

**APPENDIX G**

**CURATION PLAN FOR HANFORD'S ARCHAEOLOGICAL COLLECTIONS**

**APPENDIX G**

**CURATION PLAN FOR HANFORD'S ARCHAEOLOGICAL COLLECTIONS**

# **Curation Plan For Hanford's Archaeological Collections**

September 2002



**United States  
Department of Energy**

## Richland, Washington

## TABLE OF CONTENTS

<b>INTRODUCTION.....</b>	<b>5</b>
<b>BACKGROUND.....</b>	<b>5</b>
<b>CURRENT STATUS OF HANFORD'S ARCHAEOLOGICAL COLLECTIONS.....</b>	<b>6</b>
<b>LONG-TERM PLAN FOR THE CURATION OF DOE-RL'S ARCHAEOLOGICAL COLLECTIONS.....</b>	<b>7</b>
<b>SCOPE OF COLLECTIONS STATEMENT.....</b>	<b>7</b>
TYPES OF COLLECTIONS HELD .....	8
<b>REPOSITORY STANDARDS.....</b>	<b>9</b>
PHYSICAL SECURITY.....	9
FIRE PROTECTION.....	11
ENVIRONMENTAL CONTROL.....	12
HOUSEKEEPING.....	12
PEST CONTROL.....	12
INSPECTIONS AND INVENTORY .....	12
<b>ACQUISITION OF ARCHAEOLOGICAL OBJECTS AND COLLECTIONS .....</b>	<b>15</b>
SHORT-TERM STORAGE FOR INDIVIDUAL ITEMS, SAMPLES, OR SMALL COLLECTIONS .....	16
LONG-TERM COLLECTIONS STORAGE .....	16
CONSERVATION AND TREATMENT .....	17
RECORD-KEEPING.....	17
<b>USE OF COLLECTIONS .....</b>	<b>18</b>
SCIENTIFIC AND EDUCATIONAL USES.....	18
RELIGIOUS USES.....	18
RESTRICTIONS TO USE OF COLLECTIONS .....	18
SECURITY AND PROTECTIVE MEASURES.....	19
PHYSICAL SECURITY.....	19
<b>ACCESS .....</b>	<b>20</b>
ACCESS TO REPOSITORY .....	20
ACCESS TO ARCHAEOLOGICAL COLLECTIONS .....	21
<b>LOANS .....</b>	<b>24</b>
<b>DEACCESSION.....</b>	<b>27</b>
CRITERIA FOR DEACCESSIONING .....	27
<b>DEFINITIONS .....</b>	<b>28</b>
<b>REFERENCES .....</b>	<b>29</b>

## Introduction

The U. S. Department of Energy (DOE) is required to establish definitions, standards, procedures and guidelines to be followed to preserve collections of prehistoric and historic material remains, and associated records, recovered under the authority of the Antiquities Act (AAA), the Reservoir Salvage Act (RSA), the National Historic Preservation Act (NHPA), or the Archaeological Resources Protection Act (ARPA) (36 CFR 79.1). Collections recovered pursuant to the AAA will remain subject to that act and collections recovered pursuant to the ARPA will remain subject to that act, the implementing regulations, and any terms and conditions of associated ARPA permits.

The main purpose of this document is to 1) ensure that all DOE-RL archaeological collections, including those that have been retrieved, any that await retrieval, and any future collections generated by any Federal Agency are relevant to the DOE-RL's mission and responsibilities, 2) prevent undue or excessive growth of additional holdings requiring curation, and 3) ensure that curatorial services provided for the DOE-RL collections possess the capability to provide adequate long-term curatorial services to safeguard and preserve the associated records and any material remains that are deposited in the Repository selected by DOE to curate the Hanford Site archaeological collections (36 CFR 79.3).

## Background

Prior to federal acquisition in 1943, artifacts and artifact collections were removed from archaeological sites and lands now situated within the administrative boundaries of the Hanford Site. Early collectors often considered their activities to be a recreational event that was many times attended by family members. Professional archaeologists began their investigations in what was to become the Hanford Site during the early 1900s (Smith 1905; Krieger 1927). By the 1930s, the Inter-Agency Archaeological Salvage Program, River Basin Survey efforts had generated extensive survey and excavation data (Shiner 1961, 1951, 1952a, 1952b, 1953; Osborne 1949, 1957; Osborne and Shiner 1950, 1951).

Although interest in the archaeology of the region grew during the mid 1900s, lands inside the Hanford Site were restricted from public access as the nation's Manhattan Project and Cold War efforts expanded. By the late 1960s, federal legislation provided mandates directing federal agencies to consider the potential impacts of their undertakings on archaeological sites and other cultural resources. For the next several years at Hanford, cultural resources were considered on a project-by-project basis by several different archaeologists and universities. In 1987, DOE-RL created a Cultural Resource Program at Pacific Northwest National Laboratory (PNNL) to consolidate and standardize cultural resource management for the Hanford Site. After that point in time, archaeological objects and material remains recovered from the Hanford Site were curated for DOE-RL by PNNL at the Hanford Cultural Resources Laboratory (HCRL).

Although most of DOE's archaeological collections were curated at HCRL, several of Hanford's archaeological collections were stored off-Site by members of the Mid-Columbia Archaeological Society. Efforts to consolidate Hanford's archaeological collections were begun in 1992. DOE-RL's Site Preservation Officer initiated efforts to consolidate Hanford's archaeological collections in 1992. By 1993, nearly all of DOE-RL's archaeological collections had been identified and returned to the Hanford Site.

### **Current Status of Hanford's Archaeological Collections**

DOE-RL's archaeological collections are currently curated by HCRL in Room 2209 of the Sigma V Building, also called the Repository. This Repository is located in North Richland, and is immediately adjacent to the southern boundary of the Hanford Site. Archaeological collections and isolated artifacts curated in the Repository include archaeological collections from 147 archaeological sites, 4 "collections" turned-in or confiscated from on-site workers, 7 singleton artifacts or partial collections from non-Hanford locations (artifacts encountered in Mid-Columbia Archaeological Society collections returned to DOE-RL), and 33 non-provenienced artifacts and other objects. Records associated with DOE-RL's archaeological collections are also stored in the Repository.

## Long-Term Plan for the Curation of DOE-RL's Archaeological Collections

The long-term plan for curation of DOE-RL's archaeological collections is to obtain a permanent onsite repository that meets 36 CFR 79 guidelines. The search for a permanent facility will begin in 2004.

### Scope of Collections Statement

This scope of collections statement provides guidelines for the management and curation of permanent and temporary archaeological collections and associated records recovered from the Hanford Site in southeastern Washington State. In general, only material remains from within the administrative boundaries of the Hanford Site will be curated by DOE-RL. The collections currently held by the DOE-RL include those that have been generated as the result of an archaeological survey, excavation or other study conducted in connection with a Federal action, assistance, license or permit.

All current and future collection activities including the creation of associated records will conform to existing federal legislation and implementing regulations and the *Hanford Cultural Resources Management Plan* (1998) to ensure that recovered material remains are provenienced and fully documented before the remains are prepared for curation. All DOE-RL archaeological collections and associated records will be housed at a repository, museum, or collections storage area that meets archaeological curation regulations defined in the Code of Federal Regulations (36 CFR Part 79).

