



Environmental Assessment

Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex, Hanford Site, Richland, Washington

U.S. Department of Energy
Richland, Washington

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ENVIRONMENTAL ASSESSMENT

**SOLID WASTE RETRIEVAL COMPLEX,
ENHANCED RADIOACTIVE AND MIXED WASTE
STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND
CENTRAL WASTE SUPPORT COMPLEX**

U.S. DEPARTMENT OF ENERGY

RICHLAND, WASHINGTON

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Summary

The U.S. Department of Energy (DOE) needs to take action to: retrieve transuranic (TRU) waste because interim storage waste containers have exceeded their 20-year design life and could fail causing a radioactive release to the environment; provide storage capacity for retrieved and newly generated TRU, Greater-than-Category 3 (GTC3), and mixed waste before treatment and/or shipment to the Waste Isolation Pilot Project (WIPP); and upgrade the infrastructure network in the 200 West Area to enhance operational efficiencies and reduce the cost of operating the Solid Waste Operations Complex.

This proposed action would initiate the retrieval activities (Retrieval) from Trench 4C-T04 in the 200 West Area including the construction of support facilities necessary to carry out the retrieval operations. In addition, the proposed action includes the construction and operation of a facility (Enhanced Radioactive Mixed Waste Storage Facility) in the 200 West Area to store newly generated and the retrieved waste while it awaits shipment to a final disposal site. Also, Infrastructure Upgrades and a Central Waste Support Complex are necessary to support the Hanford Site's centralized waste management area in the 200 West Area. The proposed action also includes mitigation for the loss of priority shrub-steppe habitat resulting from construction. The estimated total cost of the proposed action is \$66 million.

Other alternatives to the Retrieval, the Storage Facility, Infrastructure Upgrades, and the Central Waste Support Complex were considered. In addition to a No-Action Alternative, other alternatives included the use of existing onsite storage facilities, and the use of existing onsite office facilities. These alternatives did not meet DOE's need to retrieve TRU waste; provide storage capacity for retrieved and newly generated TRU, mixed, and GTC3 waste; upgrade the infrastructure; and reduce the cost of operating the Solid Waste Operations Complex (SWOC).

The proposed action was evaluated for potential impacts to the environment, workers, and the public. Under normal operating conditions, no environmental impacts in terms of

adverse health effects to the general public is expected. All work would be performed in compliance with As Low As Reasonably Achievable (ALARA) principles, waste minimization policies, applicable state and federal regulations, and DOE Orders.

Construction impacts were evaluated. An estimated 18.6 hectares (46 acres) of land would be disturbed with an estimated 14.6 hectares (36 acres) of priority shrub-steppe habitat being destroyed during site clearing activities. This land disturbance represents approximately 1.5 percent of the Hanford Site's 200 West Area. A mitigation strategy for the Hanford Site is being developed for mitigation of lost priority shrub-steppe habitat area. Habitat loss from the proposed action would be mitigated in accordance with the sitewide strategy. Habitat loss would be compensated for at a ratio of 3 to 1.

A Cultural Resource Review and a Biological Review of the proposed construction site has been conducted. No sensitive areas such as wetlands, floodplains, archaeological sites, or structures of historical significance were identified. The historic White Bluffs Road is eligible for listing on the National Register of Historic Places. However, the State Historic Preservation Officer has determined that the segment of the road which runs through the 200 West Area is a non-contributing section due to its loss of physical integrity and location within the fenced 200 West Area. Work could proceed in this non-contributing section without further loss of integrity to the road as a whole. In addition, two bird species, the loggerhead shrike (federal candidate and state candidate) and sage sparrow (state candidate) were observed in the area of the proposed action and would be impacted because of lost shrub-steppe habitat. Although the northern sagebrush lizard was not observed in the area of the proposed action, the loss of sagebrush could impact this species that relies on the shrub-steppe habitat. Because the presence of the loggerhead shrike and the sage sparrow has been determined in the habitat at the site, project construction schedules would be adjusted to minimize impact on these species by avoiding site clearing and preparation activities during the nesting season (March through July).

One postulated accident was evaluated for the retrieval activity having an estimated frequency of occurrence of about two times every one million years. Less than one latent

cancer fatality (LCF) to the general public is projected to occur as a result of this accident. Similarly, a postulated accident with an estimated frequency of occurrence of about once every one thousand years was evaluated for the storage activity having a calculated LCF to the general public of less than one. In the event of either the postulated retrieval accident or the postulated storage accident, no LCFs would be expected to the general public.

The proposed action was evaluated regarding potential socioeconomic and environmental justice impacts. There would be a small, temporary increase in construction workers. There would not be a disproportionate adverse impact to any minority or low income segment of the community.

Glossary

Acronyms

ALARA	As Low As Reasonably Achievable
CEDE	collective effective dose equivalent
CFR	<i>Code of Federal Regulations</i>
CRR	Cultural Resources Review
CWSC	Central Waste Support Complex
CY	Calendar Year
DCG	Derived Concentration Guidelines
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
DOH	State of Washington Department of Health
EA	Environmental Assessment
Ecology	State of Washington Department of Ecology
EDE	effective dose equivalent
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FR	<i>Federal Register</i>
FY	fiscal year
GTC3	contact-handled Greater-Than-Category-3
HCRL	Hanford Cultural Resources Laboratory
HDW-EIS	<i>Final Environmental Impact Statement: Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington, (DOE, 1987)</i>
HSRCM	Hanford Site Radiological Control Manual
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
LCF	latent cancer fatality
LLMW	low-level mixed waste
LLW	low-level waste

Acronyms (cont.)

MEI	maximally exposed individual
NDE/NDA	Nondestructive Examination/Nondestructive Assay
NEPA	<i>National Environmental Policy Act of 1969</i>
OSHA	Occupational Safety and Health Administration
Retrieval	Solid Waste Retrieval Complex
RL	U.S. Department of Energy, Richland Operations Office
Storage Facility	Enhanced Radioactive and Mixed Waste Storage Facility
PFP	Plutonium Finishing Plant
PNL	Pacific Northwest Laboratory
PSE	Preliminary Safety Evaluation
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
rem	roentgen equivalent man
ROD	Record of Decision
SWOC	Solid Waste Operations Complex
TLV	threshold limit value
TRU	transuranic
TRUM	transuranic mixed
TSD	treatment, storage, and/or disposal
USFWS	U.S. Fish and Wildlife Service
WAC	<i>Washington Administrative Code</i>
WDFW	State of Washington Department of Fish and Wildlife
WRAP	Waste Receiving and Processing

Definition of Terms

As Low As Reasonably Achievable - ALARA. An approach to radiological control to manage and control exposures (individual and collective) to work force and to the general public at levels as low as reasonable, taking into account social, technical, economic, practical and public policy considerations. ALARA is not a dose limit but a process that has the objective of attaining doses as far below the applicable controlling limits as is reasonably achievable.

Collective dose equivalent - CDE. The sum of the dose equivalents of all individuals in an exposed population. Collective dose equivalent is expressed in units of person-rem.

Committed dose equivalent. The calculated dose equivalent projected to be received by a tissue or organ over a 50-year period after a known intake of radionuclide into the body. It does not include contributions from external dose. Committed dose equivalent is expressed in units of rem.

Contact-handled waste. Waste or waste containers whose external surface dose rate does not exceed 200 millirem per hour thus permitting close and unshielded manipulation by workers.

Effective dose equivalent - EDE. The summation of the products of the dose equivalent received by specified tissues of the body and a tissue-specific weighting factor. This sum is a risk-equivalent value and can be used to estimate the health-effects risk of the exposed individual. The tissue-specific weighting factor represents the fraction of the total health risk resulting from uniform whole-body irradiation that would be contributed by that particular tissue. The effective dose equivalent includes the committed effective dose equivalent from internal deposition of radionuclides and the effective dose equivalent due to penetrating radiation from sources external to the body. Effective dose equivalent is expressed in units of rem.

Greater-Than-Category 3 waste -GTC3. The nomenclature given to the Hanford Site's low-level waste that is similar to the Greater-Than-Class C classification as established by the U.S. Nuclear Regulatory Commission and defined in 10 *Code of Federal*

Regulations 61.55. This low-level waste has a concentration of radionuclides that exceeds the U.S. Nuclear Regulatory Commission Class C classification and is considered a high activity waste requiring special handling in accordance with DOE Order 5820.2A. The waste is not suitable for near-surface disposal. It is defined in the Hanford Site Solid Waste Acceptance Criteria (WHC 1993a).

Low-level waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or byproduct material where the concentration of transuranic radionuclides is less than 100 Nci/g.

Millirem. A unit of radiation dose that is equal to one-thousandth (1/1000) of a rem.

Mixed waste. Waste containing both radioactive and hazardous components requiring treatment, storage, or disposal in accordance with the *Resource Conservation and Recovery Act of 1976* regulations.

Newly generated TRU waste. TRU waste generated at the present time and forecasted into the future, prior to being retrievably stored.

Plutonium equivalent. The amount of plutonium-239 that would present the same risk, or hazard, as other elements or a mixture of isotopes.

Rad. Unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs per gram or 0.01 joules per kilogram.

Rem. Unit of dose equivalent. Dose equivalent in rem is numerically equal to the absorbed dose in rad multiplied by a quality factor, distribution factor and any other necessary modifying factor.

Remote-handled waste. Packaged waste with an external surface dose rate that exceeds 200 millirem per hour requiring shielding from and distance between it and workers.

Retrievably stored. The emplacement of waste in buildings or other structures, or out of doors on bermed pads, with the intent of reclaiming it in the future for treatment or disposal.

Suspect transuranic. Waste retrievably stored as transuranic waste which, due to administrative changes in the definition of transuranic waste over time, may or may not currently be defined as transuranic waste (see definition of transuranic waste).

Transuranic waste. Waste containing alpha-emitting radionuclides with an atomic number greater than 92 and half-lives greater than 20 years, at concentrations greater than 100 Nci/g. In addition, radium-226 and uranium-233 sources are managed as TRU waste at the Hanford Site in accordance with DOE Order 5820.2A. (Note: Previous administrative levels have been in effect. Since May 1970, solid waste classed as or suspected of being TRU waste was designated as TRU waste. In 1973, the official level for segregation and storage became 10nCi TRU/g of waste. In 1984, the basis for classification as TRU waste was established as 100 Nci TRU/g and remains the designated level today).

Metric Conversion Chart

If you know	Multiply by	To get
Length		
centimeters	0.394	inches
meters	3.2808	feet
square meters	10.76391	square feet
kilometers	0.62	miles
Area		
hectares	2.471054	acres
square kilometers	0.39	square miles
Mass (weight)		
kilograms	.001102	tons
Volume		
liters	0.26	gallons
cubic meters	35.3134	cubic feet

Source: Adapted from *CRC Handbook of Chemistry and Physics*, Robert C. Weast, Ph.D., 70th Ed., 1989-1990, CRC Press, Inc., Boca Raton, Florida.

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1.0 Purpose and Need for Agency Action

The U.S. Department of Energy (DOE) needs to take action to: retrieve transuranic (TRU) waste because interim storage waste containers have exceeded their 20-year design life and could fail causing a radioactive release to the environment; provide storage capacity for retrieved and newly generated TRU, Greater-than-Category 3 (GTC3), and mixed waste before treatment and/or shipment to the Waste Isolation Pilot Project (WIPP); and upgrade the infrastructure network in the 200 West Area to enhance operational efficiencies and reduce the cost of operating the Solid Waste Operations Complex (SWOC).

1.1 Background

In the Record of Decision (ROD) (53 Federal Register (FR) 12449, 1988) for the *Final Environmental Impact Statement: Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington* (HDW-EIS) (DOE 1987), DOE determined it would retrieve and process all TRU and suspect TRU waste that has been retrievably stored at the Hanford Site since 1970. This Environmental Assessment (EA) will tier-down from the HDW-EIS ROD.

The processing of the retrieved TRU and suspect TRU wastes would occur in the Waste Receiving and Processing (WRAP) Facility and is not included in the scope of this EA.

Since May 1970, solid waste classed as or suspected of being TRU waste has been designated as TRU waste. In 1973, the official level for segregation and storage became 10 nanocuries TRU per gram (Nci TRU/g) of waste. In 1984, the basis for classification as TRU waste was established as 100 Nci TRU/g and remains the designated level today. As a result of these administrative changes, not all retrievably stored waste will be designated as TRU by the current definition. Wastes under 100 Nci TRU/g is characterized as low-level waste (LLW). The retrieved waste would be assayed to determine whether the waste is TRU or LLW.

Retrieval of TRU waste from trenches would be accomplished in phases. This EA considers the retrieval of TRU and suspect TRU waste containers from trench 4C-T04. This trench contains approximately 15 percent by volume of the total retrievably stored TRU waste on the Hanford Site and has waste containers expected to be in better physical condition because they have been stored the shortest length of time. A future activity would remove the balance of the retrievably stored TRU waste. Lessons learned from this retrieval activity would be incorporated into the design of future retrieval activities.

The SWOC is a series of existing and planned treatment, storage, or disposal (TSD) units for solid waste operations in the 200 West Area. At present, administrative and operations personnel are scattered around the Hanford Site. Centralized administration and operation facilities would improve Solid Waste operational efficiencies and reduce costs by minimizing travel times.

2.0 Description of the Proposed Action

This proposed action would construct and operate the Retrieval Complex, the Enhanced Radioactive Mixed Waste Storage Facility (Storage Facility), the Central Waste Support Complex (CWSC), and associated infrastructure upgrades (i.e., utilities, roads) in the 200 West Area to support the SWOC. The Retrieval Complex, the first three buildings of the Storage Facility, the CWSC, and infrastructure upgrades would be constructed a first phase (Phase 1). If necessary, the remainder of the Storage Facility could be completed by a second phase. In addition, the proposed action includes a mitigation strategy which has been developed to address lost priority shrub-steppe habitat. The total estimated cost of the proposed action, including mitigation for lost priority habitat, is \$66 million. Figure 1 shows the Hanford Site and the location of the 200 West Area. Figure 2 shows the location of the proposed action within the 200 West Area. The proposed action covers approximately 18.6 hectares (46 acres).

2.1 Solid Waste Retrieval Complex

The proposed retrieval action includes the retrieval of post-1970 solid waste suspected of containing TRU radionuclides and the construction, operation, and maintenance of a complex of facilities to be used for the retrieval. The proposed retrieval activity would retrieve approximately 2,260 cubic meters (80,000 cubic feet) in about 10,000 drums, of suspect TRU waste from the 200 West Area low-level burial Trench 4C-T04. Although a total of approximately 15,400 cubic meters (545,000 cubic feet) of suspect TRU waste exists on the Hanford Site, this proposed action would focus on the retrieval from only Trench 4C-T04. Trench 4C-T04 has approximately 15 percent by volume of the total retrievably stored TRU waste on the Hanford Site and has waste containers expected to be in a better physical condition because they have been stored the shortest length of time. The retrieved waste containers would be inspected, overpacked, vented, x-rayed, and assayed in the Retrieval Complex, and moved to the Storage Facility. Lessons learned from the retrieval activities would be incorporated into the design of future retrieval activities.

A typical storage trench is about 145 meters (475 feet) in length (about 20 storage modules) with an asphalt pad in the bottom on which the waste container modules sit. The bottom of the trench is about 5 meters (16 feet) below grade and is accessible by a sloped asphalt ramp at one end of the trench from ground level to the trench floor. Figure 3 shows a typical cross-section of a TRU waste trench.

At trench 4C-T04, the soil overburden would be removed by a combination of hand-digging and mechanical means. Precautions would be taken during the soil overburden removal to prevent any contact with the waste container module before removing the module covering of plywood and plastic sheeting. A weather enclosure would be erected over the trench area where the storage modules are located and either rolled along the length of the trench or be moved to the next position by an overhead crane. The enclosure would be securely anchored around the trench perimeter.

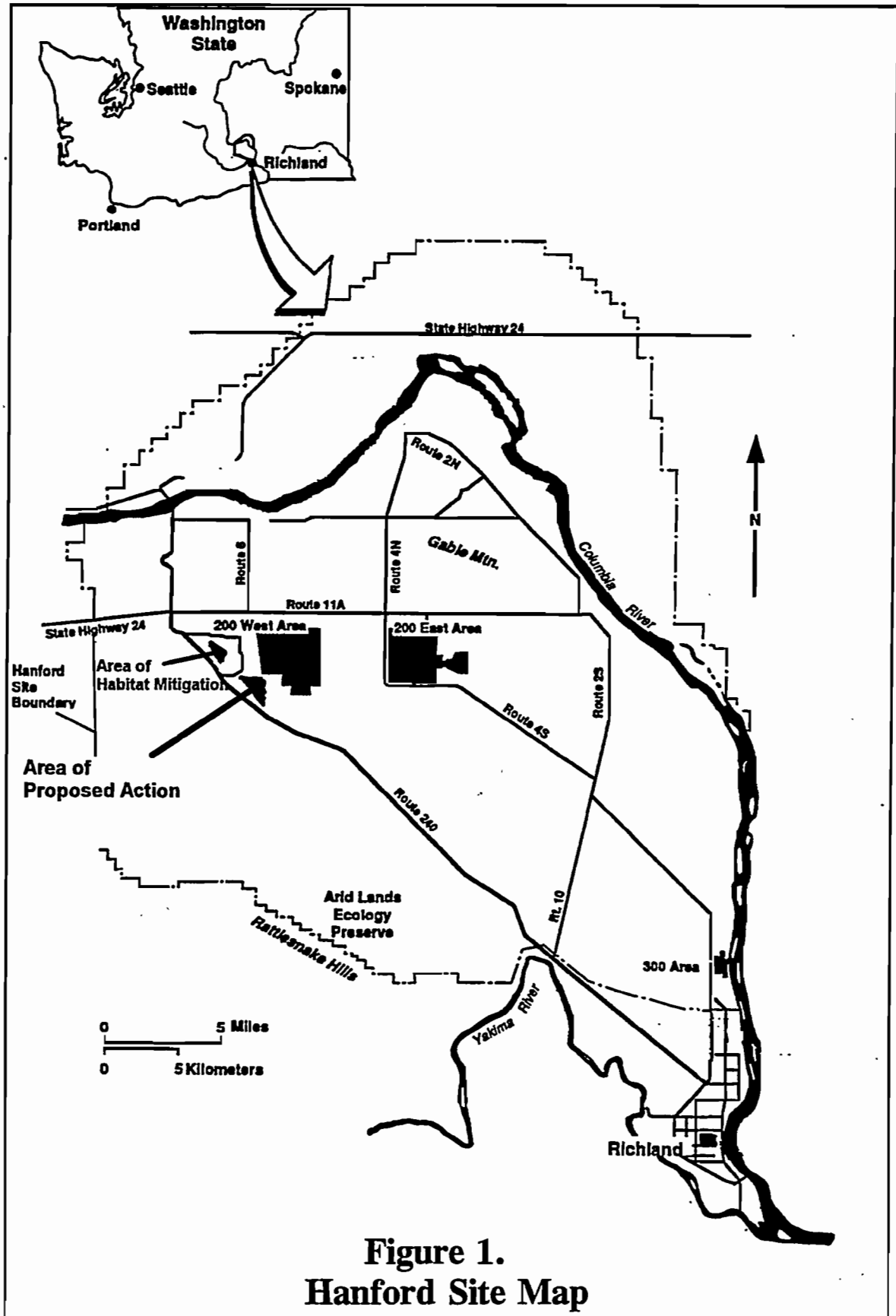


Figure 1.
Hanford Site Map

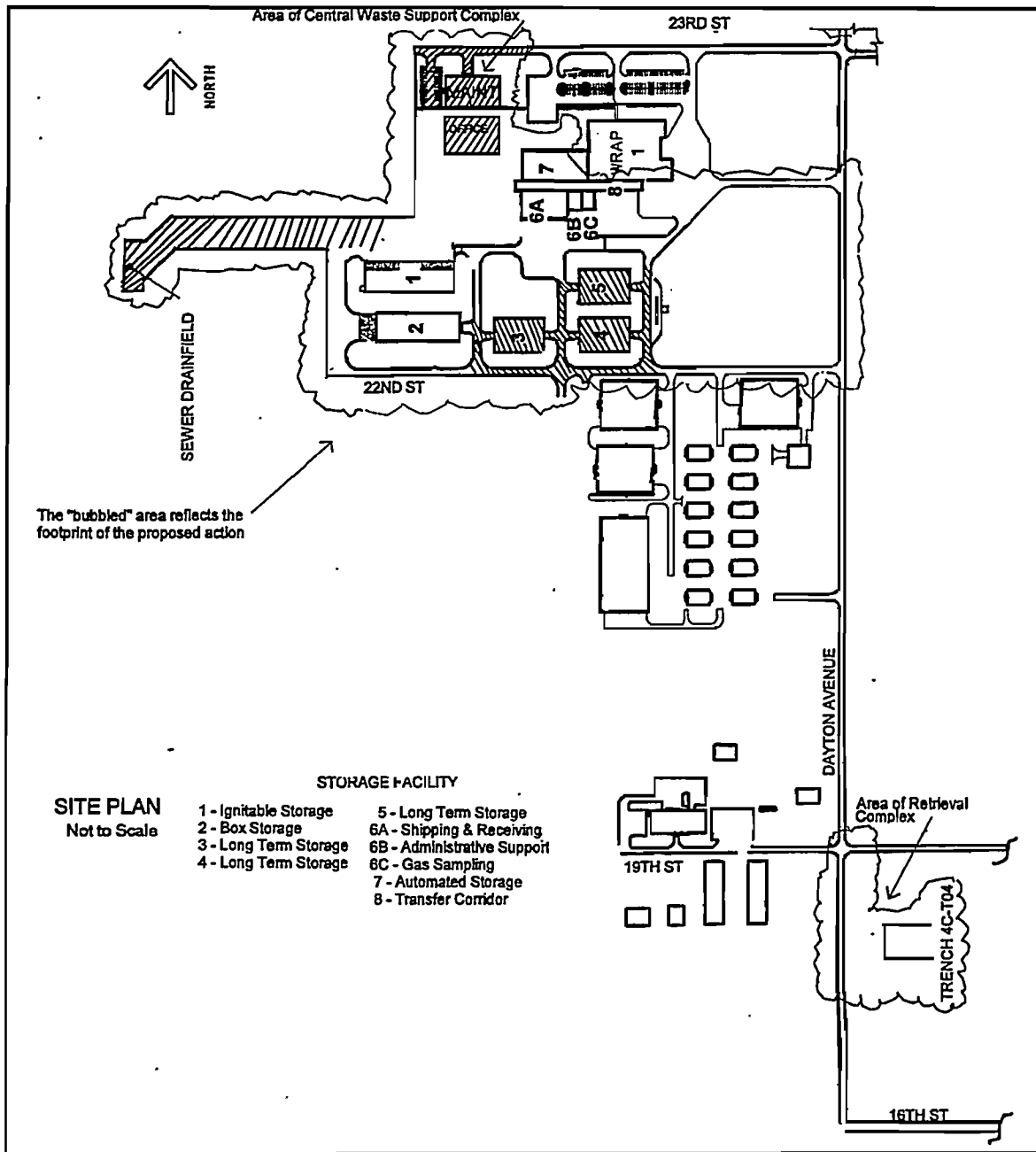


Figure 2.
Location of Proposed Action - 200 West Area

Exhaust fans would be installed on the weather enclosure and exhaust air sampled for any potential radiological release. Sampling of the exhaust air would provide a record of emissions.

The typical trench storage module consists of waste drums stacked about 7.3 meters (24 feet) wide by 7.3 meters (24 feet) long by 3.6 meters (12 feet) high. The containers in trench 4C-T04 are stored under plastic moisture barrier covers. In some cases, the waste container has been overpacked in another container. The majority of the containers are 208-liter (55-gallon) galvanized steel drums and the rest of the containers are painted steel drums, 416 liter (110 gallon) drums, and metal boxes of various sizes. The waste containers are covered with plywood, plastic sheeting, and 1.2 meters (4 feet) of earth. Figure 3 shows a cross-section of a storage array of retrievably stored TRU waste containers in a typical trench storage module.

Retrieval operations would typically progress down the trench in the last-in/first-out mode although alternate sequencing may be necessary. A maximum of one storage module (12 drums wide by 12 drums long by 4 drums high) would be uncovered at a time. The front layer (3.6 meters [12 feet] high) of waste drums in the storage array would be removed from top to bottom (see Figure 3). A jib crane would lower the top waste drums from the storage array to the trench floor where the overpacking would occur. Drum vent filters would be installed on the overpack drums and a gas sample taken. Containers would be assayed (to determine the amount of fissionable material present), x-rayed, and then moved by truck approximately 1.2 kilometers (0.75 miles) to the proposed Storage Facility. The retrieved containers would be stored in the Storage Facility until processing in WRAP.

