



Environmental Assessment

Relocation and Storage of Isotopic Heat Sources, Hanford Site,
Richland, Washington

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U.S. Department of Energy
Richland, Washington

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June 1997

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ENVIRONMENTAL ASSESSMENT
FOR THE
RELOCATION AND STORAGE OF
ISOTOPIC HEAT SOURCES
HANFORD SITE
RICHLAND, WASHINGTON
JUNE 1997

U.S. DEPARTMENT OF ENERGY
RICHLAND, WASHINGTON

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PREFACE

This environmental assessment (EA) has been prepared to assess potential environmental impacts associated with the U.S. Department of Energy proposed action:

Relocation and storage of the isotopic heat sources.

Environmental impact information contained herein will be used by the U.S. Department of Energy, Richland Operations Office Manager, to determine if the proposed action is a major federal action significantly affecting the quality of the human environment. If the proposed action is determined to be major and significant, an environmental impact statement will be prepared. If the proposed action is determined not to be major and significant, a Finding of No Significant Impact (FONSI) will be issued and the action can proceed. Criteria used to evaluate significance can be found in Title 40, Code of Federal Regulations (CFR) 1508.27.

This EA was prepared in compliance with the *National Environmental Policy Act (NEPA) of 1969*, as amended, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and the U.S. Department of Energy Implementing Procedures for NEPA (10 CFR 1021). The following describes each section of the EA:

- 1.0 Purpose and Need for Action.** This provides a brief statement concerning the problem or opportunity the U.S. Department of Energy is addressing with the proposed action. As necessary, background information is provided.
- 2.0 Description of the Proposed Action.** A description with sufficient detail to identify potential environmental impacts is provided.
- 3.0 Alternatives to the Proposed Action.** Reasonable alternative actions, which would address the Purpose and Need, are described. A no action alternative, as required by 10 CFR 1021, also is described.
- 4.0 Affected Environment.** This provides a brief description of the locale in which the proposed action takes place, and which may be environmentally impacted.
- 5.0 Environmental Impacts.** The range of environmental impacts, beneficial and adverse, are described for the proposed action. Impacts of alternatives briefly are discussed.
- 6.0 Permits and Regulatory Requirements.** A brief description of permits and regulatory requirements for the proposed action is provided.
- 7.0 Organizations Consulted.** Any outside agencies, groups, or individuals contacted as part of the EA documentation preparation are listed.

8.0 References. Documents used to provide information or data are listed.

Appendices. Additional information necessary to support an understanding of the proposed action, alternatives, and potential impacts is provided. Comments resulting from review of the EA by states and tribes or other stakeholders and the response to those comments are included in the appendices.

CONTENTS

PREFACE	P-1
METRIC CONVERSION CHART	M-1
1.0 PURPOSE AND NEED FOR ACTION	1-1
1.1 PURPOSE AND NEED	1-1
1.2 BACKGROUND	1-1
2.0 DESCRIPTION OF THE PROPOSED ACTION	2-1
2.1 PROPOSED TIMING	2-3
2.2 ENVIRONMENTAL INFORMATION	2-3
3.0 ALTERNATIVES TO THE PROPOSED ACTION	3-1
3.1 NO ACTION ALTERNATIVE	3-1
3.3 ALTERNATIVE MODES OF TRANSPORTATION	3-2
4.0 AFFECTED ENVIRONMENT	4-1
4.1 GENERAL HANFORD SITE ENVIRONMENT	4-1
4.2 SPECIFIC SITE ENVIRONMENT	4-2
4.2.1 Soils and Subsurface	4-2
4.2.2 Hydrology	4-3
4.2.3 Air Resources	4-3
4.2.4 Plants and Animals	4-3
4.2.5 Endangered Species	4-3
4.2.6 Cultural Resources	4-3
5.0 ENVIRONMENTAL IMPACTS	5-1
5.1 CONSTRUCTION AND OPERATION IMPACTS	5-1
5.1.1 Soil or Subsurface Disturbance and the Consequences	5-1
5.1.2 Liquid Discharges to the Groundwater or Surface Waters and the Consequences	5-1
5.1.3 Gaseous, Particulate, or Thermal Discharges to the Air and the Consequences	5-1
5.1.4 Radiation Exposure and the Consequences	5-2
5.1.5 Nonhazardous Solid Waste Generated and the Consequences	5-5
5.1.6 Hazardous or Dangerous Waste Generated and the Consequences	5-5
5.1.7 Hazardous Substances Present and the Consequences	5-5
5.1.8 Any Disturbance to Previously Undeveloped Areas and the Consequences	5-5
5.1.9 Consumption or Commitment of Nonrenewable Resources	5-5
5.1.10 Effects on Cultural Resources	5-6

CONTENTS (cont)

5.1.11 Effects on Federally or State Listed, Proposed or Candidate,
Threatened or Endangered Species 5-6

5.1.12 Effects on any Floodplain or Wetland 5-6

5.1.13 Effects on any Wild and Scenic River, State or Federal Wildlife
Refuge, or Specially Designated Area 5-7

5.1.14 Reasonably Foreseeable Accidents Considered and the Effects . . . 5-7

5.2 SOCIOECONOMIC IMPACTS 5-8

5.3 ENVIRONMENTAL JUSTICE IMPACTS 5-8

5.4 CUMULATIVE IMPACTS 5-9

5.5 IMPACTS FROM ALTERNATIVES 5-11

5.5.1 Implementation of the No Action Alternatives 5-11

5.5.2 Implementation of the other Alternatives 5-11

6.0 PERMITS AND REGULATORY REQUIREMENTS 6-1

7.0 ORGANIZATIONS CONSULTED 7-1

8.0 REFERENCES 8-1

FIGURES

1. Overview of the Proposed Storage Site F-1

2. 324 Building Radiochemical Engineering Cells F-2

3. Layout of the GNS and CASTOR Casks, and ISO Containers
on the Proposed Storage Site F-3

4. Hanford Site F-4

5. Proposed Storage Site Within the Central Waste
Complex F-5

6. 300 Area F-6

TABLE

1. Cask Dimensions T-1

APPENDICES

A **BIOLOGICAL REVIEWS** APP A-1

B **CULTURAL RESOURCES REVIEWS AND CORRESPONDENCE** APP B-1

C **COMMENTS AND U.S. DEPARTMENT OF ENERGY RESPONSES** ... APP C-1

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METRIC CONVERSION CHART

Into metric units

Out of metric units

If you know	Multiply by	To get	If you know	Multiply by	To get
Length			Length		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			Area		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			Mass (weight)		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			Volume		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.0283	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.7645	cubic meters	cubic meters	1.308	cubic yards
Temperature			Temperature		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Radiation			Radiation		
Rems	0.01	Sieverts	Sieverts	100	Rems

Source: After *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

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1.0 PURPOSE AND NEED FOR ACTION

The following sections describe the purpose and need and provide background information concerning this environmental assessment (EA).

1.1 PURPOSE AND NEED. The underlying purpose and need for the agency to take the proposed action.

The U.S. Department of Energy (DOE) needs to provide improved storage for the isotopic heat sources.

1.2 BACKGROUND. Background information on the purpose and need, that led to the need for action.

Isotopic Heat Sources

As part of a bilateral agreement between the Federal Minister for Research and Technology of the Federal Republic of Germany (FRG) and the DOE, Pacific Northwest National Laboratory (PNNL) developed processes for the treatment and immobilization of high-level radioactive waste. One element of this bilateral agreement was the production of sealed isotopic heat sources. During the mid-1980s, 30 sealed isotopic heat sources were manufactured during three production runs in the 300 Area, 324 Building B-Cell (PNL 1989). Two production demonstration canisters and 2 instrumented canisters also were produced. The 34 stainless steel canisters were filled with radioactive borosilicate glass. The sources contain a total of approximately 8.3 million curies consisting predominately of cesium-137 and strontium-90 with trace amounts of transuranic contamination.

Currently, the sources are stored in A-Cell of the 324 Building. Intense radiation fields from the sources are causing the cell windows and equipment to deteriorate. Originally, it was not intended to store the isotopic heat sources for this length of time in A-cell.

The 34 isotopic heat sources are classified as remote handled transuranic waste. Transuranic waste is defined as waste contaminated with radionuclides from elements whose atomic numbers exceed 92 (that of uranium) with concentrations greater than 100 nanocuries per gram (0.0000001 curies per gram) of waste. Remote-handled wastes are those with radiation levels exceeding 200 millirem per hour at the surface of a container. Such materials must be handled remotely and require special shielding in treatment, storage, and disposal facilities. The borosilicate glass waste form in the isotopic heat sources does not meet the definition of a dangerous (hazardous) waste as defined by Washington Administrative Code (WAC) Chapter 173-303, *Dangerous Waste Regulations*.

Thirty-one of the isotopic heat sources are sealed, and seals on the three remaining isotopic heat sources have not been verified. However, a decision has been made to place the remaining three isotopic heat sources into the CASTOR cask(s). The Washington State Department of Health (WDOH) has concurred that isotopic heat sources with verified seals or those placed into CASTOR cask(s) can be considered sealed (no potential to emit radioactive air emissions) and are exempt from WAC Chapter 246-247, *Radiation Protection - Air Emissions*.

2.0 DESCRIPTION OF THE PROPOSED ACTION

Proposed Action description in detail sufficient to identify potential environmental impacts.

The proposed action involves: the construction of a storage site located within the Central Waste Complex (CWC) in the 200 West Area and relocation of the isotopic heat sources from the 324 Building to the storage site, including handling, transportation, and storage. The CWC is committed to waste management activities by treating and storing mixed and/or radioactive waste. The storage site would allow monitoring, surveillance, maintenance, and retrieval capability until a national repository is established for this waste type. At that time, the waste would be relocated to a national repository.

The proposed action would include the construction of a reinforced concrete storage pad near the intersection of 16th Avenue and Dayton Street, adjoining the existing Alkali Metals Storage Pad. The storage pad would have the approximate dimensions of 9.1 meters (30 feet) by 32 meters (105 feet) with a metal roof over the storage pad for weather protection. The proposed action would include fencing around the storage pad, jersey bounce dividers, and a fire break that would surround the storage pad. The dimension of the fire break would be 30 meters (100 feet) from the edge of the storage pad. The fire break would take advantage of the following; an existing gravel road to the south, and an existing cleared area reserved for future expansion of the Alkali Metals Storage Pad to the north. To the east, the storage pad would be sited as close as practical to the existing gravel road but would still need to maintain vehicle access to the storage pad (Figure 1). Fill and gravel may be placed as necessary to prevent soil erosion.

Two types of previously constructed transportation/storage casks (hereinafter referred to as "casks") will be used in the proposed action and have been provided by the German Government. The casks would provide containment of the payload. Assurance of competent performance of the cask designs has been established both by analysis and by testing. Assurance of the CASTOR cask performance is documented in: "Safety Analysis Report for Packaging (Onsite) CASTOR GSF Cask" (RFSH 1997b). Assurance of the GNS cask performance is documented in: "Safety Analysis Report for Packaging (Onsite) for the GNS-12 Packaging" (RFSH 1997a). The casks are leak checked after loading to demonstrate the cask is leak tight. The isotopic heat sources are not gas generating, and as designed, the casks do not vent to the surrounding atmosphere once the cask lids are installed and sealed.

Loading of the isotopic heat sources into these casks using remotely operated cranes would occur in the 324 Building radiochemical engineering cells (REC). The REC are a shielded facility equipped for remote handling of highly radioactive materials. Entry into the shielded hot cells is through a shielded airlock (Figure 2). Before loading the casks, the cell operating equipment would be functionally tested and repaired as necessary.

Transportation of the loaded casks would use both rail and truck or truck only. Up to eight shipments would be required to relocate the isotopic heat sources from the

300 Area to the 200 West Area. One additional transport would be needed to relocate an International Standards Organization (ISO) container containing two empty GNS-12 casks, from the Hanford Site 1100 Area, where it is currently stored.

Transportation by rail would occur from the 324 Building to the 200 West Area laydown pad. The laydown pad would be approximately 0.8 kilometer ($\frac{1}{2}$ mile) from the storage site at CWC. The casks would be loaded on a rail car at the 324 Building. All casks would be transported over a railroad system within the Hanford Site boundary. During transportation, the railroad system crosses roadways accessible to the general public or site employees at two locations. To preclude potential radiation exposure to the general public or site employees during transportation, the railroad crossings would be closed by Hanford Patrol when a train approached the crossing. Upon reaching the laydown pad, the casks would be off-loaded by a portable crane onto a truck and transported 0.8 kilometer ($\frac{1}{2}$ mile) to the storage site. On reaching the storage site, a portable crane would off-load the cask onto the storage site. Total transportation time for a single cask is expected to take approximately 3.5 hours.

Transportation by truck only would occur directly from the 324 Building to the storage site. The casks would be loaded on a truck in the 324 Building. All casks would be transported over roadways located within the Hanford Site boundary. To preclude potential radiation exposure to the general public or site employees during transportation, the roadways would be restricted by Hanford Patrol. On reaching the storage site, a portable crane would off-load the cask onto the storage site. Total transportation time for a single cask is expected to take approximately 2.0 hours.

During transport (by both railcar and truck), the shielding of the casks would limit the contact dose rate to less than 0.0007 Sieverts per hour (70 millirem per hour). The dose rate at 2 meters (6.6 feet) from the cask surface would be limited to less than 0.0001 Sieverts per hour (10 millirem per hour).

During storage, the storage site would support eight casks containing the isotopic heat sources and two ISO containers and the ancillary equipment (e.g., impact limiters, handling equipment) associated with the casks. The casks would be separated by a minimum of 0.9 meter (3 feet) to allow routine inspections. Additionally, none of casks would be placed within 1.5 meters (5 feet) of the edge of the storage pad. Storage of the casks, the ISO containers, and ancillary equipment would use a majority of the storage pad (Figure 3). (The dimensions of casks are shown in Table 1.) During storage, the casks routinely would be monitored by CWC personnel and soil areas would be kept clear of vegetation for fire control by herbicide application.

2.1 PROPOSED TIMING. Timing or schedule of the proposed action (including phasing, if applicable).

The proposed action would be accomplished on the following schedule.

- Construction of storage site is scheduled to begin in spring or summer of 1997. Construction of the storage pad is expected to take approximately 2 months. Following cask placement, final construction of storage site would be completed.
- The first transfer of loaded casks is scheduled to begin in summer of 1997. Loading and transport of the casks is expected to take less than 2 months.

2.2 ENVIRONMENTAL INFORMATION. Other environmental information that has been prepared, or will be prepared, directly related to the proposed action.

Biological Reviews (Appendix A) and a Cultural Resources Review (CRR) (Appendix B) have been prepared for the proposed action. The CRR concluded: "Several isolated prehistoric and historic artifacts have been recorded within one mile of the project area, however, no cultural resources were identified in the project area or near vicinity."

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3.0 ALTERNATIVES TO THE PROPOSED ACTION

Alternatives to the proposed action are discussed in the following sections.

3.1 NO ACTION ALTERNATIVE CEQ and the DOE NEPA regulations require the DOE to analyze the "No Action alternative," i.e., to examine what would happen if nothing were done. Note that generally this is a continuation of the status quo.

The No Action alternative would keep the isotopic heat sources in the 324 Building. Continued storage of the isotopic heat sources would require that the 324 Building remain operational indefinitely. This alternative would not resolve the concern regarding deterioration of the equipment and windows in A-Cell. The No Action alternative would not meet the purpose and need.

3.2 USE OTHER STORAGE AREAS Other alternatives considered. CEQ regulations direct all agencies to identify reasonable alternatives that would achieve the purpose and need.

There are other areas considered that would be available or could become available; for example, the 400 Area Interim Storage Area (existing storage area), 200 Area ISA (planned to be constructed), and 200 East Area Canister Storage Building (CSB) (under construction).

The GNS and CASTOR casks would exceed the 2 millirem per hour requirement for storage at the 400 Area ISA. Placement of these loaded casks in the 400 Area ISA would increase exposure to personnel occupying facilities adjacent to the 400 Area ISA and to personnel performing activities including surveillance and maintenance of the casks currently in storage. The 200 Area ISA is not an existing storage pad and is in the planning stages. Construction of the 200 Area ISA is not scheduled to be completed until the end of fiscal year 1999. The CSB is currently under construction and its availability for this purpose would be in the 2002 time frame. Additionally, the 400 Area ISA, 200 Area ISA, and the CSB are outside the CWC boundary.

