



United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
WASHINGTON, D.C. 20240



ALG 24 1987

*Copy sent
to [unclear]
8/25/87*

Memorandum

To: Director, Fish and Wildlife Service
Director, National Park Service
Director, Geological Survey
Director, Bureau of Mines
Director, Bureau of Land Management (760)
Commissioner, Bureau of Reclamation
Deputy Assistant Secretary, Indian Affairs

From: Office of Environmental Project Review

Subject: Department of Energy (DOE) Briefing to Interior Bureaus Regarding DOE Responses to our Comments on Hanford's Defense Waste Draft EIS (ER 86/612)

You are invited to send representatives to a meeting with DOE staff on Friday, September 4, 1987, at 10 a.m. in Room 4254, Main Interior Building, 18th and C Streets, N.W., Washington, D.C. 20240.

The DOE will discuss their proposed responses to our comments (copy attached). Please provide the names of bureau representatives to the Energy Facilities Staff (343-6128) by COB September 2, 1987.

Your cooperation in this matter is appreciated.

Bruce Blanchard
Bruce Blanchard
Director

Enclosures

cc: Assistant Secretaries
Regional Environmental Officer, Portland

8712030331 870824
PDR WASTE PDR
WM-10



Department of Energy
Washington, D.C. 20545

August 21, 1987

Mr. Bruce Blanchard
Office of Environmental Project Review
Department of Interior
Main Interior Building
18th & C Street, NW
Room 4256
Washington, D.C. 20240

Dear Mr. Blanchard:

Based on our conversations with Department staff, we plan to meet with appropriate groups on Friday, September 4, 1987, from 10:00 a.m. to 12:00 p.m. at the U.S. Department of Interior, Room 4254, in Washington, D.C.

We would take this opportunity to present our responses to the Department of Interior comments on the draft Hanford Defense Waste-Environmental Impact Statement.

Please contact me on 353-3031 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Gerald H. Daly".

Gerald H. Daly, Acting Director
Waste Research and Development Division
Office of Defense Waste
and Transportation Management



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER 86/612

AUG 21 1986

Mr. Rich Holten/EIS
U.S. Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

Dear Mr. Holten:

The Department of the Interior has reviewed the draft environmental impact statement for Disposal of Hanford High-Level, Transuranic and Tank Wastes, Benton County, Washington, and has the following comments.

General

In the 1960's the Atomic Energy Commission frequently suggested that radioactive waste could be isolated for tens of thousands of years at a surface disposal site by relying on engineered barriers and warning monuments. This concept was strongly rejected by the public and the scientific community, including the Geological Survey (USGS), who argued that during our short recorded history engineered approaches to the isolation of anything, much less such hazardous materials, have not proven to be reliable for periods sufficient to enable radiation emission levels of radionuclides to decay to an innocuous level. In response to these concerns, the concept of disposing of high-level and transuranic (TRU) wastes in a deep geologic repository was born. This concept is based on the premise that geologic formations with favorable hydrologic characteristics, when combined with engineered barriers, would form multiple barriers to the release of the disposed wastes into the environment for more than 10,000 years and reduce the possibility of human intrusion in the distant future.

Even though there has been extensive effort devoted to the location of a suitable geologic repository for civilian generated radioactive wastes in the last decade, the task is far from complete. This is some indication of the complexity of the task and the degree of concern expressed by the public over how high-level and TRU waste can be safely disposed. The Department of Energy (DOE) suggests that similar wastes at Hanford could be disposed near land surface with isolation dependent solely on engineered barriers and on flow through what is, at present, about 200 feet of unsaturated silt, sand, and gravel. The Department of the Interior considers this suggestion to be without sufficient foundation.