Waste containers to be retrieved from trench 4C-T04 are characterized as contact-handled (less than 200 millirem [mrem] per hour). However, in the event a waste container is encountered in the trench that requires remote-handling, it would be decontaminated or shielded to a level below 200 mrem per hour and moved to the Storage Facility.

The retrieval action would include mobile facilities which could be reused in future retrieval operations. The facilities would be located in previously disturbed surface areas and, as required, utility tie-ins would be made to the nearest source. The planned facilities would be located in a non-radiological area free of surface soil contamination. However, radioactive soil could be encountered during construction activities. If contaminated soil is encountered, it would be removed and disposed of in Hanford Site's low-level burial grounds. Any mixed waste encountered would be removed and stored onsite in a *Resource Conservation and Recovery Act of 1976* (RCRA) permitted storage facility until shipment to an approved RCRA permitted TSD facility.

Planned support facilities would include the following:

- Weather enclosure—A modular pre-engineered metal building (approximately 2,650 square meters [28,500 square feet]) that would cover a portion of the trench and can be relocated to support future retrieval activities. The purpose of this building is to provide weather protection during retrieval operations.

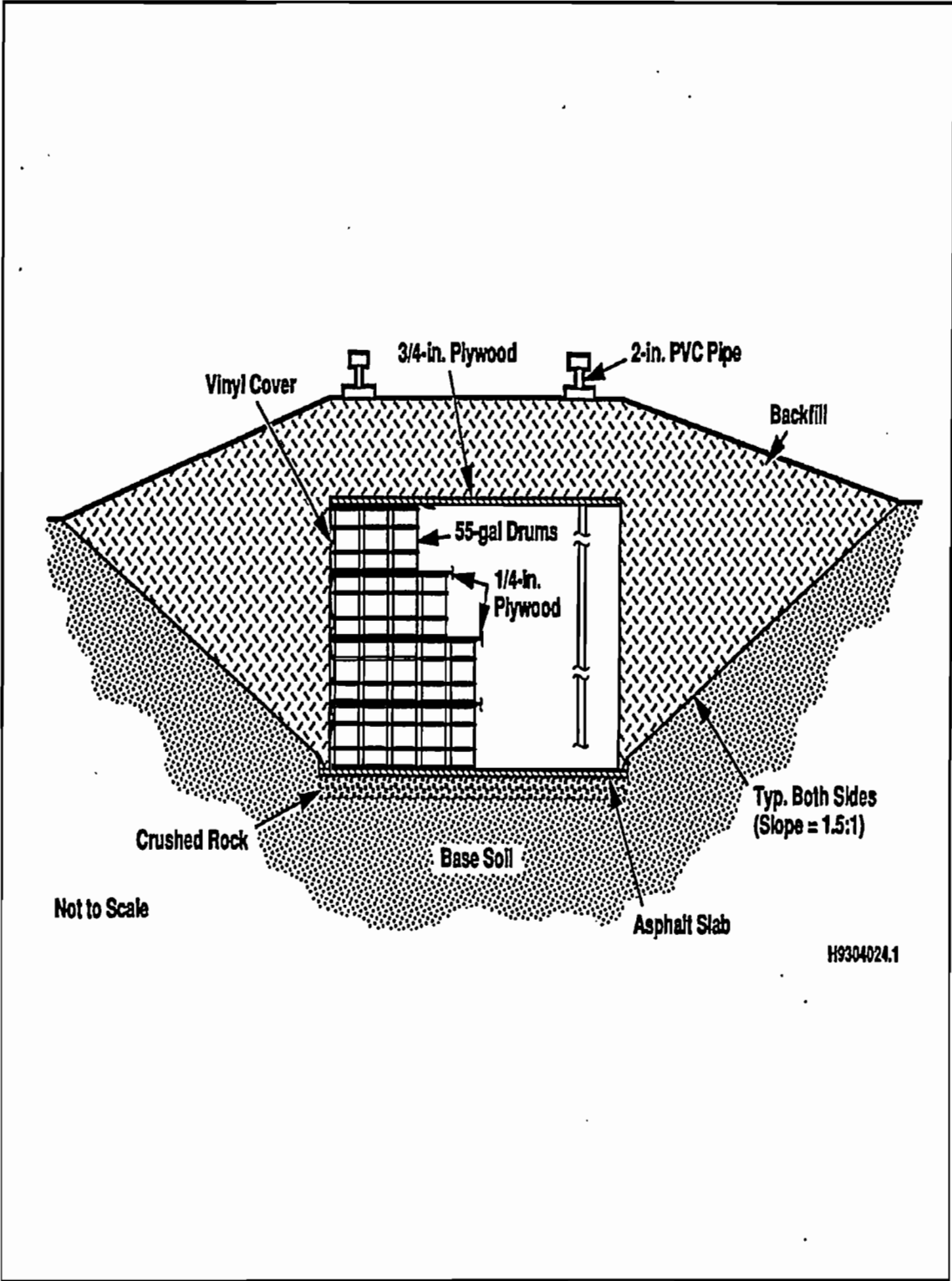


Figure 3.
Cross-Section of Typical Transuranic Waste Trench and Module

- Retrieval office building--A facility consisting of a double-wide office trailer (approximately 204 square meters [2,200 square feet]) to house the assigned administrative personnel. The facility would have a site office space, a conference room, a lunchroom, and restrooms.
- Retrieval staff changeroom-- A facility consisting of a double-wide office trailer (approximately 204 square meters [2,200 square feet]) to house an estimated retrieval operations staff of 20. This building would have locker rooms, lunchrooms, restrooms, and shower facilities. An area would be allocated for health physics technicians.
- Nondestructive Examination/Nondestructive Assay Facility--A mobile office trailer containing appropriate shielding that would be used to inspect and assay containers retrieved from the trench. The trailer could be used in or out of the trench area and would support future retrieval activities.
- Venting Facility--A mobile office trailer containing appropriate shielding that would be used to vent containers retrieved from the trench. The trailer could be used in or out of the trench area and would support future retrieval activities.

All retrieval activities would comply with federal requirements of 29 *Code of Federal Regulations* (CFR) 1910, "Occupational and Safety Health Administration [OSHA]," and 29 CFR 1926, "Safety and Health Regulations for Construction," as implemented by DOE Order 5480.4 (DOE 1984). Work activities would comply with As Low As Reasonably Achievable (ALARA) principles, waste management policies (WHC 1994), applicable state and federal regulations, and DOE Orders and guidelines. The potential radiation dose received by workers during the performance of the retrieval activities would be administratively controlled below DOE radiological dose limits as set forth in 10 CFR Part 835, *Occupational Radiation Protection*, (limit: 5 roentgen equivalent man [rem] annual effective dose equivalent (EDE) for onsite employee and 0.1 rem EDE for a member of the public) (DOE 1993) and the *Hanford Site Radiological Control Manual* (HSRCM) (HSRCM 1994). Any workers entering a radiation zone during construction or operation of a retrieval facility would be required to have the proper type of protective clothing and equipment. This entry would be controlled by site-approved radiological and industrial safety procedures. Principles of ALARA would be implemented during the construction and operation of the retrieval facilities.

2.2 Enhanced Radioactive and Mixed Waste Storage Facility

The proposed Storage Facility would provide a RCRA-permitted storage facility for retrieved TRU and newly generated TRU, mixed, and GTC3 waste awaiting processing in the WRAP facility and for processed waste awaiting shipment to the permanent disposal site. The Storage Facility would provide storage capacity for approximately 5,621 cubic meters (199,504 cubic feet) of waste. This design capacity assumes the WRAP facility is

operational and retrieved waste is only stored temporarily pending processing. The Storage Facility would be designed for a useful operating life of 30 years.

The Storage Facility project would consist of the construction and operation of approximately 10 buildings. Proposed new facilities would include an administration building, a shipping and receiving building, a transfer corridor building, an automated drum storage building, a gas sampling building, an ignitable waste storage building, approximately three long-term drum storage buildings, and a box storage building. Figure 2 shows the proposed location of the Storage Facility buildings within the SWOC. The SWOC is an existing and planned series of TSD units that centralizes the management of solid waste operations at a single location in the 200 West Area. Only the three long term drum storage buildings would be built in the first phase of construction. All or some of the additional buildings may be constructed during a future construction stage as the need to complete the full proposed Storage Facility arises. In addition, the proposed action includes mitigation for loss of priority shrub-steppe habitat.

The following is a brief description of the buildings located in the proposed Storage Facility. Refer to Figure 2 for the planned siting.

- **Long-Term Drum Storage Buildings.** Three buildings would utilize manual (nonautomated) storage and handling equipment for storage of GTC3 and mixed waste. In manual storage, waste containers could remain in the Storage Facility without transfer for more than two years before treatment or disposal. (Figure 2, #3, #4, #5)
- **Ignitable Waste Storage.** This building would provide storage for fully characterized, ignitable mixed waste. Also, storage would be provided for retrieved, potentially ignitable suspect TRU waste. This storage building would comply with applicable state and local fire protection codes for flammability. (Figure 2, #1)
- **Box Storage.** This building would provide storage for boxed waste. The building would contain equipment for receiving and shipping waste boxes and placing them into and removing them from storage spaces. (Figure 2, #2)
- **Shipping and Receiving.** The shipping and receiving building would contain truck bays and equipment for waste package transfer with a transport equipment maintenance area. (Figure 2, #6A)
- **Administrative Support.** A building adjacent to the Shipping and Receiving Building would contain administrative support space for approximately 12 assigned personnel, a lunchroom, restrooms, record storage, and the inventory and automated equipment handling system control center. (Figure 2, #6B)
- **Gas Sampling Building.** This building is attached to the Shipping and Receiving Building and would provide an area and equipment where a gas sample would be taken of a retrieved waste container and analyzed prior to shipment to an offsite disposal facility. (Figure 2, #6C)

- **Automated Drum Storage.** This building, as currently envisioned, would be a rack supported, high bay structure providing storage and automated material handling of waste drums by using a computer controlled automated stacker-retriever. The primary inventory of this building is to be 208-liter (55-gallon) drums and 322-liter (85-gallon) drum overpacks. (Figure 2, #7)
- **Transfer Corridor.** The transfer corridor would connect the automated storage and the gas sampling building with the shipping and receiving building, and would be used for the transfer of incoming and outgoing waste and for access to the WRAP Facility modules. The corridor would be sufficiently sized to accommodate two-way waste container traffic with a safety divider. Forklifts and electric motor-driven units would transport waste containers. (Figure 2, #8)

All retrieved waste containers (including mixed waste containing both radioactive and hazardous constituents) would be handled and stored within the Storage Facility or other RCRA compliant storage facilities. However, there would be no processing or repackaging of this waste within the Storage Facility. Normal operations would involve the receipt, movement, and storage of drums and boxes containing this waste. The waste containers would not be opened. Although the waste drums stored within the buildings would have charcoal filters on the vents, there would be some potential for airborne emissions caused by passive ventilation. Pre-construction approvals for air emissions from facility exhausting systems would be obtained from the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Health (DOH).

There would be a gas sampling system within the Storage Facility that would draw routine gas samples from the waste drums. Based on gas sampling, drums would be purged as necessary to reduce potential buildup of flammable gases. The Storage Facility would have continuous air monitors that, upon detection of a release, would automatically shut down the building's supply and exhaust system. The buildings would be protected by an automatic fire protection system, and would have radiation and air monitoring instrumentation in storage areas. The Storage Facility buildings would be constructed in accordance with DOE Order 6430.1A, *General Design Criteria* (DOE 1989).

Table 1 shows the estimated volumes of waste for the entire proposed Storage Facility (WHC 1991a). The three Long-Term Drum Storage Buildings planned for the first phase of construction would hold approximately 13,300 Drum Equivalents or 2770 cubic meters (97,800 cubic feet) of waste.

Table 1 - Estimated Waste Storage Capacity

Waste Description	Waste Quantity (cubic meters)	Drum Quantity
GTC3/LLWM	832	4,000
Other/LLWM	1,250	6,000
Ignitable Mixed Waste	42	200
Newly Generated TRU	1,520	7,300
Retrieved Suspect TRU	625	3,000
Ignitable Retrieved Suspect TRU	166	800
Box Storage	1,186	5,700*
Total	5,621 (199,504 cubic feet)	27,000*

* Drum Equivalents

The waste volumes shown in Table 1 include waste from three categories:

- (1) Retrieved waste from burial ground trenches
- (2) Mixed waste from ongoing activities (newly generated), and
- (3) Long-term storage of GTC3 waste until the best available technology and/or disposal methods are selected.

All work activities associated with the construction and operation of the proposed Storage Facility would comply with federal requirements of OSHA as implemented by DOE Order 5480.4 (DOE 1984). The principles of ALARA, waste minimization (WHC 1994) would be implemented during the construction and operation of the proposed Storage Facility. The Storage Facility would be a permitted facility in accordance with the requirements of the RCRA and Washington Administrative Code (WAC) 173-303 for storage of RCRA waste.

The potential radiation dose received by workers during the performance of the storage activities would be administratively controlled below DOE radiological dose limits in 10 CFR Part 835, *Occupational Radiation Protection*, (limit: 5 rem annual effective dose equivalent (EDE) for onsite employee and 0.1 rem EDE for a member of the public) and the HSCRM (HSCRM 1994).

2.3 Infrastructure Upgrades

The infrastructure for development of the SWOC would be part of the Phase 1 construction and include access roads, electrical power, water supply (sanitary and raw water), fire protection, sanitary sewers, storm runoff systems, and telecommunications systems. The following proposed upgrades would serve the existing and planned centralized waste management facilities located in the SWOC. Refer to Figure 2.

- **Access Roads.** Roads necessary for access to the Storage Facility, the CWSC, and the WRAP Facility modules would be constructed. Two existing Hanford Site roads (22nd, and 23rd Streets) would be extended west of Dayton Avenue, upgraded to current road standards, and resurfaced with asphalt. These two road extensions would provide access to the two new administrative support facilities (extension of 23rd) and to the three Long Term Drum Storage buildings (extension of 22nd). Approximately 23,225 square meters (250,000 square feet) of asphalt paving would be required for roads and parking areas. Paved roads would be constructed to provide for two-way traffic and would be suitable for loaded tractor-trailer and automobile access. Utility corridors would be provided on both sides of the roads.
- **Electrical Power.** Electrical lines would tie into the Hanford Site network at an existing 13.8-kilovolt overhead line near the intersection of Dayton and 23rd Street. The electrical distribution system for the proposed action would have sufficient capacity without a need for a new power source.
- **Water Supply.** Raw water is pumped from the Columbia River through a Hanford Site network servicing all areas. Water, as required, is then treated in filter plants at the various areas for filtered and sanitary water needs. Additional potable water lines would be installed to provide service to centralized SWOC facilities as necessary. Existing potable water lines in the nearby vicinity would be used as practicable to complete the distribution network.
- **Sanitary Sewer.** The SWOC would be served by two new, separate sanitary sewer systems consisting of septic tanks, dosing chambers, and pressurized drainfields. All drainfields would be located away from existing burial grounds. The proposed new septic tank systems would be installed in phases as needed to meet the use demand. One system would serve the proposed Storage Facility. The second system would serve the proposed retrieval facilities. The total design flowrate of the two systems is about 17,700 liters (4,600 gallons) per day to serve a population of approximately 210 persons. Permits would be obtained from the DOH.

The construction of a central collection and treatment plant for sanitary waste is under consideration for the 200 Areas (DOE-RL 1993). If this plant is constructed, it would be an evaporative system to minimize the use of drainfields and liquid discharges to the soil. The proposed septic tank systems may be tied into the treatment plant if it is built in the future.

- **Storm Runoff.** Site grading throughout the SWOC would provide for adequate drainage and control of stormwater runoff. An overall SWOC stormwater collection system would be designed and built within the 200 West fenced area to direct stormwater away from burial grounds and monitoring wells in the 200 West Area. This system would include appropriate catch basins and corrugated metal pipe drainlines. Current planning locates the storm system settling basin west of the proposed new north-south infrastructure access road. The proposed settling basin would be unlined and approximately 30 square meters by 1 meter deep (100 square feet by 3 feet deep). The soils and underlying formations in the 200 West Area are composed of sedimentary materials consisting of silts, sands, and gravels. Any runoff water would evaporate with residual runoff percolating into the soil.
- **Telecommunications.** Telecommunication capabilities would be installed to provide telephone, Hanford Local Area Network, and networked computer capabilities to support the SWOC. Telecommunication cabling would be installed from a new hub location approximately 610 meters (2,000 feet) south of the existing Dayton Avenue and 23rd Street intersection. Fiber optic cabling would be routed in underground conduit to the proposed CWSC (management support building) and from there go to the proposed Storage Facility. The system would include spares that could be used for future telecommunication needs.
- **Other.** The proposed infrastructure upgrades would include the installation of sidewalks, fencing, lawn sprinklers, and landscaping. After construction, surface areas not paved or landscaped would be stabilized either by re-seeding or gravel to control blowing sand. Some areas would require vegetation control to prevent unwanted plant growth. If re-seeding was performed, plant species would be compatible with surrounding ground cover vegetation. Some existing fencing may be removed, as necessary, to allow for the proposed access roads, and paved areas may be cut and patched to install utilities.

The concept of site infrastructure integration is consistent with Hanford Site planning goals (DOE-RL 1993).

2.4 Central Waste Support Complex

The proposed CWSC, which would be constructed in Phase 1, would include two pre-engineered metal or modular type solid waste management support buildings. Each building would be a single-story structure having individual heat pumps for heating and cooling. Fire protection lines would be installed. Telecommunication features would be extended to these buildings. Sidewalks, parking lots, landscaping, and traffic access routes would be provided as part of the proposed action. Personnel occupying the proposed buildings would be relocated from other areas onsite as part of effort to centralize waste management activities.

The two solid waste management support buildings would include: (1) a 1028 square meter (11,000 square foot) operational support facility for Wrap 1 and the other Central Waste Complex Facilities and (2) a 374 square meter (4,000 square foot) maintenance support facility. These buildings would be constructed near the Wrap 1 facility. The Operations Support Facility would provide office space for approximately 65 personnel and the maintenance facility would provide workspace for about 15 craftsmen. These facilities would include office bays, lunchrooms, restrooms, computers and copy centers, and other appropriate workstation and maintenance type functions.

The solid waste maintenance facility would provide space for small maintenance jobs. The building would not have changerooms or shower facilities in it. Provisions would include a material staging area, a receiving area, electrical, mechanical, and instrumentation shops, and a shop stockroom and grinding area.

2.5 Mitigation for Priority Habitat Loss

The proposed action would require clearing shrub-steppe habitat to construct new facilities. Part of that habitat, dominated by mature sagebrush, meets the State of Washington designation of "priority habitat" because of its importance to wildlife and because it is becoming relatively scarce in the state. Therefore, the loss of substantial acreage of this habitat type is an issue of concern. Compensatory mitigation for unavoidable loss of this priority habitat, in the form of restored, enhanced, or created similar habitat, would be a part of the proposed action. A Hanford sitewide mitigation program is being developed by U.S. Department of Energy, Richland Operations Office (RL) in cooperation with the Washington Department of Fish and Wildlife, the U.S. Fish and Wildlife Service (USFWS), and the Indian tribes.

Compensation for lost habitat values would be accomplished by enhancing the habitat value of an area west of the 200 West Area that has had no sagebrush component for many years due to past fires, but has all the other components of a mature habitat (e.g., understory species). This area is shown on Figure 1. If a more favorable area is determined by the Sitewide Mitigation Strategy, another site may be selected. A baseline characterization of the proposed compensation area has already been completed. The compensation site area has also been surveyed for cultural resources to make sure the mitigation action would not affect cultural resources. Enhancement would be through restoration of the shrubs in a selected area of habitat. Compensation for lost habitat value for the SWOC Project would be done at a ratio of 3 to 1.

The first phase of the proposed action would remove an estimated 11.4 hectares (28 acres) of mature habitat. At the ratio of 3:1, 34 hectares (84 acres) would be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area. Sagebrush plants of appropriate size could be salvaged from the Phase 1 and Phase 2 areas and transplanted. RL is currently evaluating the possibility of siting the Box and Ignitable Storage Buildings in a previously disturbed area directly east of the three Long Term Storage Buildings to reduce the potential habitat loss by 3.2 hectares (8 acres).

The current proposal, consistent with the draft Sitewide Mitigation Strategy, proposes that sagebrush transplants would be placed at a density of no more than 50 per hectare (20 per acre) and would be supplemented with tubeling nursery stock at a maximum density of 500 per hectare (200 per acre). If the Sitewide Mitigation Strategy determines that a more favorable method of mitigation or a more favorable location is appropriate, the Sitewide Mitigation Strategy would be followed.

2.6 Decommissioning of Waste Management Facilities

At some undetermined future date, the facilities used for the waste management activities associated with this proposed action would undergo decontamination and decommissioning (D&D) in accordance with DOE Order 5820.2A, Chapter V, *Decommissioning of Radioactively Contaminated Facilities* (DOE 1988). These waste management facilities would be managed in an environmentally safe manner in compliance with local, state, and federal standards until a final disposition is made of the facility. It is anticipated that when the facilities are no longer needed, the structures would be decommissioned and the site restored. Information on decommissioning plans or activities is not sufficient to provide a meaningful discussion of the environmental impacts associated from decommissioning. The D&D of waste management facilities is not evaluated in this EA and would be the subject of future *National Environmental Policy Act of 1969* reviews.

3.0 Alternatives to the Proposed Action

3.1 Retrieval Alternatives

3.1.1 No-Action

Under this alternative, the existing TRU waste inventory in Trench 4C-T04 would continue to be stored in a retrievable configuration. Current waste management practices would be followed. Monitoring, surveillance, and maintenance of TRU solid waste would continue until a decision is made to retrieve. Existing onsite monitoring functions would continue with activities such as site surveys, groundwater analyses, atmospheric sampling, and biotic surveys. Based on monitoring results, maintenance would include such activities as erosion and subsidence control, maintenance of trench vent pipes, and control of plant and animal access.

This alternative would maintain the waste containers in a retrievably stored condition well beyond the intended design life of the waste containers, which could mean an increasing potential for loss of structural integrity. As a result of container deterioration, potential releases of TRU waste to the environment could occur.

The No-Action Alternative does not support the purpose and need.

3.2 Storage Facility Alternatives

3.2.1 No-Action

The Storage Facility would not be built. Without the Storage Facility, waste retrieval and treatment for final processing within the WRAP Facility would be inefficient and there would be insufficient RCRA compliant storage for retrieved TRU and newly generated TRU, GTC3, mixed waste, and for the processed waste awaiting shipment to the permanent disposal site.

This alternative does not support the purpose and need.

3.2.2 Use of an Existing Onsite Storage Facility

Under this alternative, an existing facility on the Hanford Site would be used for storage of waste and the Storage Facility would not be built. Retrievably stored and newly generated TRU, mixed, and GTC3 waste would be moved to this facility for storage awaiting processing and/or disposal.

Existing facilities on the Hanford Site were evaluated that could be utilized for storage of solid waste with sufficient capacity to support WRAP Facility processing and storage of processed waste awaiting disposal. A 9,300-square-meter (100,000-square-foot) building constructed in the 200 East Area in the early 1950's, the 2101-M Building, was identified as the best potential onsite storage alternative. The facility is presently occupied and would have to undergo extensive modifications to serve as a storage facility. Using this facility would be less efficient, because waste would have to be stored in the 200 East Area but processed in the 200 West Area. Costs to modify the 2101-M Building to RCRA standards were estimated at about \$106 per square foot, while new construction would cost about \$44 per square foot.

Although this alternative would greatly reduce impacts to priority shrub-steppe habitat, cost and schedule consideration make this alternative unacceptable. The CWC is currently at 75 percent of available storage capacity and will run out of capacity in early 1997. This alternative would not provide the needed additional RCRA compliant storage capacity in a timely manner. No other suitable facilities were identified (WHC 1993b).

3.2.3 Alternate Construction Site of Storage Facility within SWOC

Under this alternative, the Storage Facility would be located within SWOC but sited in an area that has been previously disturbed from prior solid waste activities. Based on the results of the biological review, other sites within the SWOC would disturb a larger area of habitat (Appendix B).

This alternative does not meet the purpose and need.

3.3 Infrastructure Upgrades Alternatives

3.3.1 No-Action

The infrastructure upgrades would not be provided as part of the proposed action. Existing utilities would continue to be used and no upgrades would be made to support the planned retrieval activity and WRAP Facility processing. Access to the planned SWOC to support future transport and shipment of TRU waste would be restricted to inadequate existing roadways.