Alternate storage locations were considered within the 200 West Area CWC that are adjacent to existing rail spurs; however, none of the sites met siting criteria (e.g., free of contaminated soil, adequate space, etc.).

During the comment period, two alternative storage locations were suggested: an area between the experimental barrier cap and the defueled reactor compartment trench just south of the 200 East Area north fence line; and, an area south of 12th Avenue and between Akron and Route 4 just outside the 200 East Area fence line. The experimental barrier cap area is to be used for burial ground activities and therefore is not compatible with above surface storage activities. Both of these sites are outside the CWC boundary.

3.3 ALTERNATIVE MODES OF TRANSPORTATION

Under this alternative, the casks would be transferred entirely by rail. A railroad network exists on the Hanford Site that connects the 300 Area and the 200 West Area. However, no access spur runs from the existing rail line in the 200 West Area to the proposed storage site. This alternative would disturb additional Hanford Site land in the 200 West Area to construct a railroad spur to the site.

4.0 AFFECTED ENVIRONMENT

Existing environment to be affected by the proposed action and alternatives. Summary information only should be provided, with more detailed information referenced.

The following sections provide a discussion of the existing environment which could potentially be affected by the proposed action and alternatives.

4.1 GENERAL HANFORD SITE ENVIRONMENT

The Hanford Site covers approximately 145,000 hectares (358,000 acres) located in southeastern Washington State, in a semiarid region with rolling topography (Figure 4). Two topographical features dominate the landscape: Rattlesnake Mountain located on the southwest boundary and Gable Mountain located on the northern portion of the Hanford Site. The Columbia River flows through the northern part and forms part of the eastern boundary of the Hanford Site. Areas adjacent to the Hanford Site are primarily agricultural lands. The 200 West Area and the 300 Area have all been used as industrial areas.

The Hanford Site has a mild climate with 15 to 18 centimeters (6 to 7 inches) of annual precipitation, with most of the precipitation taking place during the winter months. Ranges of daily temperatures vary from normal maxima of 2°C (36°F) in early January to 35°C (95°F) in late July. Infrequent periods of high winds of up to 128 kilometers (80 miles) per hour occur throughout the year. Tornadoes are extremely rare; no destructive tornadoes have occurred in the region surrounding the Hanford Site.

The Hanford Site and the surrounding area are in attainment of the National Ambient Air Quality Standards (NAAQS) designed to protect the public health and welfare. During 1995, the Hanford Site air emissions remained below all established limits set for regulated air pollutants (PNNL 1996b). Atmospheric dispersion conditions of the area vary between summer and winter months. The summer months generally have good air mixing characteristics. If the prevailing winds from the northwest are light, less favorable dispersion conditions might occur. Occasional periods of poor dispersion conditions occur during the winter months.

The vegetation on the Hanford Site is a shrub-steppe community of sagebrush and rabbitbrush with an understory consisting primarily of cheatgrass and Sandberg's bluegrass. The typical insects, small birds, mammals, and reptiles common to the Hanford Site can be found in the 200 Areas (PNNL 1996b). Relatively undisturbed areas of the mature shrub-steppe vegetation are high quality habitat for many plants and animals and have been designated as "priority habitat" by Washington State.

Most mammal species known to inhabit the Hanford Site are small, nocturnal creatures, primarily pocket mice and jackrabbits. Large mammals found on the Hanford Site are deer and elk, although the elk exist almost entirely on the Arid Lands Ecology Reserve.

Coyotes and raptors are the primary predators. Several species of small birds nest in the steppe vegetation. Semiannual peaks in avian variety and abundance occur during migration seasons.

The DOE and its contractors dominate the local employment picture with almost one-quarter of the total nonagricultural jobs in Benton and Franklin counties. Ninety-three percent of Hanford Site personnel reside in the Benton and Franklin county areas. Therefore, work activities on the Hanford Site play an important role in the socioeconomics of the Tri-Cities (Richland, Pasco, and Kennewick) and other parts of Benton and Franklin counties (PNNL 1996b). Other surrounding counties are impacted to a lesser degree.

4.2 SPECIFIC SITE ENVIRONMENT

The proposed action would occur in areas on the Hanford Site (Figure 4). The proposed storage site is within the CWC in 200 West Area (Figure 5) and is located on the 200 Area plateau, 16 kilometers (10 miles) from the Columbia River and located approximately 48 kilometers (30 miles) northwest of the city of Richland. The proposed storage site is currently a partially disturbed area. The 324 Building is in the 300 Area and located approximately 300 meters (1,000 feet) from the Columbia River and approximately 2.5 kilometers (1.5 miles) north of the city limits of Richland (Figure 6). The 200 West Area and the 300 Area of the Hanford Site have all been used as industrial areas.

The 200 West Area and the 300 Area are not located in the 100-year or 500-year floodplain of the Columbia River, nor are these located within a wetlands area (PNNL 1996b). The 200 West Area and the 300 Area do not contain any prime farmland, state or national parks, forests, conservation areas, or other areas of recreational, scenic, or aesthetic concern. The city of Richland (population approximately 32,000), located in Benton County, adjoins the southernmost portion of the Hanford Site boundary and is the nearest population center.

4.2.1 Soils and Subsurface

The soils in the 200 West Area and 300 Area are predominately a sand and gravel mixture. The geologic strata under the surface layer, in descending order, are Holocene eolian deposits, Hanford formation, Ringold Formation, and the Columbia River Basalt Group. The eolian sands are fine- to coarse-grained, and relatively quartz- and feldspar-rich. Deposits of the Hanford formation underlie the eolian deposits. Hanford formation strata generally are dominated by deposits typical of the gravel-dominated facies consisting of uncemented granules to cobble gravels and minor coarse-grained sand. This is underlain by the top of the Ringold Formation, Basalt flows of the Columbia River Basalt Group and intercalated sediments of the Ellensburg Formation underlie the Ringold Formation. The region is categorized as one of low to moderate seismicity (PNNL 1996b).

4.2.2 Hydrology

The water table in the 200 West Area ranges approximately 70 meters (230 feet) to 88 meters (290 feet) below the surface. The water table under the 300 Area ranges from approximately 9 meters (30 feet) to 19 meters (62 feet) below the surface (PNNL 1996b).

4.2.3 Air Resources

The Hanford Site operates under a Prevention of Significant Deterioration (PSD) permit established by the U.S. Environmental Protection Agency (EPA), which is designed to protect existing ambient air quality. No distinctive increases in overall emissions are envisioned from the proposed action and would not trigger changes to the PSD permit.

4.2.4 Plants and Animals

The Biological Reviews observed a number of migratory birds in the area of the proposed action, including Sage Sparrows and Loggerhead Shrikes, which are both Hanford Site species of concern. Under the *Migratory Bird Treaty Act of 1918*, it is illegal to take, capture, or kill any migratory bird, or any part, nest, or egg of any such birds, included in the terms of the conventions.

The Biological Reviews identified the plant community at the proposed storage site as a mature sagebrush steppe, and did note rare plants including the state monitored species *Astragalus sclerocarpus* (stalked-pod milkvetch).

4.2.5 Endangered Species

No plants or animals on the federal list of "Endangered and Threatened Wildlife and Plants" (50 CFR 17) were observed in the immediate vicinity of the proposed action, as indicated in Biological Review #97-200-009 (dated November 25, 1996) and the Supplement to Biological Review #97-200-009 (dated December 16, 1996) (Appendix A).

4.2.6 Cultural Resources

A Cultural Resources Review (HCRC #97-200-009) has been completed by the Hanford Cultural Resources Laboratory for the proposed action. There were no known archeological, religious sites, or other sensitive cultural artifacts of significance found during the survey. No cultural resources were identified in the area of the proposed action. The White Bluffs Road is located about 0.6 kilometer (0.4 mile) to the northwest of the proposed storage site. It is unlikely that any archaeological materials would be affected by the proposed action (Appendix B).

5.0 ENVIRONMENTAL IMPACTS

Potential environmental impacts from the proposed action and alternatives are discussed in the following sections. Impacts are addressed in proportion to their potential significance.

The following sections describe impacts from the proposed action.

5.1 CONSTRUCTION AND OPERATION IMPACTS. Description of impacts from the construction and operation activities of the proposed action.

Impacts from the construction and operation activities are described in the following sections.

5.1.1 Soil or Subsurface Disturbance and the Consequences

The proposed storage site is a partially disturbed area. The amount of soil or subsurface disturbance would be less than 0.46 hectare (1.13 acres) during site preparation (grading). Small amounts of fill and gravel may be used as necessary from existing approved Hanford Site borrow pits.

5.1.2 Liquid Discharges to the Groundwater or Surface Waters and the Consequences

Other than using water for dust control and small amounts of water for curing the concrete, there would be no liquid discharges that might effect groundwater or surface waters during construction activities.

The casks contain no free liquids.

The proposed action would not discharge any liquid effluent to the ground.

5.1.3 Gaseous, Particulate, or Thermal Discharges to the Air and the Consequences

Small quantities of gaseous, particulate, or thermal discharge from activities such as trucks transporting materials (e.g., concrete, and casks) could be generated for short periods during the construction and transportation phases of the proposed action. Any particulate releases from dust would be watered down during construction activities. However, once the storage site is constructed and casks are transported to the 200 West Area, no further discharges would occur. During storage, heat dissipation from the cask(s) exterior would result in a cask surface temperature of less than 82°C (180°F) during the hottest Hanford Site

Small amounts of approved herbicides may be used to control vegetation within the fire break area. Herbicide application would be part of the ongoing Hanford Site herbicide program and performed by licensed personnel.

5.1.4 Radiation Exposure and the Consequences

Direct Exposure

Worker exposure to radiation that would result from the proposed action was estimated (RFSH 1997a, RFSH 1997b) to determine the dose rates from loaded casks and work durations for similar types of activities currently conducted at the Hanford Site (HNF 1997). For direct radiation exposure, assumptions were made regarding the number of workers that would be involved in the proposed action and the potential radiological dose that could be received. Projected health effects in terms of latent cancer fatalities (LCF) for the proposed action were calculated based on the potential radiological dose.

The loading of the isotopic heat sources into the casks will be conducted remotely within the 324 Building REC (Figure 2). The first major activity in preparation for loading of a cask is to install the cask transfer rails in the air lock. This is a one time operation. It will require one operator in the air lock with a background of approximately 0.15 rem per hour for one hour and two support personnel at the door threshold with a background of approximately 0.04 rem per hour for up to one hour. ALARA principles will be utilized to maximum extent possible to reduce exposure. The total dose to the three operators for this activity is 0.23 person-rem (maximum).

The cask airlock is only opened briefly for installation of the threshold rails and to push the cask into position using the remote pusher tool. This will require up to 2 operators at the threshold (0.04 rem per hour) for up to 15 minutes. Entry into the airlock is not required. The total dose to the two operators for the eight transfers is 0.16 person-rem (maximum).

With the cask in position, the threshold rails removed, the air lock shield door is closed, the A-Cell shield door opened, and the canisters transferred from A-Cell and loaded in the cask remotely. After a cask is loaded, the cask lid is placed on the cask, the A-Cell shield door closed, airlock shield door opened, and the cask and cart pulled to the door opening using a tugger cable. Entry into the airlock is not required.

At the door entrance, one health physics technician and 2 craft persons will prepare the cask for removal from the airlock to the cask handling area. Each worker is assumed to receive a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS Casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks plus the background at the door opening of approximately 0.04 rem per hour. An estimated 30 minutes will be required. The total dose to the three workers for the eight casks would be 1.05 person-rem (maximum).

The cask is then moved to the cask handling area, where personnel consisting of two crafts persons and one health physics technician will be required to install the lid closure bolts. These individuals will be properly attired as identified by a radiation work permit (RWP) and will comply with as low as reasonably achievable (ALARA) principles. Each worker is assumed to receive a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks. An estimated 1 hour will be required to complete the bolt installation. After the lid closure bolts are tightened, a leak-check technician will be required to verify the integrity of the cask seal by performing a leak test. This individual will be properly attired as identified by the RWP and will comply with ALARA principles. It is assumed that the technician will receive a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks. An estimated 1 hour will be required to complete the leak test. The total dose to the four workers for the cask loading operations and leak testing will be 1.5 person-rem (maximum).

Four personnel will be involved in loading and tying down the cask to the rail car or truck at the 324 Building for transport of the casks to the storage site. Personnel could consist of two riggers, one health physics technician, and one inspector. Personnel will be properly attired as identified in the RWP and will comply with ALARA principles. Each worker is assumed to receive a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks during tying down operations. An estimated 1 hour will be required to complete the tie down operation, which will result in a total dose to workers of 1.5 person-rem (maximum).

For rail transport, it is estimated that there will not be any exposure to workers during transport. For offloading the casks onto the truck at the lay down pad, personnel are assumed to consist of two riggers, one health physics technician, and one inspector. Personnel will be properly attired as identified in the RWP and will comply with ALARA principles. Each worker is assumed to receive a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks during transfer operations. An estimated 2 hours will be required to complete the transfer from the railcar to the truck. During transport from the laydown pad to the storage site, a driver and one other occupant in the cab of the truck are assumed to be the only individuals in close proximity to the shipping cask. Each is assumed to be exposed to a dose rate of 0.002 rem per hour (maximum) during the move from the railroad spur to the storage site in the 200 West Area. The maximum travel time from the laydown pad to the storage location is estimated at 30 minutes. The total dose to workers for this method of transportation is 3.0 person-rem (maximum).

For the truck-only scenario, the maximum transport time between the 324 Building and the storage site is estimated to be 2 hours. During transport from the 324 Building to the storage site, a driver and one other occupant in the cab of the truck are assumed to be the only individuals in close proximity to the shipping cask. Each is assumed to be exposed to

For the truck-only scenario, the maximum transport time between the 324 Building and the storage site is estimated to be 2 hours. During transport from the 324 Building to the storage site, a driver and one other occupant in the cab of the truck are assumed to be the only individuals in close proximity to the shipping cask. Each is assumed to be exposed to 0.002 rem per hour (maximum) during the move from the 324 Building to the storage site in the 200 West Area. The total dose to the driver and occupant during transportation for all eight loaded casks is estimated to be 0.06 person-rem (maximum).

Four personnel will be involved in unloading the casks onto the storage site. Personnel are assumed to consist of two riggers, one health physics technician, and one inspector. Personnel will be properly attired as identified in the RWP and will comply with ALARA principles. Each worker is assumed to be exposed to a radiation dose of 0.07 rem per hour (maximum) at the cask surface for the two GNS casks and 0.04 rem per hour (maximum) at the cask surface for the six CASTOR casks during tying down operations. An estimated 1 hour will be required to complete the unloading operation, which will result in a total dose to workers of 1.5 person-rem (maximum).

The worker-cumulative dose received for transport of the eight loaded casks by railroad and truck is calculated to be about 8.9 person-rem (maximum). While different personnel may be used for the different transfer operations, for conservatism it is assumed that the same personnel are used. Applying the International Commission on Radiological Protection (ICRP) coefficient for low dose, low dose-rate whole body irradiation of 0.0004 LCF per person-rem effective dose equivalent for a worker population, a projected 0.0036 LCF is calculated or a chance of about 1 in 280. Based on this calculation, no LCF would be expected.

The worker-cumulative dose for transport of the eight loaded casks by truck is calculated to be about 6.0 person-rem (maximum). While different personnel may be used for the different transfer operations, for conservatism it is assumed that the same personnel used. Applying the ICRP coefficient for low dose, low dose-rate whole body irradiation of 0.0004 LCF per person-rem effective dose equivalent for a worker population, a projected 0.0024 LCF is calculated or a chance of about 1 in 416. Based on this calculation, no LCF would be expected.

Indirect Exposure

Radiation exposure to the uninvolved person at the fence line of the proposed action has been estimated at 0.004 rem per hour. The limit for a radiation area boundary is 0.005 rem per hour. In addition, the proposed action is in close proximity to the 200 West Area perimeter fence, and radiation dose rate to the uninvolved person at the 200 West Area perimeter fence has been estimated at 0.000035 rem per hour. The 200 West Area is considered a radiation controlled area and persons who enter are not expected to receive more than 0.000048 rem per hour (0.1 rem per year) (HSRCM 1994). Because of the low occupancy (less than 10 hours per year), the exposure to general employees or visitors will be less than 0.000048 rem per hour (0.1 rem per year).