The Proposed Action

From the content of the draft statement, including appendices, and from discussions with DOE at Richland, it would appear that actions with which DOE is prepared to move ahead pertain to geologic disposal of current and future high-level liquid (double-shell tank) wastes and new and retrievably stored TRU wastes. In discussion of the

combination-disposal alternative, the wastes will be treated according to the type of facility in which the waste is stored, not by radiation level. For example, wastes stored in double-shell tanks and newly generated tank wastes will be disposed of in geologic repositories, and wastes stored in single-shell tanks will be disposed on site and buried near surface. However, the wastes, whether they are stored in single-shell or double-shell tanks appear to contain almost identical types and amounts of radionuclides. Apparently, the method of disposal is not dependent upon the characteristics of the wastes but upon their ease of retrieval. Additional studies should be implemented and ongoing studies completed before any actions are recommended for disposal of single-shell tank wastes, pre-1970 TRU buried wastes, and contaminated soil sites. These studies should address numerous issues such as infiltration rates, fluid movement in the unsaturated zone, radionuclide and chemical transport by surface water, numerical model development, leach rates of waste forms, retrieval methods for tank wastes and TRU buried wastes, and creation of new waste forms.

The statement fails to identify the mixed waste (radioactive and nonradioactive toxic chemical wastes) inventory at the Hanford site. Knowledge of mixed waste characteristics will be significant to any analysis of potential mobility through the natural geohydrologic system. In discussion of the geologic disposal alternative, the draft statement indicates that most of the radioactive wastes from the double-shell tanks will be removed and transferred to a deep geologic repository; however, double-shell tank residuals including waste treatment chemicals will be buried near the surface at the Hanford Site. The characteristics of these residuals should be defined, (i.e., are they classified as low-level wastes) before the DOE recommends a disposal approach for these residuals.

The appendices, containing supplementary material for Volume 1, are more informative about DOE's plans than is the main body of the statement and describe uncertainties in estimating effects of different processes and disposal techniques and radiological exposures. The appendices and discussions with DOE (Richland) lead us to conclude that DOE is not prepared to proceed on either retrieval or in-place stabilization of single-shell tank wastes or pre-1970 TRU buried wastes. There appear to be too many unknowns connected with either action. Retrieval and treatment technologies seem uncertain. The wastes are not adequately characterized. The physical and chemical stabilities of the wastes are not adequately known. The performance and stability of proposed engineered barriers are uncertain. Data are inadequate on infiltration rates. Available numerical models on unsaturated flow and transport are inadequate both in theory and in computational technique. Therefore the draft statement does not provide adequate information to accurately assess any of the alternatives for disposal of Transuranic and Tank Waste. The final statement should evaluate the additional research required to make decisions about disposal of both waste categories.

Endangered Species

The bald eagle and peregrine falcon were identified in the draft statement as occurring within or in close proximity to the Hanford Reservation. Other threatened or endangered species that could be affected by the continued leaking of contaminants into the river include the Columbian white-tailed deer and bald eagle and peregrine falcon in the Columbia River Gorge. The Department of Energy is responsible to initiate consultation with the Service under Sections 7(a) and (c) of the Endangered Species Act if it is determined that a listed species may be affected.

Additionally, several species that have been identified as occurring on or adjacent to the Hanford Reservation are currently under review as candidates for inclusion to the list of threatened or endangered species. These are the ferruginous hawk, Swainson's hawk, long-billed curlew, Columbia milk-vetch (Astragalus columbianus), persistent sepal yellowcress (Rorippa calycina var. columbiae), giant Columbia River limpet (Fisherola nuttalli), and great Columbia River spire snail (Lithoglyphus columbianus). As candidates, these species do not have any legal protection under the Endangered Species Act. However, the cooperation and assistance of all Federal agencies to protect and enhance populations of candidate species may preclude the need for their future listing. We would encourage DOE to take any actions needed to insure that these species are protected from any adverse impacts resulting from the proposed action. If you have any questions regarding responsibilities under the Endangered Species Act, please contact:

Jim Michaels
2625 Parkmont Lane, Bldg. B-3
Olympia, Washington 98502
FTS 434-9444 or Commercial (206) 753-9444

Cultural Resources

The final statement should contain sufficient information to determine whether construction of the proposed facilities will impact cultural (archeological or historical) resources; 115 archeologic sites are said to be located on or near the Hanford Site, but there is no indication that the locations of proposed construction have been surveyed for cultural resources. Nor is there an indication of the scope of the survey performed by Rice (1968a, b) identified in the bibliography.