The No-Action Alternative would not provide the site upgrades at the SWOC to effectively implement the Retrieval activities, Storage Facility activities, and eventual WRAP Facility processing and does not support the purpose and need.

3.4 Central Waste Support Complex Alternatives

3.4.1 No-Action

Under this alternative, a centralized waste support complex consisting of two administrative buildings and one operation and maintenance facility would not be built. Solid Waste administrative and operational personnel would continue to be scattered around the Hanford Site at various locations and would continue to travel between these scattered offices to work on assigned tasks.

The No-Action Alternative does not support the purpose and need.

3.4.2 Use of Available Onsite Administration and Maintenance Facilities

Under this alternative, existing facilities on the Hanford Site would be used to house the CWSC administrative and maintenance personnel versus construction of new pre-engineered buildings.

This alternative would support the square footage requirements to house the planned personnel but would not provide for centralized solid waste management operation in the 200 West Area. Without this centralized operation, the estimated 400 solid waste management, maintenance, and engineering personnel would continue to be spread throughout the Hanford Site and would not provide for the desired operational efficiency of the support functions. Office space outside the 200 Areas does not meet the need to reduce operational costs of the SWOC.

Because of other ongoing activities in the 200 Area (e.g., actions necessary for the safe interim storage of Hanford tank wastes; spent nuclear fuel management; Hanford cleanup actions; and actions related to tank waste remediation) and the projected growth in the 200 Area population (DOE-RL 1993), administrative and maintenance facilities are not currently available to fully support waste management needs. If practical, a sharing of facilities would be undertaken to accommodate office space needs. This alternative would neither provide the needed administrative and maintenance office area, nor support the operational efficiency of waste management operations.

This alternative does not support the purpose and need.

4.0 Location and Affected Environment

4.1 Location of the Proposed Action

The proposed retrieval and storage activities would occur in the 200 West Area of the Hanford Site near Dayton Avenue and, between 16th and 27th streets. See Figure 2.

The Hanford Site (Figure 1) is 1,450 square kilometers (560 square miles) and located in southeastern Washington state. It is a semiarid region of rolling topography. Two topographical features dominate the landscape: Rattlesnake Mountain, a treeless 1,066 meters (3,500 feet) anticline, located on the southwest boundary and Gable Mountain, a small ridge 339 meters (1,112 feet) in height, located on the northern portion of the Site. The Columbia River flows through the northern part of the Hanford Site and forms part of the Hanford Sites' eastern boundary. Areas adjacent to the Hanford Site are primarily agricultural lands.

The 200 West Area is located on the 200 Area plateau 8 kilometers (5 miles) from the Columbia River and is not located in the 100-year or 500-year floodplain of the Columbia River, the probable maximum floodplain of Cold Creek, nor is it located within a wetlands area (Cushing 1994). The 200 West Area is the Hanford Site's waste management operation center. Burial trenches, waste storage facilities (solid and liquid), and retired chemical processing plants are located here. The 200 West Area does not contain any prime farmland, state or national parks, forests, conservation areas, or other areas of recreational, scenic, or aesthetic importance.

The 200 West Area is about 48 kilometers (30 miles) northwest of the City of Richland. The City of Richland (population 32,315), located in Benton County, adjoins the southernmost portion of the Hanford Site boundary and is the nearest population center (Figure 1).

The site for the proposed Retrieval Complex would occupy approximately 2.4 hectares (6 acres) within the western part of the 200 West Area. The site for the CWSC would occupy approximately 3.2 hectares (8 acres) just north of the Storage Facility (Figure 2). The access roads, septic and drainfield systems, runoff control, paved areas, and various utilities required for the proposed infrastructure upgrades would occupy an additional area of approximately 12.9 hectares (32 acres). A total of 18.6 hectares (46 acres) would be included within the combined "footprint" for the Retrieval Complex and the Storage Facility and Support Complex (Figure 2).

External radiation measurements were taken at 58 survey sites in the 200 Areas. The results indicated the average annual dose rate was 130 mrem per year (PNL 1994).

4.2 Socioeconomics

The Hanford Site is a dominant factor in local employment providing almost one-quarter of the total nonagricultural jobs (17,000 of 67,000) in Benton and Franklin Counties in 1992 (TRIDEC 1992). In fiscal year 1988, the DOE and its contractors purchased about \$96 million of goods and services in the State of Washington. The Hanford Site has had many major construction projects ranging from office facilities to a major commercial nuclear plant.

The leading employers in the immediate region that impact the local economy are the DOE and its operating contractors, the Washington Public Power Supply System, and the agricultural sector including food processing plants. Other major employers include a nuclear fuel fabrication plant, a meat packing plant, a pulp and paper mill, railroad, and small manufacturing firms.

4.3 Physical Environment

The water table in the 200 West Area is approximately 70 meters (230 feet) to 88 meters (290 feet) below the surface. Groundwater is monitored routinely and the results are reviewed to detect any change (Cushing 1994).

There are no known groundwater contamination plumes beneath the area with the possible exception of the outer margin of the 200 West Area carbon tetrachloride plume where the isopleth shows the concentration at about 10 parts per billion (Ford 1993).

The soil in the 200 Area is predominately a sand and gravel mixture. As effluent percolates downward through a multi-layered soil column, considerable lateral spreading within each layer would occur. Localized perched water conditions may develop at various intervals in the soil column above the watertable which is about 70 meters (230 feet) below the surface.

The 200 West Area of the Hanford Site is characterized by relatively cool, mild winters and warm summers with an average of about 15 to 18 centimeters (6 to 7 inches) of annual precipitation and occasional high winds of up to 129 kilometers (80 miles) per hour. There has been no reported occurrence of a tornado on the site and the area has low to moderate seismicity. Air quality is well within the state and federal standards for criteria pollutants (such as sulfur dioxide, nitrogen dioxide, carbon monoxide, lead, ozone, and particulate matter) although there are natural events such as dust storms and brushfires that can cause particulate concentrations to reach high levels (DOE 1995). This increased particulate concentration is a short-term condition.

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 may occur. Occasional periods of poor dispersion conditions occur during the winter months.

4.4 Ecology

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 West Area (Cushing 1994). Relatively undisturbed areas of mature shrub-steppe vegetation that are high quality habitat for many plants and animals have been designated as "priority habitat" by the State of Washington.

A Biological Review has been completed for portions of the proposed site (Appendix A). During this review, the loggerhead shrike (federal candidate 2 and state candidate species) and sage sparrow (state candidate) were observed in the area. The shrub-steppe habitat on and near the proposed site is considered priority habitat used for nesting/breeding/foraging by the loggerhead shrike and sage sparrow and is habitat for the northern sagebrush lizard. A red-tailed hawk and western meadowlarks were also observed in the area of the proposed action. No federal listed or candidate plant species were observed in the area of the proposed action although the stalked-pod milkvetch (state monitor species) was observed.

The Biological review of May 23, 1995 (Appendix A) covered an area of approximately 36 hectares (89 acres) of which approximately 20 hectares (50 acres) were identified as priority habitat. The project scope has been reduced since the survey and now contains approximately 18.6 hectares (46 acres) of which approximately 14.6 hectares (36 acres) is estimated to be priority habitat.

4.5 Cultural Resources

A Cultural Resources Review (CRR) has been completed by the Pacific Northwest Laboratory (PNL) (Appendix B). No cultural artifacts of significance were found during the survey and no restrictions were placed on construction or operation.

The historic White Bluffs Road has been identified as passing through the 200 West Area. The segment of the road that passes through the 200 West Area has been extensively disturbed by previous activities and has been found to be a noncontributing section to the road's historical status because of its loss of physical integrity (Appendix B). Construction activities from this proposed action would be close to or intersect this segment of the road. Other than the White Bluffs Road, there are no known archeological, historical, religious sites, or other sensitive cultural areas in the vicinity of the proposed action.

5.0 Environmental Impacts of the Proposed Action

5.1 Impacts from Construction Activities

5.1.1 Air Impacts

Under normal construction activities, no airborne emissions of radioactive or hazardous materials are expected. However there is a potential for an airborne emission if a radiation area is unexpectedly disturbed during construction of the proposed retrieval facilities, storage facilities, infrastructure upgrades, and administrative facilities. However, the likelihood of any potential release is minimal because of the radiation administrative controls in place during the construction activities. Radiological field work would be performed in compliance with ALARA principles, applicable state and federal regulations, and DOE Orders and guidelines. Under normal conditions, air emissions would be within construction air permit requirements. In the event that radioactive contamination is encountered work would stop and more detailed monitoring would be done. Any contaminated area caused by a potential release above permit requirements would be cleaned up as a routine operation on site.

Exhaust gases and minor amounts of heat would be discharged to the atmosphere from the construction equipment. Ambient noise levels would be increased in the immediate vicinity during construction, but would be a temporary condition.

Particulate releases to the atmosphere, typical of all construction projects, would be limited to dust generated for short periods as a result of project construction activities. Dust control measures, such as spraying the ground with water or a soil fixative, would be implemented as needed during these activities to mitigate blowing dust.

Administrative safety procedures would be enforced to maintain safety in the workplace and prevent occupational accidents. Construction activities would comply with OSHA safety requirements.

5.1.2 Water Impacts

No liquid discharges to the environment would be expected during construction, except for the water that would be sprayed on the ground during construction to control dust. No detrimental impact is expected to the groundwater in the 200 West Area, which is approximately 70 meters (230 feet) below the surface (Kasza et al. 1991).

5.1.3 Waste Management Impacts

Miscellaneous small quantities of nonradioactive and nonhazardous construction scrap materials would be generated by the proposed activities. This waste would be disposed of in accordance with all applicable federal and state regulations, and DOE Orders and guidelines.

All waste would be disposed of in the existing Hanford Site central landfill or other approved disposal site. Any waste disposed of offsite would be taken to an appropriately permitted facility.

If contaminated soil is encountered (e.g., wind may blow contaminated soil into the non-radioactive zone), this contaminated soil would be properly characterized for disposal in accordance with all applicable federal and state regulations, and DOE Orders and guidelines. The volume of contaminated soil that may be encountered is not known, but potential waste volume for disposal is expected to be minimal because the construction area is expected to be free of contaminated soil. Any soil contamination designated as LLW would be disposed of at the Hanford Site's LLW burial grounds. Mixed waste would be stored onsite in a RCRA-permitted storage facility until shipment to an approved RCRA permitted TSD facility.

5.1.4 Land Impacts

The total land area involved in this proposed action is about 18.6 hectares (46 acres) in comparison to the approximate 777 hectares (1,920 acres) that make up the 200 West Area and represents about 1.5 percent of the land in the 200 West Area. Site clearing to remove sagebrush and other vegetation and grading of the sites would be required during construction of proposed buildings, access roads, and drainfields.

5.1.5 Noise Impacts

Equipment used during construction would temporarily increase ambient noise levels. Any noise level increase would not be expected to have any detrimental impact to neighboring office workers. Construction workers would wear appropriate hearing protection during operation of the construction equipment.

5.1.6 Radiological Impacts

Any work in radiation controlled areas would be performed in compliance with ALARA principles, applicable state and federal regulations, and DOE Orders and guidelines. The potential radiation received by workers during the performance of the action would be administratively controlled below DOE limits established in 10 CFR Part 835, *Occupational Radiation Protection* and the HSRCM (DOE 1994). Those limits require that individual radiation exposure be controlled below an annual EDE of a maximum of 5 rem per year. However, contractor administrative controls further impose an administrative control level on an individual's radiation exposure to 500 mrem per year. These controls assure that, under normal conditions, workers would not be exposed to radiation levels approaching the DOE limit.

5.1.6.1 Construction of Retrieval Facilities

Radioactive soil is not anticipated to be encountered during construction because there is about four feet of clean soil overburden covering the waste drums and the surface area is designated as a non-radioactive zone. Because the construction activities would occur in a non-radioactive area, no radioactive airborne emissions are expected.

Although contact with contaminated soil is not expected, it could be encountered during construction activities. If so, a radiation control zone would be established around the contaminated area. Workers, wearing proper protective equipment, would enter the zoned area and cleanup the contaminated area. The contaminated soil would be properly characterized and either stored or disposed of on the Hanford Site.

5.1.6.2 Construction of Storage Facilities

The radiological conditions and work practices associated with the construction of the Storage Facility are similar to that described for construction of the Retrieval facilities in Section 5.1.6.1 with the exception that known waste containers are not located beneath the construction area. Construction activities would occur in a non-radioactive surface area with no access restrictions. This would not pose any unusual health risks to the construction workers.

Although contact with contaminated soil is not expected, it could be encountered during construction activities. If so, a radiation control zone would be established around the contaminated area. Workers, wearing proper protective equipment, would enter the zoned area and clean up the contaminated area. The contaminated soil would be properly characterized and either stored or disposed of on the Hanford Site.

5.1.7 Consumption of Nonrenewable Resources

Construction materials, such as concrete, steel, and petroleum, represent a relatively small long-term commitment of nonrenewable resources. A total of approximately 17,600 cubic meters (23,000 cubic yards) of concrete and 299,000 kilograms (330 tons) of steel would be used in construction of the Retrieval and Storage Facility actions, and approximately 250,000 liters (66,000 gallons) of petroleum products would be consumed.

5.1.8 Effect on Sensitive Areas

The proposed Retrieval activities and the Storage Facility activities would be located in the 200 West Area of the Hanford Site. A CRR specific to the site of the proposed action has been completed by PNL. During the cultural review, the historic White Bluffs Road was identified as being within the proposed complex. No other archaeological sites or isolates were recorded during the survey (Appendix B).

The historic White Bluffs Road is eligible for listing on the National Register of Historic Places. However, the State Historic Preservation Officer has determined that the segment of the road located within the 200 West Area is a non-contributing section and is not considered to be a historic property. No other sensitive areas, such as wetlands, floodplains, archaeological, sole source aquifers, or structures of historical significance, are known to be located in the vicinity of the proposed action. In the event that any cultural materials may be encountered during work activities, work would halt until a PNL archaeologist could assess the significance of the find.

The proposed action would be located on the 200 Area Plateau. Land disturbance would be limited to the 200 West Area. It would not be located in the 100- or 500-year floodplain of the Columbia River or Cold Creek. There is no evidence of the existence of any wetlands in the area.

A Biological Review of the area (Appendix A) indicated that the loggerhead shrike (federal candidate level 2 and state candidate) and the sage sparrow (state candidate) were observed in the area. Although the northern sagebrush lizard was not observed in the area of the proposed action, the loss of sagebrush could impact this species that relies on the shrub-steppe habitat. No other species listed (or candidate for listing) as threatened or endangered would be impacted by the proposed action. Project construction schedules would be adjusted to minimize impact on these species by avoiding site clearing and preparation activities during the nesting season (March through July). No other restrictions were recommended from the biological review. After the nesting period, the shrub-steppe habitat would be destroyed in the area of the proposed buildings, access roads, and parking lots. Of the approximately 18.6 hectares (46 acres) covered by the total proposed project, an estimated 14.6 hectares (36 acres) of state designated priority shrub-steppe habitat would be destroyed by the project construction. The first phase of the proposed action would remove an estimated 11.4 hectares (28 acres) and an additional 3.2 hectares (8 acres) could be removed by a future expansion. Similar shrub-steppe habitat exists elsewhere on the Hanford Site, although the habitat is shrinking in size.

A short-term impact on plant and animal life within or near the proposed action during construction is anticipated, as well as a possible long-term, detrimental impact to the loggerhead shrike and sage sparrow because of the destruction of nesting habitat. In order to minimize impacts of lost shrub-steppe habitat, DOE would mitigate the removal of priority shrub-steppe habitat as discussed below and in Section 2.5.

A Hanford sitewide mitigation program is being developed by RL in cooperation with the Washington Department of Fish and Wildlife, the USFWS, and the Indian tribes. The development of the program is in a formative stage, with concepts and procedures for agreements being the initial focus. As part of this effort, a draft sitewide mitigation strategy is being prepared.

The following are key components of the mitigation strategy:

- Avoidance and minimization of impact through siting
- Salvage and transplant

- Restoration of temporarily disturbed habitat
- Compensation for lost habitat.

Each of the components of the sitewide mitigation strategy as they apply to the proposed action is discussed in the following paragraphs.

Measures to avoid and minimize impacts have been applied to the extent feasible. The anticipated loss of mature sagebrush habitat has been reduced substantially by a change in project scope. The original scope of the project included a footprint of approximately 36 hectares (89 Acres), of which 20 hectares (50 acres) of priority habitat would have been destroyed. Since then, the scope of the project has been significantly changed to reduce the habitat loss. The new proposed footprint is only 18.6 ha (46 acres) and only 14.6 ha (36 acres) are priority habitat within the 36 hectare (89 acre) footprint encompassed by the previously surveyed cultural resource and biological reviews (Appendix A and B). Part of the impact to habitat would also be delayed by the phased approach to construction of the Storage Facility. It may be possible to change the siting for the Phase 2 buildings to a previously disturbed area and avoid the potential habitat removal from the second phase construction.

Restoration of temporarily disturbed habitat would not be considered for the proposed action because the habitat that would be disturbed during construction would be effectively removed from the ecosystem during the full life of operations.

DOE would compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy when it is approved. If a sitewide mitigation program is not adopted in a timely fashion (by no later than July 1996), the Solid Waste Operations Complex (SWOC) would then develop a stand-alone program for mitigating the loss of mature sagebrush habitat. The concepts would apply the key elements of the draft Sitewide Mitigation Strategy.

The first phase of the proposed action would remove an estimated 11.4 hectares (28 acres) of mature habitat. At the ratio of 3:1, 34 hectares (84 acres) would be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area. Sagebrush plants of appropriate size could be salvaged from the Phase 1 and Phase 2 areas and transplanted. RL is currently evaluating the possibility of siting the Box and Ignitable Storage Buildings in a previously disturbed area directly east of the three Long Term Storage Buildings to reduce the potential habitat loss by 3.2 hectares (8 acres).

5.2 Impacts of Retrieval Operations

5.2.1 Normal Retrieval Operations

Workers would wear protective clothing and the work area would be continuously monitored for radiation levels during normal retrieval operations. The retrieval activities would be performed in compliance with ALARA principles, applicable state and federal

regulations, and DOE Orders and guidelines. The contractor administrative control level for worker exposure is a maximum of 500 mrem per year which is lower than those DOE limits established in 10 CFR Part 835, *Occupational Radiation Protection* and the HSRCM. These controls assure that, under normal conditions, workers would not be exposed to radiation levels approaching the DOE limit of 5 rem per year (HSRCM 1994). When x-raying waste drums, the drums are moved into a fully shielded vault area. During x-ray operation, workers are protected by this shielding. In addition, designed safety features would prohibit x-ray operation until the vault area is clear of workers.

Implementation of work practices for the directly involved worker would mitigate potential health impacts. Radiation work permits that specify the radiological condition and any radiological zone entry requirements would be required. Workers are required to have appropriate training, wear appropriate personal protective equipment, adhere to ALARA principles, and follow established administrative controls.

Workers would be exposed to a direct radiation source during the retrieval activities. Preliminary design includes measures to provide shielding to workers and minimize exposure. Based on early dose uptake calculations, it is estimated that the average annual dose to a retrieval worker is about 0.3 rem. Over an estimated three year retrieval activity, a projected group of 14 retrieval workers would receive a dose consequence of 12.6 person-rem. Potential radiological risks to workers would be minimized by job safety planning and adherence to established ALARA principles and industrial health and safety procedures. Applying the International Commission on Radiological Protection (ICRP) nominal cancer fatality coefficient for low dose, low dose-rate whole body irradiation of approximately 4×10^{-4} latent cancer fatality (LCF) per person-rem EDE (See Section 5.2.2), the health effect to this directly involved worker group is 0.005 LCF.

A leaking waste container could be found during retrieval operations. Because of the protective covering and the relative dry climate (about 15 to 18 centimeters (6 to 7 inches) annual precipitation), no leaching of soil contaminants to groundwater would be expected to have occurred. The contamination is expected to be localized. The contaminated area would be cleaned up with no adverse impact expected to underlying groundwater about 70 meters (230 feet) below the surface (Kasza et al. 1991).

Under normal retrieval operations, potential exposure to chemical hazards is low. After the soil overburden is removed off the drum module the area is pre-monitored for detectable indication of potential chemical exposure to workers. If the monitoring indicates a chemical hazard presence, workers would wear appropriate protective clothing for the particular chemical hazard.

Equipment used during retrieval operations would temporarily increase ambient noise levels.

5.2.2 Postulated Accident - Abnormal Retrieval Operations

A Preliminary Safety Evaluation (PSE) evaluated postulated radiological accidents during the proposed Retrieval operations, and calculated the radiological EDE in person-rem (WHC 1991b). The postulated accident that generated the largest dose consequence was a drum explosion before installing vents on the container. The explosion is postulated to occur as a result of hydrogen buildup, in unvented containers, that eventually reaches an explosive concentration with oxygen. The explosion ignites the waste material, and contaminated material is released by fire. The amount of TRU waste in the exploded drum is assumed to be the highest TRU-loaded drum in the trench area nearest the Plutonium Finishing Plant (PFP). An estimated 0.0414 plutonium equivalent curie is released. As noted in the PSE, this postulated accident has an annual probability occurrence of 2.3×10^{-6} (about two times every one million years) and is considered an extremely unlikely event, but is developed here to quantify impacts.

Radiological dose consequences to onsite and offsite populations were calculated for this postulated accident using the Hanford Site standard dosimetry GENII computer code (Napier et al. 1988). This code analyzes environmental releases resulting from acute or chronic releases to the air, water, or soil. Sixteen compass sectors are analyzed. The code utilizes Hanford Site-specific meteorological data, and models atmospheric dispersion between the release point and the receptor as a straight-line Gaussian plume with no terrain effects. The GENII atmospheric dispersion model becomes increasingly inaccurate at close distances, and is therefore not used at distances less than 100 meters (328 feet) from the release point.

The ICRP has determined that the nominal cancer fatality coefficient for low dose, low dose-rate whole body irradiation is approximately 4×10^{-4} LCF per person-rem EDE for a worker population, and approximately 5×10^{-4} LCF per person-rem EDE for a population of all ages (ICRP 1991). Health effects in terms of LCFs are calculated by multiplying the calculated radiological dose by the ICRP coefficient (WHC 1993c).

Under a postulated accident condition, the onsite and offsite health effects in terms of projected LCFs are calculated for the directly involved worker, the onsite maximum exposed individual (MEI), the offsite MEI, and the maximum exposed onsite and offsite populations. The MEI is defined as a hypothetical individual receiving the highest dose from the release and represents the upperbounding dose consequence.

Population data from the 1990 census is used in defining the total population surrounding the radiological release point. The total offsite population is considered to be the general public, and is assumed to extend from the Hanford Site boundary to a circle having an 80-kilometer (50-mile) radius from the release point. This population totals 375,860.

Health effects from a postulated accident are based upon calculated GENII dose consequences without the trench enclosure structure. The purpose of the enclosure structure is purely for weather protection. However, the all weather enclosure could serve to mitigate dose consequences to workers and the general public in the unlikely event of a postulated accident.

The calculated dose consequences are based on a 50-year time duration after exposure and a 95-percent meteorology factor whereby a condition of atmospheric dispersion is exceeded 95-percent of the year in a given sector. This represents a very conservative approach to projecting health effects (WHC 1993c). When combined with the annual accident probability of 2.3×10^{-6} , the risk to the onsite and offsite MEI, to the directly involved workers, and to the onsite and offsite populations of becoming a LCF is substantially reduced. As noted earlier, the postulated exploding drum accident has an annual probability occurrence of 2.3×10^{-6} , and is considered to be an extremely unlikely event. Table 2 represents a summary of the calculated dose consequences and associated health effect in terms of LCFs:

Onsite Health Effects

The onsite MEI is a hypothetical individual receiving the highest dose from the postulated accident. This MEI is located 100 meters (328 feet) from the release point and represents the upperbounding dose consequence which is greater than any dose consequence to any other individual in the onsite population. The calculated dose consequence is 18 rem and, applying the ICRP coefficient, a projected 0.0072 LCFs would occur. Because this is less than one fatality, no LCF would be expected. The 0.0072 LCF means that the onsite MEI has a chance of about 1 in 140 of becoming a LCF.

The population health effects caused by a radioactive release depend on the population distribution around the release point, as well as site-specific meteorology. For the postulated trench accident, the maximum dose to the onsite population was to those located east of Trench 4C-T04, towards the PFP.