Archaeological collections belonging to the DOE, but not recovered from the Hanford Site, may also be housed with Hanford Site archaeological collections as specified by the DOE-RL Official. (See Section 6.0 Acquisitions in this document for additional guidance on this topic).

***Types of Collections Held***

Hanford's archaeological collections curated at HCRL are associated with prehistoric, historic, and ethnographic time periods and contain a variety of material

remains that include but are not limited to flora and faunal remains, sediment samples, charcoal, lithic tools and flaking debris, metal, and organics (Figure 1).

Industrial collections are also maintained by the DOE-RL. The *Hanford Curation Strategy: Manhattan Project and Cold War Era Artifacts and Records* (DOE 1997) contains DOE-RL's management strategies for industrial collections, namely the records and artifacts associated with the Manhattan Project and Cold War still found in buildings across the Hanford Site. This document presents a "...strategy to identify important artifacts and records that may be present in Hanford Site buildings ... and provide procedures for the identification and recovery of these items" (DOE 1997:iii).

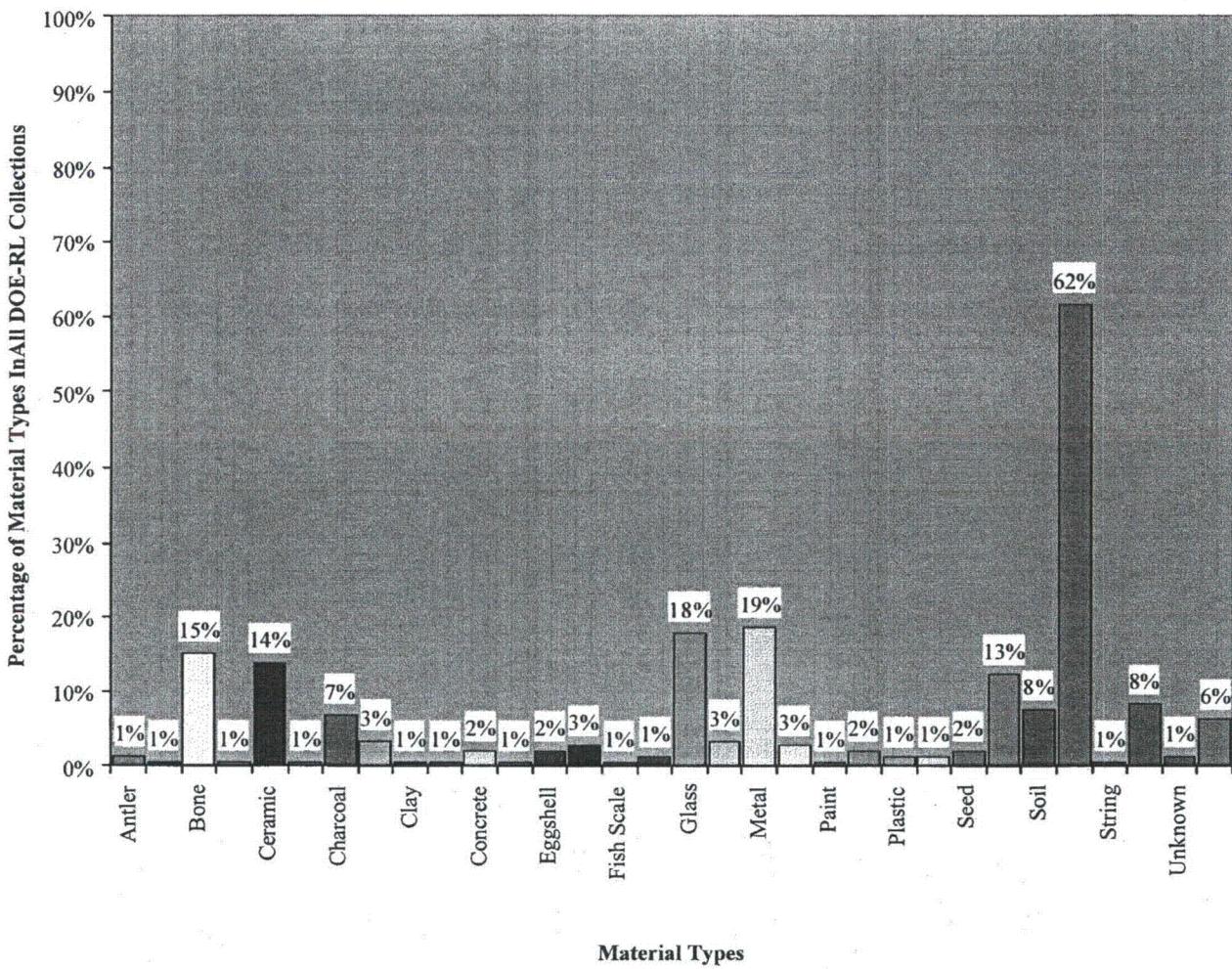
## Repository Standards

The Repository holding DOE-RL archaeological collections must have the capability to provide adequate long-term curatorial services as defined in 36 CFR 79.5. The Repository housed in Sigma V meets these requirements.

### **Physical Security**

- Hanford Site or DOE standard security badge is required for access to Sigma V and must be worn by staff members at all times while in work locations not otherwise designated as Public Access Areas.
- Written procedures for access to DOE-RL collections, storage rooms, and work spaces.
- Key access limited to authorized PNNL staff having direct responsibility for locked archaeological collections on a recurrent basis for curatorial work or emergency basis.
- Access to the Repository work space is limited to authorized Repository staff and others (i.e., security personnel) who have a daily recurrent need for the use or inspection of cultural resource review records, site forms, photographs, and historic documents.
- Researchers, on-site contractors, or visitors to the Repository are accompanied at all times by Repository staff or PNNL security personnel.
- A log is maintained to record visitors entering the Repository; the log must record the visitor's name, address, date of visit, times of entry and departure and reason for the visit.

Figure 1. Material Types in DOE-RL Archaeological Collections



- A log is maintained to record staff entry into the locked rolling bays housing archaeological collections. Staff unlocking and entering the rolling bays are accompanied by another staff member at all times. Non-staff and visitors may enter the rolling bays if accompanied by PNNL staff. Entry into the rolling bays by non-PNNL staff will be recorded on the log.
- Non-staff, researchers, or visitors are not permitted to remove materials from the rolling bays where archaeological collections are housed. Removal or placement of boxes or objects from/in the rolling bays will be conducted by PNNL staff only.
- Entrance to Repository is equipped with secure metal or solid-core wood doors in substantial frames, doors have deadbolt locks and other security hardware, such as non-removable pin hinges.
- Highly sensitive items and valuable items are stored in locked rolling bays or locking cabinets.
- Security personnel provide 'round-the-clock' inspections of the Repository interior and the locking mechanisms on the entrance.
- The Repository protection and security program applies to everyone on staff – no one is excluded from rules or safeguards due to rank, job function, or position.