We recommend that the final statement clarify these items and document the opinion of the State Historic Preservation Officer regarding whether a survey of the project area is needed in accord with the requirements of 36 CFR 800, "Protection of Historic and Cultural Resources."

Fish and Wildlife Resources

Radioactive military wastes have been generated at the Hanford Reservation over the past 40 years. Past disposal techniques often consisted of placing waste material into pits or cribs and covering them with minimal quantities of soil. Although areas containing these wastes may be isolated from exposure to humans, this disposal method has offered little protection to the food chain of both aquatic and wildlife resources in the area. We are concerned that implementation of any of the proposed disposal alternatives, including the No Action Alternative, could result in continuing adverse effects to aquatic and wildlife resources under the stewardship of the Fish and Wildlife Service. Resources involved include anadromous fish (chinook, coho, and sockeye salmon; steelhead trout, and sturgeon), waterfowl and other migratory birds, and federally listed threatened or endangered species.

Information about leakage of radionuclides from the Hanford Reservation and its movement in sediments from Hanford to the Columbia River estuary was documented in

1973 by the USGS (Document No. 433-N, Radionuclides in Transport in the Columbia River from Pasco to Vancouver, Washington, 1973, by W. L. Haushild, H. H. Stevens, Jr., J. L. Nelson, and G. R. Dempster, Jr.). The draft statement indicates the presence of "hot spots" or "severe concentrations" of radionuclides in sediments of the river. There is a likely possibility that radionuclides may have already entered into the food chain of species under the legal responsibility of the Service. We are concerned that the disposal alternative selected could result in further leakage of radionuclides into the Columbia River ecosystem. Other federally protected fish and wildlife resources and facilities under our jurisdiction on or adjacent to the Columbia River may be adversely affected by the continuing leakage of contaminants from the Hanford Reservation. These Federal facilities include Saddle Mountain National Wildlife Refuge (NWR) (a waterfowl sanctuary) directly downstream—heavily used by nesting Canada geese), McNary NWR, Umatilla NWR, Ridgefield NWR, Columbian White-tailed Deer NWR (established pursuant to the Endangered Species Act), and Lewis and Clark NWR. In addition, several State of Washington Habitat Management Areas and the Bonneville Fish Hatchery (funded by the Corps of Engineers and operated by Oregon Department of Fish and Wildlife) may be adversely impacted. The draft statement does not adequately describe the direct or indirect impacts of the proposed disposal project on fish and wildlife resources on the project site or in areas adjacent to or downstream from the project. The final statement should identify measures to mitigate fish and wildlife losses in detail in the final statement.

The Executive Summary states that the "environmental impacts (both short- and long-term) calculated for the four alternatives are generally low." However, that conclusion is not supported in the draft statement. The discussion of environmental impacts (Section 5) does not address any of the above concerns. The draft statement does not include the results of any impact studies. The only discussion of project impacts on aquatic and wildlife resources is limited to a statement that the additional impact is "judged to be small" on page 5.12.

Based on the information presented in the draft statement, we are unable to determine what impacts, if any, the proposed project may have on the important fish and wildlife resources within and adjacent to the proposed disposal site.

In order to accurately assess the environmental impacts of the proposed action, we recommend the DOE include a detailed evaluation of all direct and indirect impacts and losses, and mitigation for fish and wildlife, as appropriate, in the final statement. Information reported in the Department of Energy's Annual Reports on Environmental Monitoring at Hanford should be used in the final statement to identify resources that could be affected by the proposed action. This information should also be considered in the analyses of the consequences from each alternative to ensure that the selected alternative would reduce potential adverse effects to resources on the reservation and on downstream aquatic and wildlife habitat.

