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**Department of Energy**
Richland Operations Office
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Richland, Washington 99352
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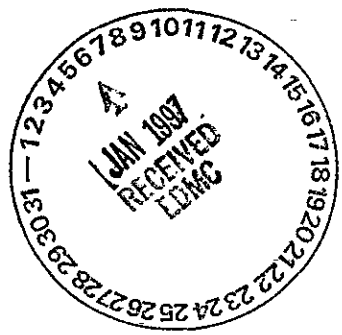


Mr. Randall F. Smith, Director
Environmental Cleanup Office
U.S. Environmental Protection Agency
1200 Sixth Avenue, ECL-117
Seattle, Washington 98101

Mr. Mike A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Messrs. Smith and Wilson:

ACTION MEMORANDUM: 183-H SOLAR EVAPORATION BASIN WASTE EXPEDITED RESPONSE ACTION CLEANUP PLAN

Please find attached, the subject action memorandum for concurrence by the U.S. Environmental Protection Agency and the State of Washington Department of Ecology.

If you want to discuss this matter further or require additional information, please contact Mr. Jeff Bruggeman at (509) 376-7121.

Sincerely,

Lloyd L. Piper
Acting Deputy Manager

DDP:JMB

Attachment

cc w/attach:
R. E. Cordts, Ecology
P. S. Innis, EPA
M. T. Janaskie, EM-442
W. W. Soper, Ecology

cc w/o attach:
L. R. Miller, BHI

# Action Memorandum
## 183-H Solar Evaporation Basin Waste Expedited Response Action Cleanup Plan
## U.S. Department of Energy, Hanford Site, Richland, Washington

This Action Memorandum constitutes approval of the U.S. Department of Energy's (DOE) proposed removal action as outlined in the Engineering Evaluation/Cost Analysis (EE/CA), BHI-00872, Rev. 0 for disposal of 183-H Solar Evaporation Basin wastes.

A 30 day public comment and review period was held on September 11, 1996, through October 11, 1996, however, no comments were submitted. In addition, no comments have been expressed by Hanford stakeholders.

This removal action eliminates the potential for a release of hazardous substances in the 100-H Area that could adversely impact human health and the environment, is protective of worker personnel, and minimizes disposal costs. The volume of waste to be disposed to the Environmental Restoration Disposal Facility (ERDF) has been incorporated into ERDF capacity planning and will require no further expansion.

## I. PURPOSE

The purpose of this action is to mitigate the threat to site workers, public health, and the environment by disposing of waste generated during closure of the 183-H Solar Evaporation Basins under the authority of the State of Washington Department of Ecology (Ecology) Dangerous Waste Regulations (Washington Administrative Code [WAC] 173-303) and the Hanford Facility Dangerous Waste Permit.

## II. BACKGROUND

Pursuant to the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), the U.S. Environmental Protection Agency (EPA) recommended the 100 Area of the DOE operated Hanford Site for inclusion on the National Priorities List (NPL) on June 24, 1988. In November 1989, the 100 Area was added to the NPL. The 100 Area is located in the northern part of the Hanford Site along the shore of the Columbia River and includes six reactor areas, one of which is the 100-H Area.

In early 1996, removal and decontamination of concrete and soils contaminated with low-level radioactive and dangerous waste constituents was initiated. These removal activities were completed pursuant to the requirements of WAC 173-303 and the Hanford Facility Dangerous Waste Permit. The Permit required completion of these activities by March 1996. A subsequent 90-day extension was granted by Ecology and closure actions were completed in June 1996.

## Site Description and Characterization

The 183-H is part of the 100-H Area, located in the northern part of the Hanford Site along the Columbia River. The 100-H Area contained a nuclear-defense, production-reactor facility that operated from October 1949 to April 1965. The 183-H structure consisted of four basins (aboveground concrete structures) from operation of the 183-H Water Treatment Facility. Waste deposited in the basins underwent volume reduction through evaporation. Beginning in 1973, Basin 1 was used for disposal of neutralized acid-etching solutions from N Reactor fuel fabrication facilities in the 300 Area of the Hanford Site, as well as for miscellaneous used and unused chemicals. A total of 9,462 kiloliters (2.5 million gallons) of caustic solution was discharged to the basins during the period of waste operations. The waste consisted primarily of sodium nitrate with trace amounts of miscellaneous chemicals and radionuclides. The solution was designated mixed waste (waste containing both hazardous waste and low-level radioactive waste as defined by the Atomic Energy Act of 1954). The last shipment of waste to the basins occurred in November 1985.