### ***Fire Protection***

- Multiple fire separated areas are incorporated into the construction of the Sigma V facility to support the facility exit system.
- The Repository is protected by automatic fire alarm systems. Detection systems are installed, maintained, and inspected in accordance with the Facility Use Agreement.
- The Repository is protected by automatic fire sprinkler systems that conform to NFPA 13. Installation, operation, and maintenance of these systems is conducted according to code requirements.
- Fire detection and suppression systems meet UL and NFPA standards and are tested and maintained regularly according to those standards and to the manufacturer's instructions.
- Staff are trained in the use of available fire extinguishing equipment. Fire extinguishers are provided and placed at required locations throughout the building.
- Objects, shelves, furniture, and cabinets in the Repository are placed to not obstruct discharge of overhead sprinklers. Potential damage to objects from discharge of the overhead sprinklers or other fire extinguishing agent is minimized by ensuring that objects and computers are in cabinets or under protective covers.
- There is a thorough and vigorously enforced fire prevention program in the Sigma V building. Smoking and open flames are not allowed in the Repository. Flammable solvents are not kept in collection storage areas.

- Building occupants are trained to know the location of the nearest fire alarm pull box, recognize the building emergency signals, know the location of the building staging area, and utilize the Battelle Single Point Contact phone number (375-2400) to report an emergency or unusual situation.

### ***Environmental Control***

- Sigma V's HVAC system maintains a cooling capacity of 1,400,000 BTU and 1,700,000 BTU of heating to maintain a comfort range from 65° to 75° inside the building.

### ***Housekeeping***

- Custodial services including trash pickup, vacuuming, and dusting are conducted on an as-needed basis. Custodians sign the visitor log (Figure 2) and conduct housekeeping duties when accompanied by Repository staff.
- Dust control inside the locking bays conducted by HCRL staff.

### ***Pest Control***

- Insect and animal controls for the exterior and interior of Sigma V are performed as required. Special control measures are requested as necessary.
- To ensure that pests are not present in the DOE collections, a, insect trapping program may be initiated. Baseline data captured during this process will provide information on any biological activity and can be used to design a pest management program for the archaeological collections (Table 1).

**Table 1. Development of an Insect Trapping Program**

Step	Action
1	Create a floor plan of the area to be monitored.
2	Number and date "sticky" traps.
3	Place traps throughout area to be monitored.
4	Map trap locations on the floor plan.
5	Inspect traps on regular basis – record information.
6	Refine trap placement as necessary.
7	Replace traps every 2 months or when trap becomes ineffective.

### ***Inspections and Inventory***

Periodic inspections of the DOE-RL archaeological collections and inventories of archaeological collections are conducted to ensure that the collections are properly managed. Periodic inspections will be conducted to monitor for pest control, to inspect the

collections/archives for damage and missing collections/archives and records, to inventory the collections annually, and to conduct a sample inventory. These inspections

**Figure 2.** Visitor Access Log Sheet.

Date/Time of Entry	Print Name and Address	Reason for Access	Time of Departure

will be conducted during each fiscal year. The Site Preservation Officer (SPO) will conduct the review. Table 2 displays a recommended review interval for inspections and inventories of the Repository.

**Table 2. Inspection and Inventory Intervals for Archaeological Collections Repository**

Inspection Item	Inspection Interval:				
	Daily	Weekly	Monthly	Six Months	Yearly
General Planning Documents					•
Dedicated Storage					•
Physical Space					•
Methods and Techniques					•
Environment			•		
Pests			•		
Housekeeping		As Needed			
Security	•				
Access Control	•				
Fire Protection			•		•
Collection Inventory					•
Missing Item Record					•
Damaged Item Record					•
Random Sample Inventory					•

## **Acquisition of Archaeological Objects and Collections**

The DOE-RL acquires objects and artifacts primarily through field collection activities associated with standard cultural resource management activities at the Hanford Site made in strict compliance with the laws of the country, state or relevant political jurisdiction in which the field work is conducted. Field collection of material remains from the Hanford Site follows guidelines presented in the *Hanford Cultural Resources Management Plan* (Chatters 1989). Acquisition of new archaeological objects or collections in consultation with Native American

tribes as required by NAGPRA and other federal legislation. All new archaeological collections will be accessioned according to the processes and procedures identified in the *Curation Procedures* document<sup>1</sup> located in the Repository files.

### ***Short-Term Storage for Individual Items, Samples, or Small Collections***

The phrase short-term or temporary storage refers to the housing of archaeological collections and objects for a period of time before formal accessioning actions are taken. DOE-RL may temporarily place individual items, samples, or small collections in the Repository prior to initiation of a formal accessioning process. For example, temporary storage may be intermittently required for artifacts pending completion of a large-scale project involving data recovery. Material remains entering the Repository for short-term or temporary storage will be held in a labeled holding box or on a labeled shelf designated as temporary storage.

### ***Long-Term Collections Storage***

DOE-RL archaeological collections are placed in a Repository for long-term storage preservation. Long-term storage can involve varying degrees of curatorial services to ensure preservation of items and collections for future generations of Americans. Objects or archaeological collections meeting that are specific to the Hanford Site and have associated records that define its provenience may be placed in long-term curation. Criteria to be considered before archaeological collections will be considered for long term storage and preservation:

1. Is the item intact? Is the item made of inherently unstable materials?
2. Is the item rare?
3. Is the item's authenticity verifiable?
4. Does the Repository have the resources such as funding, staffing, facilities, and equipment, to properly manage the item for long-term storage and preservation?

---

<sup>1</sup>This document, in draft form, provides the procedures used for the treatment and labeling of DOE's archaeological collections.

### ***Conservation and Treatment***

DOE-RL's archaeological collections may require conservation treatment to stabilize objects and materials prior to long-term storage. Such actions are usually carried out by a conservator "trained and experienced in dealing with the problems of a particular class of objects (e.g., paintings, textiles, furniture, photographs, books, ethnographic objects, natural history specimens". Treatments requiring the services of a Conservator must be conducted in accordance with the Code of Ethics and Standards of Practice of the American Institute for Conservation of Historic and Artistic Works (NPS 1990).

Repository staff are responsible for ensuring that DOE objects and archaeological collections receive proper care. In all cases, the general policy shall be to do "the least possible to the object that in any way alters its significant characteristics. The goal is to reduce the possibility that the treatment itself will in some way compromise the valuable aspects of the object or eventually result in more rapid deterioration" (NPS 1990:8:2). Suggestions and guidelines for the proper care of the various material remains in DOE-RL archaeological collections may found in Museum Handbook Part 1, Appendices I through P (NPS 1990).

Toward this end, the following factors should be taken into consideration:

- The preventative conservation needs of each archaeological collection shall be defined;
- The primary goal is to keep interventionist treatment to a minimum;
- The services of a Conservator will be sought for objects and/or collections when preventative conservation such as good environmental conditions and proper handling are not enough to reduce deterioration to a satisfactory level;
- Conservation treatments must be appropriate for the object and necessary for preservation. Thus, the object's condition, history, significance, and role in the collection must be taken into account;
- Some treatment processes may not be completely reversible;
- All treatments must be competently performed and documented (NPS 1990:8:1-3).

### ***Record-Keeping***

The Collection Manager is responsible for maintaining an acquisition record of the DOE-RL archaeological collection curated in the Repository. All records concerning the archaeological collection including the history of acquisition, ownership, provenience, excavation

records, photographs, inspections, or other documentation will be filed in an "Curation File." The Collection Manager is responsible for maintaining all records in the "Curation File" throughout the storage period.