Mineral Resources

Section R.3 notes that drilling into a waste-storage or disposal site from the surface is a likely scenario within 100 years if active institutional control of the site is lost. Two distinct types of drilling scenarios are postulated. Because each has different drilling objectives and different size drill holes, different volumes of waste and soil material are brought to the surface:

1. Large diameter (30 cm) mineral exploration boreholes 300 m or more in depth;
2. Wells drilled at comparatively shallow depths (100 m or less) for domestic water supply.

The first scenario must presume the existence of mineral resources or mineral resource potential (either actual or perceived) within or near to the site, because deep, large diameter boreholes are not randomly drilled without geological, geochemical, or geophysical evidence to justify the operation. However, there is no direct discussion of the potential for mineral resources in the draft statement. Therefore, the final statement should describe the potential for discovery/recovery of mineral resources in the area.

Specific Comments

The following comments relate primarily to materials provided in the appendices to the statement.

1. We question the validity of the assumption that when the nuclides reach the Columbia River they would be mixed and diluted instantaneously by the large volume of flow in the river. The concept of instantaneous mixing and dilution by water in the Columbia River is misleading. When radionuclides reach the Columbia River, it is not unlikely that they could concentrate in narrow flow paths instead of mixing completely with the river water. Many nuclides have the potential to be adsorbed on clay particles contained in the river water or the bed. The major impact would consequently be on the food chain along the contaminated paths rather than on drinking water supplies dependent on the river.
2. Because of multilayering and the large differences in hydraulic conductivities, water possibly might move horizontally instead of just vertically as assumed and simulated in the model. This might also decrease the area in which diffusion controls the release of radionuclide migration in the unsaturated zone.
3. The assumption of vertical flow in areas that surround the protective barriers may not be conservative. Even if the materials are homogeneous and isotropic, the downward movement of water would tend to spread horizontally outward. If the materials are heterogeneous and anisotropic, the spreading could even be more. This in effect would reduce the travel time from the waste to the water table as the distance that diffusion controls migration would be less. Thus, a more conservative approach would have been to assume a trapezoidal shape for advective flow in the unsaturated zone.
4. Do the results of the model simulations really reflect the performance of a multilayer barrier and do the simulations really provide some assurance as to the overall effectiveness of the barrier? Do the equations used in these simulations accurately portray how water will or will not move through the barrier?

- RICH
5. The system described is actually a 3-phase system; solid, liquid, and vapor. Will any of the contaminants migrate through the vapor phase? Cesium is unlikely but what about Carbon and Strontium?
 6. The effect of migration of Carbon as Carbon Dioxide in the vapor phase on its movement to the water table should be discussed. In other words, assuming only diffusion of contaminants in the liquid phase through the unsaturated zone may not be conservative.
 7. Lava flows and volcanism might be beneficial in that they may create additional cover over the wastes; however, the possibility that such events might raise the water table, because of compaction of the underlying soil, such that it comes in contact with the buried wastes should be considered.
 8. The statement discusses hydraulic interconnection of the uppermost confined aquifer and the unconfined aquifer north of the "200 Areas." Contours and streamlines of figure Q.2 suggests that a portion of the ground-water underflow passing the "200 Areas" moves northward through the gap between Gable Butte and Gable Mountain. The impact analysis should address the possible significance of effects on the uppermost confined aquifer if failure of natural or engineered barriers should occur. The analysis should include effects on ground-water movement resulting from rises in the water table accompanying postulated future increases in recharge during wetter periods (e.g., greater than 5.0 cm/year).
 9. The ground-water model assumes a tenfold increase in recharge whereas the surface-water model assumes a twofold increase in annual precipitation. The impact(s) of onsite flash flooding as a result of the Probable Maximum Precipitation following a series of wet years should be evaluated in Section 4.4.1. This analysis should consider contamination impacts resulting from flooding of onsite ephemeral streams and waste ponds.
 10. The U.S. Corps of Engineers has evaluated the proposed construction of Ben Franklin Dam at river mile 348, about 16 km upstream from Richland, Washington. The higher water elevation that would be created by the dam could affect nuclear facilities along the bank of the Columbia River in the "100 Areas" site. The active "N Reactor" is in the "100 Areas" site and is producing radioactive wastes that would be managed under the procedures selected for Transuranic and Tank Wastes disposal. A reactivation of the Ben Franklin Project by the Corps could change the basis under which the "100 Areas" site for waste disposal would be evaluated, including the potential for higher ground and surface waters that could result from construction of Ben Franklin Dam. This issue should be addressed in the final statement because of the proximity of the "100 Areas" site to the Columbia River and the high value of its fish and wildlife resources. Steelhead trout and chinook salmon spawn in this reach of the river. This reach is also used by sturgeon and bald eagles.
 11. We note that nine million cubic meters of fill material would be hauled to the "200 West Area" site and used for backfill and barrier construction. The borrow area should be rehabilitated after the material is removed. Replacement of top soil and revegetation could be employed to return this area to viable habitat.