The onsite population is assumed to extend from a minimum of 100 meters (328 feet) from the release point to the Hanford Site boundary, and consists of DOE employees, DOE contractor employees, other contractor personnel, and supervised visitors on the Hanford Site. This population group is not directly involved in the proposed drum removal activity, but would receive the largest dose consequence of 14,900 person-rem in the event of a postulated accident. Applying the ICRP coefficient of 4×10^{-4} LCF/person-rem, the health effect to this onsite population group is calculated to be 6.0 LCF. The 6.0 LCF means that an average member of the exposed onsite population of 3,488 has a chance of about 1 in 580 of becoming a LCF should the postulated accident occur.

The analysis of onsite population dose consequences considers an unmitigated release and exposure, and does not take credit for the *Hanford Emergency Response Plan* (DOE-RL 1994) prepared and implemented in accordance with DOE Order 5500.3A, and *Planning and Preparedness for Operational Emergencies* (DOE 1992), which would minimize the risk of exposure. Emergency signals would warn the onsite population if the postulated accident occurred. An emergency communication network exists on the Hanford Site to inform the onsite population of emergency actions to be taken. Training for emergency situations on the Hanford Site is routine in nature and would reduce potential onsite population dose consequences and projected LCFs.

For directly involved workers within 100 meters (328 feet) of the release point, the GENII computer code used to evaluate atmospheric dispersion and dilution of the release is unreliable. This, combined with the fact that radiological dose consequences to these workers are primarily dependent on where workers are located at the time of release (e.g., upwind or downwind), prohibits the making of an accurate quantification of the dose consequences. However, a rough estimate of dose consequences can be made using International Atomic Energy Agency (IAEA) guidance (IAEA 1990), which indicates that all other things being equal, reducing the distance between the worker and the release point by an order of magnitude results in a factor of 30 increase in worker dose. In this case, the GENII computer code calculated the MEI 100 meters (328 feet) from the release point would receive a dose of 18 rem EDE. Using the IAEA guidance, a directly involved worker 10 meters (33 feet) away from the release point would receive a dose of roughly 540 rem EDE (IAEA 1990).

In the event of a postulated accident, this EA assumes that five directly involved workers are 10 meters (33 feet) from the exploding drum and would receive a total of 2,700 person-rem. Each worker is assumed to be equally exposed and would receive an acute whole body dose of 540 rem EDE. This level of exposure could be a potentially lethal radiation dose to a worker. The worker would experience nausea and vomiting within two to four hours and lasting for less than 24 hours. The worker's blood system would be damaged because of the radiation and up to 90 percent of the workers would require hospitalization for treatment (blood transfusion, antibiotics, and rest) for a period of 60 to 90 days. The incidence of death would range from zero to eighty percent and would occur within three weeks to two months (Shleien, B., et al, 1984). Assuming the worker receives medical treatment and survives the acute dose, damage to other body organs (i.e., eyes, bone marrow, lungs, thyroid) may have occurred that could effect the workers health later in life.

Retrieval workers would be wearing proper personnel protective equipment when working in a radiation area and work practices would adhere to ALARA principles. Additional engineered controls would be in place to provide protective shielding to minimize worker exposure. Because of the shielding design, the acute whole body dose of 540 rem EDE would be considerably reduced. As stated in Section 5.2.2, the annual probability of a retrieval accident is about two times every one million years and is an extremely unlikely event. The likelihood of a worker receiving a dose consequence of 540 rem EDE is very remote.

This EA does not analyze the potential impact to the five directly involved worker 10 meters (33 feet) of an exploding drum. Depending upon where the worker is standing and what protection may exist between the worker and the drum, potential fatalities could occur. In addition, any other individuals within 100 meters (328 feet) of the exploding drum could be fatally injured. Any other individuals who may happen to be within this 100 meters but not directly involved in the drum retrieval could, likewise, be a fatally injured depending on location.

Offsite Health Effects

The offsite MEI is a hypothetical individual receiving the highest dose from the postulated accident. The calculated dose is 0.077 rem and represents the upperbounding dose consequence. This dose consequence is greater than any dose consequence to any other individual in the offsite population. Applying the ICRP coefficient of 5×10^{-4} LCF/person-rem, a projected 0.0000385 LCFs would occur. Because the calculated LCF is much less than 1, no LCF would be expected. The offsite MEI, located in the west-northwest sector of Trench 4C-T04, would have a chance of about 1 in 26,000 of becoming a LCF.

The greatest exposure to the offsite population, should the accident occur, is received by a population of 102,538. This population group would receive 152 person-rem. Applying the ICRP coefficient of 5×10^{-4} LCF/person-rem, the health effect to this offsite population group is calculated to be 0.076 LCF. The calculated LCF is less than one and, therefore, a LCF would not be expected. The 0.076 LCF means that an average member of the exposed offsite population of 102,538 has a chance of about 1 in 1.3 million becoming a LCF should the postulated accident occur. When the annual accident probability of 2.3×10^{-6} is considered, risk to the offsite population and MEI of becoming a LCF is reduced substantially. No adverse health effects are expected.

The potential offsite radiation dose consequence over a 50-year time period is related to the extent of external exposure to or the intake of radionuclides released from a postulated accident. For both the offsite MEI and offsite population receptors, the primary pathway of radionuclides taken into the body is by inhalation resulting from an exposure in a radioactive plume.

Table 2 - Summary of Normal and Abnormal LCFs - Retrieval Actions

RECEPTOR (w/population size)	DOSE CONSEQUENCE	LCFs
Normal retrieval actions (14)	12.6 person-rem CDE	0.005
MEI - Onsite (1)	18 rem EDE	0.0072
MEI - Offsite (1)	0.077 rem EDE	0.0000385
Exposed Onsite Population (3,488)	14,900 person-rem CDE	6.0
Exposed Offsite Population (102,538)	152 person-rem CDE	0.076

5.3 Impacts of Storage Facility Operations

5.3.1 Normal Storage Operations

No liquid effluents, other than the sanitary waste from the planned septic and drainfield systems, would be discharged from the proposed facilities. The sanitary effluents would be nonhazardous and nonradioactive, and would not be a RCRA regulated waste. The sanitary sewer systems would be designed and constructed to operate in conformance with current state and local county regulations, and liquid discharges would occur routinely during operations. The sanitary sewer system would be reviewed and approved by the DOH.

If the planned sanitary sewer system were utilized to full capacity of 43,000 cubic meters (approximately 11 million gallons) per year, there could be a 1.5 percent increase in the total nonradioactive effluent of all Hanford Site operations being discharged to the soil column. Little, if any, mounding at the watertable would result. Any impact to local groundwater flow direction, or potential contaminant plume is predicted to be minimal (Tyler 1993).

Workers are required to have appropriate training, wear appropriate personal protective equipment, adhere to ALARA principles, and follow established administrative controls. No adverse noise impact is expected during normal storage operations.

For this EA, approximately 12 directly involved workers would be engaged in Storage Facility activities. This would include a mixture of plant craft disciplines (i.e., equipment operators, electricians, laborers, radiation monitoring, etc) and supervisory personnel. These 12 workers would be exposed to a direct radiation source. Preliminary engineering design features include provisions for shielding to minimize worker exposure. Based on early dose uptake calculations, it is estimated that the average annual dose to a storage worker is about 0.3 rem. Over a three year storage activity, the projected worker group of 12 storage workers would receive a dose consequence of 11.0 person-rem. Applying the ICRP nominal cancer fatality coefficient of approximately 4×10^{-4} LCF per person-rem EDE (See Section 5.2.2), the health effect to this directly involved worker group is 0.004 LCF.

5.3.2 Abnormal Operations - Postulated Accident

A separate PSE evaluated postulated radiological accidents during the Storage Facility operations and calculated the collective radiological EDE in person-rem (WHC 1991c). Unlike the postulated accident of the Retrieval operations, the postulated accident for the Storage Facility that would generate the largest dose consequence is an earthquake followed by a fire. Under this accident scenario, a radioactive airborne release could occur from the Storage Facility to the environment because of breached waste containers. This would release an estimated 0.172 plutonium equivalent curies and 15.9-curies of mixed fission products.

The annual probability of the postulated accident for the Storage Facility was determined to be 1×10^{-3} (once every one thousand years). In the event of an earthquake, the waste drums are assumed to fall, rupture, and ignite. The following fire is assumed to consume the combustible waste and an airborne release occurs. Using the Hanford Site standard dosimetry GENII computer code (Napier et al. 1988), radiological dose consequences to onsite and offsite populations were calculated for the postulated earthquake and fire accident at the Storage Facility (WHC 1993d). The GENII atmospheric dispersion model becomes increasingly inaccurate at close distances, and is therefore not used at distances less than 100 meters (328 feet) from the release point.

As noted in Section 5.2.2, health effects in terms of LCFs are calculated by multiplying the calculated radiological dose by the ICRP coefficient (ICRP 1991).

Onsite Health Effects

The onsite MEI is a hypothetical individual located 100 meters (328 feet) from the release point and receives the highest dose from the postulated accident. This dose to the MEI represents the upperbounding dose consequence and is greater than any dose received by any other individual in the onsite population. The calculated dose consequence is 2.13 rem and, applying the ICRP coefficient of 4×10^{-4} , a projected 0.00085 LCFs would occur. Because this is less than one fatality, no LCF would be expected. The 0.00085 LCF means that the onsite MEI has a chance of about 1 in 1,200 of becoming a LCF.

The GENII computer code model determined that the maximum dose to the onsite population would occur southeast of the Storage Facility, towards the PFP. This sector has an estimated population of 3,861 and would receive a dose consequence of 1,520 person-rem. The calculated health effect using the ICRP coefficient of 4×10^{-4} is 0.6 LCF. Because this calculated health effect is less than one, it is unlikely there would be a fatality in the onsite population group. The 0.6 LCF means that an average member in the exposed onsite population of 3,861 has a chance of about 1 in 6,430 of becoming a LCF should the postulated accident occur.

As described earlier, directly involved workers within 100 meters (328 feet) of the release point, the GENII computer code used to evaluate atmospheric dispersion and dilution of the release becomes increasingly inaccurate. Similar to that approach discussed in Section 5.2.3.1 for estimating a dose consequence to the directly involved worker, a rough estimate of dose consequences can be made using IAEA guidance. For the postulated Storage Facility accident, the GENII computer code calculated the MEI 100 meters (328 feet) from the release point would receive a dose of 2.13 rem EDE. Using the IAEA guidance, a directly involved worker 10 meters (33 feet) away from the release point would receive a dose of 64 rem EDE (IAEA 1990). In the event of a postulated accident, four workers are assumed to be 10 meters (33 feet) from the ruptured waste container would receive a total of 256 person-rem. Applying the ICRP coefficient for workers of 4×10^{-4} LCF/person-rem, the projected LCF is 0.102 or a chance of about 1 in 40 of becoming a LCF.

The analysis for dose consequences for the onsite population and MEI considers an unmitigated release and exposure to radiation. The Hanford Site's emergency preparedness plan, prepared and implemented in accordance with DOE Order 5500.3A (DOE 1992), would reduce any impact because of emergency sirens and evacuation procedures. The onsite population receives routine training in responding to emergency actions. Dose consequences and projected LCFs are expected to be less than calculated because of the mitigation measures. In addition when consideration is given for the annual accident probability of 1×10^{-3} , risk to the onsite population and MEI of becoming a LCF is substantially reduced.

Offsite Health Effects

The offsite MEI is a hypothetical individual located at the Hanford Site boundary and receives the highest dose from the postulated accident. This MEI represents the upperbounding dose consequence which is greater than any other individual would receive in the offsite population group. The calculated dose consequence is 0.26 rem and, applying the ICRP coefficient of 5×10^{-4} , a projected 0.00013 LCFs would occur. Because this is much less than one fatality, no LCF would be expected. The 0.00013 LCF means that the offsite MEI has a chance of about 1 in 7,700 of becoming a LCF.

In the event of the postulated accident, the largest offsite dose would occur to the population of 102,538 located in the sector west of the Storage Facility. Refer to Section 5.2.2.1 for discussion of offsite population and method of analysis. This exposed population would receive a dose consequence of 654 person-rem. Applying the ICRP coefficient of 5×10^{-4} LCF/person-rem, the health effect to this offsite population group is calculated to be 0.33 LCF. The calculated LCF is less than one and a LCF would not be expected. The 0.33 LCF means that an average member of the exposed offsite population of 102,538 has a chance of about 1 in 311,000 of becoming a LCF should the postulated accident occur. When the annual accident probability of 1×10^{-3} is considered, risk to the offsite population and MEI of becoming a LCF is reduced substantially. No adverse health effects are expected.

The potential offsite radiation dose consequence over a 50-year time period is related to the extent of external exposure to or the intake of radionuclides released from a postulated accident. For both the offsite MEI and offsite population receptors, the primary pathway of radionuclides taken into the body is by inhalation resulting from an exposure in a radioactive plume.

Table 3 - Summary of Normal and Abnormal LCFs - Storage Operations

RECEPTOR (w/population size)	DOSE CONSEQUENCE	LCFs
Normal storage operations (12)	11 person-rem CDE	0.004
MEI - Onsite (1)	2.13 rem EDE	0.00085
MEI - Offsite (1)	0.26 rem EDE	0.00013
Exposed Onsite Population (3,861)	1,520 person-rem CDE	0.6
Exposed Offsite Population (102,538)	654 person-rem CDE	0.33

5.4 Nonradioactive Hazardous Waste Impacts

Some of the hazardous wastes identified from storage records are asbestos; metals (beryllium, barium, cadmium, copper, lead, mercury, sodium, lithium, and zirconium); sodium hydroxide, nitric acid, and other corrosives; and organics (antifreeze, stripcoat, trichlorethylene and other solvents, polychlorinated biphenyl, tributyl phosphate, carbon tetrachloride, hydraulic fluid, and oils) (WHC 1991b, WHC 1991c).

5.4.1 Hazardous Waste - Construction and Normal Retrieval/Storage Conditions

During Retrieval and Storage Facility construction activities, small amounts of hazardous waste (e.g., cleaning agents, petroleum products), are expected to be generated. These generated wastes would be disposed of in accordance with applicable federal and state regulations.

Under normal retrieval and storage conditions, workers would not be exposed to hazardous waste components in a waste container. However, in the event a waste container is encountered that exhibits leakage, a small temporary greenhouse would be constructed around the contaminated area within the portable weather enclosure building. Trained workers equipped with proper protective clothing would initiate cleanup of the contaminated area. After waste cleanup, the containers would be moved to approved storage facilities on the Hanford Site.

5.4.2 Hazardous Waste - Abnormal Retrieval/Storage Conditions

The waste containers to be retrieved from Trench 4C-T04 would be stored in the Storage Facility in accordance with RCRA and WAC 173-303 regulations. In the event of a postulated retrieval or storage accident of a container release followed by a fire, a hazardous chemical airborne release could occur. An analysis of hazardous chemical exposures to onsite and offsite receptors was evaluated in the PSEs (WHC 1991b, WHC 1991c). Average exposures were calculated for onsite and offsite populations, divided by the threshold limit value (TLV) and presented as a ratio of concentration to the TLV. The TLV is the time-weighted average concentration to which the receptors may be repeatedly exposed without adverse effects. The calculated toxic consequences from a postulated accident followed by fire are noted below in Table 4.

Table 4 - Toxic Consequences from a Postulated Retrieval Accident

Toxic material	Onsite Average Exposure (mg/cubic meter)	Offsite Average Exposure (mg/cubic meter)	TLV (mg/cubic meter)	Ratio of Concentration to TLV	
				Onsite	Offsite
Mercury	0.0000344	0.000000198	0.05	0.000688	0.000000396
Cadmium	0.0000344	0.000000198	0.01	0.00344	0.00000198
Barium	0.0000344	0.000000198	0.5	0.0000688	0.00000004
PCB	0.0205	0.0000118	0.5	0.041	0.0000236
Ca ₂ ClPO ₄ ¹	0.00327	0.00000188	2.0	0.00164	0.00000094

¹ Limits are based on CaO, a combustion product in air for Ca₂ClPO₄ (Phosgene). The decomposition product of carbon tetrachloride is recognized as a toxic substance because when the carbon tetrachloride is heated to decomposition; it emits toxic fumes of phosgene gas.

The TLV for phosgene given off from heating carbon tetrachloride (CCl₄), is similar to that of CaO.

The ratio of concentration to the TLV for onsite and offsite indicates that the exposure to toxic materials for these population groups is well below the TLV (Sax and Lewis 1989). No adverse health effect would be anticipated from exposure to hazardous chemicals as a result of the proposed action.

5.5 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. Minority (especially Hispanic) populations and low income populations are present near the Hanford Site (PNL 1994). DOE is in the process of developing official guidance on the implementation of the Executive Order. The analysis in this EA (Sections 5.0) indicates that there would be minimal impacts to both the offsite population and potential workforce by implementing the proposed action, under both routine and accident conditions. 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, it is not expected that there would be any disproportionate impacts to any minority or low-income portion of the community.

5.6 Socioeconomic Impacts

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 employees reside in the Benton and Franklin county areas. Therefore, work activities on the Hanford Site plays an important role in the socioeconomics of the Tri-Cities (Richland, Pasco, and Kennewick) and other parts of Benton and Franklin counties (DOE 1995). Other surrounding counties would be impacted to a lesser degree.

Construction of the proposed Retrieval and Storage Facility would create a temporary increase of approximately 100 construction workers from local labor halls. Initially, about 100 (of the planned 400) administrative and operations personnel would be located in the SWOC as a result of the proposed action. Primarily, these personnel would be relocated from various offices around the Hanford Site. No substantial change is expected in the number of Hanford Site employees as a result of the proposed action. There would be no discernible impact to employment levels within Benton and Franklin counties.

5.7 Cumulative Impacts

Existing and planned projects nearby the location of the proposed action area were reviewed to determine cumulative impacts that could result from initiating the proposed retrieval action, waste storage activities, the infrastructure upgrades, and the CWSC. Existing areas near the site of the proposed action that contribute to the cumulative impact include the following:

- Waste Receiving And Processing (WRAP) Facility - WRAP 1; presently under construction

- Central Waste Complex; an existing RCRA permitted storage area
- Low-level Burial Grounds; management of Hanford's solid waste
- Tank Farm activities; management of Hanford's waste storage tanks
- T-Plant; existing facility for decontamination services
- U-Plant and the Reduction Oxidation (REDOX) Plant; retired processing facilities
- 222-S Analytical Lab; existing laboratory services
- Plutonium Finishing Plant; in process of residual plutonium cleanup
- Environmental Restoration and Disposal Facility; permitted Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste disposal facility under construction
- Environmental Restoration activities; management of inactive facilities, burial sites, cribs, etc.

5.7.1 Cumulative Impacts - Air (Radioactive)

The offsite population received about 0.3 person-rem via air and water pathways from 200 Area operations in 1993 whereas Hanford Site workers involved in the proposed action would perform similar tasks around other waste management activities. The calculated radiation exposure to these workers under normal conditions is very small. The average annual dose rate for 1993 in the 200 Areas was 130 mrem per year (PNL 1994) and well below the natural background radiation of about 300 mrem per year. The proposed action is not expected to alter calculated radiological air doses.

5.7.2 Cumulative Impacts - Water

The proposed action would not discharge any radioactive liquid effluent to the ground and, therefore, not incrementally add to Hanford Site radioactive liquid effluent discharges to the ground.

Nonradioactive liquid effluents would be discharged to the ground because of the planned septic sewer systems in the 200 Areas of the Hanford Site. In the 200 Areas, a total of 2,180,000 cubic meters (576 million gallons) of nonradioactive effluents were discharged to the ground in CY 1991 (PNL 1992). Assuming the sewer system operates at full design capacity, during a seven-day work week, the proposed action would add approximately 43,000 cubic meters (11 million gallons) in one year to nonradioactive liquid effluents producing a total annual discharge for the Hanford Site of about 2,223,000 cubic meters (588 million gallons) to the ground. Due to the lateral spreading and relatively small discharge

rates, there may be little discernable mounding, if any at the water table. The hydraulic impact to local groundwater flow direction is likely minimal and movement of any underground contaminated plumes is not expected. Although the discharge from this proposed action would incrementally add to the amount of nonradioactive effluents being discharged on the Hanford Site, the proposed septic system would not be expected to impact the groundwater (Tyler 1993).

5.7.3 Cumulative Impacts - Land

The proposed Retrieval actions and Storage Facility actions would occur on the 200 West Area of the Hanford Site. Approximately 18.6 hectares (46 acres) of the total 777 hectares (1,920 acres) in the 200 West Area would be impacted. This is about 1.5 percent of the land area in the 200 West Area. The retrieval activities would occur on previously disturbed areas, while the proposed Storage Facility would be constructed on relatively undeveloped land. The proposed action is compatible with the planned 200 West Area land uses.

Because the proposed Storage Facility would occur on undisturbed land, there would be an incremental loss of shrub-steppe habitat for the loggerhead shrike, sage sparrow and northern sagebrush lizard. An estimated 14.6 hectares (36 acres) of priority shrub-steppe habitat would be lost. Other projects completed, under way, or planned for the future on the Hanford Site involve loss of priority habitat (Including the Environmental Restoration Disposal Facility, 240 Access Road, Cross Site Transfer, 200 Area Sanitary Sewer System). Cumulative loss of priority habitat on the Hanford Site could exceed 405 hectares (1,000 acres). An overall Hanford Site Strategy for mitigation for lost priority habitat is currently being developed. Specific mitigation for habitat loss from this proposed action is discussed in Sections 2.5 and 5.1.8.

5.7.4 Cumulative Impacts - Socioeconomics.

Uncertainties exist with regard to Hanford Site budgets. The current trend is for work force reduction whereby DOE is projecting about 4,800 jobs will be eliminated by the end of fiscal year 1995. Additional budget reductions could occur in fiscal years 1997 and 1998 that would necessitate further workforce reductions. As stated in Section 5.6, employment on the Hanford Site plays an important socioeconomic role in the region since 93 percent of Hanford employees reside in the Benton and Franklin county areas. Therefore, the current downward trend in Hanford's workforce would be expected to have an impact on the local community.

Although the retrieval and storage activities would contribute slightly to the Hanford Site employment growth, the increase of about 100 in construction workers would be temporary and the assigned administrative and operations personnel would be re-located from other onsite offices. No cumulative impact would be expected to the local economy from undertaking the proposed action.

6.0 Permits and Regulatory Requirements

The Storage Facility is included in the *Hanford Central Waste Complex Radioactive Mixed Waste Storage Facility Dangerous Waste Permit Application* (DOE-RL 1991), submitted to the State of Washington Department of Ecology (Ecology) and the EPA on October 31, 1991. A *State Environmental Policy Act of 1971* checklist was submitted to Ecology with this permit application.

Pre-construction approvals would be required based on the potential for radionuclides and hazardous material emissions from storage of vented drums for both the State of Washington Radioactive Air Emissions Program, and the National Emission Standard for Hazardous Air Pollutants. These approvals would be obtained from the DOH and the EPA. Based on information in the PSE (WHC 1991c, WHC 1992c), the waste drums would contain some chemicals included in the list of Toxic Air Pollutants regulated under WAC 173-460, "General Regulations for Air Pollution Sources." Further characterization would be needed to determine the level of permitting required.

Separate sewage disposal systems consisting of septic tanks and drainfields would be constructed, as required, for the proposed support facilities. Each system would have a flowrate of less than 54,888 liters (14,500 gallons) per day, and would meet the domestic wastewater disposal requirements of WAC 246-272, "On Site Sewage Disposal." A DOH approval of this system would be required:

7.0 Agencies Consulted

Because the Ecological Survey indicated that the proposed action would have no effect on any plant or wildlife species listed as threatened or endangered by the federal government, consultation with the USFWS was not required. However, an informal contact was made with the USFWS to discuss and inform the agency of the survey results.

DOE has consulted the State of Washington State Historic Preservation Officer regarding the proposed action and the historic White Bluffs Road. Although the road is eligible for listing on the National Register of Historic Places, the segment within the fenced area of the 200 West was found to be a non-contributing section to the historic status of the White Bluffs Road.

Prior to DOE approval of this EA, it was provided to the State of Washington, the State of Oregon, the USFWS, the Yakama Indian Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum People for review. Comments were received from the State of Washington, the USFWS, and the Nez Perce Tribe. These comments were considered in the preparation of the final EA. The comments and the DOE responses to these comments are provided in Appendix C.