5.1.5 Nonhazardous Solid Waste Generated and the Consequences

Minor amounts of nonhazardous solid waste would be generated during the construction phase of the proposed action. It is anticipated that the amount would be 190 cubic meters (250 cubic yards). Once the storage site is built, inert construction waste would be removed, and no further waste generation would occur. The inert construction waste generated from the proposed action would be disposed in an existing onsite pit. The addition of this inert construction waste into an onsite pit would be small compared to the amount of the solid waste generated on the Hanford Site. All nonhazardous waste would be disposed in accordance with applicable requirements. Therefore, these impacts to the environment are expected to be small.

5.1.6 Hazardous or Dangerous Waste Generated and the Consequences

The proposed action would not generate hazardous or dangerous waste.

5.1.7 Hazardous Substances Present and the Consequences

The proposed action should not encounter hazardous materials.

5.1.8 Any Disturbance to Previously Undeveloped Areas and the Consequences

There would be disturbance to undeveloped areas; it is anticipated that the proposed action would disturb less than 0.46 hectare (1.13 acres) of mature sagebrush steppe. To minimize the impact to mature sagebrush steppe, the proposed storage site would be located as close as practical to the two existing gravel access roads on the east and south sides and to the existing cleared area on the north side (Figure 1). The Biological Reviews (Appendix A) specifically identified the plant community as a mature sagebrush steppe, and did note rare plants including the state monitored species Astragalus sclerocarpus (stalked-pod milkvetch). The proposed action is below the threshold level for mitigation of mature sagebrush steppe. The threshold for mitigation is 1 hectare (2.5 acres) for this location within the 200 West Area (DOE/RL-96-88).

5.1.9 Consumption or Commitment of Nonrenewable Resources

Consumption of nonrenewable resources (e.g., petroleum products, diesel fuel, etc.) would occur during the construction, transportation, and storage phases of the proposed action. It is anticipated that during the construction and transportation phase the consumption of petroleum products and diesel fuel would be 1,800 liters (480 gallons) and 2,950 liters (600 gallons), respectively. Concrete and steel for reinforcement and the roof would be [50 cubic meters (65 cubic yards), 2,950 and 9,100 kilograms (6,500 and 20,000 pounds)].

The amount of consumption is minimal; therefore, these impacts to the environment are expected to be small. During storage activities, minimal petroleum products would be consumed.

5.1.10 Effects on Cultural Resources

A Cultural Resources Review (CRR) (Appendix B) was conducted for the proposed action. The CRR concluded: "Several isolated prehistoric and historic artifacts have been recorded within one mile of the project area, however, no cultural resources were identified in the project area or near vicinity." Therefore, it is unlikely that any archaeological materials would be uncovered by the proposed action.

Onsite personnel would be briefed on the requirements of cultural resources and would be directed to watch for cultural artifacts during construction activities (for example, grading). If cultural features or artifacts are encountered, work in the vicinity of the discovery would stop and the appropriate cultural resources staff would be notified. Limited field analysis and documentation of any findings would be conducted before resuming construction activities. The cultural resources staff would assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find.

5.1.11 Effects on Federally or State Listed, Proposed or Candidate, Threatened or Endangered Species

No plants or animals on the federal list of "Endangered and Threatened Wildlife and Plants" (50 CFR 17) were observed in the immediate vicinity of the proposed action, as indicated in Biological Survey #97-200-009 (dated November 25, 1996) and the Supplement to Biological Survey #97-200-009 (dated December 16, 1996) (Appendix A). Because a number of migratory birds might be nesting in the area, any groundbreaking construction activities should be performed before March 15, 1997, or after July 31, 1997 to avoid incidental take under the *Migratory Bird Treaty Act*. If construction is scheduled during this time frame, a supplemental site specific survey for nesting migratory birds would be performed before site clearing. If nesting birds are found during the supplemental survey, construction will be deferred until the birds have left the nest. Therefore, no federally or state listed, proposed or candidate, threatened, endangered species or migratory birds are expected to be affected by the proposed action.

5.1.12 Effects on any Floodplain or Wetland

The proposed action is outside any floodplains and wetlands.

5.1.13 Effects on any Wild and Scenic River, State or Federal Wildlife Refuge, or Specially Designated Area

The proposed action is outside any Wild and Scenic River corridor, state or federal wildlife refuge, or specially designated area.

5.1.14 Reasonably Foreseeable Accidents Considered and the Effects

The purpose of this section is to develop estimates of the accidents associated with the proposed action. Results and conclusions from a review of the potential for accidents and impacts from accidents associated with the proposed action indicate the following:

- The glass matrix of the sources is not susceptible to airborne dispersion, and is not water soluble, and that there is no release pathway to the environment
- After loading, the casks are the primary barrier and prevent releases of the payload during potential accidents. The strength and durability of the casks are demonstrated in the safety analysis reports without taking credit for the confinement and damage resistance provided by the stainless steel canister (source).

The source handling, cask loading, and cask lid placement activities for the proposed action would occur remotely within the shielded REC airlock and A-Cell. The only foreseeable accident would be the dropping of a source during loading into a cask. This type of accident does not present a safety impact because of the shielding walls and confinement function of the REC. The design of the canister in combination with the stable waste form (i.e., borosilicate glass) would preclude any spill from occurring that would require cleanup as a result of this type of accident.

Additionally, impact tests (i.e., 9 meter drop tests) have been performed on other canistered borosilicate glass (Slate et al. 1981). Weight loss measurements indicated glass did not escape the canisters as a result of the tests. Particle size measurements were taken after the tests to determine the response of the glass to impact environments. It was determined that less than 0.001 weight percent of the canister inventory was converted to particles of respirable size (i.e., less than 10 micrometers in diameter) as a result of a 9 meter drop onto a concrete surface. This demonstrates that the canister glass configuration itself, without taking any credit for the accident resistance of the cask, can maintain radioactive material confinement under severe accident conditions.

Installation of the cask lid closure bolts would occur in the 324 Building cask handling area. The only foreseeable accident with potential health effects would be a design-basis earthquake that caused a cask to tip over before the lid closure bolts were installed. The cask design (e.g., lid weight, recessed lid, tight tolerances, lid guidepins) would prevent the lid from coming off during this accident. The design-basis earthquake was analyzed in the

324 Building safety analysis report and determined to have a frequency of once every 100 to 10,000 years (PNNL 1996a).

The casks are capable of withstanding a series of several hypothetical accident conditions, which demonstrated resistance to impact, fire, and puncture as described in Section 2.0. The most severe tests analyzed were as follows:

- Nine-meter (30-foot) free drop onto a hard unyielding surface
- Heat flux equivalent to a 30-minute all-engulfing fire at a temperature of 800°C (1,475°F)
- One-meter (40-inch) free drop onto a vertical bar at the most vulnerable section.

During rail/truck loading and unloading, transportation, and storage activities for the proposed action, no reasonably foreseeable accidents that would breach the structural containment of casks were identified. Therefore, no releases would be expected.

All involved personnel would follow approved safety procedures for the loading and unloading of the casks. Areas would be appropriately identified and closed to uninvolved personnel during the loading and unloading phase. Therefore, public health and safety would not be affected because the area would be closed to the general public.

The only reasonably foreseeable accidents for the proposed action would be typical (nonradiological) construction accidents during the construction phase. All construction personnel would follow approved safety procedures for the construction activities. Public health and safety would not be affected because the area would be closed to the general public.

5.2 SOCIOECONOMIC IMPACTS. Description of socioeconomic impacts that would result from the proposed action.

Only small numbers of workers would be involved in the construction, transportation, monitoring, and surveillance actions at any one time. No substantial change is expected in the number of Hanford Site personnel as a result of the proposed action. In a community of over 165,000 persons with a workforce of about 10,000 persons at the Hanford Site, the socioeconomic impacts of this proposed action would be small. There would be no discernible impact to employment levels within Benton and Franklin counties.

5.3 ENVIRONMENTAL JUSTICE IMPACTS. Description of environmental justice impacts that would result from the proposed action.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or socioeconomic effects of their programs and activities on minority and low-income populations. Minority populations and low income populations are present near the Hanford Site (PNNL 1996b). The DOE is in the process of developing official guidance on the implementation of the Executive Order. The analysis of the impacts in this EA indicates that there would be minimal impacts to both the offsite population and potential workforce by implementing the proposed action, because the entire proposed action would occur on the Hanford Site and the offsite environmental impacts from the proposed action analyzed in this EA are expected to be minimal. Therefore, it is not expected that there would be any disproportionate impacts to any minority or low-income portion of the community.

5.4 CUMULATIVE IMPACTS. Description of the cumulative impacts that would result from the proposed action.

Solid waste generation resulting from the proposed action would not be expected to be substantial compared to annual Hanford Site solid waste generation. Disposal of waste as a result of the proposed action would not substantially affect any associated disposal sites. Because the proposed action would involve a small construction force, no substantial change is expected in the overall workforce of the Hanford Site. Total cumulative dose for the proposed action is estimated to be 8.9 person-rem for the railroad and truck scenario and 6.0 person-rem for the truck scenario. The potential impacts from the proposed action are not expected to contribute substantially to the cumulative impacts of operations on the Hanford Site.

Cumulative Impacts to Biological Resources

The Hanford Site covers 145,000 hectares (358,000 acres). Approximately 6 percent of the site has been disturbed and actively used (Cushing 1995). An assessment of future land uses at the Hanford Site was conducted as part of the scoping for the Hanford Remedial Action EIS and was published as the Final Report of the Hanford Future Site Uses Working Group (HFSUWG 1992). The Central Plateau of the Hanford Site which encompasses the 200 West Area Central Waste Complex, is suggested for waste storage and disposal in support of Site cleanup (DOE/RL-93-99). The area identified in the Central Plateau for cleanup consists of a buffer zone and an exclusive waste management use area. The proposed Central Plateau exclusive waste management use area would consist of approximately 11,700 hectares (28,800 acres), including about 6,700 hectares (16,600 acres) for the buffer zone and about 4,900 hectares (12,200 acres) for the exclusive waste management use area. About 2,300 hectares (5,800 acres) of the proposed 4,900 hectares (12,200 acres) for the exclusive waste

management use area is relatively undisturbed. The proposed action would disturb less than 0.46 hectare (1.13 acres) of shrub-steppe habitat within the Central Waste Complex.

Past, Present and Reasonable Foreseeable Future Actions

Contributors to cumulative land use and habitat impacts on the Central Plateau would include the Hanford Remediation Program, the Environmental Restoration Disposal Facility, the replacement cross-site transfer system, Tank Waste Remediation System Program, and waste management operations. Estimates for the Hanford Remedial Action Program indicate that about 2,150 hectares (5,300 acres), including about 480 hectares (1,200 acres) of shrub-steppe habitat, could be disturbed by the highest impact alternatives (Jacobs 1996). Much of the waste to be generated by the Hanford Remedial Action Program would be disposed in the Environmental Restoration Disposal Facility. Remedial action waste would result from soil and groundwater cleanup, decommissioning and decontamination of structures, and closing treatment, storage and disposal units. The Environmental Restoration Disposal Facility site covers 495 hectares (1240 acres) on the Central Plateau. In addition, approximately 55 hectares (135 acres) of habitat impacts would occur as a result of borrow site activities and 40 hectares (100 acres) for rail line right of way (DOE/RL-93-99). The replacement cross-site transfer system (addressed in the Safe Interim Storage Record of Decision [60 FR 61687]) would remove 9 hectares (22 acres) of shrub-steppe habitat, with a total commitment of 30 hectares (74 acres). Approximately 6 hectares (15 acres) on the Central Plateau would be disturbed to accommodate disposal of waste from 100 Areas of the decommissioning the surplus reactors. Regionalized or centralized alternatives under the Waste Management Draft Programmatic EIS might use up to an additional 72 hectares (179 acres) of Hanford Site land. The Tank Waste Remediation System Program's selected alternative (addressed in the Tank Waste Remediation System Environmental Impact Statement Record of Decision [62 FR 8693] is the Phased Implementation alternative, which would impact about 6 percent (269 hectares [664 acres]) of the exclusive waste management use area.

While the impacts to land use and biological resources might not themselves be substantial, fragmentation of the Central Plateau's habitats by past, present, and reasonable foreseeable future actions could have a cumulative impact greater than the sum of the individual impacts. Because of this, DOE believes that mitigation of impacts to habitat of special importance to the ecological health of the region is most effective when planned and implemented on a sitewide basis. Recognizing this, DOE has prepared a draft sitewide biological management plan to protect these resources. Under this sitewide approach, the potential impacts of projects would be evaluated and appropriate mitigation would be developed based on the cumulative impacts to the ecosystem. DOE has developed mitigation thresholds for late-successional sagebrush steppe habitat areas for the 200 West Area (DOE/RL-96-88). For individual sites in this area, the mitigation threshold is 1 hectare (2.5 acres). Because the proposed action is below the threshold and does include efforts to minimize the impacts to mature sagebrush steppe, the cumulative impact to biological resources is expected to be minimal.

5.5 IMPACTS FROM ALTERNATIVES

The No Action Alternative and the other alternatives are discussed in the following sections.

5.5.1 Implementation of the No Action Alternatives. Qualitative discussion on impacts that would result from implementation of the no action alternative.

The No Action alternative would keep the isotopic heat sources in the 324 Building, which would require that the building remain operational indefinitely. Under the implementation of the No Action alternative, the immediate impacts to the environment would not change. The isotopic heat sources would continue to cause deterioration to windows and equipment in A-Cell. Continued storage of isotopic heat sources in A-Cell would increase radiation exposure to workers.

5.5.2 Implementation of the other Alternatives. Qualitative discussion on impacts that would result from implementation of alternatives.

Using the 200 Area ISA or CSB would require accelerating the construction schedules to support relocating the isotopic heat sources. The impacts to the environment from these alternatives would be similar to those analyzed for the proposed action. However, the 200 Area ISA and the CSB are previously disturbed areas and, therefore, would not result in disturbance of mature sagebrush steppe.

Relocating the isotopic heat sources to the 400 Area Interim Storage Area would have impacts similar to the proposed action. However, the 400 Area ISA is a previously disturbed area therefore, no mature sagebrush steppe would be disturbed. Additionally, the 400 Area ISA is a temporary storage area, therefore implementing this alternative would require double handling and transportation of the isotopic heat sources in the future.

Using the other sites discussed in Section 3.2 would have impacts similar to the proposed action. However, these other sites are previously disturbed areas. Therefore, no mature sagebrush steppe would be disturbed. However, these other sites are either outside the CWC boundary, would require remediating contaminated soils, or would require storing the ancillary equipment separately from the casks.

Implementing the alternative modes of transportation alternative would disturb additional sagebrush steppe in the 200 West Area to construct a railroad spur to the proposed site.

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6.0 PERMITS AND REGULATORY REQUIREMENTS

Regulatory requirements affecting the proposed action and necessary permits.

It is the policy of DOE to carry out its operations in compliance with all applicable federal, state, and local laws and regulations, Presidential Executive Orders, and DOE Orders. The proposed action would follow pollution prevention requirements under *Executive Order 12856: Federal Compliance with Right-To-Know Laws and Pollution Prevention Requirements*.

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7.0 ORGANIZATIONS CONSULTED

Tribes, government agencies, and other interested parties consulted during the preparation of this document.

The DOE has consulted the WDOH, regarding air emissions (potential-to-emit) from the isotopic heat sources and casks. The WDOH has concurred that the isotopic heat sources and casks are exempt from WAC 246-247 "Radiation Protection - Air Emissions" (RFSH 1997c).

A draft version of the EA was sent to the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Wanapum, the Yakama Indian Nation, City of Richland, Benton County, Washington State, U.S. Fish and Wildlife Service, and Physicians for Social Responsibility for a 15 day review period. Comments were received from the Yakama Indian Nation and the State of Washington and were considered in preparing this EA. The comments and DOE responses to these comments are provided in Appendix C.

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8.0 REFERENCES

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50 CFR 17, "Endangered and Threatened Wildlife and Plants".

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- RFSH, 1997a, *Safety Analysis Report for Packaging (Onsite) for the GNS-12 Packaging*, HNF-SD-TP-022, Rust Federal Services Hanford, Richland, Washington.
- RFSH, 1997b, *Safety Analysis Report for Packaging (Onsite) CASTOR GSF Cask*, HNF-SD-TP-021, Rust Federal Services Hanford, Richland, Washington.
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- WAC 246-247, 1995, "*Radiation Protection-Air Emissions*", Washington Administrative Code.