The Collection Manager is also responsible for recording items in an archaeological collection or associated records found to be missing or damaged. This record shall be kept on a form created for this purpose. The information to be recorded will include the date of the finding, the item/object that is missing or damaged, and the initials of the record taker.

## **Use of Collections**

DOE archaeological collections are to be made available for scientific, educational, and religious uses within parameters and terms that ensure preservation of the research potential, religious or sacred importance, and uniqueness of each collection.

### ***Scientific and Educational Uses***

DOE-RL will make its collections available to qualified professionals (curators, conservators, collections managers, exhibitors, researchers, scholars, archaeological contractors and educators) to study, loan and use for such purposes as in-house and traveling exhibits, teaching and public interpretation, scientific analysis and scholarly research. Students may use the collection under the direction of a qualified professional. Any publications or exhibits that result from these activities will acknowledge the DOE-RL and the curatorial facility as the owner or administrator, as appropriate.

### ***Religious Uses***

DOE-RL archaeological collections may be made available to persons who have aboriginal or historic ties to the Hanford Site for use in religious ceremonies or religious rituals.

### ***Restrictions to Use of Collections***

When a collection has been determined to be of religious or cultural importance to any Indian Tribe having aboriginal or historic ties to the Hanford Site, the DOE-RL may restrict scientific and educational use, access to information relating to the nature, and character, and

location of the resource, and not allow uses that would alter, damage or destroy objects in the collection<sup>2</sup>.

DOE-RL may also restrict access to associated records according to Section 9 of the ARPA and Section 304 of the NHPA.

### ***Security and Protective Measures***

The DOE-RL archaeological collections will be housed in a repository, museum, or collections center that restricts access to collections and associated records. DOE officials and visitors entering or working in the room will be escorted. Keys and/or electronic entry devices providing access to the Repository and archaeological collections are issued to a limited number of individuals.

Protection devices such as security cameras, alarm systems, and monitored electronic entries may be used to monitor access to and use of archaeological collections stored in the Repository as required. Other protective systems such as emergency plans and fire protection equipment and procedures extinguishers must also be available.

### ***Physical Security***

The Sigma V Building meets local building codes and minimum structural requirements for the region code - all building entrances are secure. The building contains fire detection and protection systems and maintains environmental controls for heating and cooling (when such controls are necessary to ensure preservation of individual objects within archaeological collections). The Repository (housed in Sigma V Building) has the minimum number of windows and doors permitted by code. Doors to the Repository are solid core and have proxy card locks. Building emergency plans and procedures are available to Repository staff.

---

<sup>2</sup> The Federal Agency Official can permit the alteration or destruction of objects in a collection if "the potential gain in scientific studies or public interpretation, and the potential gain in scientific or interpretive information outweighs the potential loss of the object (36 CFR 79.10 (5)).

## Access

Access to the Repository holding DOE-RL archaeological collections and associated records will at all times conform to the following requirements:

- Building security procedures necessary to safeguard the archaeological collections and records;
- Any restrictions imposed by limitation of space and environmental control;
- Availability of Repository staff to escort visitors.

### **Access to Repository**

Sigma V's Repository contains archaeological collections and associated records, cultural resource project files, site files, site location maps, and other documents.

Archaeological collections are accessed infrequently; cultural resource project files and records that may be accessed on a daily basis.

The DOE-RL collections will be accessible for legitimate research and study by responsible investigators, during normal business hours as long as these activities conform to existing DOE-RL terms and conditions and federal legislation (see 5.3 Restrictions to Use of Collections above). All archaeological collections and associated records covered by the Native American Graves Protection and Repatriation Act will be restricted in use and access based on wording in the law.

Native Americans, or Native American representatives may access the DOE-RL archaeological collections and associated records and as agreed by the DOE and tribal representative. Repository staff will provide entry to the Repository and will accompany Native Americans, or their representatives, while they are in the Repository. Native Americans or their representatives will access archaeological collections as agreed by DOE-RL and Native American tribes. Native American visitors and/or their representatives will sign-in and out of the Repository on the Visitor Access Log Sheet (Figure 2).

On-site contractors may access the DOE-RL archaeological collections and associated records and as agreed by the DOE. Repository staff will provide proxy entry for on-site

contractors and will accompany on-site contractors while they are in the Repository. On-site contractors will sign-in and out of the Repository on the Visitor Access Log Sheet (Figure 2).

Public access to the Repository through small tours and education programs may be permitted as defined by the DOE-RL. However, members of the public not involved in approved research will not be permitted to handle archaeological collections or associated records.

#### **Instructions for Repository Access:**

1. Visits to the Repository shall be arranged prior to entry into the Repository to ensure that HCRL staff are available to escort visitors (see attached POC list).
2. Staff and Visitors to the Repository must be badged.
3. Entry to the Repository is via proxy card. Visitors may enter the Repository if escorted (see POC list).
4. Visitors to the Repository will sign in on a Log Sheet (Figure 2) that includes the time and date of entry, reason for entry, and time of departure. The time and date will be entered under the column "Date/Time of Entry", the name of the staff or Visitor will be printed under the column entitled "Print Name", the reason of access will be listed under the column entitled "Reason for Access", and the time the Repository is left by staff and/or visitors is written under the column "Time of Departure".

#### **Access to Archaeological Collections**

The Repository contains locking Spacesaver© shelving used to house the DOE archaeological collections. When the locking shelves are opened a log sheet (Figure 3) will be completed listing the staff member opening the shelves, the reason for opening the

**Figure 3.** Repository Locking Shelves Access Log.

shelves, the time/date of opening and the time/date of closure. The Collections Manager or alternate will be the only persons permitted to unlock the shelves. Items requested by DOE-RL officials will be removed from the shelves by the Collections Manager or alternate and will be placed on tables located in the Repository for that purpose. When inspections are complete, the Collections Manager or alternative will replace the item in the locking shelves, relock, and record the closure (date and time) on the log sheet provided for this purpose.

**Instructions for Access to Locking Shelves:**

Only the Collections Manager or alternate will unlock the locking shelves.

1. Visitors may request access to objects held in the Repository under an existing Curation Agreement.
2. Staff and Visitors to the Repository must be badged.
3. Entry to the Repository is via proxy card. Visitors may enter the Repository if escorted.
4. Visitors to the Repository will sign in on a Log Sheet (Figure 2) that includes the time and date of entry, reason for entry, and time of departure. The time and date will be entered under the column "Date/Time of Entry", the name of the staff or visitor will be printed under the column entitled "Print Name", the reason of access will be listed under the column entitled "Reason for Access".

The Collections Manager or alternate will ensure that the door to the Repository is shut by testing the doorknob. The Collections Manager or alternate staff will sign the "Log Sheet for Access To Locking Shelves" (Figure 3) posted above the lock on the first shelf. The date and time of entry will be entered under the column "Date/Time of Entry", the Collection Manager's name and the name of HCRL staff escorting the Collections Manager will be printed in the columns entitled "Print Name". The reason for opening the locked shelves will be listed under the column "Reason for Access."

5. The Collection Manager will roll the shelving open.
6. The Collection Manager will retrieve items from the locking shelves and will place the item, box, or record on a table provided for that purpose.
7. Before the Chain-of-Custody procedure is initiated, the Collections Manager will check to ensure that the Visitor is on the list of authorized officials included in the collections/curation agreement.