8.0 References

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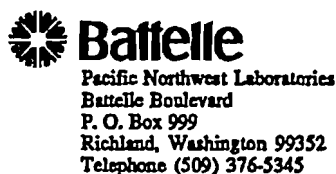
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- WAC 173-400 through 495, "General Regulations for Air Pollution Sources," *Washington Administrative Code*.
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Appendix A

Biological Review (#95-200-104)



May 23, 1995

Ms. Penny C. Berlin
Westinghouse Hanford Company
P. O. Box 1970, MSIN N3-13
Richland, WA 99352

Dear Ms. Berlin:

BIOLOGICAL REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX, 200 West Area, #95-200-104 (Amendment 1)

Project Description:

- This is an amendment letter to the original #95-200-104 dated May 17, 1995. All changes have been underlined.
- A set of maps showing the area of the survey using GPS equipment has been included with the amendment letter.
- Construction of the Enhanced Radioactive Mixed Waste Storage Facility, the Retrieval Complex (Trench 4C-T04), the construction of the Central Waste Support Complex, and the associated infrastructure upgrades such as telecommunications, water and electrical utilities, roads and sanitary sewer. Two new north-south roads will be constructed. A Denver Avenue will be constructed between 16th and 22nd Streets (approximately 1.0 mile), a Eugene Avenue will be constructed between 22nd and 23rd Streets (approximately 0.25 mile), and existing Hanford Site roads (16th, 19th, 22nd and 23rd) will be extended to meet Eugene Avenue, upgraded and asphalt surfaced. A sanitary sewer drain field will be constructed to the west of Eugene Avenue between 22nd and 23rd Streets and water utilities will be installed to the east along 16th and 19th Street to an existing tie-in point. The total area of disturbance will be approximately 36 ha (89 acres) and of this area to be disturbed, approximately 20 ha (50 acres) contains priority habitat.

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 G. Fortner, and M. R. Sackschewsky on May 9, 1995. 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), U. S. Fish and Wildlife Service (1985, 1994a & b) and Washington State Department of Natural Resources (1994).

Penny C. Berlin
95-200-104 (Amendment 1)
Page 2 of 3

Survey Results:

- Vegetative habitat within the corridor of the proposed Denver Avenue between 16th Street and 23rd Street consists primarily of big sagebrush (*Artemisia tridentata*) at 10 to 25% cover and an average height of 1.5 m, cheatgrass (*Bromus tectorum*) at 5 to 10% cover, Sandberg's bluegrass (*Poa sandbergii*) at 1 to 5% cover, and Russian thistle (*Salsola kali*) at 1 to 5% cover in the vicinity. Staked-pod milkvetch (*Astragalus sclerocarpus* - state monitor level 3) was also observed on this section of the proposed site,
- Vegetative habitat between Dayton Avenue and the proposed Denver Avenue and between 22nd Street and the southern boundary of the WRAP Building consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.5 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 1 to 5% cover, and Russian thistle at 1 to 5% cover in the vicinity. Staked-pod milkvetch was also observed on this section of the proposed site,
- Vegetative habitat between 22nd Street and 23rd Street and west of the proposed Denver Avenue to the proposed Eugene Avenue consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.75 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 5 to 10% cover, and spiny hopsage (*Grayia spinosa*) 1 to 5% cover and stalked-pod milkvetch at <1% cover. Loggerhead shrikes (*Lanius ludovicianus* - federal candidate level 2 and state candidate) and sage sparrows (*Amphispiza Belli* - state candidate) were observed to be resident in the area. A red-tailed hawk (*Buteo jamaicensis*) and western meadowlarks (*Sturnella neglecta*) were also observed on this section of the proposed site,
- Vegetative habitat between 22nd Street and 23rd Street and west of the proposed Eugene Avenue for the sanitary sewer drain field consists primarily of big sagebrush at 5 to 10% cover and an average height of 1.75 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 1 to 5% cover, and stalked-pod milkvetch at <1% cover. Loggerhead shrikes and sage sparrows were observed to be resident in the area. Western meadowlarks were also observed on this section of the proposed site.
- Vegetative habitat within the corridor of the raw water tie-in along 19th Street and south of 19th Street has been previously disturbed and consists primarily of herbicided gravel substrate and asphalt,
- Vegetative habitat within the corridor of the raw water tie-in along 16th Street consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.75m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 5 to 10% cover, and Russian thistle at 1 to 5% cover.

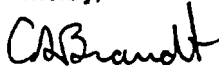
Considerations and Recommendations:

- The biological survey team noted damage to the sagebrush had already occurred due to vehicular traffic by the survey team for the proposed roads on this site.
- Sagebrush habitat is considered a priority habitat by the state of Washington and is used for nesting/breeding/foraging by loggerhead shrikes and sage sparrows, and as habitat for northern sagebrush lizards (*Sceloporus graciosus* - federal candidate level 2). Development of this site will contribute to further fragmentation of the remaining habitat on the Hanford Site and will remove approximately 20 ha (50 acres) directly as a result of this project.
- DOE-RL is suggesting mitigation via offsite habitat enhancement for losses of mature sagebrush habitat over 1 ha in area. Because development planned under the W-112 and W-113 projects exceeds 1 ha, habitat enhancement will be necessary to offset impacts to key Hanford biological resources.
- To minimize adverse impacts to bird species of concern we recommend that all habitat removal on the proposed site be restricted to those months preceding and following March through July to avoid interference with breeding/nesting periods.

Penny C. Berlin
95-200-104 (Amendment 1)
Page 3 of 3

- No other plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government were observed in the vicinity of the proposed sites.
- No adverse impacts to other species or habitats of concern are expected to occur from the proposed action.

Sincerely,



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

CAB:gjf

cc: Gary Wells

Penny C. Berlin
95-200-104 (Amendment 1)
Page 4 of 3

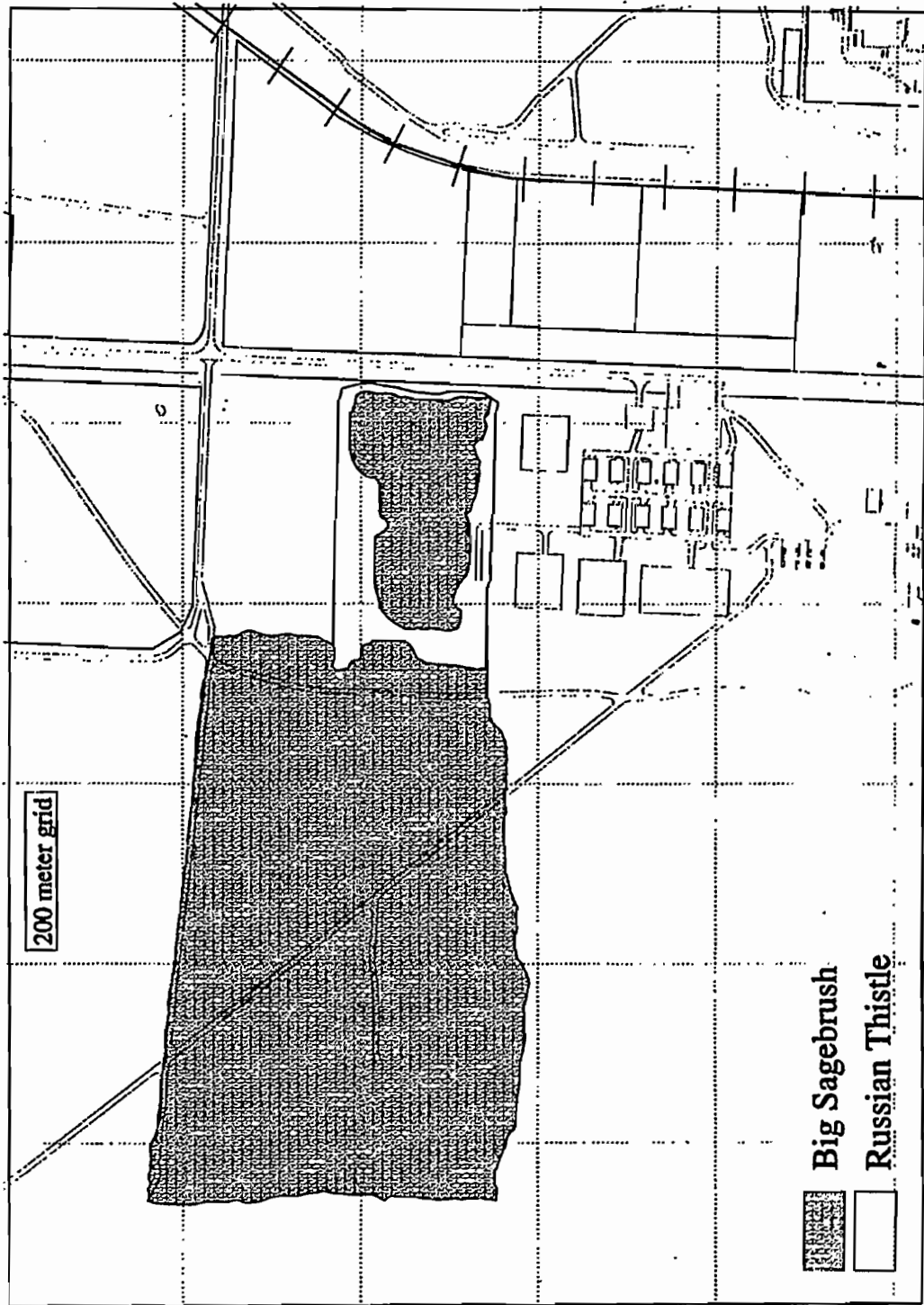
REFERENCES

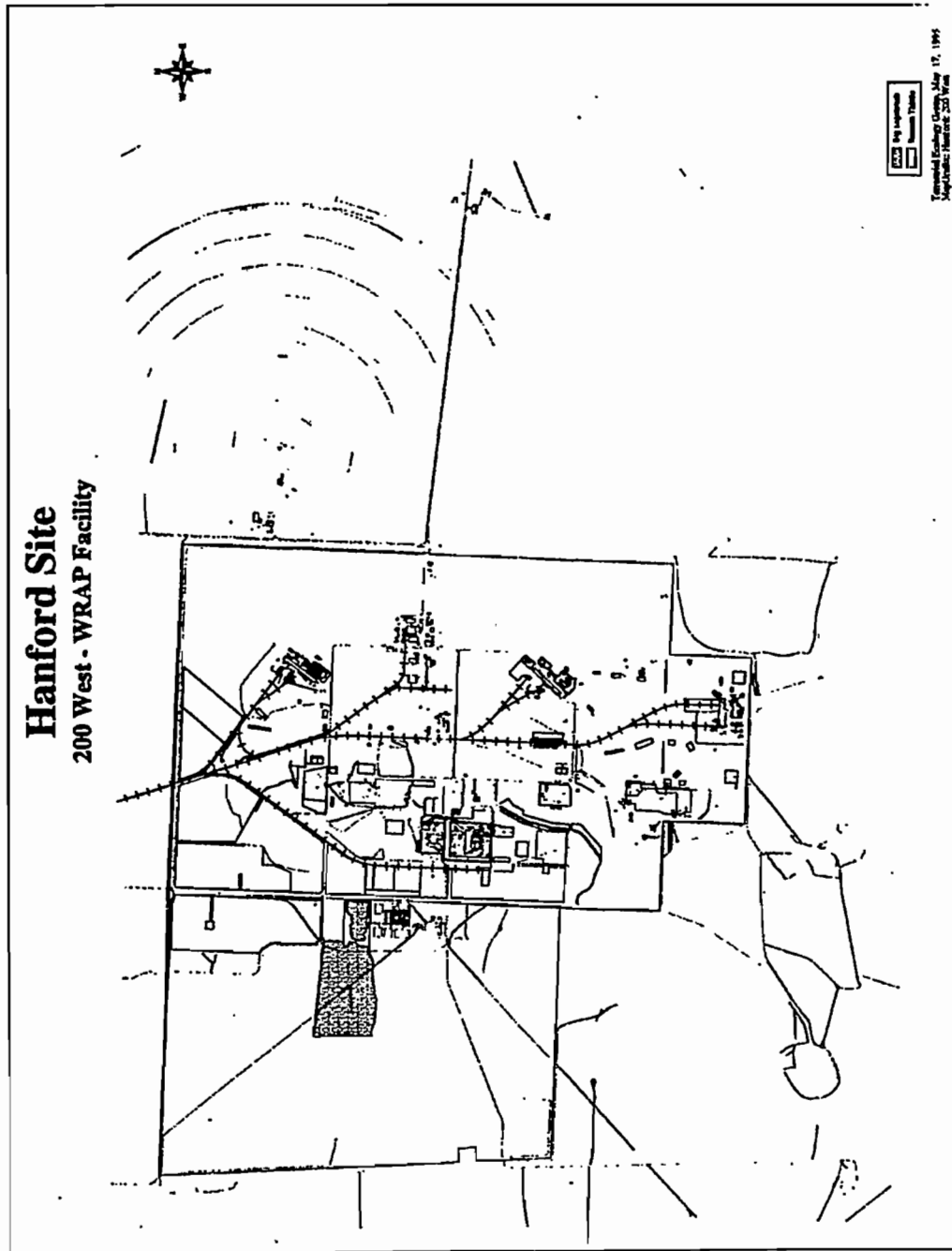
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- U. S. Fish and Wildlife Service. 1994b. Endangered and Threatened Wildlife and Plants, Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule, 50 CFR 17. (November 15, 1994).
- Washington Department of Fish and Wildlife. 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).

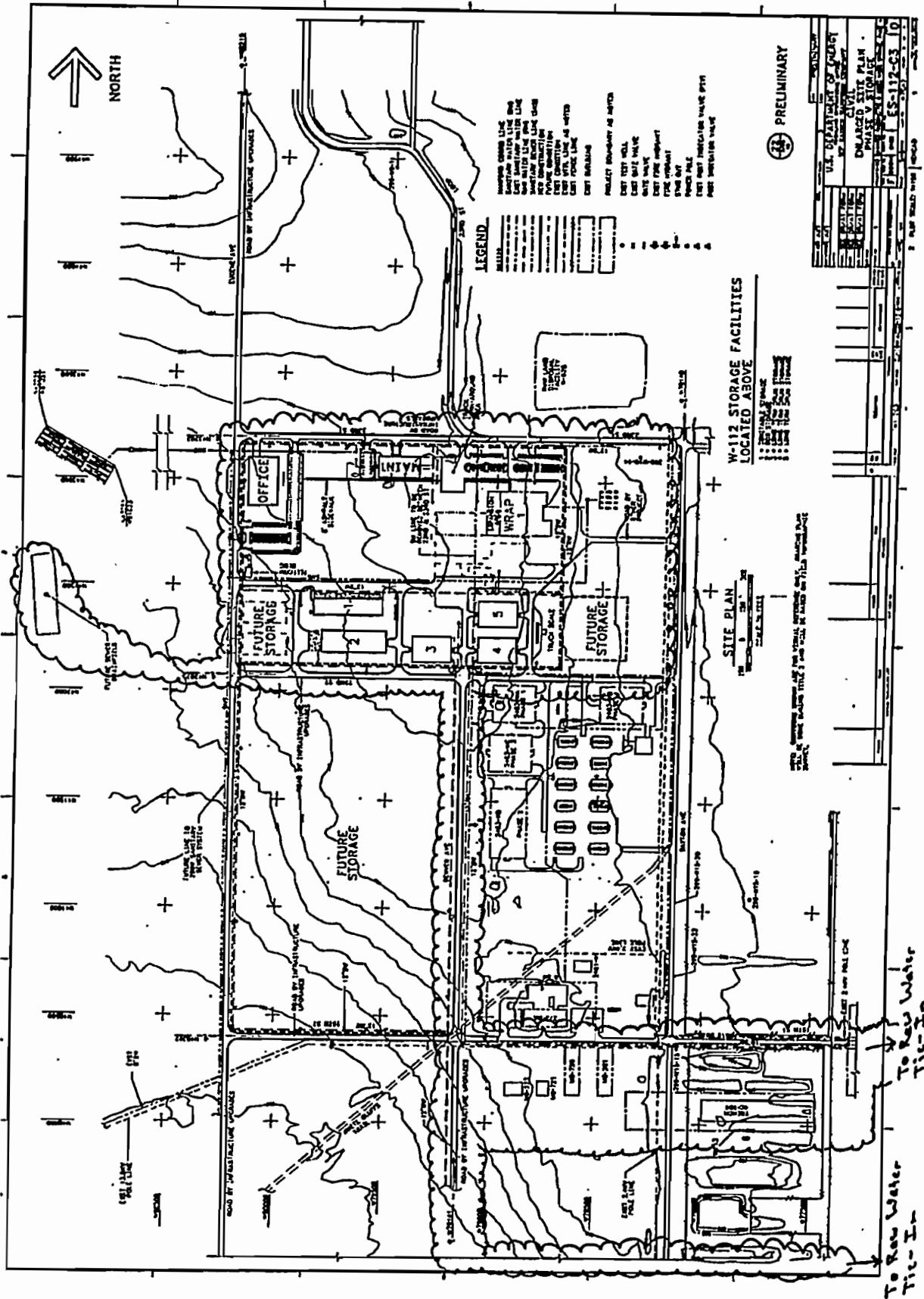
ACREAGE CALCULATIONS FOR PROJECT W112 / W113

<u>AREA</u>	<u>ACREAGE</u>	
"Area 1" - Between Dayton and Denver, 22nd and WRAP 1 -	12 acres	(8 priority)
"Wrap 1 Area" - previously disturbed -	10 acres	(0 priority)
"Area 2" - between Denver and Eugene, 22nd and 23rd -	28 acres	(28 priority)
"Sewer Area" assume 800'x40' pipeline, 125'x400' drainfield -	2 acres	(2 priority)
Denver avenue from 22nd to 16th street (assume 1 mile long, 100'wide) -	12 acres	(12 priority)
16th street water line (assume 2000'x40') -	2 acres	(0 priority)
"4C-T04 Area" - assume 2000'x500' -	23 acres	(0 priority)
TOTAL	89 acres	(50 priority)

Note - Areas 1 and 2 are shown on attached habitat maps.









September 18, 1995

Mr. Eric G. Erpenbeck
Westinghouse Hanford Company
P. O. Box 1970, MSIN G3-15
Richland, WA 99352

Dear Mr. Erpenbeck:

BIOLOGICAL REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX, 200 West Area, #95-200-104 (Amendment 2)

Project Description:

- This is an amendment letter to #95-200-104 (Amendment 1) dated May 23, 1995.
- Construction of the Enhanced Radioactive Mixed Waste Storage Facility, the Retrieval Complex (Trench 4C-T04), the construction of the Central Waste Support Complex, and the associated infrastructure upgrades such as telecommunications, water and electrical utilities, roads and sanitary sewer. Existing Hanford Site roads (22nd and 23rd) will be extended 650 feet (198 m) to the west beyond the WRAP I facility, upgraded and asphalt surfaced. A sanitary sewer drainfield will be constructed to the west of 22nd Street and a dirt access road for the sanitary drainfield will be extended 650 feet (198 m) west to the drainfield and will be located approximately 400 feet (122 m) north of 22nd street. The total area of disturbance will be approximately 18.6 ha (46 acres) and of this area to be disturbed, approximately 14.5 ha (36 acres) contains priority habitat.

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 G. Fortner, and M. R. Sackschewsky on May 9, 1995. 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), U. S. Fish and Wildlife Service (1985, 1994a & b) and Washington State Department of Natural Resources (1994).

Mr. Erpenbeck
95-200-104 (Amendment 2)
Page 2 of 4



Survey Results:

- Vegetative habitat within the corridor of the formerly proposed Denver Avenue between 22nd Street and 23rd Street consists primarily of big sagebrush (*Artemisia tridentata*) at 10 to 25% cover and an average height of 1.5 m, cheatgrass (*Bromus tectorum*) at 5 to 10% cover, Sandberg's bluegrass (*Poa sandbergii*) at 1 to 5% cover, and Russian thistle (*Salsola kali*) at 1 to 5% cover in the vicinity. Stalked-pod milkvetch (*Astragalus sclerocarpus* - state monitor level 3) was also observed on this section of the proposed site,
- Vegetative habitat between Dayton Avenue and the formerly proposed Denver Avenue and between 22nd Street and the southern boundary of the WRAP Building consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.5 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 1 to 5% cover, and Russian thistle at 1 to 5% cover in the vicinity. Stalked-pod milkvetch was also observed on this section of the proposed site,
- Vegetative habitat between 22nd Street and 23rd Street and west of the formerly proposed Denver Avenue to the formerly proposed Eugene Avenue consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.75 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 5 to 10% cover, and spiny hopsage (*Grayia spinosa*) 1 to 5% cover and stalked-pod milkvetch at <1% cover. Loggerhead shrikes (*Lanius ludovicianus* - federal candidate level 2 and state candidate) and sage sparrows (*Amphispiza Belli* - state candidate) were observed to be resident in the area. A red-tailed hawk (*Buteo jamaicensis*) and western meadowlarks (*Sturnella neglecta*) were also observed on this section of the proposed site,
- Vegetative habitat between 22nd Street and 23rd Street and west of the formerly proposed Eugene Avenue for the sanitary sewer drainfield consists primarily of big sagebrush at 5 to 10% cover and an average height of 1.75 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 1 to 5% cover, and stalked-pod milkvetch at <1% cover. Loggerhead shrikes and sage sparrows were observed to be resident in the area. Western meadowlarks were also observed on this section of the proposed site,
- Vegetative habitat of the proposed Phase II future site of 8 acres (an area approximately 600 feet south of 22nd Street and west 600 feet toward the sanitary drainfield and an area approximately 300 feet north of 22nd Street and west 600 feet toward the sanitary) consists primarily of big sagebrush at 10 to 25% cover and an average height of 1.75 m, cheatgrass at 5 to 10% cover, Sandberg's bluegrass at 5 to 10% cover, and spiny hopsage 1 to 5% cover and stalked-pod milkvetch at <1% cover. Loggerhead shrikes and sage sparrows were observed to be resident in the area. Western meadowlarks (*Sturnella neglecta*) were also observed on this section of the proposed site,

Considerations and Recommendations:

- The biological surveys mentioned above are for Phase I of the proposed project and are valid for only one year.
- The biological survey team noted damage to the sagebrush had already occurred due to vehicular traffic by the land survey team for the proposed roads on this site. This damage occurred along the formerly proposed Denver and Eugene Avenues between 16th and 23rd Streets and west from the formerly proposed Denver Avenue to the proposed sanitary sewer drainfield. This damage was noted during the prime nesting season of the sage sparrow and the loggerhead shrike.
- Sagebrush habitat is considered a priority habitat by the state of Washington and is used for nesting/breeding/foraging by loggerhead shrikes and sage sparrows, and as habitat for northern sagebrush lizards (*Sceloporus graciosus* - federal candidate level 2). Development of this site will contribute to further fragmentation of the remaining habitat on the Hanford Site and will remove approximately 14.5 ha (36 acres) directly as a result of this project.

Mr. Erpenbeck
95-200-104 (Amendment 2)
Page 3 of 4



- DOE-RL is suggesting mitigation via offsite habitat enhancement for losses of mature sagebrush habitat over 1 ha in area. Because development planned under the W-112 and W-113 projects exceeds 1 ha, habitat enhancement will be necessary to offset impacts to key Hanford biological resources.
- To minimize adverse impacts to bird species of concern we recommend that all habitat removal on the proposed site be restricted to those months preceding and following March through July to avoid interference with breeding/nesting periods.
- No other plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government were observed in the vicinity of the proposed sites.
- No adverse impacts to other species or habitats of concern are expected to occur from the proposed action.

Sincerely,

A handwritten signature in cursive script, appearing to read "CA Brandt", followed by the word "for:".

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

CAB:glf

cc: Gary Wells

Mr. Erpenbeck
95-200-104 (Amendment 2)
Page 4 of 4



REFERENCES

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U. S. Fish and Wildlife Service. 1994b. Endangered and Threatened Wildlife and Plants, Animal Candidate Review for Listing as Endangered or Threatened Species, Proposed Rule, 50 CFR 17. (November 15, 1994).

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).

Appendix B

Cultural Resources Reviews (HCRC #95-200-104)



May 15, 1995

No Known Historic Properties

Ms. P. C. Berlin
Westinghouse Hanford Company
P. O. Box 1970/MSIN N3-13
Richland, WA 99352

Dear Ms. Berlin:

**CULTURAL RESOURCES REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX,
ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE
UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX. HCRC #95-200-104**

In response to your request received May 3, 1995, 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. The entire project area has been previously submitted to the HCRL for review (HCRC #88-200-005, #92-200-001, #93-200-074, #94-200-169, #95-200-039), except for the future sewer drainfield located on the west edge of the project area, west of Eugene Ave and north of 22nd St.