Mr. Rich Holten/EIS

We hope these comments will be helpful to you in the preparation of the final statement.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Blanchard". The signature is fluid and cursive, with a prominent loop at the end.

Bruce Blanchard, Director
Environmental Project Review

DRAFT FINAL

**HANFORD DEFENSE WASTE
ENVIRONMENTAL IMPACT STATEMENT (HDW-EIS)**

PRESENTED TO

THE DEPARTMENT OF INTERIOR

SEPTEMBER 4, 1987

WASHINGTON, D.C.

AGENDA

- **BACKGROUND**
- **COMMENT RESPONSE PROCESS**
- **DOE'S PREFERRED ALTERNATIVE**
- **RESPONSES TO SELECTED DEPARTMENT
OF INTERIOR COMMENTS**

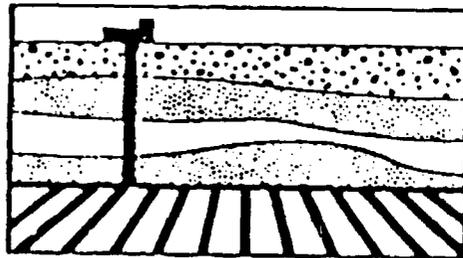
PURPOSE OF HANFORD DEFENSE WASTE ENVIRONMENTAL IMPACT STATEMENT

**TO PROVIDE ENVIRONMENTAL INPUT INTO THE SELECTION AND
IMPLEMENTATION OF FINAL DISPOSAL ACTIONS FOR HIGH-LEVEL,
TRANSURANIC AND TANK WASTES CURRENTLY STORED AT THE
HANFORD SITE**

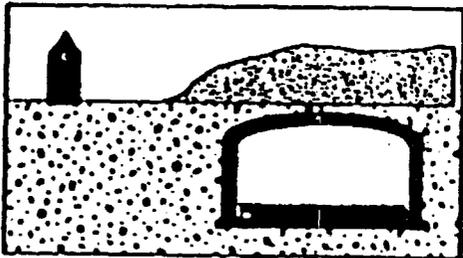
WASTE CLASSES

- **EXISTING TANK WASTE- SINGLE-SHELL TANKS
DOUBLE-SHELL TANKS**
- **FUTURE TANK WASTE - DOUBLE-SHELL TANKS**
- **TRANSURANIC CONTAMINATED SOIL SITES**
- **PRE-1970 BURIED SUSPECT TRANSURANIC-CONTAMINATED SOLID
WASTE**
- **RETRIEVABLY STORED AND NEWLY GENERATED TRANSURANIC SOLID
WASTE**
- **ENCAPSULATED STRONTIUM AND CESIUM**

