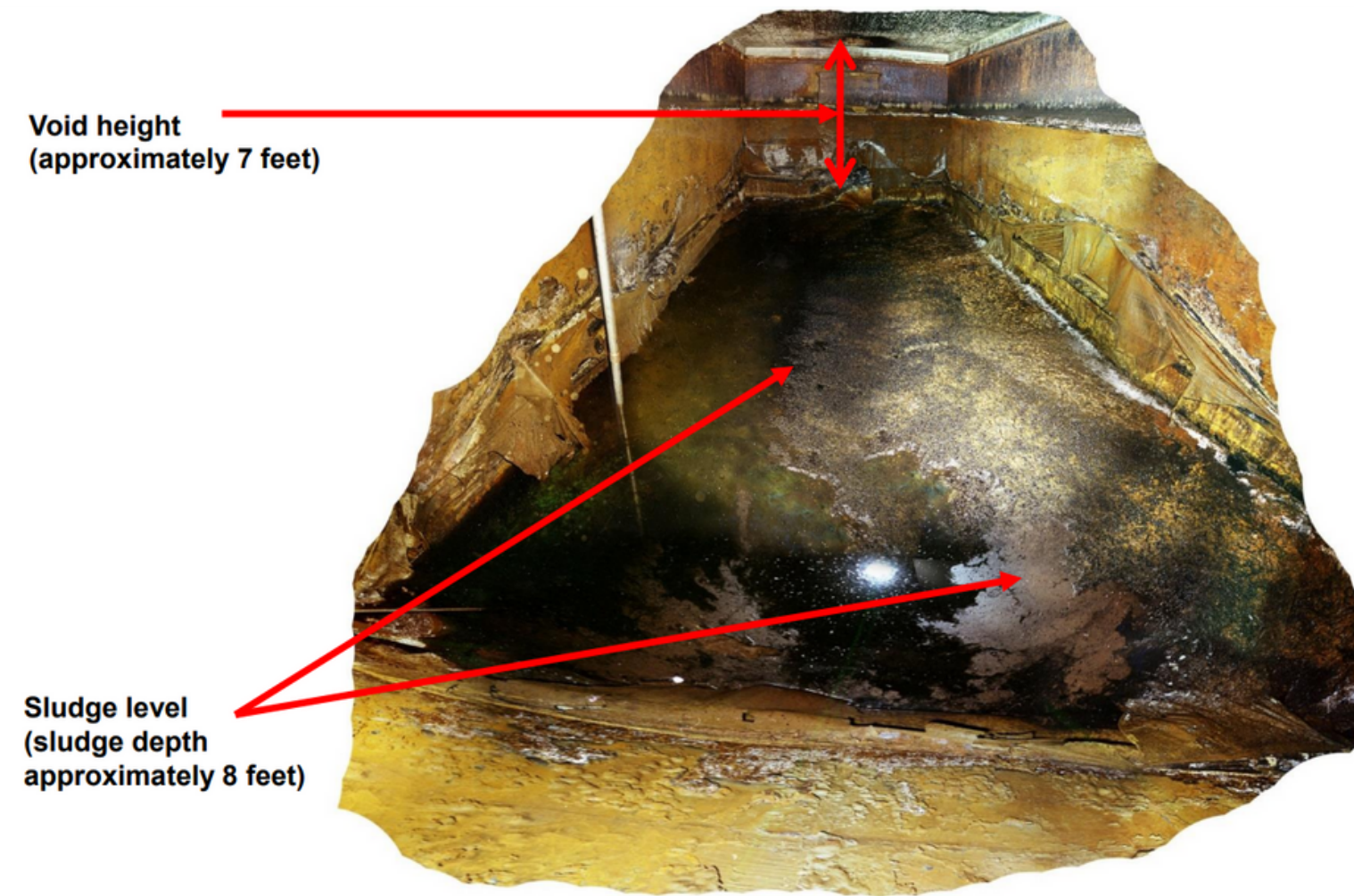
Estimated Grout Volume to Stabilize: 125 cubic yards

Estimated Completion: Summer 2020



216-Z-361 design

Images and site description courtesy DOE



*29kg of plutonium in the tank
Tank is concrete with a steel liner.
125 cubic yards of grout needed to stabilize.
2 feet of soil overburden (on top of tank).*

Z-361 Tank contains a lot of risky contamination but a tank collapse is a lower risk because of redundancy.

The 2019 Structural Evaluation found that: "Moment and shear limits are exceeded at bottom of long walls. This will likely cause limited local failure. Failure will not progress due to the redundancy available in the box structure."