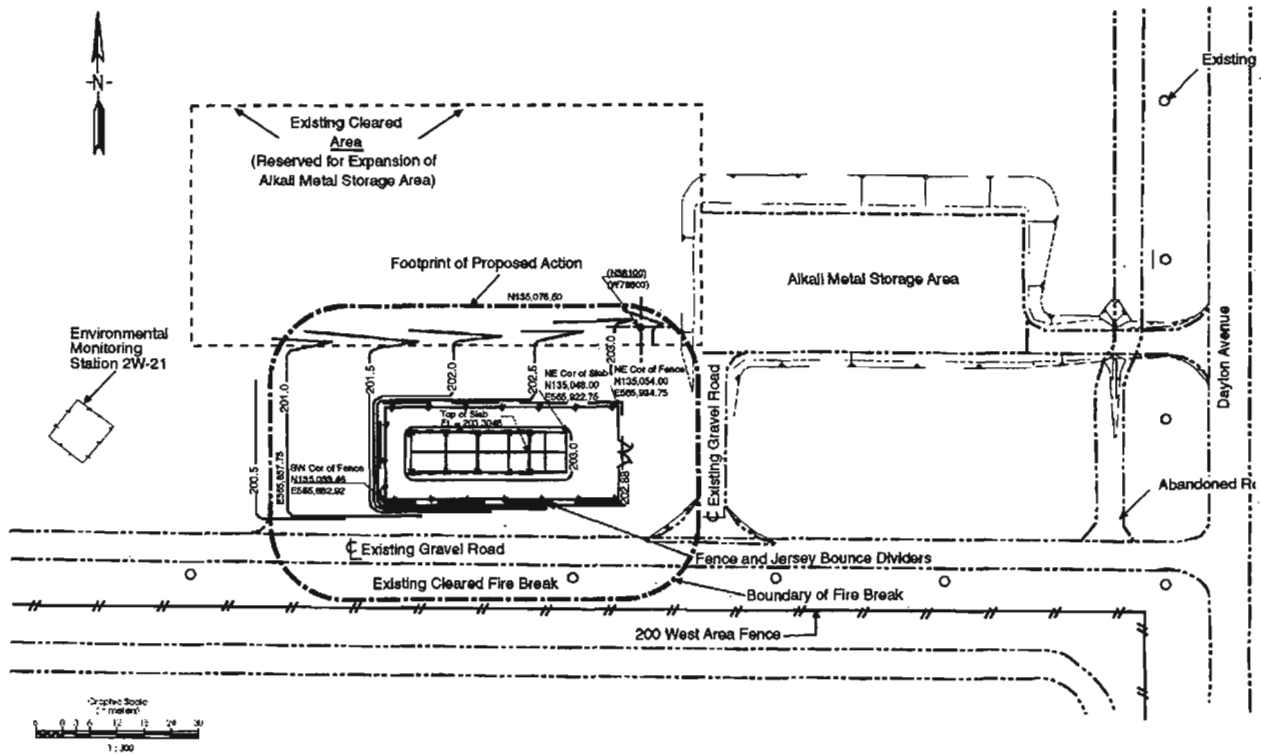


Figure 1. Overview of the Proposed Storage Site.

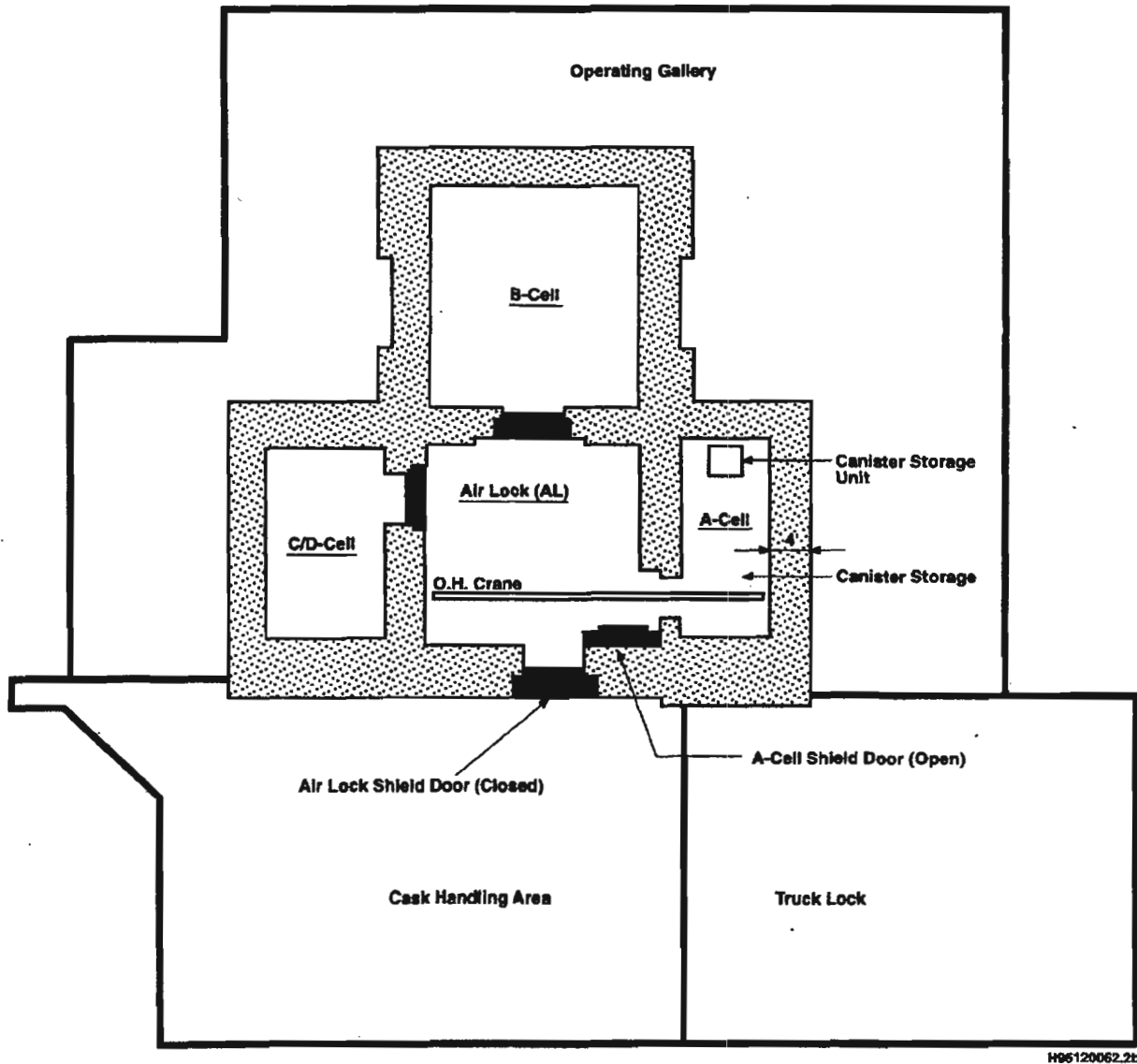


Figure 2. 324 Building Radiochemical Engineering Cells.

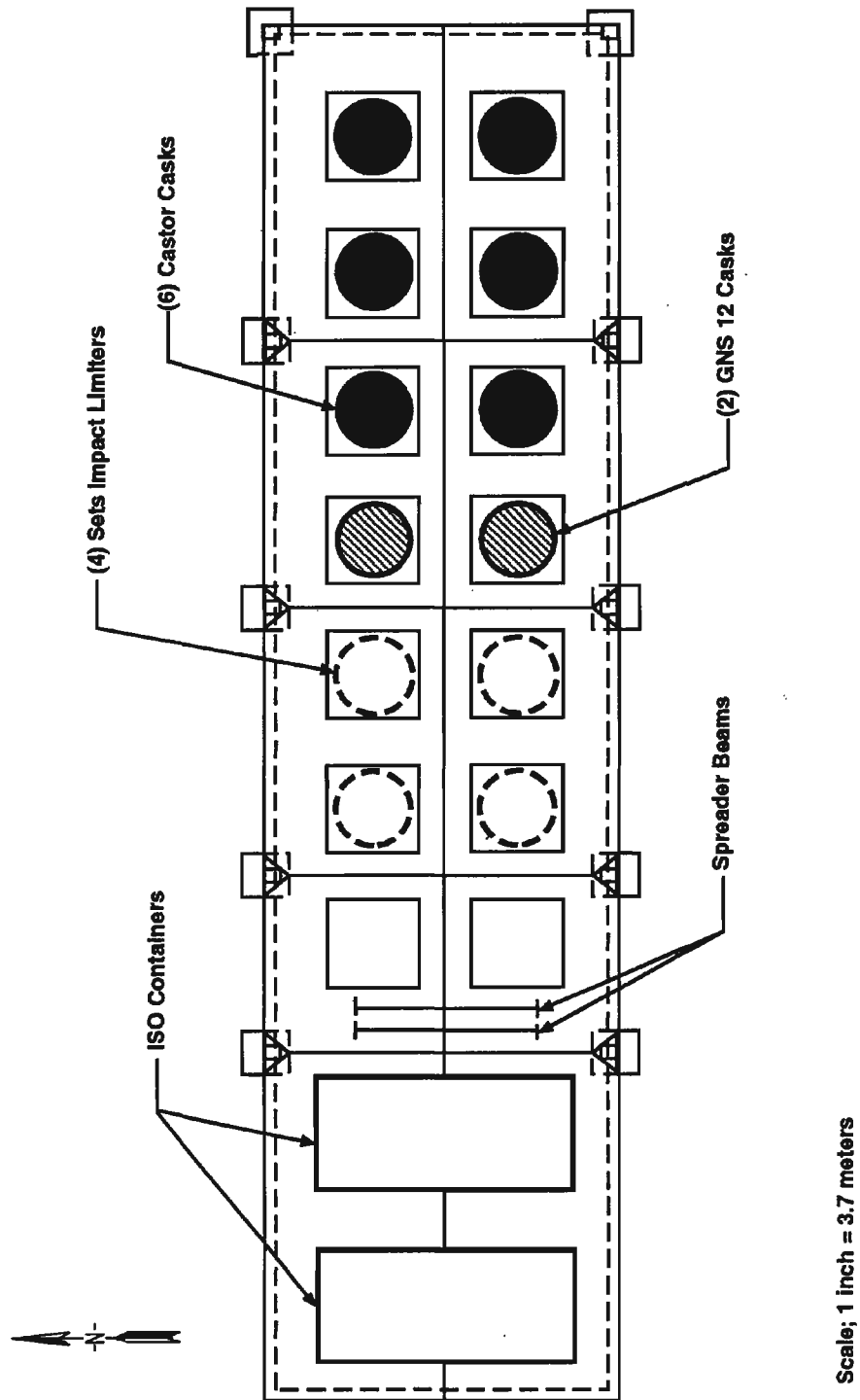


Figure 3. Layout of the GNS and CASTOR Casks, and ISO Containers on the Proposed Storage Site.

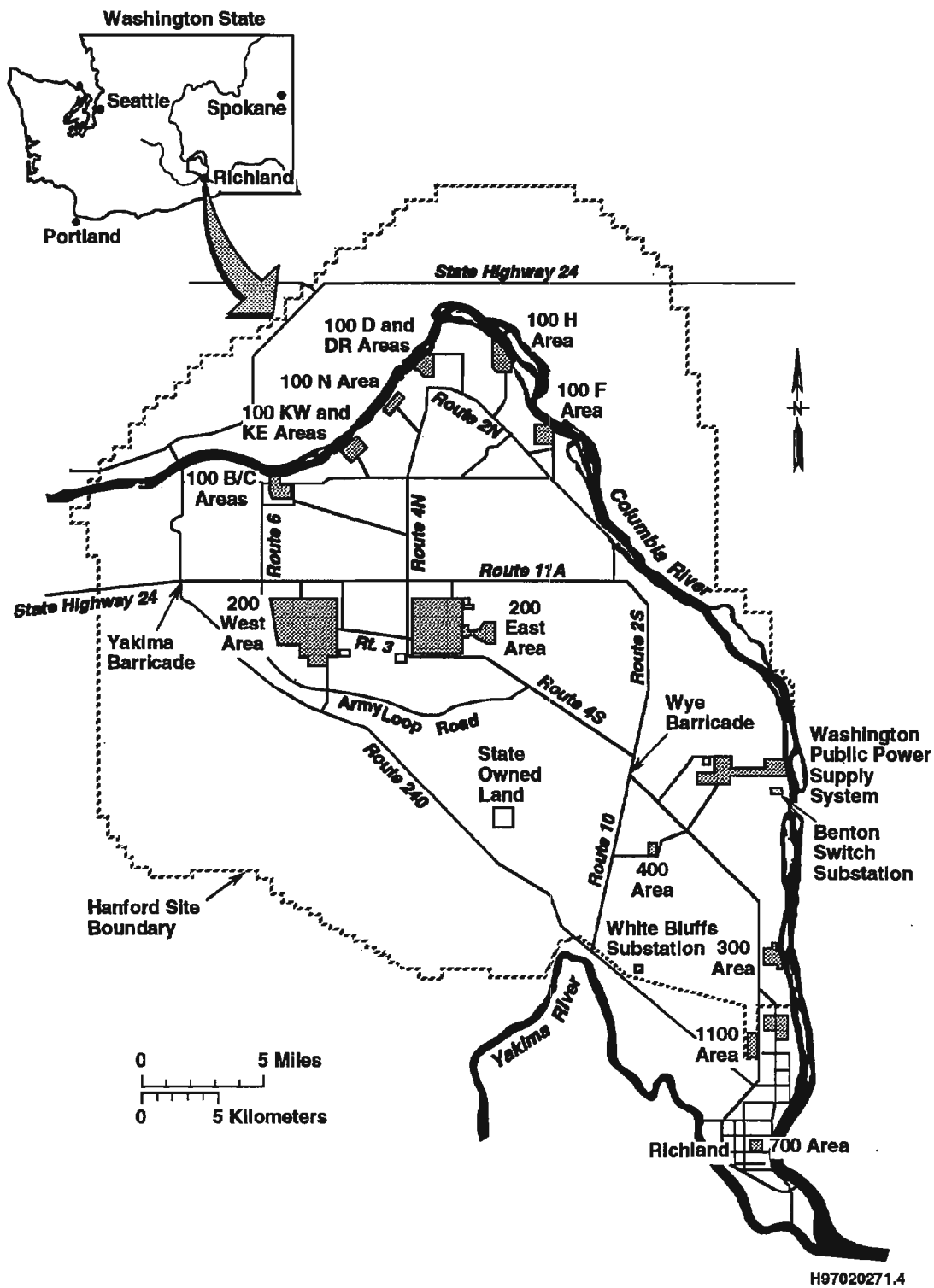


Figure 4. Hanford Site.

