THE HANFORD SITE

WE WANT YOUR FEEDBACK

Hanford Site High-Level Waste Treatment Analysis of Alternatives

Fact Sheet

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HLW AoA Report:
https://bit.ly/3knYafj

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Aerial photo looking west over the Hanford Site's Central Plateau

The U.S. Department of Energy (DOE) has released the *Waste Treatment and Immobilization Plant High-Level Waste Treatment Analysis of Alternatives* at the Hanford Site and would like your feedback.

Background

The 580-square-mile Hanford Site in southeastern Washington state was created in 1943 as part of the Manhattan Project to produce plutonium for the nation's defense program. Today waste management and environmental cleanup are the main missions at Hanford, currently focusing on treating tank waste through the Direct-Feed Low-Activity Waste Program and cleanup on the Central Plateau, while also conducting Site operations that enhance the safety of our workforce and the public.

Why Did DOE Conduct the Analysis of Alternatives?

In 2018 the DOE contracted the U.S. Army Corps of Engineers to evaluate the likelihood of completing construction of the Waste Treatment and Immobilization Plant facilities within the anticipated budgets by the established consent decree milestone dates. That study was a factor in determining that there was a low likelihood of completing the High-Level Waste and Pretreatment facilities in time to satisfy the Consent Decree. The DOE defined a preliminary recovery plan to be the High-Level Waste (HLW) Analysis of Alternatives (AoA).

What is an AoA?

An AoA is a study that evaluates options against criteria to establish viable solutions and is a well-established process that utilizes a U.S. Government Accountability Office 23-step process. In this case it was used to analyze potential options for preparing Hanford's high-level tank waste for vitrification. The report is not a decision document; rather it will inform DOE's critical decision-making process as well as ongoing negotiations between DOE, the State of Washington and EPA regarding the path forward for the Hanford tank waste mission.

What did the AoA evaluate?

The AoA evaluated a number of ways that waste could be prepared to feed the HLW Facility. These ranged from using the planned Pretreatment Facility to alternate feed preparation facilities. More than 20 alternatives were considered, including three generated by the Washington State Department of Ecology (Ecology). Table 3 below, from Addendum 2 of the AoA, shows the variables considered in the analysis.

The report analyzed the life-cycle cost, schedule and risks associated with each alternative and includes 17 initial alternatives the agencies and experts analyzed, as well as alternatives that were added and analyzed to see if they would be more efficient and cost-effective. Several alternatives include a Direct-Feed High-Level Waste approach.

The report is not a National Environmental Policy Act document and does not include a preferred alternative.

TABLE 3: AOA RESULTS – UNCONSTRAINED FUNDING

Alt	Weighted Score	Start Date HLW Treatment Operations	Total Project Cost ($B)	Project/ Technical Risk	Operational Risk	Programmatic Risk	LCC (PV, $B)	Complete HLW Treatment	Increased Operational Flexibility	IHLW Canisters Produced	ILAW Containers Produced	Volume of Secondary Liquid Effluent Produced
1	62.0	12/31/2033	38.0	Moderate	Moderate	Moderate	151	08/2084	Somewhat Meets	9,500	93,900	17 Mgal
2	71.0	12/31/2033	41.0	Low	Moderate	Moderate	125	07/2061	Fully Meets	8,200	101,400	34 Mgal
5	66.0	12/31/2033	39.3	Moderate	Moderate	Moderate	123	09/2064	Fully Meets	9,500	97,800	30 Mgal
14	76.0	12/31/2033	33.9	Low	Moderate	Moderate	119	09/2064	Fully Meets	9,500	97,800	30 Mgal
15	69.0	12/31/2033	35.2	Moderate	Moderate	Moderate	121	05/2064	Generally Meets	8,100	103,600	32 Mgal
16	69.0	12/31/2033	35.6	Moderate	Moderate	Moderate	121	10/2062	Generally Meets	8,100	102,000	31 Mgal
17	60.0	12/31/2033	9.0	Low	Moderate	Moderate	423	2168+	Barely Meets	14,900+	67,000+	8 Mgal
18	73.0	12/31/2033	20.3	Moderate	Moderate	Moderate	97	09/2075	Generally Meets	12,000	68,000*	22 Mgal
18 Prime	67.0	12/31/2033	35.4	Moderate	Moderate	Moderate	115	05/2075	Fully Meets	12,600	63,000*	21 Mgal
19	67.0	12/31/2033	35.8	Moderate	Moderate	Moderate	115	08/2074	Fully Meets	12,400	64,000	20 Mgal
19A	65.0	12/31/2033	32.3	Moderate	Moderate	Moderate	112	09/2076	Generally Meets	12,300	64,000	20 Mgal

$B = cost in billions, **Alt** = alternative, **IHLW** = immobilized high-level waste, **ILAW** = immobilized low-activity waste, **LCC** = life-cycle cost, **Mgal** = million gallons, **PV** = present value

[a] Alternative 18 produces 534,000 cubic yards of grouted low-activity waste in addition to 68,000 containers of vitrified ILAW. Alternative 18 Prime produces 550,000 cubic yards in addition to 63,000 containers of vitrified ILAW. Alternatives 19 and 19A produce 530,000 cubic yards of grouted low-activity waste in addition to 64,000 containers of vitrified ILAW.

What is Next?

With the AoA now available, interested members of the public, Tribal Nations, local communities and stakeholders will be able to learn more about the options analyzed and are encouraged to share feedback.

The HLW AoA is available online on the Hanford events calendar website at https://bit.ly/3knYafj.

Please submit feedback to HLW_AOA@rl.gov (preferred) or in writing to:

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