216-Z-9 Crib

Operations: 1955 to 1962

Size: 20-foot-deep excavation (120 by 90 feet) sloping to a 60-by-30-foot floor, with a concrete cover supported by six concrete columns

Waste Disposed: Received approximately 1 million gallons of process waste from PFP

Contamination: An estimated 48 kg of plutonium remains in the crib

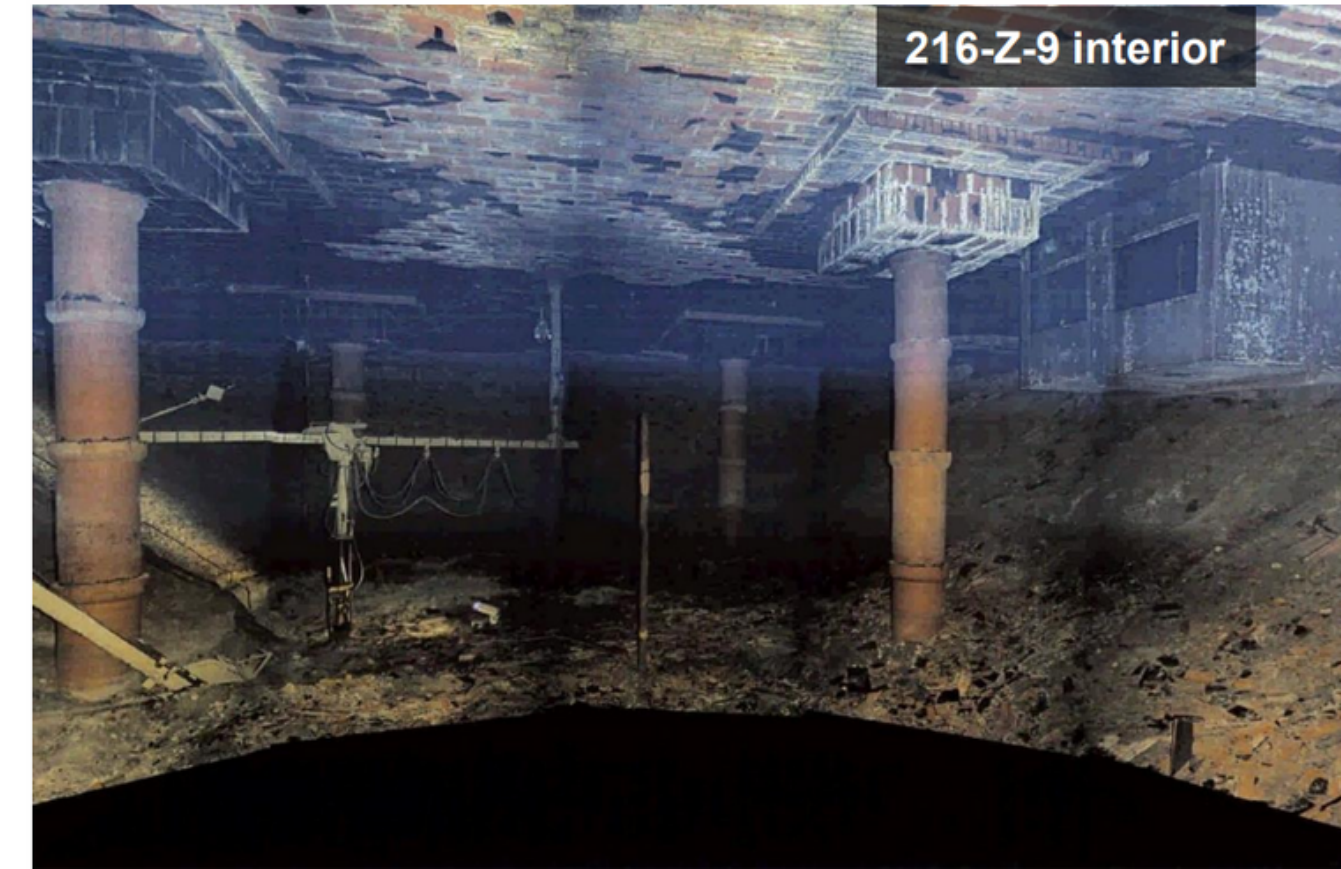
Estimated Grout Volume to Stabilize: 4,000 cubic yards

Estimated Completion: Fall / winter 2020



216-Z-9 interior

Images and site description courtesy DOE



216-Z-9 interior

48kg of plutonium in the tank and lots of other nasty contamination like 300,00 liters of Carbon Tetrachloride. Crib has concrete cover and concrete columns. 4,000 cubic yards of grout to stabilize. No soil overburden (soil on top of the crib).

Z-9 Crib is biggest risk of the three sites. There is a higher risk because the crib is large; contains large quantities of radioactive and toxic waste; there is no soil cover over the crib, meaning higher risk of release if the roof caves in; and close proximity to workers.

Concerns

Time-Critical Removal Action Not Justified: Hanford Challenge, the EPA, the Hanford Advisory Board and others have expressed that this stabilization should have occurred as a Non-Time Critical Removal Action to provide more thorough analysis and information.