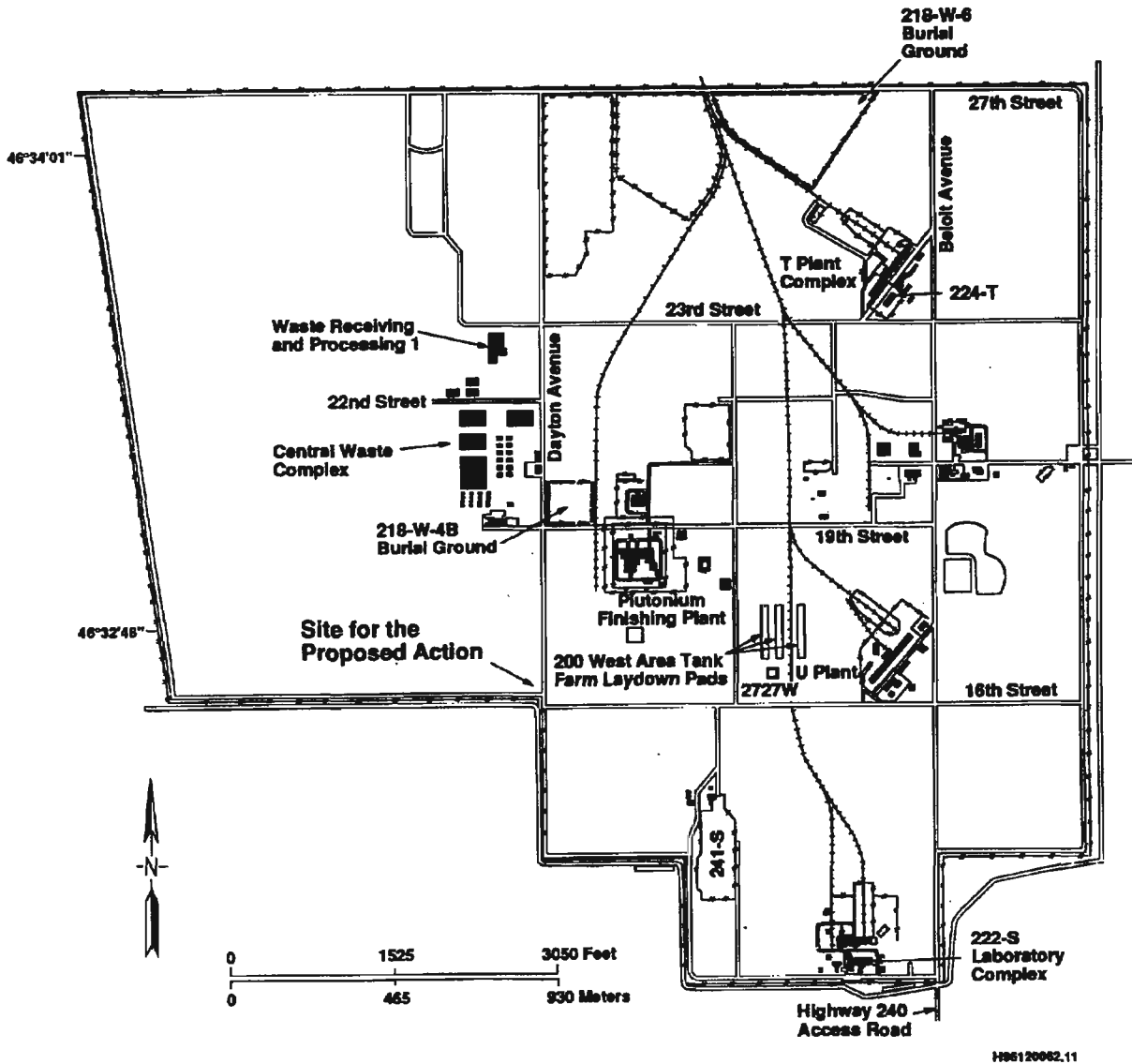


Figure 5. Proposed Storage Site Within the Central Waste Complex.

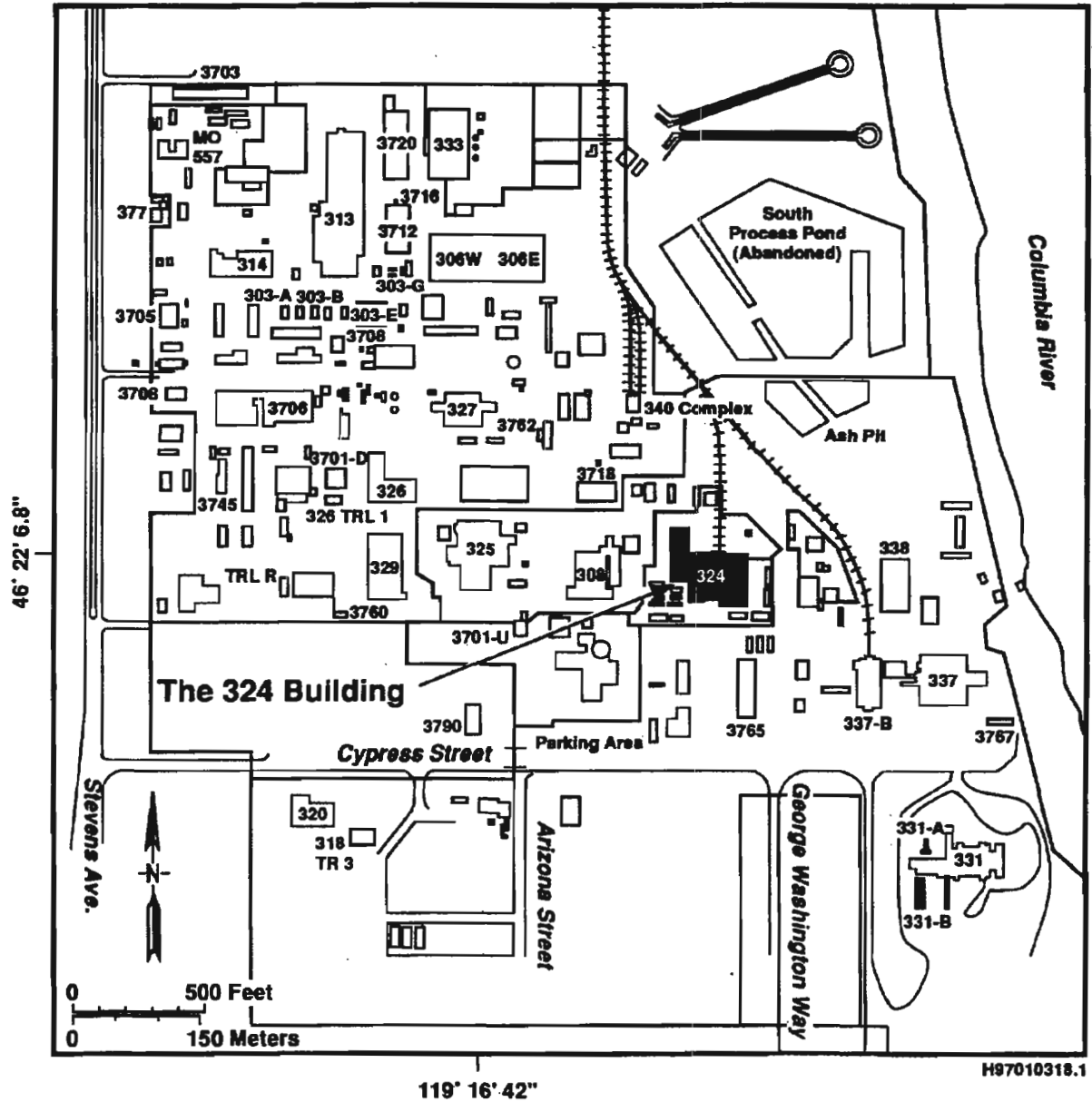


Figure 6. 300 Area.

Table 1. Cask Dimensions.

GNS Cask Dimensions	
Overall height (without impact limiters)	1,636 millimeters (64.4 inches)
Overall diameter (without impact limiters)	1,050 millimeters (41.3 inches)
Cavity diameter	723 millimeters (28.5 inches)
Cavity height	1,220 millimeters (48.0 inches)
CASTOR Cask Dimensions	
Overall height (without impact limiters)	1,795 millimeters (70.6 inches)
Overall diameter (without impact limiters)	1,675 millimeters (65.9 inches)
Cavity diameter	895 millimeters (35.2 inches)
Cavity height	1,250 millimeters (49.2 inches)

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APPENDIX A

BIOLOGICAL REVIEWS

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Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

November 25, 1996

Mr. Patrick J. Weaver
B&W Hanford Company
P. O. Box 1200, MSIN L1-02
Richland, WA 99352

Dear Mr. Weaver:

BIOLOGICAL REVIEW OF THE FRG SEALED ISOTOPIC HEAT SOURCES PROJECT, 200 W Area, #97-200-009

Project Description:

- Install pad for storage of isotopic heat and radiation sources.

Survey Objectives:

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act,
- To evaluate the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- Pedestrian and ocular reconnaissance of the proposed site was conducted by R. Burrows, G. Loughheed, and R. Zufelt on June 3, 1996. The Braun-Blanquet cover-abundance scale (Bonham 1989) was used to determine percent cover of dominant vegetation,
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1993, 1994), Washington State Department of Natural Resources (1994), and for migratory birds, U.S. Fish and Wildlife Service (1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

Survey Results:

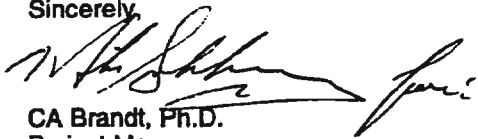
- The plant community is a mature sagebrush steppe, rare plants include the state monitor species *Astragalus sclerocarpus* (stalked-pod milkvetch)
- A number of migratory birds were observed in the area, including Sage sparrows and Loggerhead Shrikes, which are both Hanford Site species of concern (DOE/RL 1996a).

Considerations and Recommendations:

- No plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened, endangered, or sensitive were observed in the vicinity of the proposed site,

- The mature sagebrush steppe is considered a habitat of concern. However, the proposed dimensions of the project (approximately 30 feet by 120 feet, excluding access roads) are well below the threshold level for mitigation via habitat replacement for this portion of the 200 W Area (threshold is 1 hectare - DOE/RL 1996b). However, mitigation via impact avoidance and / or minimization is appropriate. Therefore, if there is leeway as to the precise siting of the storage pad, the ECAP staff should be consulted to determine a location at or near the proposed site that will have the least ecological impact.
- Because a number of migratory birds may be nesting in the area, any habitat clearing should be performed prior to March 15, 1997 or after July 31st, 1997 to avoid incidental take under the MBTA. If this schedule is not acceptable, the ECAP staff should be contacted to perform a supplemental site specific survey for nesting migratory birds prior to site clearing.

Sincerely,



CA Brandt, Ph.D.
Project Manager
Ecological Compliance Assessment

CAB:mrs

REFERENCES

- Bonham, Charles D. 1989. Measurements for Terrestrial Vegetation, John Wiley & Sons, Inc. pp.127-128.
- U.S. Department of Energy. 1996a. Draft Hanford Site Biological Resources Management Plan. DOE/RL 96-32 Rev 0.
- U.S. Department of Energy. 1996. Draft Hanford Site Biological Resources Mitigation Strategy. DOE/RL 96-88 Rev 0.
- U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).
- Washington Department of Fish and Wildlife. 1993. Priority Habitats and Species. pp. 22.
- Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).
- Washington Department of Natural Resources. 1994. Endangered, Threatened & Sensitive Vascular Plants of Washington. (January 1994).

Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

December 16, 1996

Mr. Patrick J. Weaver
B&W Hanford Company
P. O. Box 1200, MSIN L1-02
Richland, WA 99352

Dear Mr. Weaver:

SUPPLEMENT TO THE BIOLOGICAL REVIEW OF THE FRG SEALED ISOTOPIC HEAT SOURCES PROJECT, 200 W Area, #97-200-009

The Biological Review (dated 11/25/96) included the following recommendations:

- No plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened, endangered, or sensitive were observed in the vicinity of the proposed site,
- The mature sagebrush steppe is considered a habitat of concern. However, the proposed dimensions of the project (approximately 30 feet by 120 feet, excluding access roads) are well below the threshold level for mitigation via habitat replacement for this portion of the 200 W Area (threshold is 1 hectare - DOE/RL 1996b). However, mitigation via impact avoidance and / or minimization is appropriate. Therefore, if there is leeway as to the precise siting of the storage pad, the ECAP staff should be consulted to determine a location at or near the proposed site that will have the least ecological impact.
- Because a number of migratory birds may be nesting in the area, any habitat clearing should be performed prior to March 15, 1997 or after July 31st, 1997 to avoid incidental take under the MBTA. If this schedule is not acceptable, the ECAP staff should be contacted to perform a supplemental site specific survey for nesting migratory birds prior to site clearing.

These conclusions are still valid, except that the quantity of habitat to be removed has been increased to approximately 1 acre (0.4 ha) to satisfy fire safety concerns. This is still below the 2.5 acre (1 ha) threshold level for replacement mitigation. Therefore, no rectification or compensation will be required.

Based on information provided on 12/16/96, we make the following additional recommendation:

- The project area should be sited as far east, and as near the existing gravel access road to the Aikali Metals Storage Facility as possible, within limits of other safety or logistical concerns.

Sincerely,



CA Brandt, Ph.D.
Project Manager
Ecological Compliance Assessment

CAB:mrs

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APPENDIX B

CULTURAL RESOURCES REVIEWS AND CORRESPONDENCE

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Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

February 7, 1997

No Known Historic Properties

Mr. P. J. Weaver
B&W Hanford Company
P. O. Box 1200/L1-02
Richland, WA 99352

Dear Mr. Weaver:
CULTURAL RESOURCES REVIEW OF THE FRG SEALED ISOTOPIC HEAT SOURCES
PROJECT. HCRC #97-200-009.

In response to your request received November 20, 1996, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project, located in the 200 West Area of the Hanford Site. According to the information that you supplied, the project will construct a storage pad in the 200 West area for isotopic heat and radiation sources relocated from the 324 Building. The pad will be constructed on the northwest corner of 16th Street and Dayton Ave and will measure approximately 120 feet long by 30 feet wide. The site will be graded prior to construction.

Our literature and records review shows that the project area is located in the western part of the 200 West Area in ground that has not been disturbed by previous Hanford Site construction activities. The land was previously surveyed for cultural materials as part of project HCRC# 88-200-038. Several isolated prehistoric and historic artifacts have been recorded within one mile of the project area, however, no cultural resources were identified in the project area or near vicinity. The White Bluffs Road is located about 0.6 km to the northwest. It is unlikely that any archaeological materials will be affected by the proposed project. Additional survey of the project area and monitoring of the grading by an archaeologist are not necessary.

It is the finding of the HCRL staff that there are no known cultural resources or historic properties within the proposed project area. The workers, however, must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL archaeologist has been notified, assessed the significance of the find, and, if necessary, arranged for mitigation of the impacts to the find. The HCRL must be notified if any changes to project location or scope are anticipated. This is a Class V case, defined as project which involves undisturbed ground.

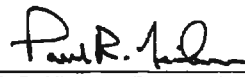
Copies of this letter will be sent to D. W. Lloyd, DOE, Richland Operations Office, as official documentation. If you have any questions, please call me at 376-8107. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,



N. A. Cadoret
Technical Specialist
Cultural Resources Project

Concurrence:


P. R. Nickens, Project Manager
Cultural Resources Project

cc: D. W. Lloyd, RL (2)
G. D. Cummins
R. J. Swan
File/LB

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APPENDIX C

COMMENTS AND U.S. DEPARTMENT OF ENERGY RESPONSES

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

March 17, 1997

Paul F.X. Dunigan, Jr.
US Dept of Energy
PO Box 550
Richland WA 99352-0550

Dear Mr. Dunigan:

Thank you for the opportunity to comment on the draft environmental assessment for relocation and storage of sealed isotropic heat sources on the Hanford Site, Richland Washington (DOE/EA-1211).

Consistent with the Department of Ecology's responsibilities as Washington State's coordinator for the National Environmental Policy Act, we are forwarding the comments received from the State of Washington, Department of Fish and Wildlife. If you have any questions on the comments made by Washington Department of Fish and Wildlife, please call Mr. Jay McConnaughey at (509) 736-3095.

Sincerely,

A handwritten signature in cursive script that reads "Rebecca J. Inman".

Rebecca J. Inman
Environmental Review Section

RI:
97-1352

cc: Jay McConnaughey, Kennewick



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

1701 S. 24th Ave., Yakima, WA 98902-5720 Tel. (509) 575-2740

11 March, 1997

Ms. Barbara Ritchie
Environmental Review Section
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, WA 98504

Dear Ms. Ritchie:

Subject: Comments on the document titled *Draft Environmental Assessment for the Relocation and Storage of Sealed Isotopic Heat Sources Hanford Site, Richland Washington, DOE/EA-1211.*

Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to provide comments on the aforementioned document for inclusion in the state response letter to U.S. Department of Energy (USDOE).

General Comments

WDFW concurs with the need for action which involves moving 34 sealed isotopic heat sources from the 324 Building A-Cell to the 200 Area, thus moving highly radioactive transuranic waste stored near the Columbia River to an area much farther away, but we do not support the preferred alternative which will impact Washington State Priority Shrub Steppe Habitat.

The analysis for this proposed action is inadequate. Inadequacies include: range of reasonable alternatives, site selection (mitigation hierarchy), discussion of cumulative impacts to biological resources from past, present, and foreseeable future actions, and discussion of benefits to biological resources by implementing one of the alternatives.

Specific Comments

1.1 Purpose and Need

This section should state whether the action is an interim or final action for the isotopic

Ms. Ritchie
11 March, 1997
Page 2 of 5

1.2 Background

This section states that the isotopic heat sources have been stored at 324 since the mid-1980s, and that intense radiation fields from the heat sources are causing the cell windows and equipment to deteriorate. The author does not state the rate of deterioration occurring to the equipment or windows, or project when failure to these items would occur. Please clarify.

