



Tri-Party Agreement

Engineering Evaluation/Cost Analysis for the 233-S Plutonium Concentration Facility

The U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) invite you to comment on the "Engineering Evaluation/Cost Analysis for the 233-S Plutonium Concentration Facility." This proposal outlines the removal action alternatives for the 233-S Plutonium Concentration Facility. **Public comment will be accepted on the proposal from January 27 through February 25, 1997.** If you would like to review the proposal please visit the information repository nearest you, or to request a copy of the document call the Hanford toll-free number at 1-800-321-2008.

Send written comments to:

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Background

The Hanford Site was selected as the nation's first large-scale nuclear materials production site in January 1943. Plutonium was produced by irradiating uranium fuel elements using reactors located in the 100 Area of the Hanford Site. After the fuel was irradiated, it was taken to separation plants located in the 200 Area, where the cladding was removed from the fuel elements and the plutonium was extracted. The Reduction-Oxide Plant (REDOX) was the world's first nuclear solvent extraction plant using the reduction-oxidation process. The 233-S Facility was built in 1955 to expand production and further concentrate the plutonium project solution from the REDOX facility.

The facility is comprised of the original 233-S Process Building, the 233-SA Exhaust Filter Building and interconnecting piping, trenches, and ducting. The 233-SA Exhaust Building was added in 1964, after a chemical fire severely damaged the anion exchange column in the process hood.

The 233-S Process Facility is a reinforced concrete structure that includes the main contaminated areas where process-related activities took place. The facility is contaminated with hazardous substances (radioactive materials) used in or generated by plutonium concentration operations. Plutonium inventories are also known to exist mainly within the vessels of the process hood, but some plutonium contamination is found throughout most of the facility.

Since its deactivation in 1967, the 233-S Facility has been in a continual state of slow deterioration, but routine maintenance has prevented environmental releases so far. These maintenance efforts are becoming more costly and are not totally responsive to the deterioration process. As the facility ages it will become more difficult to prevent potential exposure to personnel and release to the environment. The removal action objectives focus on protection of human health and the environment by reducing the potential of hazardous substance release and protecting workers from industrial, radiological and chemical hazards.

Removal Action Alternatives

◆ No Action

Under the no action alternative, access to the facilities would be restricted, but no action would be taken to address the hazards posed by the facility. The 233-S Facility would continue to deteriorate; however, without any active surveillance and maintenance the rate of deterioration would accelerate. Although restricted access to the Hanford site would continue to help prevent personnel entry to the facility, releases of contaminants from the facility would ultimately occur. The cost for this alternative would be negligible.

◆ Continued Surveillance and Maintenance

Under this alternative, the facility would be maintained in a safe condition until the year 2017 when final disposition of the REDOX complex occurs. The current level of surveillance and maintenance would be performed to minimize the potential for environmental release, protect workers, and maintain compliance with standards in state and federal regulations and DOE orders. Contaminated materials and surfaces would remain in place. As the facility continues to age and deteriorate, it is expected that maintenance requirements necessary to continue safe and environmentally protective surveillance would increase. The estimated cost of this alternative is \$425,000 annually until such time the building is demolished. This alternative defers the cost of disposition (approximately \$14 million not including inflation) until the year 2017. Additionally, the cost does not account for cleanup activities that will be incurred if hazardous substances, confined within the facility, are released to the environment.

◆ Decontamination With Reduced Surveillance and Maintenance

The primary goals of this alternative are to remove the bulk inventory of fissile material from the facility and to decontaminate building surfaces to radiation levels that can be readily managed by a minimum surveillance and maintenance program. Surveillance and maintenance would continue until final disposition of the REDOX complex occurs in approximately 2017. Total cost for this alternative

is estimated to be \$12.2 million. Additional cost will be incurred for future demolition activities.

◆ Decontamination and Demolition

This alternative would remove the bulk inventory of fissile material from the facility, modify the facility to an acceptable state for demolition through decontamination, remove the facility and its associated systems by demolition dismantlement operations, and dispose or store the various waste forms generated in these operations. Total cost for this alternative is estimated to be \$14.1 million with no future actions required for the facility.

Preferred Alternative

Based on overall long- and short-term effectiveness, implementability, and current estimates regarding project life cycle cost, the recommended removal alternative for the 233-S Facility is to decontaminate and demolish the structures and dispose of associated wastes. Wastes that meet the Environmental Restoration Disposal Facility (ERDF) waste acceptance criteria will be disposed of at ERDF. This alternative removes the potential for a release of hazardous substances that could adversely impact human health and the environment, is protective of workers, reduces surveillance and maintenance costs, meets applicable State and Federal requests (ARAR's), and is consistent with other cleanup activities in the 200 Area as well as in other areas of the Site.

Locations of Public Information Repositories

PORTLAND

Portland State University
Branford Price Millar Library
Science and Engineering Floor
Tri-Party Information Repository
934 SW Harrison
(503) 725-3690
Attn: Michael Bowman

RICHLAND

U.S. Department of Energy Reading Room
Washington State University, Tri-Cities
100 Sprout Road, Room 130 West
(509) 376-8583
Attn: Terri Traub

SPOKANE

Gonzaga University
Tri-Party Information Repository
Foley Center
E. 502 Boone
(509) 324-5932
Attn: Tim Fuhrman

SEATTLE

University of Washington
Suzzallo Library
Government Publications Room
(206) 543-4664
Attn: Eleanor Chase

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