8. The Collection Manager and the Visitor will examine the seals on the containers and boxes to ensure that the boxes and box seals are intact. If all records are in agreement, the Visitor may proceed to Step 9.
9. The Visitor may break the seals and open the box.
10. When the Visitor is finished, the Collections Manager will reseal the box, item or record in the Visitor's presence, record the process on the Chain-of-Custody form (Figure 4) and replace the sealed item in the locking shelves.
11. The locking shelves will be rolled shut and locked. The Collections Manager and Battelle staff will place the time the locking shelves were locked on the "Log Sheet for Access to Locking Shelves" form (Figure 3) and initial that entry.
12. Visitors will sign out of the Repository on the Visitor Access Log Sheet. The time the Repository is left by staff and/or visitors is written under the column "Time of Departure".

## **Loans**

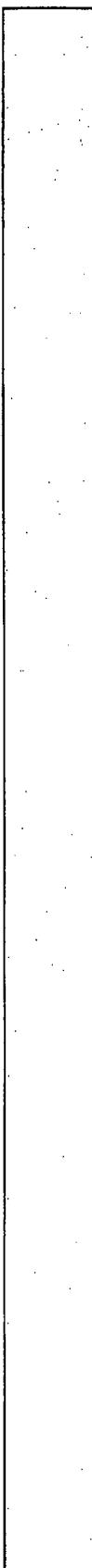
No collection (or portion thereof) shall be loaned to any person without a written agreement between the DOE and the borrower that specifies, at a minimum, the following items:

1. Collection or object being loaned;
2. Purpose of the loan;
3. Length of the loan;
4. Restrictions on scientific, educational or religious uses, including whether the object can be altered, damaged, or destroyed;
5. The borrower shall handle the collection or object so as not to damage the collection or object, or reduce its scientific value unless different agreements have been specified in Item 4 above.
6. Any requirements for insuring the collection while it is on loan;
7. The DOE shall ensure that the Repository maintains administrative records that document approved scientific, educational and religious uses of the collection (36 CFR 79.10).

Figure 4. HCRL Chain of Custody Form.

<b>Hanford Cultural Resources Laboratory Chain of Custody/Collection History</b>					
<b>Sealed Boxes Form</b>					
<u>Box #</u>	<u>Date</u>	<u>Reason for Access</u>	<u>Site/HCRC#</u>	<u>Names</u>	<u>Condition</u>
<u>Disposition</u>					

G-26



## **Deaccession**

Deaccessioning is a process whereby material remains are permanently removed from curatorial services and/or a Repository providing these services. The process of deaccessioning must be completed with care and a strong emphasis on record-keeping. All reasonable efforts will be made to ensure that DOE is legally free to deaccession the material remains in question. Every reasonable effort will be extended to assure that deaccessioned objects or items that are unique to the State of Washington or the United States will remain within the State or nation as appropriate. Deaccessioned material remains may not be sold or transferred to members of the public.

The deaccessioning of human remains and cultural objects for repatriation to Native American tribes is a specialized form of transfer mandated by the Native American Graves Protection and Repatriation Act.

### ***Criteria for Deaccessioning***

Material remains considered for deaccessioning by DOE-RL must meet at least one of the following criteria (quoted from the New York State Museum Collections Management Policy):

1. The object or specimen is outside DOE's Scope of Collection and acquisition policy.
2. The object or specimen lacks physical integrity or is deteriorated beyond usefulness.
3. The object or specimen is a superfluous example of others in the collections.
4. The Repository is unable to properly preserve the object or specimen.
5. The object contains or is composed of materials hazardous to the safety of persons or of other objects or specimens in the collections.
6. The object or specimen has been lost or missing for at least two years.
7. The object or specimen occupies space disproportionate to its present or anticipated importance to the collection.

## Definitions<sup>3</sup>

1. *Collection* means material remains that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study.
2. *Material remains* means artifacts, objects, specimens and other physical evidence that are excavated or removed in connection with efforts to locate, evaluate, document, study, preserve or recover a prehistoric or historic resource.
3. *Associated records* means original records (or copies) that are prepared, assembled and document efforts to locate, evaluate, record, study, preserve or recover a prehistoric or historic resource.
4. *Curatorial services* means managing and preserving a collection according to professional museum and archival practices.
5. *Religious remains* means material remains that the Federal Agency Official has determined are of traditional religious or sacred importance to an Indian tribe or other group because of customary use in religious rituals or spiritual activities. The Federal Agency Official makes this determination in consultation with appropriate Indian tribes or other groups.
6. *Repository* means a facility such as a museum, archeological center, laboratory or storage facility managed by a university, college, museum, other educational or scientific institution, a Federal, State or local Government agency or Indian tribe that can provide professional, systematic and accountable curatorial services on a long-term basis.

---

<sup>3</sup> These definitions are quoted from 36 CFR Part 79.

## References

- Chatters, J. C., ed. 1989. Hanford Cultural Resources Management Plan. PNL-6942, Pacific Northwest National Laboratory, Richland, Washington.
- Knudson, R. 1994. "Session 1: Historic Context for the Management of Archeological Collections, Records and Reports". In Management of Archeological Collections, Records and Reports. National Park Service. Stephen T. Mather Employee Development Center. Harpers Ferry, WV.
- Krieger H. W. 1927. "Prehistoric Inhabitants of the Columbia River Valley." Smithsonian Institution Miscellaneous Collections 78(7):187-200.
- National Park Service. 1990. Museum Handbook Part 1 Museum Collections. U. S. Department of the Interior. Washington D. C.
- Osborne, H. D. 1949. The Archaeological Investigations Of Two Sites In The McNary Reservoir, Washington. Columbia Basin Project, River Basin Surveys, Smithsonian Institution. Washington, D.C.
- Osborne, H. D. 1957. "Excavations In The McNary Reservoir Near Umatilla, Oregon." Bureau of American Ethnology Bulletin 166. River Basin Surveys Papers No. 8.
- Osborne, H. D., and J. L. Shiner. 1950. River Basin Surveys-State College of Washington Archeological Excavations in the Lower McNary Reservoir, Oregon, 1949. Columbia Basin Project. River Basin Surveys. Smithsonian Institution.
- Osborne, H. D., and J. L. Shiner. 1951. The 1950 Excavations in Two McNary Sites, Washington and Oregon. Columbia Basin Project. River Basin Surveys. Smithsonian Institution.
- Shiner, J. L. 1961 . The McNary Reservoir: A Study in Plateau Archaeology. Smithsonian Institution. River Basin Survey Papers No. 23. Bureau of Ethnology Bulletin 179, pp. 149-266. Washington, D. C.
- Shiner, J. L. 1951. The Excavations at Site 35-UM-5 in the McNary Reservoir, Oregon. Columbia Basin Project. River Basin Surveys. Smithsonian Institution. Washington, D. C.
- Shiner, J. L. 1952a. A Preliminary Report on the Archeology of Site 45-WW-6 on the Columbia River, Washington. Columbia Basin Project. River Basin Surveys. Smithsonian Institution. Washington, D. C.
- Shiner, J. L. 1952b. The 1950 Excavations at Site 45-BN-6, McNary Reservoir, Washington. Columbia Basin Project. River Basin Surveys. Smithsonian Institution. Washington, D. C.
- Shiner, J. L. 1953. Excavations at Site 35-WS-5 on the Columbia River, Oregon. Columbia Basin Project. River Basin Surveys. Smithsonian Institution. Washington, D. C.