2.0 Description of the proposed action

The first paragraph states that the storage site would allow retrieval capability. The author does not state whether this is an interim or final action for the heat sources. Please state.

The third paragraph mentions transportation/storage casks will be utilized, but the author does not provide dimensions for the casks. Please include the dimensions to assist the reader in justification of the storage pad's length shown in Fig. 1.

3.0 Alternatives to the proposed action

Section 3.2. The author raises the possibility of using the PUREX tunnel, but dismisses the alternative in the third sentence. The author leaves the reader wondering whether this alternative is really a reasonable alternative, and whether it should even be mentioned. Please state what is involved in reactivating the tunnels if this is a truly reasonable alternative. Otherwise, please eliminate it from analysis, and replace with a more viable alternative.

Section 3.3. First, the two alternatives mentioned here warrant further discussion and should not be eliminated so quickly. Second, the reader requires an answer to whether this action is interim or final to assist in meaningful comments.

Regarding the 400 Area Interim Storage Facility as an alternative, WDFW believes this is an alternative worth pursuing, especially, if we are discussing an interim action. The author states that by using the 400 Area Interim Storage Facility it would impact storing spent nuclear fuel there. Please identify where this existing spent nuclear fuel source is coming from. We are not aware of spent nuclear fuel from the K Basins or anywhere else being moved to the 400 Area for storage.

The 400 area could serve as a short term solution if the CSB Complex can meet long term storage requirements. The author indicates that the CSB Complex could meet these requirements and is therefore a reasonable alternative.

Of the alternatives presented, WDFW supports the CSB Complex alternative. In addition, we are cognizant of several other alternatives which have not been mentioned and warrant analysis. The CSB Complex alternative would not impact any existing Priority Shrub

Ms. Ritchie
11 March, 1997
Page 3 of 5

Steppe Habitat as the preferred will. For the CSB Complex to become the preferred alternative, one or several things must happen. First, the proposed action schedule requires amendment to allow completion of the CSB Complex, projected in Dec 1997. This would allow the CSB to house the waste. The casks could then be moved directly into the CSB. However, If the action can not be delayed, then the 400 Interim Storage Facility should be used in the interim.

Facility site selection

One of our concerns with this EA is facility siting and the impacts to Priority Shrub Steppe Habitat. We would prefer to see the following hierarchy implemented for facility site selection. The selection process would consider:

1. Avoidance of Priority Shrub Steppe Habitat by utilizing existing disturbed sites, e.g., former building sites, or where an existing building is slated for demolition.
2. Focus site selection within the 200 East Area fence line consolidating the heat sources with other highly radioactive wastes.
3. Disturbed areas between the 200 Areas and within the exclusive waste management area.

Alternatives worth consideration

1). WDFW is aware of an existing storage pad (i.e. the 200 Interim Storage Area [ISA]) adjacent to the CSB Complex that could serve the need of this action. Please include this site in the analysis. We believe it makes sense to consolidate the isotopic heat sources near where other highly radioactive waste will be or is being stored, such as the K Basin spent fuel directed to the CSB Complex upon completion, and the strontium and cesium capsules being stored in the Waste Encapsulation Storage Facility located in the 200 East Area.

2). Another potential alternative site is an area between the experimental barrier cap and the submarine pit and south of the 200 East Area north fence line. The plant community present is dominated by cheatgrass.

3). Another area would be a disturbed area south of 12th avenue and between Akron and Route 4 just outside the 200 East Area fence line. This is an example of an area between the 200 East and West Areas.

Section 4.2 Specific Site Environment

Section 4.2.4. Based on the description here and a site visit made on 9 March, 1997, WDFW encourages USDOE to find an alternative site or utilize existing storage pads. By siting the facility in an existing disturbed area or using an existing storage pad, this action would be consistent with the USDOEs land and facility use policy.

Ms. Ritchie
11 March, 1997
Page 4 of 5

5.1 Construction and Operation Impacts

Section 5.1.8. This action does not adhere to NEPA's hierarchy of mitigation which calls for:

1. Avoid
2. Minimize
3. Rectify
4. Compensate

WDFW does not concur with establishing a threshold level for mitigation and ignoring the hierarchy established under NEPA when a project will impact Washington State designated Priority Shrub Steppe Habitat as this proposed action will.

5.4 Cumulative Impacts.

This section lacks a discussion of impacts to biological resources from past, present, and foreseeable future actions. Please include.

5.5 Impacts from alternatives

Section 5.5.2. The author states that by using the CSB the construction schedule would have to be accelerated for the CSB. From our perspective, we believe the schedule for the proposed action should be decelerated to allow use of the CSB which is an excellent alternative. Funding to perform this action could assist in the construction costs of the CSB freeing money from the Spent Nuclear Fuel program for other clean-up related issues.

Second, the alternatives mentioned would not impact Washington State Priority Shrub Steppe Habitat as will the proposed action. This is contrary to what the author has stated in the first paragraph.

Figure 1.

This figure depicts the eight storage casks placed on the proposed Storage Pad. It also illustrates that the pad is being over designed for the needs of this action. Please explain his over design flaw.

Conclusion

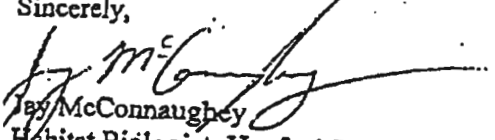
WDFW strongly encourages USDOE to implement the NEPA mitigation hierarchy for facility siting and to avoid impacts to state Priority Shrub Steppe Habitat. By avoiding shrub steppe, USDOE-Richland Operations is consistent with the USDOE's Land and Facility Use Policy. Modifications should occur to the proposed action's schedule to allow selection of the CSB Complex as the preferred alternative. The analysis should

Ms. Ritchie
11 March, 1997
Page 5 of 5

include reasonable alternatives such as the 200 ISA that also fulfill the need of this action.

Thank you for considering our comments. If you have any questions regarding these comments, please contact me at 509 736-3095.

Sincerely,


Jay McConnaughey
Habitat Biologist, Hanford Site

cc:

U.S. Department of Energy
Paul Dunigan
Washington Department of Ecology
Ron Skinnarland
Jeanne Wallace

WDFW

Jane Banyard
Brent Renfrow



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JUN 05 1997

97-TPD-113

Ms. Barbara Ritchie
Environmental Review Section
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. Ritchie:

RESPONSE TO COMMENTS ON ENVIRONMENTAL ASSESSMENT DOE-EA-1211: RELOCATION AND STORAGE OF ISOTOPIC HEAT SOURCES, HANFORD SITE

The U.S. Department of Energy Richland Operations Office wishes to thank you for forwarding comments from the State of Washington, Department of Fish and Wildlife, dated March 11, 1997, on the subject draft Environmental Assessment (EA). The comments were considered in preparing the final EA. Responses to the comments are enclosed, and resulting changes made to the EA are noted.

If you have any questions, please call me on (509) 376-6667, or you may call David C. Langstaff, of the Transition Program Division, on (509) 376-5580.

Sincerely,

Paul F. X. Dunigan, Jr.
Paul F. X. Dunigan, Jr.
NEPA Compliance Officer

TPD:DCL

Enclosure

cc w/encl:
Jay McConaughy, Ecology
Jeanne Wallace, Ecology

ENCLOSURE

**Comments and Responses to the Environmental
Assessment for Relocation and Storage of
Isotopic Heat Sources (DOE/EA-1211)**

COMMENTS AND RESPONSES TO THE ENVIRONMENTAL
ASSESSMENT FOR RELOCATION AND STORAGE OF
ISOTOPIC HEAT SOURCES (DOE/EA-1211)

Comment: 1.1 Purpose and Need

This section should state whether the action is an interim or final action for the isotopic heat sources to allow the reader the opportunity of providing meaningful comments.

Response: The environmental assessment (EA) has been revised to state that the isotopic heat sources would be stored in the identified casks at the proposed interim dry storage site until a national repository is established for this waste type. At that time, the waste would be relocated to a national repository. This information has been added to Section 2.0 Description of the Proposed Action.

Comment: 1.2

This section states that the isotopic heat sources have been stored at 324 since the mid-1980s and that intense radiation fields from the heat sources are causing the cell windows and equipment to deteriorate. The author does not state the rate of deterioration occurring to equipment or windows, or project when failure to these items occur. Please clarify.

Response: As stated, the isotopic heat sources were fabricated in 1987 to 1988 and have been stored in the 324 Building since that time. Originally, it was not intended to store the isotopic heat sources for this length of time in A-cell. The windows are building up a dielectric charge as a direct result of the high gamma radiation emitted from the isotopic heat sources. Because of the high gamma radiation the lower viewing window has darkened to the point where it is not useable, it also has been covered to prevent personnel injury. The upper viewing window has deteriorated since 1995 and is now clouded. Failure (loss of visibility through the upper window) could occur at any time during operation, surveillance or maintenance based on discussions with Hot Cell Services Corporation (hot cell window vendor). In July 1994, it was concluded that any work performed in A-cell would greatly increase the chances of an induced dielectric discharge which could produce spider web cracking of the viewing window, further obscuring visibility. Visibility through the upper viewing window is important for removing the isotopic heat sources from A-cell. Should the upper window fail, crane operations in A-cell would need to be performed with remote-operated cameras. Removing the isotopic heat sources using remote-operated cameras would be more costly and difficult.

Comment: 2.0

The first paragraph states that the storage site would allow retrieval capability. The author does not state whether this is an interim or final action for the heat sources. Please state.

Response: The environmental assessment (EA) has been revised to state that the isotopic heat sources would be stored in the identified casks at the proposed interim dry storage site until a national repository is established for this waste type. At that time, the waste would be relocated to a national repository. This information has been added to Section 2.0 Description of the Proposed Action.

Comment: 2.0

The third paragraph mentions transportation/storage casks will be utilized but author does not provide

dimensions for the casks. Please include the dimensions to assist the reader in justification of the storage pad's length shown in Figure 1.

Response: The storage pad has been designed to support 8 casks containing the isotopic heat sources and two International Standards Organization (ISO) containers and ancillary equipment (e.g., impact limiters, handling equipment) associated with the casks. During storage, the casks would be separated by a minimum of 0.9 meter (3 feet) to allow routine inspections. Additionally, none of casks would be placed within 1.5 meters (5 feet) of the edge of the storage pad. Storage of the casks, ISO containers and equipment would use the entire storage pad.

GNS Cask Dimensions

Overall Height (without impact limiters)	1,636 mm	(64.4 inches)
Overall Diameter (without impact limiters)	1,050 mm	(41.3 inches)
Cavity Diameter	723 mm	(28.5 inches)
Cavity Height	1,220 mm	(48.0 inches)

CASTOR Cask Dimensions

Overall Height (without impact limiters)	1,795 mm	(70.6 inches)
Overall Diameter (without impact limiters)	1,675 mm	(65.9 inches)
Cavity Diameter	895 mm	(35.2 inches)
Cavity Height	1,250 mm	(49.2 inches)

Section 2.0 Description of the Proposed Action has been revised to include the previous discussion. Additionally, the dimensions for GNS and the CASTOR casks are shown in Table 1. Cask Dimensions and Figure 3.0 has been included showing the layout of the casks, International Standards Organization (ISO) containers and ancillary equipment.

Comment: Section 3.2

The author raises the possibility of using the PUREX tunnel, but dismisses the alternative in the third sentence. The author leaves the reader wondering whether this alternative is really a reasonable alternative, and whether it should be even mentioned. Please state what is involved in reactivating the tunnel if this is truly reasonable alternative. Otherwise, please eliminate it from analysis, and replace with a more viable alternative.

Response: Based on a re-evaluation, U.S. Department of Energy (DOE) concluded that the Plutonium Uranium Extraction Facility (PUREX) Storage Tunnels are not a viable alternative storage location based on: (1) the isotopic heat sources are designated for disposal in a national repository; therefore, the 'last-in/first-out' storage configuration would require interim staging of casks before placement in the tunnels, and currently, an interim storage location is not available, (2) the configuration of the tunnels does not support cask surveillance and maintenance activities, and (3) the PUREX Storage Tunnels are contaminated areas and would contaminate the casks, which would result in unnecessary costs and worker exposure to decontaminate. Accordingly, the Environment Assessment has been revised and the PUREX Storage Tunnels alternative has been eliminated.

Comment Section 3.3.

First, the two alternatives mentioned here warrant further discussion and should not be eliminated so quickly. Second, the reader requires an answer to whether this action is interim or final to assist in meaningful comments.

Regarding the 400 Area Interim Storage Facility as an alternative, Washington Department of Fish and Wildlife (WDFW) believes this is an alternative worth pursuing, specially, if we are discussing an interim action. The author states that by using the 400 Area Interim Storage Facility it would impact storing spent nuclear there. Please identify where existing spent nuclear fuel source is coming from. We are not aware of spent nuclear fuel from the K Basins or anywhere else being moved the 400 Area for storage.

Response: The 400 Area Interim Storage Area (ISA) currently stores spent nuclear fuel being offloaded from the Fast Flux Test Facility (FFTF) and fuel from the 308 Building TRIGA reactor. This is intended as an interim action pending availability of the canister storage building (CSB). The 400 Area ISA might receive spent nuclear fuel from the 324 Building as described in DOE/EA-1185, "Management of Hanford Site Non-Defense Production Reactor Spent Nuclear Fuel Hanford Site, Richland, Washington", dated March 1997; and DOE/EA-0993, "Shutdown of the Fast Flux Test Facility, Hanford Site, Richland, Washington", dated May 1995.

The alternative siting comments have been consolidated.

The 400 area could serve as a short term solution if the CSB Complex can meet long term storage requirements. The author indicates that the CSB complex could meet these requirements and is therefore a reasonable alternative. Of the alternatives presented, WDFW supports the CSB Complex alternative. In addition, we are cognizant of several other alternatives which have not been mentioned and warrant analysis. The CSB Complex alternative would not impact any existing Priority Shrub Steppe Habitat as the preferred will. For the CSB Complex to become the preferred alternative, one or several things must happen. First the proposed action schedule requires amendment to allow completion of the CSB Complex, projected in Dec. 1997. This would allow the CSB to house the waste. The casks could then be moved directly into the CSB. However, if the action can not be delayed, then the 400 Interim Storage Facility should be used in the interim.

WDFW is aware of an existing storage pad (i.e. the 200 Interim Storage Area [ISA]) adjacent to the CSB Complex that could serve the need of this action. Please include this site in the analysis. We believe it makes sense to consolidate the isotopic heat sources near where other highly radioactive waste will be or is being stored.

Another potential alternative site is an area between the experimental barrier cap and the submarine pit and south of the 200 East Area north fence line. The plant community present is dominated by cheatgrass.

Another area would be a disturbed area south of 12th avenue and between Akron and Route 4 just outside the 200 East Area fence line. This is an example of an area between the 200 East and West Areas.

Response: DOE has considered various alternative sites and facilities for storing the isotopic heat sources, and in weighing the consequences, DOE believes it is prudent to consolidate the isotopic heat sources with other transuranic waste. The Central Waste Complex (CWC) is committed to storing and treating mixed

and/or radioactive waste. In making this decision, many factors favored this site; for example, this is the lowest cost option, requires one transportation campaign to the proposed storage site, halts the deterioration of A-cell, and does not dilute or adversely impact the schedule and/or mission of the spent nuclear fuel (SNF) program.

400 Area ISA:

The GNS and CASTOR casks would exceed the 2 millirem per hour requirement for storage at the 400 Area ISA. Placement of these loaded casks in the 400 Area ISA would increase exposure to personnel occupying facilities adjacent to the 400 Area ISA and to personnel performing activities including surveillance and maintenance of the casks currently in storage. Additionally, the 400 ISA is outside the CWC boundary.

200 East Area ISA:

The 200 Area ISA is not an existing storage pad and is in the planning stages. Construction of the 200 Area ISA is not scheduled to be completed until the end of fiscal year 1999. Additionally, the 200 East Area ISA would be outside the CWC boundary.

Canister Storage Building:

The first priority of the CSB is to handle and store SNF. The CSB is currently under construction and its availability for this purpose would be in the 2002 time frame. Additionally, the CSB site is outside the CWC boundary.

Experimental Barrier Cap:

The area between the experimental barrier cap and the defueled reactor compartment trench just south of the 200 East Area north fence line has been evaluated and dismissed. This area is to be used for burial ground activities and therefore is not compatible with above surface storage activities. This alternative site is outside the CWC boundary.