Our literature and records review shows that portions of the project area have been disturbed by previous Hanford Site activities. It is very unlikely that any intact archaeological materials exist in such disturbed ground. Most of the project area located in undeveloped ground, except for the future sewer drainfield, has been surveyed previously by HCRL staff (HCRC #88-200-005 and HCRC #88-200-038). A portion of the historic White Bluffs Road is within the proposed complex. This road has been determined to be eligible for listing on the National Register of Historic Places (Register), however, that section of the road located within the fenced 200 West Area has been found to be a non-contributing element. Therefore, this portion of the road is not considered to be a historic property. One site and two isolated artifacts were also found during the surveys. The two artifacts were collected and the site, a historic trash scatter, is not eligible for listing on the Register.

A survey of the proposed future sewer drainfield was completed by HCRL staff on May 9 and 12, 1995. No archaeological sites or isolates were recorded during this survey. The attached map shows the areas that have been surveyed in the project vicinity.

It is the finding of the HCRL staff that there are no known 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 III and V case, defined as a project which involves new construction in a disturbed, low-sensitivity area and in an undisturbed area.

Ms. P. C. Berlin
May 15, 1995
Page 2



Copies of this letter have been sent to Dee Lloyd, DOE, Richland Operations Office, as official documentation. A survey report, which will also be transmitted to Dee Lloyd, will follow this letter shortly to complete the cultural resources documentation. If you have any questions, please call me on 376-8107. Please use the HCRC number above for future correspondence concerning this project.

Very truly yours,

A handwritten signature in black ink, appearing to read "N. A. Cadoret". The signature is fluid and cursive, with the first name being the most prominent.

N. A. Cadoret
Technical Specialist
Cultural Resources Project

Concurrence:

A handwritten signature in black ink, appearing to read "Paul R. Nickens". The signature is cursive and somewhat stylized, with the first name being the most prominent.

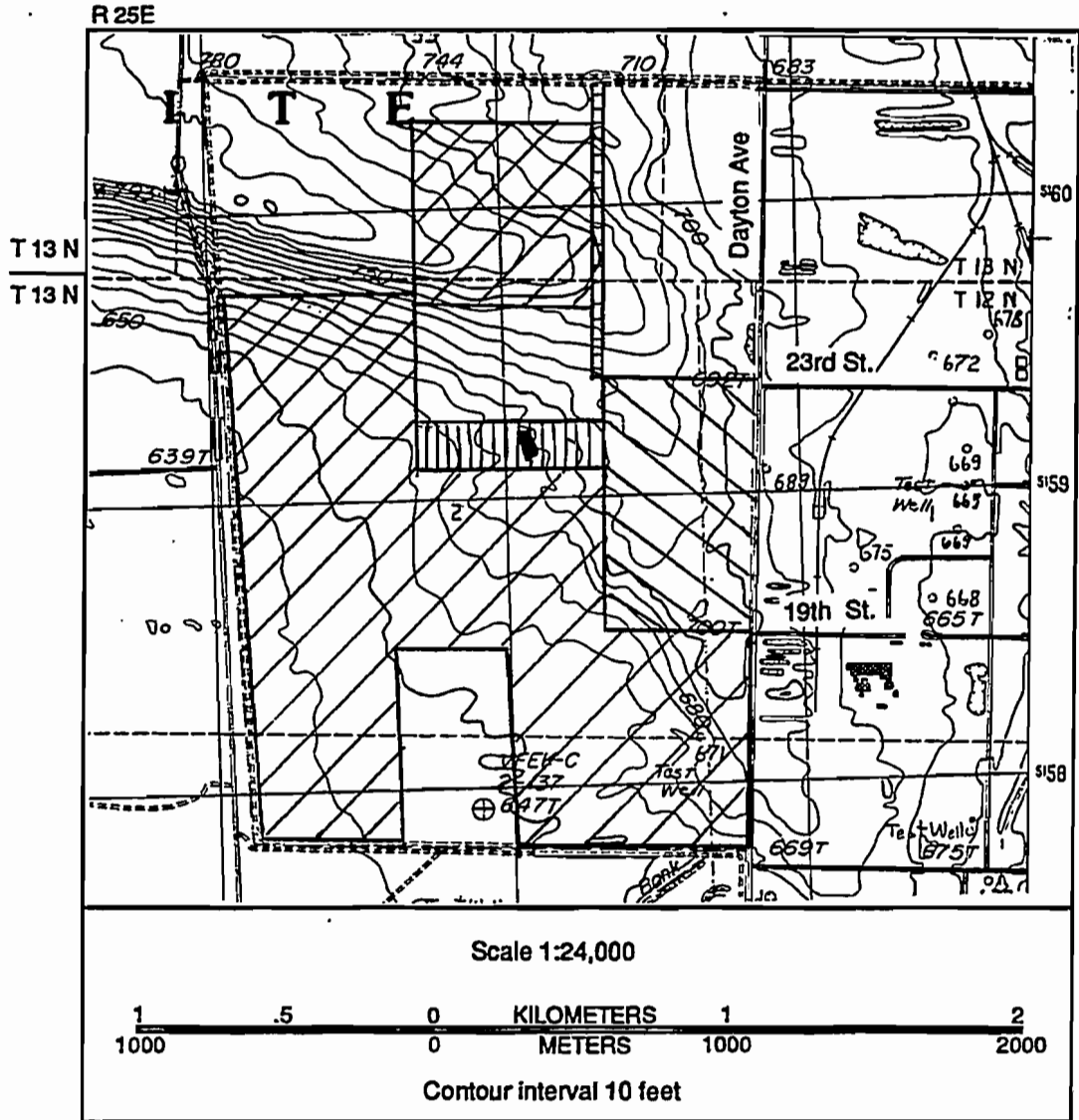
P. R. Nickens, Project Manager
Cultural Resources Project






Attachment

cc: D. Lloyd, RL (2)
T. Clark
File/LB

Hanford Cultural Resources Laboratory
Pacific Northwest Laboratory

RIVERLAND QUADRANGLE, WASHINGTON - USGS 7.5 MINUTE MAP, 1986 EDITION



-  Surveyed for HCRC #88-200-038.
-  Surveyed for HCRC #88-200-005.
-  Surveyed for HCRC #95-200-039.
-  Surveyed for HCRC #95-200-104.
-  Future sewer drainfield

Surveys conducted by the HCRL in the vicinity of the Solid Waste Retrieval Complex, HCRC#95-200-104.

**Department of Energy**

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

95-TEP-222

Ms. Mary M. Thompson
State Historic Preservation Officer
Office of Archaeology and Historic Preservation
Washington Department of Community,
Trade and Economic Development
P.O. Box 48343
Olympia, Washington 98504-8343

Dear Ms. Thompson:

CULTURAL RESOURCE REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX

Enclosed you will find a survey (HCRC #95-200-104) completed by the U.S. Department of Energy, Richland Operations Office (RL). The review of the Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex showed that the entire project area had been previously submitted as HCRC Numbers, 88-200-005, 92-200-001, 93-200-074, 95-200-039, except for a future drainfield.

In accordance with 36 CFR 800.4, RL has made a good faith effort to identify historic properties at these proposed locations and to evaluate the eligibility of these properties to the National Register of Historic Places (Register). A literature and records review and site surveys, where required, have indicated that the projects do not contain historic properties or will not affect historic properties eligible for the Register.

Therefore, in accordance with 36 CFR 800.4(d), we are providing documentation supporting these findings to your office and soliciting any comments you may

Ms. Mary M. Thompson
95-TEP-222

-2-

have. If the scope of these undertakings are revised, your office will be notified. If any archaeological or additional historical resources are discovered during project activities, work will be halted and your office consulted immediately.

Sincerely,



Dee W. Lloyd, Manager
Cultural Resources Program
Environmental Assurance,
Permits, and Policy Division

Office of Archaeology
and Historic Preservation

Enclosures:
HCRC #95-200-104

cc: J. Van Pelt, CTUIR, w/encl
P. R. Nickens, PNL



STATE OF WASHINGTON

DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION

111 21st Avenue S.W. • P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 753-4011

June 15, 1995

Mr. Dee Lloyd, Manager
Cultural Resources Program
Department of Energy
Richland Field Office, Mail Stop 85-15
Post Office Box 550
Richland, Washington 99352

Log: 060995-08-DOE
Re: Solid Waster Retrieval Complex, Enhance Radioactive and Mixed Water Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex

Dear Mr. Lloyd: *Dee*

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP) regarding the above referenced action.

In response, I concur with your determination that this action will have no effect upon cultural resources eligible for listing in the National Register of Historic Places. From the information in the documentation, it appears that significant cultural resources have not been identified in the project area as a result of survey efforts. Segments of the White Bluffs Road in the project area have been determined to be non-contributing to this otherwise eligible resource. As a result of this finding, further communication with OAHP on this action is not necessary. However, in the event cultural resources are uncovered or the scope of the project changes significantly, please contact this office for further consultation.

Again, thank you for the opportunity to comment. Should you have any questions, please feel free to contact me at (360) 753-9116.

Sincerely,

Greg Griffith
Gregory A. Griffith
Comprehensive Planning Specialist

GAG:lms

cc: David Harvey

Appendix C

EA Comments and Responses



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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

July 10, 1995

Mr. Paul F. X. Dunigan, Jr.
U. S. Dept of Energy
PO Box 550
Richland WA 99352

Dear Mr. Dunigan:

Thank you for the opportunity to comment on the environmental assessment for the Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex, Richland, Washington (DOE/EA-0981D). Consistent with the Department of Ecology's responsibilities as Washington State's coordinator for National Environmental Policy Act documents, we are forwarding comments from the State of Washington, Department of Fish and Wildlife (WDFW) and the Department of Ecology.

Ecology comments:

There seems to be no coordination with the Systems Engineering Study just completed for meeting milestone M-33. This milestone was established for the study of global Hanford needs in terms of new facilities to manage various waste streams, one of which is the transuranic waste in low level burial grounds. The study resulted in a set of alternatives which do not appear to have been considered in this assessment.

U.S. Department of Energy fiscal year 1996 and 1997 budgets lack any funding for transuranic waste retrieval. Ecology questions the appropriateness of spending scarce Hanford clean-up monies on environmental assessments for unfunded projects such as this and the supplemental analysis environmental assessment for the Waste Receiving and Processing Facility Module 2A. Ecology also requests information on when transuranic waste will be retrieved.

If you have any questions on the comments from Ecology, please contact Mr. Moses Jaraysi with our Nuclear Waste Program at (509) 736-3016.

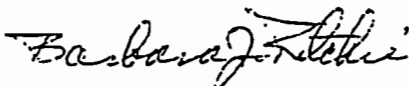
Mr. Paul F. X. Dunigan, Jr.
July 10, 1995
Page 2

Fish and Wildlife comments:

The focus of WDFW's concerns is the loss of habitat in the area of proposed roadways and the resulting need for mitigation. Please refer to the attached letter for specific comments.

If you have any questions on the comments made by Washington Fish and Wildlife, please call Mr. Jay McConnaughey at (509) 736-3095.

Sincerely,



Barbara J. Ritchie
Environmental Review Section

BJR:ri
95-4703

Attachment

cc: Ron Effland, Kennewick
Moses Jaraysi, Kennewick
Jay McConnaughey, Kennewick



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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

7 July 1995

Ms. Barbara Ritchie, NEPA Coordinator
Environmental Review section
State of Washington
Department of Ecology
P.O. Box 47703
Olympia, WA 98504-7703

Dear Ms. Ritchie:

Subject: Review of Environmental Assessment: *Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex, Richland Washington*, document DOE/EA-0981D.

General Comments

WDFW received this document on 14 June, 1995 and finds it inadequate in avoiding shrub steppe habitat. In reviewing this document, I found it to contain several passages which were redundant and a lack of information regarding the subject in other portions.

I visited the proposed site on 6 July, 1995 and observed stakes marking the proposed extension of 19th St. to Eugene Ave and stakes marking the proposed Eugene Ave. It appears U.S. Department of Energy (USDOE) considers the Environmental review process just a formality for this project. The biological survey team from Battelle observed damage to the sagebrush by the survey team in the area of the proposed roads (please refer to first bullet under "Considerations and Recommendations, Appendix A). USDOE is steward of the natural resources on the Hanford Site. As a responsible steward, USDOE should not allow damage to natural resources by its personnel or contractors to occur during surveying of a proposed action. A proposed action may not be the selected alternative after review by other governments. Furthermore, USDOE neglects to include natural resource values (cost of mitigating for destruction of habitat) into the equation of arriving at the preferred alternative (total cost of the project). All alternative actions should integrate natural resource values.

Ms. Barbara Ritchie
7 July, 1995
Page 2 of 4

Specific Comments

Page S-2, first paragraph, fourth sentence. Request this sentence be changed to read "The project will be reviewed with the Washington Department of Fish and Wildlife (WDFW) and a mitigation plan developed and implemented to compensate for the destruction of priority shrub steppe from this project."

Page S-2, first paragraph, last sentence. If loggerhead shrike *Lanius ludovicianus* or sage sparrow *Amphispiza belli* are observed nesting on the proposed construction site, construction activities would have to cease until the nesting season (March through July) is over. These species nests are protected by the Migratory Bird Treaty Act.

Page 1-2, first paragraph. As steward of natural resources on the Hanford Site, USDOE should be integrating natural resource values into the decision making process. It is clear here in this paragraph that natural resource values are not even a factor in the decision making process. Continued fragmentation and destruction of habitat will accelerate the decline of shrub steppe flora and fauna on the Hanford Site.

Page 2-1, Section 2.0, first paragraph, second sentence. Does the proposed 139 million dollars include funds for mitigation of destruction of shrub steppe? If not, WDFW requests all alternatives be re-evaluated to consider avoiding impacts to shrub steppe habitat. Please provide the cost analysis used to justify this proposed action and alternative actions.

Page 2-1, Section 2.1, first paragraph, fifth sentence. Please clarify where the Retrieval Complex is located, or indicate in Figure 2.

Page 2-3, Figure 2. There are discrepancies between the figure and text regarding the roads, especially 19th St. and Eugene Ave. Batelle's biological survey comments conflict also with the text on page 2-10, bullet starting with "Access Roads". Please refer to Appendix A, underlined paragraph under Project Description. Eugene Ave should not extend south of 22nd St. 19th St. should not extend from proposed Denver Ave to proposed Eugene Ave. Please delete these portions of 19th St. and Eugene Ave. (outside the bubble area which reflects the footprint of the proposed action) from the diagram. If these portions are part of the proposed action, please justify their use. It is apparent that USDOE is planning for future use which may not occur given budget reductions. Unnecessary fragmentation of priority shrub steppe will occur if these road segments are constructed.

Page 2-10, section 2.3, first bullet, fourth sentence. Please clarify the confusion between this sentence and the diagram in Figure 2.

Ms. Barbara Ritchie
7 July, 1995
Page 3 of 4

Page 2-10, section 2.3, first bullet , fifth sentence. Please clarify how far 16th and 19th Streets would be extended. These roads should extend no farther than the proposed Denver Ave. to eliminate unnecessary fragmentation of priority shrub steppe. Please include road 16th St. in figure 2.

Page 2-11, bullet "Other", last sentence. Request sentence read " In order to compensate for destruction of priority shrub steppe, this proposed action would implement mitigation in accordance with the Hanford Biological Resource Mitigation Strategy."

Page 3-1, section 3.2.2. This appears to be a viable alternative which would avoid impacts to shrub steppe (50 acres of priority shrub steppe) and reduce project costs since infrastructure upgrades would not have to occur. Please provide a cost analysis for this alternative action.

Page 3-2, Section 3.3.1. This appears to be a viable option in conjunction with the previous comment. Please provide a cost analysis savings if this were to occur.

Page 3-3, Section 3.4.1. This is the current state of operation and is still a viable option. Please provide a cost savings analysis for not constructing new facilities.

Page 4-1, Section 4.1, third paragraph, last sentence. The 220 West area does contain State designated Priority shrub steppe which is important wildlife habitat for state and federal listed wildlife species.

Page 5-4, Section 5.1.8, fourth paragraph, second sentence. this statement is not true. the sagebrush lizard could also be impacted. A one day biological survey is inadequate to determine the presence or absence of this species.

Page 5-4, Section 5.1.8, fifth sentence, last sentence. Request sentence read " In order to compensate for destruction of priority shrub steppe, this proposed action would implement mitigation in accordance with the Hanford Biological Resource Mitigation Strategy."

Page 5-17, Section 5.7.3, second paragraph, last sentence. Same comment as previous comment.

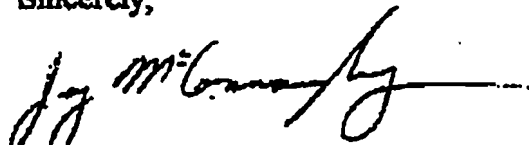
Ms. Barbara Ritchie

7 July, 1995

Page 4 of 4

Thank you for the opportunity to comment on this EA. If you have any questions in regard to these comments, please contact me at 509-736-3095.

Sincerely,



**Jay McConnaughey
Habitat Biologist, Hanford Site**

cc: Ecology

Dave Lundstrom

Geoff Tallent

Department of Fish and Wildlife

Ted Clausing

Lisa Fitzner



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

95-SWT-459

AUG 23 1995

Ms. Barbara J. Ritchie, NEPA Coordinator
Environmental Review Section
State of Washington
Department of Ecology
P. O. Box 47703
Olympia, Washington 98504-7703

Dear Ms. Ritchie:

RESPONSE TO COMMENTS ON THE ENVIRONMENTAL ASSESSMENT (EA) FOR THE SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX, RICHLAND, WASHINGTON (DOE/EA-0981D)

Thank you for your comments on the subject EA. Responses to your comments are presented below.

The first comment in your letter expressed concern about the apparent lack of coordination between the NEPA Process and the Systems Engineering Study recently completed for the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) milestone M-33. The proposed action for this EA is consistent with the results of the Systems Engineering Study.

The M-33 milestone was established to study the global needs of the Hanford Site. The Systems Engineering Report acknowledges, "Wastes and materials with well-defined paths established for storage, processing, and/or disposal (i.e., LLW), and waste and materials being managed under other Tri-Party Agreement milestones (i.e., TRU destined for WRAP 1, etc)...are not included in the scope of this study."

The purpose of the EA is to evaluate the environmental impacts of the proposed action to retrieve the approximately 10,000 drums of TRU and suspect TRU from Trench 4 of the 218-W-4C burial grounds. In the Record of Decision (ROD) for the Final Defense Waste EIS (HDW-EIS), DOE determined it would retrieve and process all TRU and suspect TRU waste that have been retrievably stored at the Hanford Site since 1970. This EA tiers down from the decision of the HDW-EIS ROD.

The second comment was concerned with FY 1996 and FY 1997 budgets and their lack of funding for TRU retrieval. It is correct that no funding has been identified to support Project W-113, Phase I Retrieval, in FY 1996 or FY 1997. However, this EA supports the National Environmental Policy Act (NEPA) documentation for two projects, Phase I Retrieval (W-113) and Phase V Storage (W-112). At the time this EA was developed, both projects were validated and funded at target levels.

Ms. Barbara Ritchie
95-SWT-459

-2-

AUG 23 1995

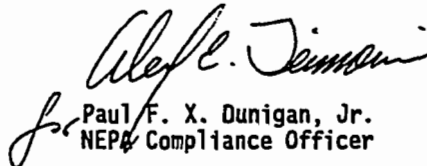
With budget reductions at the Hanford Site, TRU retrieval was determined to be low priority workscope and funding was shifted to support higher priority work at Hanford (e.g., the Spent Fuel Program and Tank Waste Remediation Systems). Phase V Storage is still funded. The current schedule shows award of the construction contract in mid-September 1995 and operation in early FY 1997, subject to completion of the NEPA review. When funding is restored for Phase I Retrieval, NEPA documentation will be in place to support construction and retrieval operations.

Ecology also questioned the appropriateness of spending scarce Hanford clean-up monies on the Supplemental Analysis (SA) in light of the anticipated privatization of WRAP 2A. At the time the NEPA documentation was being prepared, which was very early in the project's lifetime, funding was in place to support the design and construction of WRAP 2A. The SA was already at DOE-HQ for review and approval when the design was terminated. The decision was made to complete the NEPA process for WRAP 2A because it may be beneficial for privatization efforts. The SA was completed with no additional funding provided by the projects.

Your letter also forwarded comments from the State of Washington, Department of Fish and Wildlife, for our consideration. Attached are responses to those comments.

Should you have any questions or comments on the proposed action please call Roger Gordon, of the Waste Programs Division, on (509) 372-2139. Questions concerning the NEPA process should be directed to me, on (509) 376-6667.

Sincerely,


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

WPD:RMG

Attachment

cc w/attach:

A. Conklin, DOH
R. Effland, Ecology-Kennewick
J. McConnaughy, Wildlife (Ecology-Kennewick)
G. Tallent, Ecology

cc w/o attach:

R. H. Engelmann, WHC

ATTACHMENT**Response to Comments from
State of Washington, Department of Fish & Wildlife**

Comment #1. I visited the proposed site on July 6, 1995, and observed stakes marking the proposed extension of 19th St. to Eugene Ave and stakes marking the proposed Eugene Ave. It appears U.S. Department of Energy (USDOE) considers the Environmental review process just a formality for this project. The biological survey team from Battelle observed damage to the sagebrush by the survey team in the area of the proposed roads (please refer to first bullet under "Considerations and Recommendations, Appendix A). USDOE is steward of the natural resources on the Hanford Site. As a responsible steward, USDOE should not allow damage to natural resources by its personnel or contractors to occur during surveying of a proposed action. A proposed action may not be the selected alternative after review by other governments. Furthermore, USDOE neglects to include natural resource values (cost of mitigating for destruction of habitat) into the equation of arriving at the preferred alternative (total cost of the project). All alternative actions should integrate natural resource values.

Response: The damage to the sagebrush occurred during a topography survey of the area necessary to complete the project Preliminary Design site drawings. Survey stakes were in turn used by the PNL survey teams (cultural and biological) to identify the area to characterize. Although some damage to the sagebrush habitat is inevitable when defining the proposed action, care is taken to minimize any damage or disruption to the habitat. Cost of mitigation is included in the estimated total cost of the project.

Comment #2. Page S-2, first paragraph, fourth sentence. Request this sentence be changed to read "The project will be reviewed with the Washington Department of Fish and Wildlife (WDFW) and a mitigation plan developed and implemented to compensate for the destruction of priority shrub steppe from this project."

Response: A habitat enhancement strategy is being discussed with the WDFW and others that is relative to the entire Hanford Site. A specific mitigation plan for this proposed action will be defined consistent with the site-wide habitat enhancement strategy depending on when and if specific projects are implemented. Therefore, the text in the EA summary and in Chapter 5 regarding mitigation will not be changed.

Resolution to comments (cont.)

Comment #3. Page S-2, first paragraph, last sentence. If loggerhead shrike *Lanius ludovicianus* or sage sparrow *Amphospiza belli* are observed nesting on the proposed construction site, construction activities would have to cease until nesting season (March through July) is over. These species nests are protected by the Migratory Bird Treaty Act.

Response: Agree. As stated in the EA on page 5-4, section 5.1.8, and on page S-2 there is no intent to interfere with the nests or nesting presence during the nesting season (March through July), and construction schedules will be modified as necessary to avoid impacts.

Comment #4. Page 1-2, first paragraph. As steward of natural resources on the Hanford Site, USDOE should be integrating natural resource values into the decision making process. It is clear here in this paragraph that natural resource values are not even a factor in the decision making process. Continued fragmentation and destruction of habitat will accelerate the decline of shrub steppe flora and fauna on the Hanford Site.

Response: DOE recognizes the importance of natural resources and considers them in the decision-making process. The EA notes the proposed project would impact some shrub-steppe habitat and indicates the loss of habitat would be discussed with the WDFW and mitigative actions would be taken as necessary in accordance with the habitat enhancement strategy.

Comment #5. Page 2-1, Section 2.0, first paragraph, second sentence. Does the proposed \$139 million dollars include funds for mitigation of destruction of shrub steppe? If not, WDFW requests all alternatives be re-evaluated to consider avoiding impacts to shrub steppe habitat. Please provide the cost analysis used to justify this proposed action and alternative actions.

Response: It is believed the EA adequately addresses the basis for citing the proposed project in the 200 West Area in an area used for waste management operations. The \$139 million does include funding for any mitigation of lost habitat.

Comment #6. Page 2-1, Section 2.1, first paragraph, fifth sentence. Please clarify where the Retrieval Complex is located, or indicated in Figure 2.

Response: A note will be placed on Figure 2 adjacent to Trench 4C-T04 to indicate the "Retrieval Complex".

Resolution to comments (cont.)