Approximately 1,683 $m^3$ (2,200 $yd^3$) of concrete from the floors of the basins will require disposal as low-level waste because radiological contamination could not be completely extracted from it. Structural concrete and soils were determined not to contain listed waste (due to the granting of contained-in determinations for these wastes) and do not exhibit a dangerous waste characteristic, therefore they are not subject to WAC 173-303 requirements for disposal. The concrete contained-in determination was consistent with 40 CFR Section 261.3(f) and was granted by Ecology in September 1995, (Letter, J. S. Stohr to J. E. Rasmussen, dated September 29, 1995) and the soil contained-in determination was granted by Ecology in October 1995, (Letter, J. S. Stohr to J. E. Rasmussen, "183-H Basins Contained-In Determination for Soils," dated October 4, 1995). The low-level radiologically contaminated concrete is broken up and stockpiled adjacent to the unit until final disposal as defined by this action. In addition, approximately 3,290 $m^3$ (4,300 $yd^3$) of soil contaminated above cleanup levels was excavated from below and immediately surrounding the basins in February 1996 and is currently stockpiled adjacent to the unit until final disposal as defined by this action.

## Cultural Resource Review

The 100-H Area is known for its rich prehistoric and historic activity. However, previous investigations of the location in and around the 183-H Solar Evaporation Basins indicate that the area was extensively disturbed during construction of the 100-H facilities in general and the 183-H Solar Evaporation Basins in particular. Thus, if any cultural resources were located in the area prior to construction, they were destroyed during construction. Given these findings and the fact that the proposed removal action does not involve any additional ground disturbing activities, no impact to cultural resources is anticipated from this action.

Flora and Fauna Survey

The 100-H Area plant communities have been broadly described as a riparian community immediately adjacent to the Columbia River and a cheatgrass community away from the river. The shoreline immediately adjacent to the 100-H Area is steeply sloped with a narrow riparian zone, dominated by reed canarygrass and bluegrass with white mulberry and golden currant. Much of the river shoreline consists of large cobbles and boulders.

Many areas within the 100-H Area have been physically disturbed by past agricultural practices, the original construction and operation of the reactor, and more recently by remedial work on the buildings and waste sites. The area where 183-H Solar Evaporation Basins is located has been disturbed by past agricultural practices, construction of the basins, and remedial action-related construction activities. As a consequence, little or no native habitat is left in the immediate environs of the basins.

Bald eagles, which are protected by federal and state laws, are known to inhabit the trees along the Columbia River from November to March. The draft Bald Eagle Site Management Plan, WHC-EP-0510, recommends that activities that might disturb bald eagles be restricted to no closer than 800 meters from night roosting sites. The nearest stand of trees utilized by the eagles is located approximately one mile upstream from the 183-H Solar Basin. Therefore, caution should be used for determining transportation routes and when establishing the start date and duration of the transportation actions.

Given these site ecological conditions and the fact that the proposed removal action will not entail further ground disturbing activities, no impact to ecological resources is anticipated from the proposed action.

## III. THREAT TO PUBLIC HEALTH, WELFARE, OR ENVIRONMENT

The wastes addressed in the EE/CA are known to be contaminated with radioactive and non-radioactive dangerous waste constituents. Removed soils are contaminated with chemical constituents at levels below dangerous waste designation limits and above Model Toxics Control Act Method C cleanup levels. Removed structural concrete from 183-H contains little chemical contamination and also is not designated as a dangerous waste. While the waste is stored in the 100-H Area, periodic inspections are conducted and maintenance is performed as necessary to prevent inadvertent release of the waste. Because public access to the 100-H Area is currently restricted and inspections and maintenance are performed, there is a relatively low risk in the near term to the public and environment. However, as long as the waste is in temporary storage there is the possibility of a release that would threaten public health or the environment. As more remediation activities in the 100-H Area are initiated, the potential for a release increases. The waste must ultimately be placed in a more permanent disposal condition to reduce this risk. The potential exposure to personnel and potential threat of a release justify the removal action.

## IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of radioactive and hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an endangerment to public health, welfare, or the environment.

## V. PROPOSED ACTION AND ESTIMATED COSTS

In order to facilitate the disposal of 183-H Solar Evaporation Basin concrete and soils, the DOE, in cooperation with Ecology and EPA, proposed three removal action alternatives in the selection of the most preferred alternative. The following three alternatives are for disposal of these wastes: the no action alternative (as a baseline for comparison), disposal at the ERDF, and disposal at low-level burial grounds (LLBG).