12th Avenue:

The disturbed area south of 12th Avenue and between Akron and Route 4 just outside the 200 East Area fence line has been evaluated and dismissed. This alternative site is outside the CWC boundary.

Section 3.0 Alternatives to the Proposed Action has been revised to include this information.

Comment: 5.1 Construction and Operation Impacts

Section 5.1.8 This action does not adhere to NEPA's hierarchy of mitigation which calls for

1. Avoid
2. Minimize
3. Rectify
4. Compensate

WDFW does not concur with establishing a threshold level for mitigation and ignoring the hierarchy established under NEPA when a project will impact Washington State designated as this proposed action will.

Response: The listing of mitigation measures at 40 CFR 1508.20 is not presented as a hierarchy.

Nevertheless, to minimize the impact to mature sagebrush steppe, the fire break for the proposed storage site would take advantage of the following: an existing gravel road to the south, and an existing cleared area reserved for future expansion of the Alkali Metals Storage Pad to the north. To the east, the storage pad would be sited as close as practical to the existing gravel road but would still need to maintain vehicle access to the storage pad. This allows DOE to minimize the amount of sagebrush steppe that needs to be disturbed to provide a firebreak around the storage site. DOE has prepared a draft sitewide biological management plan to protect these resources. The draft sitewide biological management plan established threshold levels for activities that might impact late-successional sagebrush steppe habitat on the Hanford Site.

Comment: Figure 1.

This figure depicts the eight storage casks placed on the proposed Storage Pad. It also illustrates that the pad is being over designed for the needs of this action. Please explain this over design flaw.

Response: The storage pad has not been over designed, the storage pad has been sized to support 8 casks containing the isotopic heat sources and two International Standards Organization (ISO) containers and ancillary equipment (e.g., impact limiters, handling equipment) associated with the casks. During storage, the casks would be separated by a minimum of 0.9 meter (3 feet) to allow routine inspections. Additionally, none of casks would be placed within 1.5 meters (5 feet) of the edge of the storage pad. Storage of the casks, ISO containers and equipment would use the entire storage pad. Section 2.0 Description of the Proposed Action has been revised to include the previous discussion. The dimensions for GNS and the CASTOR casks are shown in Table 1. Cask Dimensions and Figure 3.0 has been included showing the layout of the casks, International Standards Organization (ISO) containers and ancillary equipment.

Comment: 5.4 Cumulative Impacts:

This section lacks a discussion of impacts to biological resources from past, present, and foreseeable future actions. Please include.

Response: Section 5.4 Cumulative Impacts has been revised to address the impacts to biological resources from past, present, and foreseeable future actions.

The Hanford Site covers 145,000 hectares (358,000 acres). Approximately 6 percent of the site has been disturbed and actively used (Cushing 1995). An assessment of future land uses at the Hanford Site was conducted as part of the scoping for the Hanford Remedial Action EIS and was published as the Final Report of the Hanford Future Site Uses Working Group (HFSUWG 1992). The Central Plateau of the Hanford Site which encompasses the 200 West Area Central Waste Complex, is suggested for waste storage and disposal in support of Site cleanup (DOE/RL-93-19). The area identified in the Central Plateau for cleanup consists of a buffer zone and an exclusive waste management use area. The proposed Central Plateau exclusive waste management use area would consist of approximately 11,700 hectares (28,800 acres), including about 6,700 hectares (16,600 acres) for the buffer zone and about 4,900 hectares (12,200 acres) for the exclusive waste management use area. About 2,300 hectares (5,800 acres) of the proposed 4,900 hectares (12,200 acres) for the exclusive waste management use area is relatively undisturbed. The proposed action would disturb less than 0.4 hectare (1.13 acres) of shrub-steppe habitat within the Central Waste Complex.

Past, Present and Reasonable Foreseeable Future Actions

Contributors to cumulative land use and habitat impacts on the Central Plateau would include the Hanford Remediation Program, the Environmental Restoration Disposal Facility, the replacement cross-site transfer system, Tank Waste Remediation System Program, and waste management operations. Estimates for the Hanford Remedial Action Program indicate that about 2,150 hectares (5,300 acres), including about 480 hectares (1,200 acres) of shrub-steppe habitat, could be disturbed by the highest impact alternatives (Jacobs 1996). Much of the waste to be generated by the Hanford Remedial Action Program would be disposed in the Environmental Restoration Disposal Facility. Remedial action waste would result from soil and groundwater cleanup, decommissioning and decontamination of structures, and closing treatment, storage and disposal units. The Environmental Restoration Disposal Facility site covers 495 hectares (1240 acres) on the Central Plateau. In addition, approximately 55 hectares (135 acres) of habitat impacts would occur as a result of borrow site activities and 40 hectares (100 acres) for rail line right of way (DOE/RL-93-99). The replacement cross-site transfer system (addressed in the Safe Interim Storage Record of Decision [60 FR 61687]) would remove 9 hectares (22 acres) of shrub-steppe habitat, with a total commitment of 30 hectares (74 acres). Approximately 6 hectares (15 acres) on the Central Plateau would be disturbed to accommodate disposal of waste from 100 Areas of the decommissioning the surplus reactors. Regionalized or centralized alternatives under the Waste Management Draft Programmatic EIS might use up to an additional 72 hectares (179 acres) of Hanford Site land. The Tank Waste Remediation System Program's selected alternative (addressed in the Tank Waste Remediation System Environmental Impact Statement Record of Decision [62 FR 8693] is the Phased Implementation alternative, which would impact about 6 percent (269 hectares [664 acres]) of the exclusive waste management use area.

While the impacts to land use and biological resources might not themselves be substantial, fragmentation of the Central Plateau's habitats by past, present, and reasonable foreseeable future actions could have a cumulative impact greater than the sum of the individual impacts. Because of this, DOE believes that mitigation of impacts to habitat of special importance to the ecological health of the region is most effective when planned and implemented on a sitewide basis. Recognizing this, DOE has prepared a draft sitewide biological management plan to protect these resources. Under this sitewide approach, the potential impacts of projects would be evaluated and appropriate mitigation would be developed based on the cumulative impacts to the ecosystem. DOE has developed mitigation thresholds for late-successional sagebrush steppe habitat areas for the 200 West Area (DOE/RL-96-88). For individual sites in this area, the mitigation threshold is 1 hectare (2.5 acres). Because the proposed action is below the threshold and does include efforts to minimize the impacts to mature sagebrush steppe, the cumulative impact to biological resources is expected to be minimal.



Confederated Tribes and Bands
of the Yakama Indian Nation

Established by the
Treaty of June 9, 1855

May 13, 1997

Mr. John Wagoner, Manager
Richland Operations Office
Department of Energy
P.O. Box 550 A7-50
Richland, WA 99352

Dear Mr. Wagoner:

Subject: ENVIRONMENTAL ASSESSMENT (EA) FOR RELOCATION AND STORAGE OF
SEALED ISOTOPIC HEAT SOURCES (DOE/EA-1211); COMMENTS REQUESTING
EXPANDED IMPACT EVALUATIONS--

The subject Environmental Assessment (EA) applies to 34 highly radioactive borosilicate glass logs made in the 300 Area at Hanford around 1987 and currently stored in a hot cell in the 324 building. The logs were originally planned to be shipped to Germany for testing in their planned salt repository for high level waste and spent fuel. The total activity of the glass logs is about 8.5 million curies or about 5% of the total activity at Hanford. The action proposed in the EA is to transfer the 34 logs to several self-shielded casks and to store them indefinitely at a new site in the 200 West Area with no disposal plans described or referenced.

COMMENTS

1. ALTERNATE STORAGE AND HANDLING OPTIONS--The EA should consider alternative storage locations at Hanford, such as the fuel storage area in the 400 Area, to avoid utilizing new land and construction of new facilities for the interim storage facility. Contaminated lands which require remediation should be considered in addition to uncontaminated lands for construction of a potential new facility.

Alternatives for other Hanford sites should not be dismissed for reasons that are unsupported by valid impact analyses. For example, dismissing the potential storage of the wastes in the existing PUREX Tunnel because the ventilation system is deactivated and would need to be activated should be discussed in detail with activation impacts properly assessed. It would appear that activation of the ventilation system for the period while the wastes are being handled would not be a substantial impact and substantially less than construction and operation of a new facility. Such activation would appear to be necessary in the future to remove the wastes currently in the Tunnel for disposal.

Interim storage at a disposal site's lag storage facility should also be considered to allow comparison with the extra impacts associated with transportation and interim storage at Hanford. Transfer of the wastes directly to a disposal site from the existing hot cell would appear to be a desirable way to handle such wastes to minimize impacts. Such action is also desirable in order to effect removal of a substantial hazard from Hanford as soon as possible.

2. CONSIDERATION OF CUMULATIVE IMPACTS--Cumulative impacts associated with disposal of the wastes should be assessed in the EA in addition to the relocation and interim storage action identified in the subject EA. This will allow for proper evaluation of the life-cycle management and related impacts of these wastes. Cumulative impacts associated with disposal are likely to be substantial and, therefore, lead to the determination that an environmental impact statement should be prepared to consider disposal alternatives. The relation of the management of these wastes to other DOE NEPA assessments should be described in the resulting NEPA document.

3. DISPOSAL ALTERNATIVES--Alternatives that should be considered as a minimum are: (1) disposal at the WIPP repository along with other TRU waste (the subject logs are designated as remote handled TRU waste by the subject EA); (2) disposal at a high-level waste repository provided for by the Nuclear Waste Policy Act (NWPA).

Regarding alternative (1) above, DOE/EM should evaluate the design considerations associated with specific heat generation rates of the subject waste and consider modifying the design and associated requirements for the WIPP facility to accommodate disposal of the subject waste in that facility, if heat output appears to be a limiting characteristic of the subject waste.

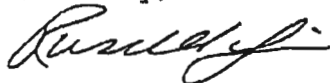
Regarding alternative (2) above, DOE should consider impacts of action to dispose of these wastes in the deep geologic repository in accordance with provisions in the NWPA. This evaluation should include consideration as to the allowed capacity of the repository per criteria in the NWPA.

4. TRANSPORTATION IMPACTS--Impacts from transportation of the waste to a repository should be considered. Impacts associated with action to identify and certify an acceptable transport container should be evaluated.

5. ECONOMIC/TEN YEAR PLAN IMPACTS--Economic impacts, including Germany's contribution to the cost of transportation, storage and disposal should be addressed. Alternatives for German funding of the entire life cycle costs for final disposal of the waste, considering it resulted from action Germany initiated and paid for, should be considered. Finally, impacts on DOE Ten Year Plan budgets should be

described in the subject NEPA assessment of alternatives.
Particularly the potential for interim storage of the wastes beyond
ten years and methods for funding should be addressed.

Sincerely,



Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakama Indian Nation

cc: K. Clarke, DOE/RL
P. Dunnigan, DOE/RL
Director, WA Ecol., J. Fitzsimmons
M. Wilson, WA Ecol.
C. Clarke, U.S. EPA Reg. 10
D. Sherwood, EPA Richland
A. Alm, DOE/EM
T. O'Toole, DOE/EH
Washington Gov., G. Locke
U. S. Senator, P. Murray
J. Conway, DNFSB



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JUN 05 1997

97-TPD-114

Mr. Russell Jim, Manager
Environmental Restoration/
Waste Management Program
Confederated Tribes and Bands
of the Yakama Indian Nation
2808 Main Street
Union Gap, Washington 98903

Dear Mr. Jim:

RESPONSE TO COMMENTS ON ENVIRONMENTAL ASSESSMENT DOE-EA-1211: RELOCATION AND STORAGE OF ISOTOPIC HEAT SOURCES, HANFORD SITE

The U.S. Department of Energy, Richland Operations Office wishes to thank you for your comments dated May 13, 1997, on the subject draft Environmental Assessment (EA). Responses to your comments are enclosed, and resulting changes to the EA are noted. Your comments were considered in preparing the final EA.

If you have any questions, please call me on (509) 376-6667, or you may call David C. Langstaff, of the Transition Program Division, on (509) 376-5580.

Sincerely,

A handwritten signature in cursive script that reads "Paul F. X. Dunigan, Jr.".

Paul F. X. Dunigan, Jr.
NEPA Compliance Officer

TPD:DCL

Enclosure

ENCLOSURE

Comments and Responses to the Environmental
Assessment for Relocation and Storage of
Isotopic Heat Sources (DOE/EA-1211)

COMMENTS AND RESPONSES TO THE ENVIRONMENTAL
ASSESSMENT FOR RELOCATION AND STORAGE OF
ISOTOPIC HEAT SOURCES (DOE/EA-1211)

Comment 1: ALTERNATE STORAGE AND HANDLING OPTIONS

Comment: The environmental assessment (EA) should consider alternative storage locations at Hanford, such as the fuel storage area in the 400 Area, to avoid utilizing new land and construction of new facilities for the interim storage facility.

Response: U.S. Department of Energy (DOE) has considered various alternative sites and facilities for storing the isotopic heat sources, and in weighing the consequences, DOE believes it is prudent to consolidate the isotopic heat sources with other transuranic waste. The Central Waste Complex (CWC) is committed to storing and treating mixed and/or radioactive waste. In making this decision, many factors favored this site; for example, this is the lowest cost option, requires one transportation campaign to the proposed storage site, halts the deterioration of A-cell, and does not dilute or adversely impact the schedule and/or mission of the spent nuclear fuel (SNF) program.

400 Area ISA:

The GNS and CASTOR casks would exceed the 2 millirem per hour requirement for storage at the 400 Area Interim Storage Area (ISA). Placement of these loaded casks in the 400 Area ISA would increase exposure to personnel occupying facilities adjacent to the 400 Area ISA and to personnel performing activities including surveillance and maintenance of the casks currently in storage. Additionally, the 400 ISA is outside the CWC boundary.

200 East Area ISA:

The 200 Area ISA is not an existing storage pad and is in the planning stages. Construction of the 200 Area ISA is not scheduled to be completed until the end of fiscal year 1999. Additionally, the 200 East Area ISA would be outside the CWC boundary.

Canister Storage Building:

The first priority of the Canister Storage Building (CSB) is to handle and store SNF. The CSB is currently under construction and its availability for this purpose would be in the 2002 time frame. Additionally, the CSB site is outside the CWC boundary.

Experimental Barrier Cap:

The area between the experimental barrier cap and the defueled reactor compartment trench just south of the 200 East Area north fence line has been evaluated and dismissed. This area is to be used for burial ground activities and therefore is not compatible with above surface storage activities. This alternative site is outside the CWC boundary.

12th Avenue:

The disturbed area south of 12th Avenue and between Akron and Route 4 just outside the 200 East Area fence line has been evaluated and dismissed. This alternative site is outside the CWC boundary.

Section 3.0 Alternatives to the Proposed Action has been revised to include this information.

Comment: In addition contaminated lands which require remediation should be considered in addition to uncontaminated land for construction of a potential new facility.

Response: The draft environmental assessment evaluated and dismissed using sites that were contaminated. Contaminated sites were not considered because of potential for worker exposure and spread of contamination. Also, using contaminated sites would not support waste minimization policies. Additionally, the CWC located in the 200 West Area is committed to waste management activities (e.g., treating and storing mixed and/or radioactive waste). The proposed action is consistent with the Hanford Strategic Plan (DOE/RL-96-92) and Site Development Plan (DOE/RL-93-19).

Comment: Alternatives for other Hanford sites should not be dismissed for reasons that are unsupported by valid impact analyses. For example, dismissing the potential storage of the wastes in the existing PUREX Tunnel because the ventilation system is deactivated and would need to be activated should be discussed in detail. It would appear that activation of the ventilation system for the period while the wastes are being handled would not be a substantial impact and substantially less than construction and operation of a new facility. Such activation would appear to be necessary in the future to remove the waste from the Tunnel for disposal.

Response: Based on a re-evaluation, DOE concluded that the Plutonium Uranium Extraction Facility (PUREX) Storage Tunnels are not a viable alternative storage location based on: (1) the isotopic heat sources are designated for disposal in a national repository; therefore, the 'last-in/first-out' storage configuration would require interim staging of casks before placement in the tunnels, and currently, an interim storage location is not available, (2) the configuration of the tunnels does not support cask surveillance and maintenance activities, and (3) the PUREX Storage Tunnels are contaminated areas and would contaminate the casks, which would result in unnecessary costs and worker exposure to decontaminate. Accordingly, the Environment Assessment has been revised and the PUREX Storage Tunnels alternative has been eliminated.