Comment #7. Page 2-3, Figure 2. There are discrepancies between the figure and text regarding the roads, especially 19th St. and Eugene Ave. Battelle's biological survey comments conflict also with the text on page 2-10, bullet starting with "Access Roads". Please refer to Appendix A, underlined paragraph under Project Description. Eugene Ave should not extend south of 22nd St. 19th St. should not extend south from proposed Denver Ave to proposed Eugene Ave. Please delete these portions of 19th St. and Eugene Ave. (outside the bubble area which reflects the footprint of the proposed action) from the diagram. If these portions are part of the proposed action, please justify their use. It is apparent that USDOE is planning for future use which may not occur given budget reductions. Unnecessary fragmentation of priority shrub steppe will occur if these road segments are constructed.

Response: The text on page 2-10, Access Roads, will be clarified to note that the 16th, 19th, 22nd, and 23rd St. road extensions would be "west of Dayton Avenue to Denver Avenue" as reflected in Figure 2. Eugene Avenue south of 22nd Street and 19th Street west of Denver Avenue will be removed from Figure 2 since they do not now exist and are not part of the proposed action.

Comment #8. Page 2-10, section 2.3, first bullet, fourth sentence. Please clarify the confusion between this sentence and the diagram in Figure 2.

Response: See response to comment 7.

Comment #9. Page 2-10, section 2.3, first bullet, fifth sentence. Please clarify how far 16th and 19th Streets would be extended. These roads should extend no farther than the proposed Denver Ave. to eliminate unnecessary fragmentation of priority shrub steppe. Please include road 16th St. in figure 2.

Response: See response to comment 7. In addition, 16th Street will be added to Figure 2 (similar to 19th Street) ending at Denver Avenue.

Comment #10 Page 2-11, bullet "Other", last sentence. Request sentence read "In order to compensate for destruction of priority shrub steppe, this proposed action would implement mitigation in accordance with the Hanford Biological Resource Mitigation Strategy."

Response: No change is planned to this sentence. It is believed the sentence as written clearly indicates that mitigative action will be taken.

Resolution to comments (cont.)

Comment #11 Page 3-1, section 3.2.2. This appears to be a viable alternative which would avoid impacts to shrub steppe (50 acres of priority shrub steppe) and reduce project costs since infrastructure upgrades would not have to occur. Please provide a cost analysis for this alternative action.

Response: A detailed cost analysis was not prepared for this alternative and the EA discussion was qualitative in nature with respect to storage. This alternative was deemed not to be a viable storage alternative because the anticipated cost of upgrading the 2101-M Building to RCRA standards was expected to exceed the cost of new construction. Please refer to page 3-2, section 3.2.2, last four sentences of the paragraph.

Comment #12 Page 3-2, Section 3.3.1. This appears to be a viable option in conjunction with the previous comment. Please provide a cost analysis if this were to occur.

Response: A detailed cost analysis was not prepared for this alternative. The EA indicates that the No-Action alternative does not meet DOE's purpose and need for the proposed action. It is not a viable option.

Comment #13 Page 3-3, Section 3.4.1. This is the current state of operation and is still a viable option. Please provide a cost savings analysis for not constructing new facilities.

Response: See response to comment 12.

Comment #14 Page 4-1, Section 4.1, third paragraph, last sentence. The 200 West area does contain State designated Priority shrub steppe which is important wildlife habitat for state and federal listed wildlife species.

Response: Agree. The EA indicates in Section 4.4, Ecology, that the State of Washington considers the sagebrush habitat as priority habitat.

Comment #15 Page 5-4, Section 5.1.8, fourth paragraph, second sentence. This statement is not true. The sagebrush lizard could also be impacted. A one day biological survey is inadequate to determine the presence or absence of this species.

Resolution to comments (cont.)

Response: A sentence will be added to Section 5.1.8, 4th paragraph to read "Although the northern sagebrush lizard was not observed in the area of the proposed action, the loss of sagebrush could impact this species that relies on the sagebrush habitat."

Comment #16 Page 5-4, Section 5.1.8, fifth sentence, last sentence. Request sentence to read "In order to compensate for destruction of priority shrub steppe, this proposed action would implement mitigation in accordance with the Hanford Biological Resource Mitigation Strategy."

Response: We believe this comment refers to the fifth paragraph of Section 5.1.8. See our response to comment 4.

Comment #17 Page 5-17, Section 5.7.3, second paragraph, last sentence. Same comment as previous comment.

Response: See response to comment 4.2



Nez Perce

ENVIRONMENTAL RESTORATION & WASTE MANAGEMENT
P.O. BOX 365 · LAPWAI, IDAHO 83540-0365 · (208) 843-7375 / FAX: 843-7378

July 24, 1995

Mr. Paul F.X. Dunigan, Jr.
NEPA Compliance Officer
Department of Energy
P.O. Box 550
Richland, Washington 99352

Dear Mr. Dunigan:

The Nez Perce Tribe Department of Environmental Restoration and Waste Management (ERWM) has received and reviewed a copy of **Environmental Assessment, Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex; U.S. Department of Energy, Richland, Washington, June 1995; DOE/EA-0981**. The Nez Perce ERWM has provided comments, included with this letter.

Since 1855, reserved treaty rights of the Nez Perce Tribe in the Mid-Columbia have been recognized and affirmed through a series of Federal and State actions. These actions protect the interests of the Nez Perce to use their usual and accustomed resources in the Hanford Reach of the Columbia River and elsewhere. Accordingly, the Nez Perce Tribe ERWM has the support of the U.S. Department of Energy (DOE) to participate in and monitor certain DOE activities. The Nez Perce Tribe ERWM program responds to documents calling for comments from DOE.

The Nez Perce Tribe recognizes the need to cost effectively retrieve, transport and store transuranic waste from the Hanford Site's low level waste burial grounds. The ERWM has several comments which we feel should be initiated for improvement of the plan:

- * The Nez Perce understand the necessity to construct a waste storage facility, on a total of 89 acres of land, of which 50 acres is prime sagebrush habitat. It needs to be pointed out that sagebrush/steppe habitat is considered a "priority" habitat by the state of Washington and that several wildlife species classified as sensitive rely on this habitat for their existence. Wildlife species at this site that have been classified as sensitive species by the state and/or federal governments include Sage Sparrows (state candidate), Swainson's Hawks (federal and state candidate), Long Billed Curlews (federal candidate, state monitor), Burrowing Owls (state and

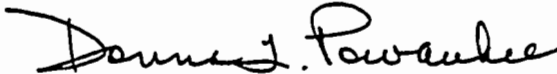
federal candidate), Grasshopper Sparrows (State Monitor), Prairie Falcons (state monitor), Sagebrush Lizard (federal candidate), and Loggerheaded Shrikes (federal and state candidate).

- * The Nez Perce Tribe feels that the loss of this habitat necessitates that a mitigation plan be written to compensate for the loss of the 50 acres of undisturbed sagebrush habitat. This mitigation plan should address how impacts will be minimized, reduced or compensated. This mitigation plan should be worked on and approved by the Hanford Natural Resource Trustee Council.
- * The Tribe requests that construction should not take place between March and July of each year in order to not compromise the nesting season of the Loggerheaded Shrike and Sagebrush Sparrow.
- * A positive attribute of the Environmental Assessment was the inclusion of a cultural survey. The Nez Perce Tribe requests the right to be notified of plans to perform cultural surveys in conjunction with future environmental assessments. Tribal cultural resource personnel would like to be present during the cultural surveys in order to better assess Indian related historical presence. Further, the Tribe would like to be notified prior to construction of this and other facilities, and offered the option of providing cultural resource oversight during the construction process.
- * The purpose of this facility, as designated in the Environmental Assessment, is to provide storage of transuranic waste prior to shipment and or treatment at the Waste Isolation Pilot Project. This sounds like an interim storage facility. Once all the transuranic wastes are removed from the trench and shipped to the Waste Isolation Pilot Project, the facility may no longer be needed. The Tribe asks that if the use of this structure is no longer necessary in the future, the structure be removed and the site be returned to natural habitat conditions.
- * The Nez Perce Tribe is concerned that if the Waste Isolation Pilot Project is not completed this facility would be required to hold waste for an indefinite period of time. Is this facility being constructed to facilitate long term storage if necessary?
- * The Nez Perce Tribe is concerned that waste from non-Hanford facilities could be stored at this location. We would like to voice our opposition to the use of this facility for storage of wastes from outside the Hanford site.
- * The Nez Perce Tribe encourages DOE to carefully delegate responsibility and plan activities to minimize impacts to the ecosystem related to this project.

The Nez Perce Tribe ERWM office appreciates the opportunity to provide comments on **Environmental Assessment, Solid Waster Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex, DOE/EA-0981.**

If you wish to discuss Nez Perce ERWM's comments further please contact ERWM's Technical Staff at (208) 843-7375.

Respectfully submitted,



Donna L. Powaukee
ERWM Manager

In Concurrence: Samuel N. Penney

Samuel N. Penney, Chairman
Nez Perce Tribal Executive Committee

cc: John Wagoner, DOE-RL, Site Manager
Kevin Clarke, DOE-RL, Indian Programs Manager
Steve Alexander, Ecology, Perimeter Areas Section Manager
Douglas Sherwood, EPA, Hanford Project Manager
Annabelle Rodriguez, DOE-RL, Secretary



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

95-SWT-460

Ms. Donna Powauke
Nez Perce Tribe
P.O. Box 365
Lapwai, Idaho 83540

Dear Ms. Powauke:

RESPONSE TO NEZ PERCE TRIBE COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT
DOE/EA-0981 ON PROJECTS W-112/-113

Reference: Letter from P. F. Dunigan, RL, to Ms. D. Powauke, Nez Perce
Tribe, "Environmental Assessment Review", dated June 9, 1995.

Thank you for your comments on the Environmental Assessment (EA) which was
forwarded to you in the reference letter. Your comments have been reviewed
and responses to each comment are attached.

Again, thank you for your comments. If you have any questions on the proposed
action, please call Mr. Roger Gordon of the Waste Programs Division on
(509) 372-2139. Questions concerning the National Environmental Policy Act
(NEPA) process may be directed to myself on (509) 376-6667.

Sincerely,

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

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

WPD:RMG

Attachment

cc: R. Engelmann, WHC, w/o attch

Attachment

Resolution to Comments

Comment #1. The Nez Perce understand the necessity to construct a waste storage facility, on a total of 89 acres of land, of which 50 acres is prime sagebrush habitat. It needs to be pointed out that sagebrush/steppe habitat is considered a "priority" habitat by the State of Washington and that several wildlife species classified as sensitive rely on this habitat for their existence. Wildlife species at this site which have been classified as sensitive species by the State and/or Federal governments include Sage Sparrow (state candidate), Swainson's Hawks (federal and state candidate), Long Billed Curlew (federal candidate, state monitor), Burrowing Owls (state and federal candidate), Grasshopper Sparrows (state monitor), Prairie Falcons (state monitor), Sagebrush Lizard (federal candidate), and Loggerheaded Shrikes (state and federal candidate).

Response: It is recognized in the EA, Section 4.4, that the sagebrush habitat is considered priority habitat by the State of Washington. A Biological Review was completed for portions of the proposed site and documented in Appendix A. The Biological Review determined the occurrence in the projected area of plant and animal species (including those identified in your comment) protected under the Endangered Species Act, candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitored by the State of Washington, and species protected under the Migratory Bird Treaty Act. The Biological Review also evaluates the potential impacts of disturbances on priority habitats and protected plant and animal species identified in the survey.

Comment #2. The Nez Perce Tribe feels that the loss of this habitat necessitates that a mitigation plan be written to compensate for the loss of the 50 acres of undisturbed sagebrush habitat. This mitigation plan should address how impacts will be minimized, reduced or compensated. This mitigation plan should be worked on and approved by the Hanford Natural Resources Trustee Council.

Response: In order to minimize impacts to lost sagebrush habitat, this proposed action would be reviewed and a mitigative action plan developed in accordance with the Hanford Site strategy for habitat enhancement which will be discussed with the State of Washington Department of Fish and Wildlife. The mitigation action plan is required by DOE NEPA regulations.

The NEPA process is distinct from CERCLA. This EA is written under the applicable NEPA requirements. The Department of Energy appreciates the Nez Perce Tribe, and the other Natural Resource Trustees, for taking an active role in the NEPA process. However, DOE-RL believes the Natural Resource Trustee Council is not the

appropriate forum for resolving NEPA issues concerning non-CERCLA activities.

Comment #3. The Tribe requests that construction should not take place between March and July of each year in order to not compromise the nesting season of the Loggerhead Shrike and Sagebrush Sparrow.

Response: Project construction schedules will be adjusted to minimize impact on these species by avoiding site construction activities during the nesting season (March through July). This wording will be added to Chapter 5 section.

Comment #4. A positive attribute of the Environmental Assessment was the inclusion of a cultural survey. The Nez Perce Tribe requests the right to be notified of plans to perform cultural surveys in conjunction with future environmental assessments. Tribal cultural resource personnel would like to be present during the cultural surveys in order to better assess Indian related historical presence. Further, the Tribe would like to be notified prior to construction of this and other facilities, and offered the option of providing cultural resource oversight during the construction process.

Response: Pacific Northwest Laboratories, Cultural Resources Project Office is responsible for conducting the cultural surveys and documenting the results in a survey report. The Nez Perce Tribe is welcome to participate in performing cultural surveys and will be notified when future surveys are required in support of other EAs. In addition the Tribe will be notified prior to construction and offered the option of providing cultural resource oversight.

Comment #5. The purpose of this facility, as designated in the Environmental Assessment, is to provide storage of transuranic waste prior to shipment and or treatment at the Waste Isolation Pilot Project. This sounds like an interim storage facility. Once all transuranic wastes are removed from the trench and shipped to the Waste Isolation Pilot Project, the facility may no longer be needed. The Tribe asks that if the use of this structure is no longer necessary in the future, the structure be removed and the site be returned to natural habitat conditions.

Response: In addition to storing transuranic waste prior to shipment to the Waste Isolation Pilot Plant (WIPP), the storage facility will also provide RCRA compliant storage for mixed waste before treatment. It is anticipated that when the facilities are no longer necessary, the structure will be decommissioned and the site restored. This will be stated in the EA in the description of the proposed alternative.

Comment #6. The Nez Perce Tribe is concerned that if the Waste Isolation Pilot Project is not completed this facility would be required to hold waste for an indefinite period of time. Is this facility being constructed to facilitate long term storage if necessary?

Response: The scheduled opening date for the WIPP is June, 1998. If the decision is made not to open WIPP, each site will have to provide storage capacity for transuranic waste for an indefinite period of time until other options are evaluated. The storage facility discussed in the EA will be designed to provide a useful operating life of 30 years.

Comment #7. The Nez Perce Tribe is concerned that waste from non-Hanford facilities could be stored at this location. We would like to voice our opposition to the use of this facility for storage of wastes from outside the Hanford site.

Response: DOE is committed to proceeding with cleanup actions at several sites across the DOE complex. Currently, Hanford is a receiver of offsite wastes supporting these cleanup activities. The wastes being received from offsite are currently being stored in the Central Waste Complex and/or being disposed of in the Low-Level Burial Grounds. Since the proposed storage facility discussed in the EA will provide RCRA compliant storage, it is possible for them to be used for the storage of wastes from these offsite DOE facilities.

Comment #8. The Nez Perce Tribe encourages DOE to carefully delegate responsibility and plan activities to minimize impacts to the ecosystem related to this project.

Response: DOE will follow appropriate local, state and federal requirements. In addition, DOE directs contractors to follow all appropriate requirements and to responsibly and reasonably carry out contractual obligations.

**Department of Energy**

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

SEP 20 1995

95-SWT-591

Ms. Donna Powaukee
Nez Perce Tribe
P.O. Box 365
Lapwai, Idaho 83540

RESPONSE TO NEZ PERCE TRIBE COMMENTS ON ENVIRONMENTAL ASSESSMENT (EA)

Reference: Letter, P. F. Dunigan, DOE-RL, to Ms. D. Powaukee, Nez Perce Tribe, "Response to Nez Perce Tribe Comments on Draft Environmental Assessment DOE/EA-0981 on Projects W-112/-113", dated August 11, 1995.

The purpose of this letter is to discuss several responses to the Nez Perce Tribe comments transmitted in the referenced letter. Specifically, I would like to further discuss RL's response to your second and third comment.

Your second comment was concerned with the loss of 50 acres of undisturbed sagebrush habitat, and the Nez Perce Tribe felt the loss of this habitat necessitated a mitigation plan be written to compensate for this loss. RL's response to your comment was this action would be reviewed and a mitigative action plan would be developed in accordance with the Hanford Site strategy for habitat enhancement which is being discussed with the State of Washington Department of Fish and Wildlife (WDFW).

Since this letter was forwarded to you, measures to avoid and minimize impacts as a result of this project have been reevaluated. The anticipated loss of mature sagebrush habitat has been reduced substantially by a change in project scope. The original scope of the project (attachment 1) included a footprint of approximately 89 acres, of which 50 acres of priority habitat would have been destroyed. Since then, the scope of the project has been significantly reduced to reduce the habitat loss. The new proposed footprint (attachment 2) is 46 acres and 36 of which are priority habitat. In addition, the proposed storage complex will be constructed in two phases. The first phase would construct three long-term drum storage buildings and administrative support facilities, which would remove an estimated 28 acres of mature habitat. The second phase of the project includes the construction of two additional storage buildings, an ignitable waste storage building, and a box waste storage building. Initiating the second phase will be done at a later date,

Ms. D. Powauke
95-SWT-591

-2-

SEP 28 1995

and only if the need for the buildings still exists. RL is currently evaluating the possibility of siting the Box and Ignitables buildings to a previously disturbed area east of the three Long-Term Storage Buildings which would further reduce the loss of habitat from 36 acres to 28 acres.

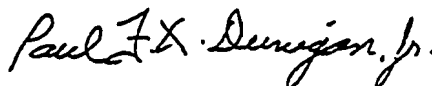
A mitigation action plan will not be developed for this project. As you know, a Hanford site-wide mitigation program is being developed by DOE, in cooperation with the WDFW, U.S. Fish and Wildlife Service (USFWS), and the Indian Tribes. The development of the program is in a draft stage. DOE would compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy.

Compensation for lost habitat values would be accomplished by enhancing the habitat value of an area west of the 200 West Area that has had no sagebrush component for many years due to past fires, but has the other components of a mature habitat (e.g., understory species). A portion of this area is also being considered for mitigation in connection with the Cross Site Transfer Project and the mitigation work would be coordinated. Compensation for lost habitat value for the Solid Waste Operations Complex Project would be done at a ratio of three acres of replacement for each one acre of habitat destroyed. The proposed action in the subject EA has been revised to address these mitigating steps. A total of \$500K has been set aside by this project to support implementing this mitigation strategy. Specific replanting objectives will be identified in the EA.

Your third comment requested the construction should not take place between March and July of each year in order to not compromise the nesting season of the Loggerhead Shrike and Sagebrush Sparrow. DOE's response was construction schedules would be adjusted to minimize impacts on these species by avoiding site construction activities during the nesting season. To clarify this point, the site construction activities discussed involve clearing and preparation of undisturbed areas only, and do not include construction activities in already disturbed areas.

Thank you again for your comments. If you have any questions concerning this project, you may call Mr. Roger Gordon, of the Waste Programs Division, on (509) 372-2139. Questions concerning the NEPA process may be directed to myself on (509) 376-6667.

Sincerely,



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

WPD:RMG

Attachments

8-21-1995 4:00PM

FROM USFWS-MOSES LAKE, WA 509 765 9043

P.2

**United States Department of the Interior****FISH AND WILDLIFE SERVICE**

Ecological Services

517 South Buchanan

P.O. Box 1157

Moses Lake, Washington 98837

(509) 765-6125 FAX: (509) 765-9043

August 21, 1995

Paul F. Dunningan
U.S. Department of Energy
Richland Operations Office
P.O. Box 550, MS A5-15
Richland, WA 99352

Subject: Environmental Assessment: Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex, document number DOE/EA-0981, August 1995

Dear Mr. Dunningan:

This letter transmits comments from the U.S. Fish and Wildlife Service (Service) on the subject document. The Service recommends that U.S. Department of Energy (USDOE) develop an Environmental Impact Statement (EIS) for this project. If USDOE determines that a Finding of No Significant Impact (FONSI) is appropriate, specific mitigation plans to compensate for the loss of shrub steppe habitat should be spelled out in the Record of Decision accompanying the FONSI.

Service recommendations are based on impacts of the project to mature shrub steppe habitat. The National Biological Survey considers native shrub steppe in Washington and Oregon to be an endangered ecosystem, and reports that greater than 90% of this habitat type has been lost (Noss et al. 1995). The Hanford Site encompasses one of the few remaining large blocks of shrub steppe habitat, and we consider this area to be very important for maintaining the biota dependent on this habitat type in the State of Washington. Specifically, the unburned "old growth" habitat of the central plateau is critical for maintaining biodiversity and enhancing recovery of surrounding burned areas. The project would involve the loss of 50 acres of mature shrub steppe habitat. While by itself, this habitat loss may not be large, our concern is for the cumulative impacts this project and others may have on this nearly irreplaceable natural resource. This year alone, 165 acres of mature shrub steppe have been cleared for the Environmental Restoration Disposal Facility, and future

8-21-1995 4:03PM

FROM USFWS-MOSES LAKE, WA 509 765 9843

P.3

activity will remove up to 1,024 acres; the Safe Interim Storage (SIS) project would remove 23 acres; and Project L-116, 200 Area Sanitary Sewer System would remove 50 acres. It seems likely that other projects impacting mature shrub steppe habitat are being planned or under development which the Service is unaware. Continuation of this rate of impact over the years would result in a significant impact to priority habitat through destruction, and through fragmentation and degradation which would reduce the habitat value of the surrounding areas.

The document states "In order to minimize impacts of lost sagebrush habitat, this proposed action would be reviewed and mitigative action taken as necessary in accordance with the Hanford Site strategy for habitat enhancement presently being discussed with the WDFW." We fully support the commitment to mitigation and suggest that the document specify compensatory mitigation to fully address impacts. However, the Service has two areas of concern. First, the Hanford Site strategy (assuming this refers to the Biological Resources Mitigation Strategy, or BRMIS) is still in draft stage, has uncertain future funding, and has no assurances of receiving USDOE commitment. The Service recommends that an option be developed to go forward with compensatory mitigation on an individual basis if the BRMIS is not available. Second, the document only identifies coordination with the WDFW. The Service shares co-trusteeship with USDOE and the State for many of the natural resources which would be impacted by this project. We recommend that USDOE coordinate mitigation planning not only with the Service, but with the Hanford Natural Resource Trustee Council, as this is an action in response to a CERCLA release.

We encourage USDOE to consider preconstruction activities which would support restoration activities at this or other projects, such as seed collection and salvage of shrubs, bunchgrasses, cryptogams, etc. These types of preconstruction activities would have to occur up to a year prior to construction, and must be carefully planned.

We thank you for the opportunity to provide comments to this document, and request a direct response regarding your decision to proceed with an EIS or a FONSI. Please contact myself or Liz Block at the letterhead phone number if you have any questions.

Sincerely,



David C. Kaganbeimer
Field Supervisor
Moses Lake Field Office

lb/

8-21-1995 4:01PM

FROM USFWS-MOSES LAKE, WA 509 765 9843

P. 4

Reference cited:

Noss, R.F., E.T. LaRoe III, and J.M. Scott. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. Biological Report 28. U.S. Department of the Interior, National Biological Service. Washington, D.C. 58pp.

- c: U.S. Department of Interior, Portland (Preston Sleeper)
U.S. Bureau of Land Management, Spokane (Jake Jakabosky)
U.S. Department of Energy, Richland (Paul Kube)
U.S. Environmental Protection Agency, Richland (Larry Gadbois)
Oregon Department of Energy, Salem (Susan Hughes)
WA Department of Ecology, Olympia (Geoff Tallent)
WA Department of Fish and Wildlife (Jay McConaughy)
WA Department of Fish and Wildlife (John Carleton)
Confederated Tribes of the Umanilla Indian Reservation, Pendleton (Janet Ebaugh)
Nez Perce Tribe, Lapwai (Dan Landeen)
Yakama Indian Nation (Deborah Borrero)

**Department of Energy**

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

OCT 10 1995

95-SWT-587

Mr. David C. Kaumheimer
Field Supervisor, Ecological Services
U.S. Department of the Interior
Fish and Wildlife Service
P. O. Box 1157
Moses Lake, Washington, 98837

Dear Mr. Kaumheimer:

ENVIRONMENTAL ASSESSMENT: SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX, DOE/EA-0981, AUGUST 1995

Thank you for your comments on the subject Environmental Assessment (EA). This purpose of this letter is to respond to your comments.