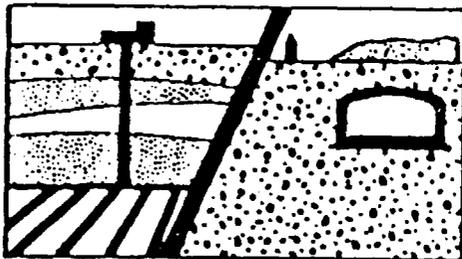
HANFORD DEFENSE WASTE DISPOSAL ALTERNATIVES



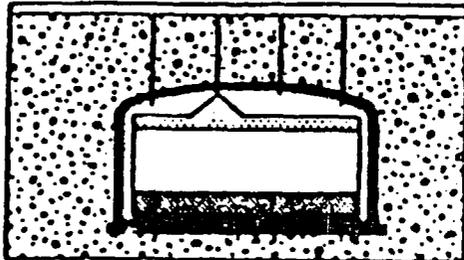
- GEOLOGIC DISPOSAL



- IN-PLACE STABILIZATION AND DISPOSAL



- REFERENCE ALTERNATIVE (COMBINATION)



- NO DISPOSAL ACTION

**HANFORD DEFENSE WASTE-ENVIRONMENTAL
IMPACT STATEMENT**

COMMENT RESPONSE PROCESS

COMMENT PROCESS

- **SEVEN OPEN HOUSES WERE HELD THROUGHOUT PACIFIC NORTHWEST**
- **SEVEN WORKSHOPS WERE CONDUCTED**
- **TO ACCOMMODATE REVIEWERS, 120-DAY COMMENT PERIOD WAS SCHEDULED**
- **HEARINGS WERE HELD IN FOUR LOCATIONS TO RECEIVE COMMENTS**
- **HDW-EIS REFERENCES WERE MADE AVAILABLE IN EIGHT LIBRARIES ACROSS THE COUNTRY**
- **REGULAR COORDINATION MEETINGS HAVE BEEN HELD WITH STATES AND CITIZENS GROUPS**

DRAFT HDW-EIS COMMENTS

- **243 LETTERS**
- **OVER 2,000 COMMENTS AND QUESTIONS**
- **COMMENTS FROM MANY ENTITIES INCLUDING**
 - **ENVIRONMENTAL PROTECTION AGENCY**
 - **NUCLEAR REGULATORY COMMISSION**
 - **DEPARTMENT OF THE INTERIOR AND U.S. GEOLOGICAL SURVEY**
 - **STATES OF WASHINGTON AND OREGON**
 - **CITIZENS FORUM**
 - **AFFECTED INDIAN TRIBES**
 - **INDIVIDUALS**

COMMENT RESPONSE PROCESS

- **ALL WRITTEN COMMENTS WERE CATALOGUED AND ADDRESSED IN VOLUME 4**
- **PUBLIC HEARING TESTIMONIES WERE ALSO INCLUDED IN VOLUME 4**
- **COMMENTS/RESPONSES WERE ORGANIZED IN VOLUME 4 BY**
 - **POLICY ISSUES**
 - **TECHNICAL ISSUES**
 - **ORGANIZATION COMMENTS**
- **COMMENT LETTERS WERE REPRODUCED IN FULL IN VOLUME 5**
- **THE PREFERRED ALTERNATIVE WAS DEVELOPED FROM THE COMMENTS AND DRAFT HDW-EIS ANALYSES**
- **FINAL HDW-EIS CONSISTS OF 5 VOLUMES -- MAIN TEXT (1), APPENDICES (2, 3), COMMENTS/RESPONSES (4), AND REPRODUCED COMMENT LETTERS (5)**

VOLUME 4 STRUCTURE

1 INTRODUCTION

- **PROCESSING OF WRITTEN COMMENTS**
- **PROCESSING OF HEARINGS COMMENTS**
- **FINDING RESPONSES TO COMMENTS**

2 POLICY ISSUES

- **REPOSITORY**
- **DEFENSE WASTE PROGRAM**
- **HDW-EIS SCOPE AND PREPARATION**
- **APPLICABLE LAWS AND REGULATIONS**
- **GENERAL COMMENTS**