- Smith, H.I. 1905. "An Archaeological Expedition to the Columbia Valley." Records of the Past 4(4):19-127.
- Osborne, H. D., and J. L. Shiner. 1950. River Basin Surveys-State College of Washington Archeological Excavations in the Lower McNary Reservoir, Oregon, 1949. Columbia Basin Project. River Basin Surveys. Smithsonian Institution.
- Osborne, H. D., and J. L. Shiner. 1951. The 1950 Excavations in Two McNary Sites, Washington and Oregon. Columbia Basin Project. River Basin Surveys. Smithsonian Institution.
- U. S. Department of Energy. 1997. Hanford Curation Strategy: Manhattan Project and Cold War Era Artifacts and Records. DOE-RL-97-71. Richland, Washington.
- U. S. Department of the Interior. 1990. 36 CFR Part 79 Curation of Federally-Owned and Administered Archeological Collections: Final Rule. Department of the Interior. Federal Register 55(177):37630-37638.

## **Emergency Contacts**

For assistance in an emergency call ..... 375-2400 or 911

A. L. Rodriguez, DOE-RL Cultural Resource Program ..... 372-0277

B. E. Opitz, PNNL Line Manager ..... 372-0069

D. Stapp, PNNL Cultural Resource Project Manager ..... 373-2894

E. L. Prendergast, PNNL Cultural Resources Specialist ..... 376-4626

P. D. Simpkins, PNNL Building Manager ..... 375-2064

**APPENDIX H**

**HANFORD CURATION PLAN**

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

**HANFORD CURATION PLAN:  
COLLECTION MANAGEMENT POLICIES AND PROCEDURES**

**For the US Department of Energy  
Richland Operations  
Cultural Resources Program**

**By the Columbia River Exhibition  
of History, Science and  
Technology**

**April 2000**

**DRAFT: HANFORD CURATION PLAN, APRIL 2000****Table of Contents**

PREFACE.....	2
DEFINITIONS.....	3
I. MISSION.....	5
II. ACQUISITIONS .....	6
RECEIPT OF OBJECTS	
EXCHANGES	
TRANSFERS	
III. REGISTRATION OF COLLECTIONS.....	8
ACCESSIONING	
CATALOGING	
DEACCESSIONS AND DISPOSITIONS	
INVENTORY OF COLLECTIONS	
IV. LOANS .....	11
OUTGOING LOANS	
V. ACCESS TO COLLECTIONS AND RECORDS .....	14
MUSEUM STAFF ACCESS	
DATABASE ACCESS	
RESEARCHER ACCESS	
PHOTOGRAPHY	
VI. COLLECTIONS CARE AND PROTECTION .....	16
PREVENTIVE CONSERVATION	
COLLECTION HANDLING AND STORAGE	
ENVIRONMENTAL MONITORING	
HOUSEKEEPING	
APPENDIX A - HOUSEKEEPING SCHEDULES .....	17
CREHST PERMANENT EXHIBITS	
CREHST TEMPORARY EXHIBITS	
CREHST ARTIFACT STORAGE AREA	
ENERGY NORTHWEST BUILDING 55 ARTIFACT STORAGE AREA	
APPENDIX B - FORMS.....	18

**DRAFT: HANFORD CURATION PLAN, APRIL 2000****PREFACE**

The Hanford Curation Plan has been developed to standardize procedures and provide guidelines for handling collections. All professional care and management of the Hanford Site Collection will be in accordance with 36 Code of Federal Regulations Part 79, Curation of Federally-Owned and Administered Archeological Collections.

The policies outlined here become final when approved by the U.S. Department of Energy, Richland Operations (DOE-RL), Cultural Resources Program. The manual, which may be updated periodically, is intended to be the sole source of policy concerning matters related to collections. All personnel are expected to abide by and adhere to the policies and forms in the manual. Exceptions to these policies can be approved only by the DOE-RL Federal Agency Official (FAO).

**DEFINITIONS**

- Accessioning: The formal process of creating an immediate, brief, and permanent record of an object, assembly, or lot received from one source at one time by one method, for which the DOE-RL has title and assigning a unique control number to an object, assembly, or lot.
- Acquisition: The administrative process of discovering, preliminarily evaluating, negotiating for, taking custody of, and documenting title to an object, assembly, or lot.
- Collection Object: An object which has been or is in the process of being accessioned into the collections.
- Conservation: The profession that preserves cultural objects for the future through treatment and preventive care.
- Controlled Property: Property valued at more than \$5000 or that is likely to be a theft target. All guns will be controlled property. DOE-RL representatives will determine which Hanford Site collections are controlled property.
- Deaccession: The action of removing an accessioned object by due process from the permanent collection by legal means.
- Exchange: A conveyance of ownership for an object, assembly, or lot from one institution to another in exchange for ownership of an object, assembly, or lot.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

<u>Exhibit:</u>	The presentation of ideas through the use of objects with the intent of educating the viewer.
<u>Fair Market Value:</u>	The current price at which both buyers and sellers are willing to do business.
<u>Field Collection:</u>	Objects collected on federal property.
<u>Inventory</u> (verb):	The periodic process of locating and listing accessioned, loaned, and borrowed items by location. An inventory may be complete or based on a random sample.
<u>Loans:</u>	Temporary change of custody of collection objects between organizations and not involving change in ownership. Loans are made for study, exhibition, or performance according to stated purposes and for a stated time period.
<u>Museum:</u>	A public or nonprofit institution which is organized on a permanent basis for essentially educational or aesthetic purposes and which, using a professional staff: <ol style="list-style-type: none"><li>1. Owns or uses tangible objects, either animate or inanimate;</li><li>2. Cares for these objects; and</li><li>3. Exhibits them to the general public on a regular basis.</li></ol>
<u>Permanent Collections:</u>	The collected, accessioned objects, acquired and preserved because of their potential value as examples, as reference material, or as objects of aesthetic or educational importance, all relating to the DOE-RL's stated purpose.
<u>Preservation:</u>	The act of keeping an object and safeguarding it from any further changes than those which it has already undergone.
<u>Preventive Conservation:</u>	The planned management of a collection to prevent deterioration, exploitation, destruction or neglect.
<u>Provenance:</u>	The origin, source and history of an object.
<u>Registration:</u>	The overall function of creating, controlling, and maintaining information, immediately and briefly, about all objects owned by, or in the care, custody, and control of an institution.
<u>Transfer:</u>	Title conveyance of property from one federal entity to another.

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

### **I. MISSION**

#### **MISSION STATEMENT**

The United States Department of Energy, Richland Operations, Cultural Resources Program has established the Hanford Site collections to preserve and interpret the scientific and cultural history of the Hanford Site, for the people of the Mid-Columbia Basin, researchers and other interested visitors. DOE-RL contracts with the Columbia River Exhibition of History, Science and Technology (CREHST) to manage and store those collections and provide exhibits, educational programs, and collections access to researchers.