### No Action

The No Action alternative would consists of indefinite storage of waste generated by cleanout of the 183-H Solar Evaporation Basins. Waste containers and storage areas would be inspected routinely and maintenance would be performed as necessary to minimize the potential for an environmental release, protect the worker personnel, and maintain compliance with state and federal regulations and DOE orders. The costs associated with the No Action alternative include costs for more extensive packaging of deactivation wastes and the costs associated with inspection and routine maintenance of the waste containers and storage areas. The total costs of this alternative is $150,000 for periodic inspections and maintenance based on a 30 year postclosure period.

### Disposal at ERDF

Disposal at the ERDF is designed to meet RCRA minimum technological requirements for landfills including standards for a double liner, a leachate collection system, leak detection, and final cover. Under CERCLA, the ERDF has been authorized to accept Hanford cleanup waste including waste generated by CERCLA removal actions. The types of contaminated materials described in the 183-H Solar Evaporation Basins EE/CA are similar to other Hanford wastes going into the ERDF and will not impact the operations or require further expansion. Concrete and soil would meet ERDF waste acceptance criteria. The total cost for this alternative is $390,000.

### Disposal at LLBG

This alternative would consists of disposing of 183-H Solar Evaporation Basins waste at the LLBG in the 200 Area (unlined trenches without liners or leachate collections systems). Concrete and soil would meet LLBG waste acceptance criteria. The total estimated costs for this alternative is $2,697,500.

Applicable, or Relevant and Appropriate Requirements (ARAR's)

The EE/CA was conducted in accordance with the requirements of 40 Code of Federal Regulations (CFR) 300.415 and is a removal action which will contribute to the efficient performance of anticipated long term remedial action. All wastes will be evaluated and managed in compliance with applicable waste management standards specified in the ERDF Waste Acceptance Criteria. Since only low-level radioactive waste is present, it will be managed in accordance with Subpart C of 10 CFR 61. The wastes will be packaged and transported in accordance with the substantive requirements of the U.S. Department of Transportation (DOT) Requirements for Hazardous Materials (49 CFR Parts 100 to 179). Standards in DOE Order 5820.2A and 10 CFR Part 835, "Occupational Radiation Protection," will be applied to provide sufficient worker protection for handling and disposal of radioactive wastes. Waste disposal will be conducted in a manner to meet the standards in 40 CFR 61, Subpart H, and WAC 246-247 for the control and/or prevention of the emission of air contaminants.

## VI. EXPECTED CHANGE IN THE SITUATION SHOULD BE DELAYED OR NOT TAKEN

Continued waste storage would require routine inspections and maintenance which would increase the potential for an environmental release and personnel exposure.

## VII. OUTSTANDING POLICY ISSUES

In 1996, the ERDF Record of Decision was modified by an Explanation of Significant Difference that identified the ERDF as an appropriate disposal site for a variety of Hanford Site cleanup wastes, including waste generated during site characterization, deactivation, and decommissioning (EPA, et al 1996). Therefore, there are no policy issues associated with this removal action.

## VIII. RECOMMENDATION

This decision document represents the selected removal action alternative as disposal at ERDF for the 183-H Solar Evaporation Basin wastes based on the evaluation presented in the EE/CA. This alternative removes the potential for a release of hazardous substances that could pose a threat to public health, welfare, and the environment, is protective of workers, and minimizes disposal costs. This proposal was developed in accordance with CERCLA, as amended by the *Superfund Amendments and Reauthorization Act*, and is not inconsistent with the *National Oil and Hazardous Substance Pollution Prevention Contingency Plan*. This decision is based on the information provided in the Administrative Record for this project.

183-H concrete and soil will be shipped to ERDF within 90 days of approval of this action memorandum.

Signature sheet for the Action Memorandum for the 183-H Solar Evaporation Basin Waste Expedited Response Action Cleanup Plan between the U.S. Department of Energy, U.S. Environmental Protection Agency, and the State of Washington Department of Ecology.

Lloyd L. Piper, Acting Deputy Manager
U.S. Department of Energy
Richland Operation Office

11/25/96
Date

Randall F. Smith, Director
Environmental Cleanup Office
U.S. Environmental Protection Agency, Region 10

Date

Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington Department of Ecology

Date