3 TECHNICAL ISSUES

- **DATA BASE AND FACILITIES**
- **AFFECTED ENVIRONMENT**
- **DISPOSAL ALTERNATIVES AND TECHNOLOGIES**
- **SHORT-TERM IMPACTS**
- **LONG-TERM IMPACTS**

4 ORGANIZATION COMMENTS

5 REFERENCES

- **INDEX FOR COMMENT LETTERS**
- **INDEX FOR PUBLIC TESTIMONIES**

VOLUME 5 STRUCTURE

- **INTRODUCTION**
- **LIST OF COMMENT LETTERS**
- **REPRODUCTION OF LETTERS**
- **CROSS REFERENCED TO VOLUME 4**

PREFERRED ALTERNATIVE

COMMENT: NO PREFERRED ALTERNATIVE WAS IDENTIFIED IN THE DRAFT HDW-EIS

RESPONSE: THIS OMISSION IN THE DRAFT WAS DELIBERATE SO THAT THE PUBLIC COMMENTS COULD BE COMBINED WITH THE DRAFT HDW-EIS ANALYTICAL RESULTS TO DERIVE A PREFERRED ALTERNATIVE. THE PREFERRED ALTERNATIVE, IN SUMMARY, RECOMMENDS:

- 1. PROCEED WITH THE DISPOSAL OF THREE WASTE CLASSES**
 - A. DOUBLE-SHELL TANK WASTE**
 - B. ENCAPSULATED CESIUM/STRONTIUM**
 - C. RETRIEVABLY STORED TRU SOLID WASTE**
- 2. DEFER DISPOSAL DECISION ON REMAINING THREE WASTE CLASSES**
 - A. SINGLE-SHELL TANK WASTE**
 - B. TRU-CONTAMINATED SOIL SITES**
 - C. PRE-1970 BURIED SUSPECT TRU-CONTAMINATED SOLID WASTE**
- 3. DECISIONS WILL DEPEND ON THE RESULTS OF COMPREHENSIVE DEVELOPMENT AND EVALUATION ACTIVITIES**

PREFERRED ALTERNATIVE (CONT.)

A PARTIAL LISTING OF THE DEVELOPMENT AND EVALUATION ACTIVITIES INCLUDE:

- **PERFORM ADDITIONAL CHARACTERIZATION OF SELECTED SITES' RADIOACTIVE AND HAZARDOUS WASTE COMPONENTS BY SAMPLING AND ANALYSIS**
- **PERFORM ENHANCED ENVIRONMENTAL IMPACT ANALYSIS AS NECESSARY USING IMPROVED PERFORMANCE ASSESSMENT MODELS AND DATA**
- **DEMONSTRATE VOID-SUBSIDENCE CONTROL**
- **DETERMINE THE NEED AND METHODS TO IMPROVE THE ISOLATION AND STABILITY OF THE WASTE FORM, INCLUDING DESTRUCTION/STABILIZATION OF THE HAZARDOUS WASTE COMPONENTS**

PREFERRED ALTERNATIVE (CONT.)

- **EVALUATE ALTERNATIVE METHODS FOR WASTE RETRIEVAL AT SPECIFIC WASTE SITES**
- **EVALUATE ALTERNATIVE METHODS FOR RETRIEVING AND PROCESSING SINGLE-SHELL TANK WASTES**
- **DEVELOP A PROTECTIVE BARRIER THAT WILL MEET THE LONG-TERM ENVIRONMENTAL PROTECTION CRITERIA**

AT THE CONCLUSION OF THE DEVELOPMENT AND EVALUATION ACTIVITIES, ADDITIONAL ENVIRONMENTAL DOCUMENTATION WILL BE PREPARED FOR PUBLIC REVIEW AS PART OF THE DECISION PROCESS