The U.S. Department of Energy (DOE), Richland Operations Office (RL's) primary mission is the clean up of the Hanford Site following its earlier mission of weapons production and energy development. In addition, RL understands its obligation to preserve and appropriately manage the natural resources that are under its stewardship. In your letter, dated August 21, 1995, the Fish and Wildlife Service (FWS) expressed concerns with the loss of mature shrub steppe habitat across the Hanford Site, specifically the 50 acres of habitat which would be removed as a result of this project.

Measures to avoid and minimize impacts have been applied to the extent feasible. The anticipated loss of mature sagebrush habitat has been reduced substantially by a change in project scope. The original scope of the project (attachment 1) included a footprint of approximately 89 acres, of which 50 acres of priority habitat would have been destroyed. Since then the scope of the project has been significantly reduced to reduce the habitat loss. The new proposed footprint (attachment 2) is 46 acres, 36 of which are priority habitat. In addition, the proposed storage complex will be constructed in two phases. The first phase would construct three long-term drum storage buildings and administrative support facilities, which would remove an estimated 28 acres of mature habitat. The second phase of the project includes the construction of two additional storage buildings, an ignitable waste storage building, and a box waste storage building. Initiating the second phase will be done at a later date, and only if the need for the buildings still exists. RL is currently evaluating the possibility of siting

Mr. D. C. Kaumheimer
95-SWT-587

-2-

OCT 10 1995

the Box and Ignitables buildings to a previously disturbed area east of the three Long-Term Storage Buildings which would further reduce the loss of habitat from 36 acres to 28 acres.

Another concern expressed in your letter was the Hanford Site strategy (Biological Resources Mitigation Strategy (BRMS)) is still in draft stage, has uncertain future funding, and has no assurance of receiving RL commitment. The FWS recommends that an option be developed to go forward with compensatory mitigation on an individual basis if the BRMS is not available. As you know, a Hanford site-wide mitigation program is being developed by DOE, in cooperation with the State of Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service (USFWS), and the Indian Tribes. The development of the program is in a draft stage. Until the BRMS is completed, DOE would compensate for priority habitat loss in accordance with the draft Sitewide Mitigation Strategy.

Compensation for lost habitat values would be accomplished by enhancing the habitat value of an area west of the 200 West Area that has had no sagebrush component for many years due to past fires, but has the other components of a mature habitat (e.g., understory species). A portion of this area is also being considered for mitigation in connection with the Cross-Site Transfer Project and the mitigation work would be coordinated. Compensation for lost habitat value for the Solid Waste Operations Complex Project would be done at a ratio of three acres of replacement for each one acre of habitat destroyed. The proposed action in the subject EA has been revised to address these mitigating steps. A total of \$500K has been set aside by this project to support implementing this mitigation strategy. Specific replanting details will be identified in the EA.

As an extra measure, RL is extending an invitation to the Indian Tribes to allow salvage of plants which would be removed as a result of Phase I of this project. The salvage must be used to replant other areas on the Hanford Site, such as the initial site of the Environmental Molecular Science Laboratory which was disturbed during construction.

Mr. Roger Gordon, of the Waste Programs Division, met with Ms. Liz Block of your staff, and with Mr. Jay McConnaughey, WDFW, at the NRTC meeting in Toppenish on September 11, 1995. Mr. Gordon briefed Ms. Block and Mr. McConnaughey on the reductions in the Project scope, as well as discussed steps being taken to minimize the impacts to the habitat. Ms. Block appeared very pleased with the reduction in the project footprint, especially the elimination of roads which would have fractured several acres of priority habitat. During the discussion, Ms. Block and Mr. McConnaughey recommended this project proceed with mitigation in the area west of the 200 West Area that has had no sagebrush component for many years due to past fires as a stand alone project and not wait until the BRMS is adopted which may still be a year away. Specific language was added to the EA which will allow this project to proceed as a stand alone and would compensate for priority habitat loss in accordance with the draft Sitewide Mitigation Strategy. Mr. Gordon concluded the meeting feeling that both Ms. Block and Mr. McConnaughey were

Mr. D. C. Kaumheimer
95-SWT-587

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OCT 10 1995

very pleased with the approach and the attitude Mr. Gordon was taking towards minimizing impacts to the habitat and mitigation activities.

A final point raised by your letter is that the FWS recommends RL coordinate mitigation planning not only with the FWS, but with the Hanford Natural Resource Trustee Council (NRTC), as this is an action in response to a CERCLA release. RL appreciates the FWS, and the other Natural Resource Trustees, taking an active role in the NEPA process, however, this action is not a CERCLA release. This EA is written under the applicable NEPA requirements. Although this action is not a CERCLA action, RL is developing the BRMS in cooperation with member tribes and agencies of the NRTC.

Thank you again for your comments. If you have any questions concerning this project, please call Mr. Roger Gordon, of the Waste Programs Division, on (509) 372-2139. Questions concerning the NEPA process may be directed to me on (509) 376-6667.

Sincerely,


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

WPD:RMG

Attachments

cc w/attachs:
L. Block, FWS
J. McConnaughey, WDFW

FINDING OF NO SIGNIFICANT IMPACT

FOR

**SOLID WASTE RETRIEVAL COMPLEX,
ENHANCED RADIOACTIVE AND MIXED WASTE
STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND
CENTRAL WASTE SUPPORT COMPLEX**

U.S. DEPARTMENT OF ENERGY

RICHLAND, WASHINGTON

SEPTEMBER 1995

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-0981, to assess environmental impacts associated with the retrieval of stored transuranic (TRU) and suspect TRU waste from the Hanford Site's low level waste burial grounds, the construction and operation of facilities necessary to store these retrieved wastes as well as newly generated wastes, and from an infrastructure upgrade of utilities and roadways.

DOE will initiate retrieval and storage activities in preparation for eventual shipment to the Waste Isolation Pilot Project in Carlsbad, New Mexico. The infrastructure network in the 200 West Area will be improved to support the centralization of waste management operations and enhance operational efficiencies.

In addition to the No-Action Alternative, other alternatives to the Proposed Action were considered. Other alternatives included the use of other onsite storage facilities, and the use of other onsite office facilities.

Based on the analysis in the EA, and considering preapproval comments from the State of Washington, the Nez Perce Tribe, and the U.S. Fish and Wildlife Service, 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*. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION:

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

Mr. T. K. Teynor, Director
Waste Programs Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352
(509) 376-1366

For further information regarding the DOE NEPA process, contact:

Ms. Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20685
(202) 586-4600 or (800)-472-2756

PURPOSE AND NEED: DOE needs to take action to: retrieve transuranic (TRU) waste because interim storage waste containers have exceeded their 20-year design life and could fail causing a radioactive release to the environment; provide storage capacity for retrieved and newly generated TRU, Greater-than Category 3 (GTC3), and mixed waste before treatment and/or shipment to the Waste Isolation Pilot Project (WIPP); and upgrade the infrastructure network in the 200 West Area to enhance operational efficiencies and reduce the cost of operating the Solid Waste Operations Complex.

BACKGROUND: In the Record of Decision (ROD) (53 Federal Register (FR) 12449, 1988) for the *Final Environmental Impact Statement: Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington* (HDW-EIS) (DOE 1987), DOE determined it will retrieve and process all TRU and suspect TRU waste that has been retrievably stored at the Hanford Site since 1970. This action is a tier-down from the HDW-EIS ROD. The processing of the retrieved TRU and suspect TRU wastes will occur in the Waste Receiving and Processing (WRAP) Facility.

Since May 1970, solid waste classed as or suspected of being TRU waste has been designated as TRU waste. In 1973, the official level for segregation and storage became 10 nanocuries TRU per gram (Nci TRU/g) of waste. In 1984, the basis for classification as TRU waste was established as 100 Nci TRU/g and remains the designated level today. As a result of these administrative changes, not all retrievably stored waste will be designated as TRU by the current definition. Wastes under 100 Nci TRU/g is characterized as low-level waste (LLW). The retrieved waste will be assayed to determine whether the waste is TRU or LLW.

Retrieval of TRU waste from trenches will be accomplished in phases. Retrieval of TRU and suspect TRU waste containers will start from trench 4C-T04. This trench contains approximately 15 percent by volume of the total retrievably stored TRU waste on the Hanford Site. A future retrieval activity will remove the balance of the retrievably stored TRU waste.

The Solid Waste Operations Complex (SWOC) is a series of existing and planned treatment, storage, or disposal (TSD) units for solid waste operations in the 200 West Area. At present, administrative and operations personnel are scattered around the Hanford Site. Centralized administration and operation facilities will improve Solid Waste operational efficiencies and reduce costs by minimizing travel times.

PROPOSED ACTION: This proposed action will construct and operate the Retrieval Complex, the Enhanced Radioactive Mixed Waste Storage Facility (Storage Facility), the Central Waste Support Complex (CWSC), and associated infrastructure upgrades (i.e., utilities, roads) in the 200 West Area to support the SWOC. In addition, the proposed action includes a mitigation strategy which has been developed to address lost priority shrub-steppe habitat. The estimated cost of the proposed action is \$66 million.

This proposed action will initiate the retrieval activities from Trench 4C-T04 in the 200 West Area including the construction of support facilities necessary to carry out the retrieval operations. In addition, the proposed action includes the construction and operation of a facility (Enhanced Radioactive Mixed Waste Storage Facility) in the 200 West Area to store newly generated and the retrieved waste while it awaits shipment to a final disposal site. Also, Infrastructure Upgrades and a Central Waste Support Complex will be constructed and operated to support the Hanford Site's centralized waste management area in the 200 West Area.

The proposed retrieval action includes the retrieval of post-1970 solid waste suspected of containing TRU radionuclides and the construction, operation, and maintenance of a complex of facilities to be used for the retrieval. The proposed retrieval activity will retrieve approximately 2,260 cubic meters (80,000 cubic feet) in about 10,000 drums, of suspect TRU waste from the 200 West Area low-level burial Trench 4C-T04.

The proposed Storage Facility will provide a RCRA permitted storage facility for retrieved TRU and newly generated TRU, mixed, and GTC3 waste awaiting processing in the WRAP facility and for processed waste awaiting shipment to the permanent disposal site. The Storage Facility will provide storage capacity for approximately 5,621 cubic meters (199,500 cubic feet) of waste. This design capacity assumes the WRAP facility is operational and retrieved waste is only stored temporarily pending processing.

The Storage Facility project will consist of the construction and operation of about ten buildings. Proposed new facilities will include three long-term drum storage buildings, an administration building, a shipping and receiving building, a transfer corridor building, an automated drum storage building, a gas sampling building, an ignitable waste storage building, and a box storage building. Only the three long term drum storage buildings will

be built in the first phase of construction and will hold approximately 13,300 Drum Equivalents or 2770 cubic meters (97,800 cubic feet) of waste. All or some of the additional buildings may be constructed during a future construction stage as the need to complete the full proposed Storage Facility arises.

The infrastructure for development of the SWOC will include access roads, electrical power, water supply (sanitary and raw water), fire protection, sanitary sewers, storm runoff systems, and telecommunications systems.

The proposed CWSC will include two pre-engineered metal solid waste management support buildings. Each building will be a single-story structure having individual heat pumps for heating and cooling. Fire protection lines will be installed. Telecommunication features will be extended to these buildings. Sidewalks, parking lots, landscaping, and traffic access routes will be provided as part of the proposed action.

The proposed action will require clearing shrub-steppe habitat to construct new facilities. Relatively undisturbed areas of mature shrub-steppe vegetation that is high quality habitat for many plants and animals have been designated as "priority habitat" by the State of Washington. A Hanford Sitewide Mitigation Strategy is being developed by DOE-RL, the Washington Department of Fish and Wildlife, the USFWS, and the Indian tribes.

DOE will compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy when it is approved. If a sitewide mitigation program is not adopted in a timely fashion (by no later than July 1996), the Solid Waste Operations Complex (SWOC) will then develop a stand-alone program for mitigating the loss of mature sagebrush habitat. The concepts will apply the key elements of the draft site-wide mitigation strategy.

Mitigation will be through restoration of the shrubs in a selected area west of the 200 West Area where the shrub habitat has been damaged by fire. Compensation for lost habitat value for the SWOC Project will be done at a ratio of 3 to 1. The first phase of the proposed action will remove an estimated 11.3 hectares (28 acres) of mature habitat. At the ratio of 3:1, 33.9 hectares (84 acres) will be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area.

RETRIEVAL ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the No-Action Alternative, the existing TRU waste inventory in Trench 4C-T04 would continue to be stored in a retrievable configuration. Current waste management practices of monitoring, surveillance, and maintenance of the retrieval trench would continue until a decision is made to retrieve.

This alternative will maintain the waste containers in a retrievably stored condition well beyond the intended design life of the waste containers, which could mean an increasing potential for loss of structural integrity. As a result of container deterioration, potential releases of TRU waste to the environment could occur.

This alternative does not meet the agency need to initiate retrieval of TRU waste.

STORAGE FACILITY ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the No-Action Alternative, the Storage Facility would not be built. Without the Storage Facility, waste retrieval and treatment for final processing within the WRAP Facility would be inefficient and there would be insufficient RCRA compliant storage for retrieved TRU and newly generated TRU, GTC3, mixed waste, and for the processed waste awaiting shipment to the permanent disposal site.

This alternative does not support the need for additional RCRA permitted storage areas.

Use of an Existing Onsite Storage Facility: Under this alternative, an existing facility on the Hanford Site would be used for storage of waste and the Storage Facility would not be built. Retrievably stored and newly generated TRU, mixed, and GTC3 waste would be moved to this facility for storage awaiting processing and/or disposal.

Existing facilities on the Hanford Site were evaluated that could be utilized for storage of solid waste with sufficient capacity to support WRAP Facility processing and storage of processed waste awaiting disposal. No other suitable storage facilities were identified.

This alternative does not meet the purpose and need.

Alternate Construction Site of Storage Facility within SWOC: Under this alternative, the Storage Facility would be located within SWOC but sited in an area that has been previously disturbed by prior solid waste activities. Based on the results of a biological review of the siting area, other sites within the SWOC will disturb a larger area of habitat (Appendix B).

This alternative does not meet the purpose and need.

INFRASTRUCTURE UPGRADES ALTERNATIVES CONSIDERED:

No-Action Alternative: The infrastructure upgrades would not be provided as part of the proposed action. Existing utilities would continue to be used and no upgrades would be made to support the planned retrieval activity and WRAP Facility processing. Access to the planned SWOC to support future transport and shipment of TRU waste would be restricted to existing roadways.

The No-Action Alternative would not provide the site upgrades at the SWOC to effectively implement the retrieval activities, Storage Facility activities, and eventual WRAP Facility processing and does not support the purpose and need.

This alternative does not meet the agency need.

CENTRAL WASTE SUPPORT COMPLEX ALTERNATIVES CONSIDERED:

No-Action Alternative: Under this alternative, a centralized waste support complex consisting of an administrative building and one operation and maintenance facility would not be built. Solid Waste administrative and operational personnel would continue to be scattered around the Hanford Site at various locations and would continue to travel between these scattered offices to work on assigned tasks.

The No-Action Alternative does not support the purpose and need.

Use of Available Onsite Administration and Maintenance Facilities: Under this alternative, existing facilities on the Hanford Site would be used to house the CWSC administrative and maintenance personnel versus construction of new pre-engineered buildings.

This alternative would not provide for centralized solid waste management operation in the 200 West Area. Without this centralized operation, the estimated 400 solid waste management, maintenance, and engineering personnel would continue to be spread throughout the Hanford Site and would not provide for the desired operational efficiency of the support functions.

Because of other ongoing activities in the 200 Area (e.g., actions necessary for the safe interim storage of Hanford tank wastes; spent nuclear fuel management; Hanford cleanup actions; and actions related to tank waste remediation) and the projected growth in the 200 Area population, administrative and maintenance facilities are not currently available to fully support waste management needs. If practical, a sharing of facilities will be undertaken to accommodate office space needs.

This alternative would neither provide the needed administrative and maintenance office area, nor support the operational efficiency of waste management operations.

This alternative does not support the purpose and need.

ENVIRONMENTAL IMPACTS:

Construction Activities: There is a potential for an airborne emission if a radiation area is unexpectedly disturbed during construction of the proposed action. However, the likelihood of any potential release is minimal because of the radiation administrative controls in place during the construction activities.

No liquid discharges to the environment are expected. There will be small quantities of nonradioactive and nonhazardous construction scrap generated by the proposed action. About 18.6 hectares (46 acres) of land will be impacted and noise levels during construction will increase temporarily.

Any work in radiation controlled areas will be performed in compliance with ALARA principles, applicable state and federal regulations, and DOE Orders and guidelines. The

potential radiation received by workers during the performance of the action will be administratively controlled below an annual EDE of 500 millirem per year and will assure that workers will not be exposed to radiation levels approaching the DOE limit of 5 rem.

A total of approximately 17,600 cubic meters (23,000 cubic yards) of concrete and 299,000 kilograms (330 tons) of steel will be used in construction of the Retrieval and Storage Facility actions, and approximately 250,000 liters (66,000 gallons) of petroleum products will be consumed.

Construction activities will destroy priority shrub-steppe habitat in the area of the proposed buildings, access roads, and parking lots. Of the approximate 18.6 hectares (46 acres) disturbed, an estimated 14.4 hectares (36 acres) will be priority shrub-steppe habitat. This loss of habitat will impact the loggerhead shrike, sage sparrow, and the northern sagebrush lizard that rely on the sagebrush habitat. No other species listed (or candidate for listing) as threatened or endangered will be impacted by the proposed action. Project construction schedules will be adjusted to minimize impact on these species by avoiding site clearing and preparation activities during the nesting season (March through July).

The project has been reduced in scope in response to budget reductions and habitat concerns. This allowed impacts to the habitat to be avoided and reduced. DOE will compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy.

Mitigation will be through restoration of the shrubs in a selected area of habitat. Compensation for lost habitat value for the SWOC Project will be done at a ratio of 3 to 1. The first phase of the proposed action will remove an estimated 11.3 hectares (28 acres) of mature habitat. At the ratio of 3:1, 33.9 hectares (84 acres) will be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area.

Operational Impacts: Retrieval workers will be exposed to a direct radiation source during retrieval operations. It is estimated that the average annual dose to a worker is about 0.3 rem. Over an estimated three year retrieval activity, a group of 14 retrieval workers could receive a dose consequence of 12.6 person-rem. The health effect to this directly involved worker group is 0.005 LCF.

Twelve storage workers could also be exposed to a direct radiation source and each receive a dose of 0.3 rem. Over a three year storage activity, the worker group could receive a dose consequence of 11.0 person-rem resulting in an estimated 0.004 LCF.

Potential radiological risks to workers will be minimized by job safety planning and adherence to established ALARA principles and industrial health and safety procedures. Potential exposure to chemical hazards is low.

Impacts From A Potential Retrieval Accident: A postulated accident was analyzed whereby an explosion occurred as a result of a hydrogen buildup before installing vents on the drums. The explosion ignites the waste material and contamination is released by fire. This postulated accident has an annual probability occurrence of 2.3×10^{-6} (about two times every one million years) and is considered an extremely unlikely event.

Five directly involved workers are assumed to be involved in the postulated accident and could each receive a dose of 540 rem EDE which could be a potentially lethal dose. These retrieval workers will be wearing proper personnel protective equipment when working in a radiation area and work practices will adhere to ALARA principles. Additional engineered controls will be in place to provide protective shielding to minimize worker exposure. The likelihood of a worker receiving a dose consequence of 540 rem EDE is very remote.

The onsite maximum exposed individual (MEI) (located 100 meters (330 feet) from the release point) could receive a dose of 18 rem which could result in a calculated 0.0072 LCFs. The offsite MEI (located at the Hanford Site boundary) could receive a dose of 0.077 rem resulting in 0.0000385 LCFs. These onsite and offsite MEI doses represent the upperbounding dose consequence and is greater than any dose consequence received by any member of the population. No LCFs would be expected to either the onsite or offsite MEI.

The onsite exposed population of 3,488 is assumed to extend from a minimum of 100 meters (328 feet) from the release point. This population is not directly involved in the proposed drum retrieval activity, but could receive the largest dose consequence of 14,900 person-rem in the event of a postulated accident. The health effect to this onsite population group is calculated to be 6.0 LCF.

The offsite population of 102,538 could receive a dose consequence of 152 person-rem resulting in 0.076 LCFs. It is not expected that a LCF would occur as a result of this unlikely postulated accident.

Impacts From A Potential Storage Accident: A postulated accident for storage operations was analyzed in which waste drums fall, rupture, and ignite in the event of an earthquake. Under this accident scenario, a fire consumes the combustible waste and an airborne release could occur. The annual probability of occurrence of the accident is 1×10^{-3} (once every one thousand years).

A group of four directly involved storage workers is assumed to be near the release point and could receive a dose consequence of 256 person-rem which would result in 0.102 LCF.

The onsite MEI could receive a dose of 2.13 rem which would result in a calculated 0.00085 LCFs. The offsite MEI could receive a dose of 0.26 rem resulting in a calculated 0.00013 LCF. These onsite and offsite MEI doses represent the upperbounding dose consequence and is greater than any dose consequence received by any member of the population. No LCFs would be expected to either the onsite or offsite MEI.

The onsite population group of 3,861 is assumed to extend from a minimum of 100 meters (328 feet) from the release point to the Hanford Site boundary and could receive the largest dose consequence of 1,520 person-rem. The calculated LCFs for this group is 0.6 LCF.

The offsite population of 102,538 could receive a dose consequence of 654 person-rem resulting in 0.33 LCFs. It is not expected that a LCF would occur to a member of the offsite population group.

Socioeconomic Impacts: Work activities on the Hanford Site plays an important role in the socioeconomics of the Tri-Cities. There will be a small, temporary increase of about 100 construction workers from local labor halls. No substantial change is expected in the number of Hanford Site employees and no discernable impact to employment levels within neighboring Benton and Franklin counties.

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. DOE is in the process of developing official guidance on the implementation of the Executive Order. The analysis in this EA indicates that there will be minimal impacts to both the offsite population and potential workforce by implementing the proposed action under both routine and accident conditions. Because the entire proposed action will occur on the Hanford Site and the offsite environmental impacts from the proposed action analyzed in this EA are expected to be minimal, it is not expected that there will be any disproportionate impacts to any minority or low-income portion of the community.

Cumulative Impacts: The existing and planned projects nearby the proposed action were reviewed to determine cumulative impacts that could result from initiating the proposed waste retrieval, waste storage activities, the infrastructure upgrades, and the CWSC.

The offsite population received about 0.3 person-rem via air and water pathways from 200 Area operations in 1993. The calculated radiation exposure to workers involved in the proposed action under normal conditions is very small. The average annual dose rate for 1993 in the 200 Areas was 130 millirem per year and well below the natural background radiation of about 300 millirem per year. The proposed action is not expected to alter calculated radiological air doses.

The proposed action will not discharge any radioactive liquid effluent to the ground and, therefore, not incrementally add to Hanford Site radioactive liquid effluent discharges to the ground.

Nonradioactive liquid effluents will be discharged to the ground because of the planned septic sewer systems. There is a relatively small discharge rate in comparison to the overall Hanford Site discharges. Due to the lateral spreading and relatively small discharge rates, little, if any, discernable mounding, is expected at the water table. The hydraulic impact to local groundwater flow direction is likely minimal and movement of any underground

contaminated plumes is not expected. The proposed septic system will not be expected to impact the groundwater.

Because the proposed Storage Facility will be partly sited on undisturbed land, there will be an incremental loss of shrub-steppe habitat for the loggerhead shrike, sage sparrow and northern sagebrush lizard. An estimated 14.5 hectares (36 acres) of priority shrub-steppe habitat will be lost. Other projects completed, under way, or planned for the future on the Hanford Site involve loss of priority habitat (including the Environmental Restoration Disposal Facility, 240 Access Road, Cross Site Transfer System, and the 200 Area Sanitary Sewer System). Cumulative loss of priority habitat on the Hanford Site could exceed 405 hectares (1,000 acres). An overall Hanford Site Strategy for mitigation for lost priority habitat is currently being developed. Mitigation of habitat loss will be coordinated using that strategy.

Although the retrieval and storage activities will contribute slightly to the Hanford Site employment growth, the increase of about 100 in construction workers will be temporary and the assigned administrative and operations personnel will be re-located from other onsite offices. No cumulative impact is expected to the local economy from undertaking the proposed action.

DETERMINATION: Based on the analysis in the EA, and after considering the preapproval review comments of the State of Washington, the Nez Perce Tribe, and the U.S. Fish and Wildlife Service, I conclude that the proposed action to initiate the proposed waste retrieval, the waste storage activities, the infrastructure upgrades, and the construction and operation of the CWSC 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 28th day of September 1995.



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