### **II. ACQUISITIONS**

Acquisition embraces the discovery, preliminary evaluation, the assuming of physical and legal custody, and acknowledgment of the receipt of specimens and objects. Materials are acquired by field collection, exchange, and transfer from other federal agencies.

Because objects are added to the collection on the premise that they will be retained in perpetuity, careful screening must be the rule. The following criteria, appropriate to the object(s) being considered for addition, regardless of their source, are to be weighed:

- The object (specimen, artifact, etc.) must be relevant to and consistent with the purposes/goals of the Hanford Site Collections.
- There should be a need and potential use (e.g., research, exhibition, education).
- All objects shall have aesthetic, historical, or scientific value.
- All moral, legal, and ethical implications of the acquisition must be considered.
- The physical condition and conservation requirements must be considered.
- The DOE-RL must be capable of providing for the object's storage, protection, and preservation under conditions that ensure its availability and in keeping with professional DOE-RL standards.
- The expenses related to transportation, preservation and storage should be considered.
- Archival records, documents, or manuscripts are accepted if they are related to the Hanford Site Collections and/or research activities.

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

- It is preferable that the object shall be documented or documentable, including, but not limited to, provenance, manufacturer, date, age, and origin and use locations.

### **RECEIPT OF OBJECTS**

CREHST's policy is to maintain a record of all objects entering and leaving its collections. Objects submitted by DOE-RL's employees, contractors, or other individuals or organizations, as field collections, are subject to the procedures outlined in this section.

CREHST uses standardized receipt forms (see Forms in Appendix) to provide accountability for objects until final disposition. If such object(s) becomes a part of the permanent collection, the receipt shall be kept as a part of the permanent record. Receipt forms are available at the CREHST reception desk and curation office.

A completed Incoming Receipt must be given to the depositor for any object left. Information to be recorded includes name, address, and telephone number of the depositor and owner (if different); his/her reason for submitting the object, and a brief description including condition of and collection data concerning the object. When signed by the depositor and the CREHST representative, a copy is given to the depositor and the original form accompanies the object(s) when it is delivered to the curator.

### **EXCHANGES**

The DOE-RL may exchange objects from its collection that are no longer needed in return for others to be acquired for the collection. The exchange must be on an equitable basis. Exchanges may be made with other institutions or individuals. The transaction is documented with an Exchange Agreement form.

### **TRANSFERS**

Objects may be transferred from one federal agency to another. The transfer is documented with a Transfer of Property form which formalizes the conveyance of title.

## **III. REGISTRATION OF COLLECTIONS**

Collections may not enter or leave the Hanford Site collections without a receipt to track them. An Outgoing Receipt documents any objects leaving the collection; an Incoming Receipt documents all incoming collections. Receipts must be signed by CREHST staff and by the person depositing or picking up collection items.

The collections registration system at CREHST provides controls for identifying objects in the Hanford Site collection including their source, status, and disposition. Thus preservation of the

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

nonintrinsic, contextual information about the objects and their documentation is vital. Original records do not leave CREHST, except by written order of the FAO. Photocopies of records are substituted.

An accession includes all of the objects received from one source at one time by one method. The accession record is a compilation of the cumulative inventory of all acquisitions in the CREHST's custody for DOE-RL. Catalog records are comprised of individual entries - normally one for each object or lot of objects acquired through an accession. Catalogs classify objects systematically, providing descriptive detail. They record significant facts and data regarding the physical appearance, context, and history of the objects. All collection records are maintained by the Curator.

### **ACCESSIONING**

Accessioning is the act of recording an addition to the permanent collection which gives the DOE-RL legal title to the acquisition and commits the DOE-RL to the responsibility for the proper care and use of the object(s)/specimen(s). CREHST will submit a list of recommended accessions to the DOE-RL FAO periodically; with written concurrence the accessioning process is complete.

An accession record includes, among other data, the accession number, date and type of acquisition (field collection, exchange or transfer), source, brief identification and description, condition, provenance, value (if appropriate), and name of the staff member recording the accession. Accession numbers, assigned by the Curator, are made up of the year the material was acquired plus a number which is assigned in sequence: HASI.2000.001, HASI.2000.002, etc. Accessioning should occur as quickly as possible. The following procedures apply:

- A collection of items received at one time from one source, by one method may be grouped as a single accession and given one accession number. The Curator may elect to subdivide an acquisition into two or more accessions for clarity of record keeping.
- Accession records include all documentation relating to an accession including signed forms, correspondence, and any associated records. Accession records are filed by the source of that accession, usually the donor or vendor. Within each source file the accessions are grouped in order by date.
- Each year an accession number will be assigned to materials separated from their documentation with an unknown receipt date. These will be known as Found in Collections (FIC) accession numbers. As records accumulate for FIC objects they will be filed under Hanford Site FIC in the source files. If the objects are subsequently linked with their documentation, the record is updated and the next available accession number for that year is applied. The appropriate catalog and source records are also corrected.

### **CATALOGING**

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

Cataloging is the creation of a record of the descriptive detail and information about an object or a lot; it is cross-referenced to other records and files, often containing a photograph or sketch. Catalog numbers are assigned by the Curator.

- A catalog number may be assigned to one item or to a lot comprised of a number of items (based on the nature of the objects and the standards within the respective discipline).
- Cataloged material should be marked and tagged where the number can be clearly identified. Numbers must be legible, durable, and removable.
- Catalog records and files are maintained on the collection management computer system with quarterly backup files stored in a bank safe deposit box.

## **DEACCESSIONS AND DISPOSITIONS**

The DOE-RL has a fiduciary responsibility to protect and preserve the collections. Deaccessioning, the act of permanently removing an object(s) from the collection, is an important procedure used only in exceptional circumstances. An object may be deaccessioned under one or more of the following circumstances:

- deterioration
- replacement of object with another in better condition or with a more complete provenance
- if the DOE-RL can no longer safely store the object
- if the collecting scope of the DOE-RL has changed
- in the interest of improving the collections

In considering the deaccessioning of objects from the collections, the Curator will make the recommendation to the DOE-RL FAO. CREHST will make recommendations for dispositions based on the following guidelines:

- The manner of disposition to be in the best interest of the DOE-RL, the public it serves, the public trust it represents and owning the collection, and the scholarly and scientific communities it represents.
- Material that is part of the historical, cultural or scientific heritage of Washington or of the Mid-Columbia Basin will remain within the state or the region respectively.
- Consideration will be given to placing the objects, through gifts, exchange, or sale, in another tax-exempt public institution wherein they may serve a valid purpose in research, education or exhibition.
- Consideration will be given to the objects usefulness for educational purposes in CREHST's teaching collections.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

- Missing or stolen items shall be deaccessioned after a three (3) year waiting period.

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

Catalogs and other Hanford Site collection records shall document the removal of objects from the collections and the conditions of their disposal.

- The accession records, the catalog records, and permanent files shall be marked deaccessioned.
- A final outgoing receipt shall be placed in the accession file.

In reply to responsible inquiry, CREHST will make available the identity and description of collection materials acquired or deaccessioned. All other information pertaining to the circumstances of acquisition, deaccession, and disposal will be adequately documented in the CREHST records.