**RESPONSES TO
SELECTED DEPARTMENT OF INTERIOR
COMMENTS**

COMMENT: BARRIER ISOLATION OF RADIOACTIVE WASTE WAS PREVIOUSLY REJECTED

- RESPONSE:**
- REPORTS PROVIDED BY THE USGS DO NOT ADDRESS SPECIFIC HANFORD CONDITIONS**
 - CURRENT TRADE-OFF ANALYSES INDICATE NEAR-SURFACE DISPOSAL SHOULD BE CONSIDERED**
 - DECISIONS WILL BE BASED ON ADDITIONAL ANALYSES**
 - BARRIER EFFECTIVENESS STUDIES ARE CONTINUING TO PROVIDE SPECIFIC DATA**

COMMENT: FURTHER RESEARCH AND DATA COLLECTION ARE REQUIRED IN KEY AREAS

RESPONSE: DOE AGREES AND PLANS TO PROVIDE FURTHER DEVELOPMENT AND EVALUATION AS OUTLINED IN:

- PREFERRED ALTERNATIVE**
- HANFORD WASTE MANAGEMENT PLAN**
- HANFORD WASTE MANAGEMENT TECHNOLOGY PLAN**

COMMENT: CHARACTERIZATION OF MIXED WASTE IS NEEDED

**RESPONSE: - DOE AGREES. CHARACTERIZATION OF BOTH RADIONUCLIDES
AND HAZARDOUS CHEMICALS CONTINUES FOR ALL WASTE
CLASSES**

COMMENT: ENDANGERED SPECIES MUST BE PROTECTED

RESPONSE: - DOE AGREES

- THERE IS AN ACTIVE PROGRAM AT HANFORD TO MONITOR ALL ENDANGERED AND THREATENED SPECIES**
- MONITORING TO DATE SHOWS NO DETRIMENTAL IMPACT ON ANY ENDANGERED SPECIES ON THE SITE**

COMMENT: ADDRESS CULTURAL IMPACTS

RESPONSE:

- **ARCHEOLOGICAL SURVEYS WILL BE PERFORMED PRIOR TO IMPLEMENTATION OF ANY DISPOSAL ACTION**
- **SOCIOLOGICAL IMPACTS SECTION HAS BEEN EXPANDED TO ADDRESS COMMENT**

COMMENT: IMPACTS TO FISH AND WILDLIFE MUST BE FULLY ASSESSED

- RESPONSE:**
- DOE AGREES THAT FISH AND WILDLIFE MUST BE PROTECTED AND HAS HAD AN EXTENSIVE 35 YEAR MONITORING PROGRAM OF FISH AND WILDLIFE, WHICH IS CONTINUING**
 - DISPOSAL ALTERNATIVES PROPOSED SHOULD IMPROVE THE ENVIRONMENTAL QUALITY OF THE REGION**
 - THERE HAS BEEN NO EVIDENCE OF IMPACTS TO FISH OR WILDLIFE DUE TO HANFORD OPERATIONS**

COMMENT:

DESCRIBE POTENTIAL FOR DISCOVERY/RECOVERY OF MINERAL RESOURCES IN THE AREA

RESPONSE:

- **EXPLORATORY WELLS HAVE BEEN DRILLED IN THE VICINITY OF THE HANFORD SITE AND WERE DEEMED NON-COMMERCIAL BY OIL COMPANIES**
- **ONLY LOW-VALUE ROCKS AND MINERALS ARE CURRENTLY RECOVERED WITHIN 100 KM OF HANFORD SITE**
- **DEFENSE WASTE SITES ARE NOT EXPECTED TO PRECLUDE FUTURE RESOURCE RECOVERY**
- **FINAL HDW-EIS TEXT IS BEING EXPANDED TO ADDRESS COMMENT**



PDR-1
LPDR WM-10(5)
WM-11(2)
WM-10(5)

SEP 21 10:47

WM Record File

10.2

WM Project

10

Docket No.

PDR

XPDR

(B)

Distribution:

Clarkson

Gunn

Winstler

(Return to WM, 623-SS)

5/11

of

To: Harlan's Am. Road