Comment: Interim storage at a disposal site's lag storage facility should also be considered to allow comparison with the extra impacts associated with transportation and interim storage at Hanford. Transfer of the wastes directly to a disposal site from the existing hot cell would appear to be a desirable way to handle such wastes to minimize

impacts. Such action is also desirable in order to effect removal of a substantial hazard from Hanford as soon as possible.

Response: No disposal site's lag storage facility exists at this time. The scope of DOE/EA-1211 "Environmental Assessment for the Relocation and Storage of Isotopic Heat Sources Hanford Site" is consistent with the scope of other DOE (National Environmental Policy Act of 1969 [NEPA]) documents (i.e., Final Waste Management Programmatic Environmental Impact Statement For Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste, DOE/EIS-0200-F), in that, decisions related to lag storage or disposal at the candidate repository sites are outside the scope of this environmental assessment. The impacts of transportation, receipt, handling, and lag storage (if deemed necessary) of waste to the candidate disposal sites will be analyzed in either the Waste Isolation Pilot Plant (WIPP) Disposal Phase Supplemental Environmental Impact Statement (SEIS) or the planned environmental impact statement for the High Level Waste national repository.

Comment 2: CONSIDERATION OF CUMULATIVE IMPACTS

Cumulative impacts associated with disposal of the wastes should be assessed in the EA in addition to the relocation and interim storage action identified in the subject EA. This will allow for proper evaluation of the life-cycle management and related impacts of these wastes. Cumulative impacts associated with disposal are likely to be substantial, and, therefore lead to the determination that an environmental impact statement should be prepared to consider disposal alternatives. The relation of the management of these wastes to other DOE (NEPA) assessments should be described in the resulting NEPA document.

Response: Disposal is outside of the scope of this EA. Cumulative impacts associated with disposal of the wastes will be assessed in either the WIPP Disposal Phase SEIS or the planned environmental impact statement for the High Level Waste national repository.

Comment 3: DISPOSAL ALTERNATIVES - Alternatives that should be considered as a minimum are:

(1) Disposal at the WIPP repository along with other TRU waste (the subject logs are designated as remote handled TRU waste by the subject EA); (2) disposal at a high-level waste repository provided for the National Waste Policy Act (NWPA). Regarding alternative (1) above, DOE/EM should evaluate the design considerations associated with specific heat generation rates of the subject waste and to consider modifying the design and associated requirements for the WIPP facility to accommodate disposal of the subject waste in that facility, if heat output appears to be a limiting characteristic of the subject waste. Disposal at a high-level waste repository provided for by the Nuclear Waste Policy Act (NWPA).

Regarding alternative (2) above, DOE should consider impacts of action to dispose of these wastes in the deep geologic repository in accordance with provisions in the NWPA.

Response: Disposal is outside of the scope of this EA. Impacts from disposal of wastes in the repository will be assessed in either the WIPP Disposal Phase SEIS or the planned environmental impact statement for the High Level Waste national repository

Comment 4: TRANSPORTATION IMPACTS. Impacts from transportation of the waste to a repository should be considered. Impacts associated with action to identify and certify an acceptable transport container should be evaluated.

Response: Disposal is outside of the scope of this EA. Impacts from transportation of wastes to the repository will be assessed in either the WIPP Disposal Phase SEIS or the planned environmental impact statement for the High Level Waste national repository.

Comment 5: ECONOMIC/TEN YEAR PLAN IMPACTS.

Comment: Discussion of economic impacts, including Germany's contribution to the cost of transportation, storage and disposal should be addressed. Alternatives for German funding of the entire life cycle costs for final disposition of the waste, considering it resulted from action Germany initiated and paid for should be considered.

Response: The German Government has been reimbursing DOE for the service associated with production of the isotopic heat sources since 1986. In 1995, DOE negotiated and approved a final fixed price agreement with the German Government to manage the isotopic heat sources.

Comment: Finally, impacts on the DOE Ten Year Plan budgets should be described in the subject NEPA assessment of alternatives. Particularly the potential for interim storage of the waste beyond ten years and methods for funding should be addressed.

Response: The proposed action and alternatives are consistent with the Ten Year Plan. The 200 Areas and Central Plateau will be used for management of nuclear materials and waste. The German Government has been reimbursing DOE for the service associated with production of the isotopic heat sources since 1986. In 1995, DOE negotiated and approved a final fixed price agreement with the German Government to manage the isotopic heat sources.

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FINDING OF NO SIGNIFICANT IMPACT
FOR THE
RELOCATION AND STORAGE OF
ISOTOPIC HEAT SOURCES
HANFORD SITE, RICHLAND, WASHINGTON
U.S. DEPARTMENT OF ENERGY

JUNE 1997

AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1211, to identify environmental impacts associated with the construction of a storage site located within the Central Waste Complex (CWC) in the 200 West Area, and relocation of isotopic heat sources from the 324 Building in the 300 Area to the storage site (including handling, transportation, and storage) on the Hanford Site, Richland, Washington.

It is proposed that a covered concrete storage pad (approximately 9.1 meters by 32 meters) be constructed to store isotopic heat sources that will be removed from A-cell of the 324 Building. The 34 isotopic heat sources will be loaded into transportation/storage casks that have been provided by the German Government and then transported to the storage site by rail and truck or truck only. During storage, the casks routinely would be monitored by CWC personnel.

Based on the analysis in the EA, and considering preapproval comments from the State of Washington and the Yakama Indian Nation, DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment within the meaning of the *National Environmental Policy Act (NEPA) of 1969*, 42 U.S.C. 4321, et seq. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION

Single copies of the EA and further information concerning the proposed action are available from:

Mr. James E. Mecca, Director
Transition Program Division
U.S. Department of Energy
Richland Operations Office
P. O. Box 550 MS R3-79
Richland, Washington 99352
(509) 376-7471

For further information regarding the DOE NEPA Process, contact:

Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
(202) 586-4600 or (800) 472-2756

PURPOSE AND NEED: The DOE needs to provide improved storage for the isotopic heat sources.

BACKGROUND: In the mid-1980s, 30 sealed isotopic heat sources were manufactured in the 324 Building as part of a bilateral agreement between the Federal Minister for Research and Technology of the Federal Republic of Germany and the DOE. In addition, two production demonstration canisters and 2 instrumented canisters were produced, for a total of 34 isotopic heat sources. This agreement was for developing processes for the treatment and immobilization of high-level radioactive waste. The sources contain a total of approximately 8.3 million curies consisting predominately of cesium-137 and strontium-90 with trace amounts of transuranic contamination.

The sources currently are stored in A-Cell of the 324 Building. It was not intended to store the isotopic heat sources for this length of time in A-cell. Intense radiation fields from the sources are causing the cell windows and equipment to deteriorate.

The 34 isotopic heat sources are classified as remote handled transuranic waste. Transuranic waste is defined as waste contaminated with radionuclides from elements whose

atomic numbers exceed 92 (that of uranium) with concentrations greater than 100 nCi/g (0.0000001 Ci/g) of waste. Remote handled wastes are those with radiation levels exceeding 200 millirem per hour at the surface of a container. Such materials must be handled remotely and require special shielding in treatment, storage, and disposal facilities.

The borosilicate glass waste form in the isotopic heat sources does not meet the definition of a dangerous (hazardous) waste as defined by Washington Administrative Code (WAC) Chapter 173-303, *Dangerous Waste Regulations*. Seals on 31 of the isotopic heat sources have been verified by leak test; seals on the three remaining isotopic heat sources have not been verified. However, a decision has been made to place the remaining three isotopic heat sources into the CASTOR cask(s). The Washington State Department of Health (WDOH) has concurred that isotopic heat sources with verified seals or those placed into CASTOR cask(s) can be considered sealed (no potential to emit radioactive air emissions) and are exempt from WAC Chapter 246-247, *Radiation Protection - Air Emissions*.

PROPOSED ACTION: The proposed action would be the construction of a storage site located within the CWC in the 200 West Area, and the relocation and the storage of the isotopic heat sources. The proposed action would include the construction of a reinforced concrete storage pad near the intersection of 16th Avenue and Dayton Street, adjoining the existing Alkali Metals Storage Pad. The storage pad would have the approximate dimensions of 9.1 meters (30 feet) by 32 meters (105 feet) with a metal roof over the storage pad for weather protection. The proposed action would include fencing around the storage pad, jersey bounce dividers, and a fire break that would surround the storage pad. The dimension of the fire break would be 30 meters (100 feet) from the edge of the storage pad. The fire break would take advantage of: an existing gravel road to the south, and an existing cleared area reserved for future expansion of the Alkali Metals Storage Pad to the north. To the east, the storage pad would be sited as close as practical to the existing gravel road but would still need to maintain vehicle access to the storage pad. Fill and gravel may be placed as necessary to prevent soil erosion.

Relocation of the 34 isotopic heat sources from the 300 Area and interim storage in the 200 West Area would involve transportation and storage. Two types of transportation/storage casks used in the proposed action have been provided by the German Government. The casks would be leak checked after loading to demonstrate the cask is leak tight. Transportation of the loaded casks would use both rail and truck or truck only. Up to eight transports would be required to relocate the isotopic heat sources from the 300 Area to the 200 West Area. One additional transport would be needed to relocate an International Standards Organization (ISO) container containing two empty GNS-12 casks, from the Hanford Site 1100 Area, where it is currently stored.

No Action Alternative. The No Action alternative would keep the isotopic heat sources in the 324 Building. Continued storage of the isotopic heat sources would require that the 324 Building remain operational indefinitely. This alternative would not resolve the concern regarding deterioration of the equipment and windows in A-Cell. The No Action alternative would not meet the purpose and need.

Use Existing Storage Areas Alternative. Other areas were considered; the 400 Area Interim Storage Area (existing storage area), 200 Area ISA (planned to be constructed), and 200 East Area Canister Storage Building (CSB) (under construction). The GNS and CASTOR casks would exceed the 2 millirem per hour requirement for storage at the 400 Area ISA. Placement of these loaded casks in the 400 Area ISA would increase exposure to personnel occupying facilities adjacent to the 400 Area ISA and to personnel performing activities including surveillance and maintenance of the casks currently in storage. The 200 Area ISA is not an existing storage pad and is in the planning stages. Construction of the 200 Area ISA is not scheduled to be completed until the end of fiscal year 1999. The CSB is currently under construction and its availability for this purpose would be in the 2002 time frame. Additionally, the 400 Area ISA, 200 Area ISA, and the CSB are outside the CWC boundary. Alternate storage locations were considered within the 200 West Area CWC that are adjacent to existing rail spurs; however, none of the sites met siting criteria (e.g., free of contaminated soil, adequate space, etc.).

During the comment period, two alternative storage locations were suggested: an area between the experimental barrier cap and the defueled reactor compartment trench just south of the 200 East Area north fence line; and, an area south of 12th Avenue and between Akron and Route 4 just outside the 200 East Area fence line. The experimental barrier cap area is to be used for burial ground activities and therefore is not compatible with above surface storage activities. Both of these sites are outside the CWC boundary.

Alternative Modes of Transportation Alternative. The casks would be transferred entirely by rail. A railroad network exists on the Hanford Site that connects the 300 Area and the 200 West Area. However, no access spur runs from the existing rail line in the 200 West Area to the proposed storage site. This alternative would disturb additional Hanford Site land in the 200 West Area to construct a railroad spur to the site.

ENVIRONMENTAL IMPACTS: The area involved in the proposed action is a partially disturbed area. However, there would be disturbance to undeveloped areas; it is anticipated that the proposed action would disturb less than 0.46 hectare (1.13 acres) of mature sagebrush steppe. To minimize the impact to mature sagebrush steppe, the fire break for the proposed storage site would take advantage of the following: an existing gravel road to the south, and an existing cleared area reserved for future expansion of the Alkali Metals Storage

storage site would take advantage of the following: an existing gravel road to the south, and an existing cleared area reserved for future expansion of the Alkali Metals Storage Pad to the north. To the east, the storage pad would be sited as close as practical to the existing gravel road but would still need to maintain vehicle access to the storage pad.

No Federally or State listed, proposed, candidate, threatened, or endangered species are expected to be effected by the proposed action. To avoid incidental take under the *Migratory Bird Treaty Act*, a supplemental site survey would be performed if construction is scheduled during the March 15, to July 31, 1997 time frame. If nesting birds are found during the supplemental survey, construction would be deferred until the birds have left the nest.

During construction activities, because the amount of soil disturbance would be minimal and temporary, anticipated impacts to the environment are not expected to be consequential. Small amounts of fill and gravel may be used as necessary from existing approved Hanford Site borrow pits.

During construction of the proposed action, it is expected that there would be no adverse effects on the cultural resources.

It is expected that only nonhazardous solid waste would be generated during the construction phase of the proposed action. Waste resulting from the proposed action would be expected to be minimal compared to annual Hanford Site waste generation. The proposed action would not release any particulate matter, and there would be no thermal releases or gaseous discharges in significant amounts. Therefore, these impacts to the environment are expected to be small. Small amounts of approved herbicides may be used to control vegetation within the fire break area. Herbicide application would be part of the ongoing Hanford Site herbicide program and performed by licensed personnel.

Worker Radiation Exposure. Total cumulative dose for the proposed action is estimated to be 8.9 person-rem for the railroad and truck scenario, and 6.0 person-rem for the truck scenario. Applying the International Commission on Radiological Protection coefficient for low dose, low dose-rate whole body irradiation of 0.0004 latent cancer fatalities (LCF) per person-rem effective dose equivalent, projected LCFs of 0.0036 and 0.0024 respectively would be predicted. Based on this calculation, no LCF would be expected.

Accident Impacts. During rail/truck loading and unloading, transportation, and storage activities for the proposed action, no reasonably foreseeable accidents that would breach the structural containment of casks were identified. Therefore, no releases would be expected.

The only reasonably foreseeable accidents for the proposed action would be typical (nonradiological) construction accidents during the construction phase. All construction personnel would follow approved safety procedures for the construction activities. Public

health and safety would not be affected because the area would be closed to the general public. Typical construction hazards would be present; however, the risk of a severe accident is small.

Socioeconomic Impacts. Only small numbers of workers would be involved at any one time. Therefore, no socioeconomic impacts are expected from the proposed action.

Environmental Justice. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low income populations. With respect to Executive Order 12898 regarding environmental justice, distribution of minority and low income populations have been identified for the Hanford Site. The analysis of the impacts in this EA indicates that there would be minimal impacts to both the offsite population and potential workforce by implementing the proposed action, because the entire proposed action would occur on the Hanford Site and the offsite environmental impacts from the proposed action analyzed in this EA are expected to be minimal. Therefore, it is not expected that there would be any disproportionate impacts to any minority or low-income portion of the community.

Cumulative Impacts. Solid waste generated from the proposed action would not be expected to be substantial compared to annual Hanford Site solid waste generation. Disposal of waste as a result of the proposed action substantially would not affect any associated disposal sites. Because the proposed action would involve a small construction force, no substantial change would be expected in the overall workforce on the Hanford Site.

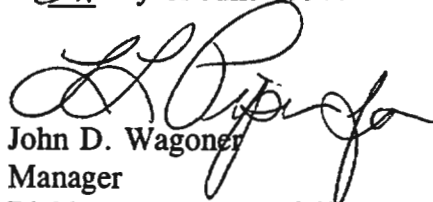
DOE has prepared a draft Hanford sitewide biological management plan to protect shrub steppe and other ecological resources on the Hanford Site. Under this sitewide approach, the potential impacts of projects would be evaluated and appropriate mitigation would be developed based on the cumulative impacts to the ecosystem. DOE has developed mitigation thresholds for late-successional sagebrush steppe habitat areas for the 200 West Area. For individual sites in this area, the mitigation threshold is 1 hectare (2.5 acres). Because the proposed action is below the threshold and does include efforts to minimize the impacts to mature sagebrush steppe, the cumulative impact to biological resources is expected to be minimal.

The potential impacts from the proposed action are not expected to contribute substantially to the cumulative impacts of operations on the Hanford Site.

DETERMINATION: Based on the analysis in the EA (DOE/EA-1211), and after considering the preapproval review comments of the State of Washington and the Yakama

Indian Nation, I conclude that the proposed Relocation and Storage of Isotopic Heat Sources at the Hanford Site, Richland, Washington does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS for the proposed action is not required.

Issued at Richland, Washington, this 6th day of June 1997.



John D. Wagoney
Manager
Richland Operations Office