No Site-Specific Evaluation of Stabilization Alternatives and Costs: DOE used an analysis of stabilization alternatives from the PUREX Tunnels as the basis for deciding which stabilization path to pursue. If the action was done under a *Non-Time Critical Removal Action*, site specific analysis would have occurred for these three sites making the path forward clearer, easier to comment on, and more defensible.

Will Interim Stabilization Become Permanent Cleanup?: Hanford Challenge and others are most concerned that by grouting these sites, the likelihood increases over the next ten years that this interim stabilization action becomes the permanent cleanup even though there are assurances from the Department of Energy that they plan on removing the contamination from these sites.

Will comments matter?: The contract for this work is already in place and work will start this summer. Comments are more important for future stabilization efforts and providing input on how we want to see the process work next time.

Suggested Comments

Thank you for the opportunity to provide public comment on the Time-Critical Removal Action for Stabilizing Disposal Structures at Risk of Failure. I am writing because I care about protecting future generations and the environment from Hanford's contamination. I care about worker, public, and environmental safety and support efforts to prevent catastrophic failure at the Hanford site. I also believe in transparency and accountability. Thank you for considering my comments.

- **Look at other options to stabilize these specific sites before filling them with grout**, especially options that would make removal of the contamination easier, safer, and happen sooner than 2030.
- **Don't grout the sites and walk away.** I need more assurance that the plutonium contaminated waste will be removed, treated and isolated to keep future generations and the environment safe.
- **Default to Non-Time Critical Removal Actions in the future** (unless it is a site at imminent risk of failure). Non-Time Critical Removal Actions require site-specific analysis and deliberation process that increases transparency and involves the public earlier in the decision-making process.

Email comments to Jennifer Colborn at AgingStructures@rl.gov

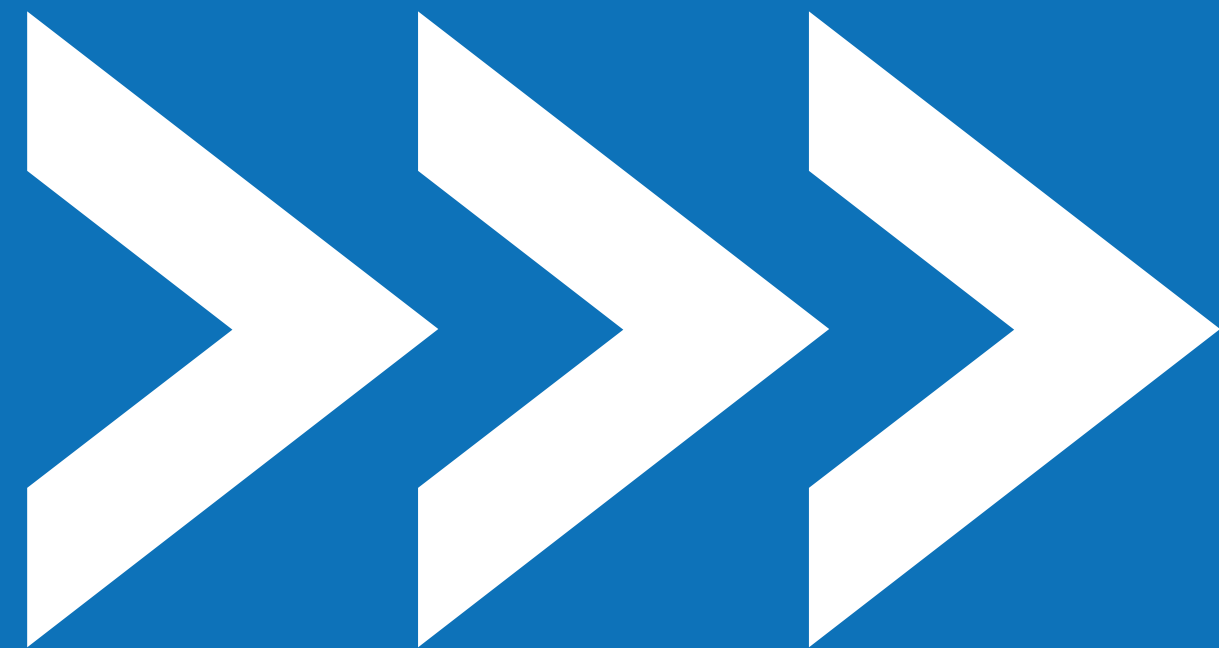
HANFORD
CHALLENGE

Thank you for

TAKING ACTION! WITH



HANFORD
CHALLENGE



Stabilization of
Structures at
Risk of Failure

COMMENT DEADLINE: JUNE 29, 2020



This presentation is funded through a Public Participation Grant from the Washington State Department of Ecology. The content was reviewed for grant consistency, but is not necessarily endorsed by the agency.