## **INVENTORY OF COLLECTIONS**

Collections will be periodically inventoried. This process of locating and listing accessioned and borrowed items by location will be done initially as a complete (100%) inventory and yearly as a random sample. Any collections moved to new locations will be completely inventoried. Controlled property will be completely inventoried yearly. Any damaged, missing or stolen objects will be documented on the Artifact Report form and submitted in writing to DOE-RL within 5 days of discovery.

## **IV. LOANS**

The Hanford Site collection is loaned to CREHST by DOE-RL. With written concurrence of the DOE-RL FAO, CREHST may loan objects from the collection to qualified institutions to achieve maximum accessibility for research and exhibition. CREHST will adhere to its own loan policies in recommending such loans. These policies relate to care and conservation, transportation and packing, insurance, returns, period of loan, costs and cancellations, and use of the objects.

When making decisions on loan requests from other institutions, CREHST takes into account the condition and conservation needs of the objects requested, as well as the exhibit and research plans of CREHST. Issues to be considered when making or receiving loans are as follows:

- The condition of the object(s) and the ability to withstand the stress of transportation, handling, or changed environmental conditions.
- All outgoing loans are for specified periods of time and are documented and monitored according to established museum practice and procedures.
- All loans must be contracted through written loan agreements between the CREHST and its borrowers prior to receipt or shipment.

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

- If appropriate, written condition reports will be made for all loans leaving the Hanford Site collection.
- The loan agreement between CREHST and the lender will stipulate whether or not an incoming loan is insured by CREHST. This may depend upon the loan policy of the lending institution.
- If an outgoing loan is to be insured by the borrower, a Certificate of Insurance must be provided before the shipment or pick-up date.
- Borrowing institutions may be asked to provide CREHST with a standard facilities report if one is not already on file. Loans will be made to institutions that can provide a level of safety and security appropriate to objects being loaned.
- DOE-RL must provide insurance values for outgoing loans.

### **OUTGOING LOANS**

The following criteria apply to all loans made by CREHST to other institutions:

- The borrowers must be approved; loans are made only to qualified educational, or research institutions whose missions are in the public interest. Loans may not be made to individuals.
- All objects must remain in the condition in which they are received. They shall not be cleaned, repaired, retouched, treated, unfitted, remounted, reset, dissected, marked, copied (e.g., cast or replicated), or submitted to any examination or application which would tend to alter their condition except when specifically authorized by CREHST. Tags or other identification should not be removed without specific approval by the CREHST Curator.
- Damages, whether in transit or on the borrower's premises and regardless of who may be responsible therefore, shall be reported to CREHST immediately. No action is to be undertaken to correct the damage without CREHST's approval.
- The borrower may photograph object(s) for educational, catalog, record, or publicity purposes. Reproduction for sale is expressly forbidden except in the context of an exhibit catalog. CREHST must approve all matters relating to commercial reproduction. Paintings and drawings may not be removed from frames for photography. CREHST can furnish unframed photographs of these, provided advance notice is given.
- The borrower will undertake to provide protection from the hazards of fire, exposure to extreme or deteriorating light, extremes of temperature and relative humidity, pests, dirt, vandalism, theft, and mishandling or handling by unauthorized or inexperienced persons or by the public.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

- The borrower (except when exempted in writing) will insure the object(s) at the value stated by the DOE-RL, this insurance to be in force from the time the object(s) leaves the physical possession of CREHST until it is returned. This shall be an all-risk policy subject only to the standard exclusions. The borrower shall furnish a Certificate of Insurance no later than the scheduled delivery or pick-up date.
- The cost of insurance, special communications, security provisions, special packing, or any other incidental costs created in the loan will be paid by the borrower, unless waived by CREHST.
- When returning borrowed materials, they shall be packed in exactly the same manner as received, with the same cases, packages, pads, wrappings, and other furnishings. Any changes must be specifically authorized in advance. Borrowers will be billed for the cost of packing materials if objects are returned in other than the original container.
- Upon return, the objects are to be transported in the same manner as received and all costs for transportation connected with the loan will be paid by the borrower except in the case where other arrangements are made. Any change in mode of transportation must be cleared with CREHST before release to the carrier.
- All objects will be loaned for a specific time and, if requested, must be returned before that time limit expires. The borrower will receive a 30-day written notice and CREHST will try to provide assistance in securing a substitute object.
- When on display, all objects borrowed must be credited to the DOE-RL including any special wording as directed. Reproductions for publicity must also be credited.
- All loans must be approved by the CREHST Curator, the DOE-RL FAO and the borrowing institution.
- A signed copy of the Loan Agreement form must be in the possession of CREHST before any physical transfer of object(s) is complete.
- Objects or specimens are not to be used as "hands-on" teaching aids unless specifically approved on the loan form.
- Loans will be made for a specified time period as agreed upon and recorded on the loan document. To renew the loan, the borrower must request an extension in writing.
- Long-term loans shall be reviewed annually and, upon approval of the CREHST Curator, the DOE-RL FAO, and the authorized borrowing official, may be renewed.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

**V. ACCESS TO COLLECTIONS AND RECORDS**

**MUSEUM STAFF ACCESS**

Keys for storage spaces and exhibit cases access are available only to employees having direct responsibility for collections/archives and records. Issuing keys to these spaces is controlled by the use of signed hand receipts.

**DATABASE ACCESS**

Access to the collections database is by security codes with various levels. Only curatorial staff with collections responsibilities have levels of access to make additions and changes to records. Lower levels of access are set up for other staff, researchers, and the general public.

**RESEARCHER ACCESS**

CREHST makes its collections and records accessible to qualified professionals for research contingent upon staff availability and consistent with professional museum and archival practices. Students may use a collection when under the direction of a qualified professional. Unescorted researchers are not allowed in collections storage areas. A sign-in log is used to record the names and addresses of all visitors.

The primary considerations for access to items for examination are based upon condition and significance of the item(s) and availability of other sources: copies, duplicates, photographs, or other types of information, e.g., written descriptions. Costs associated with research (such as copies) will be billed to the researcher.

Collections are available to researchers by appointment with the curator, with the following exceptions:

- specimens currently on exhibit
- specimens under current research
- unprocessed specimens
- specimens deemed too fragile for handling

Procedures for access to the collections and records are:

- Individual(s) seeking access to the collections and records must seek approval of the CREHST Curator in writing. Information is sought on the purpose/need for access and the anticipated significance of the research.
- Authorization will be given or denied by the CREHST Curator.

## **DRAFT: HANFORD CURATION PLAN, APRIL 2000**

- Objects and records are normally accessible only during normal working hours and only if the visitor is accompanied by an authorized member of the staff. Every effort will be made to accommodate all reasonable requests.
- All persons granted access will be instructed by staff in the proper procedures.
- CREHST will comply with any reasonable request to duplicate records including photographs, manuals, catalogs, maps, and other data for a fee based on the number of or type of items. Requests for duplication must be submitted in writing to the Curator.

Copies of any publications resulting from Hanford Site collection research will be provided to the FAO.

### **PHOTOGRAPHY**

All individuals wishing to photograph collection objects must seek approval from the Curator in writing. The use of photographs of Hanford Site objects in publications or commercial activities is subject to restrictions and requires written approval by the CREHST Curator. Published photographs must be credited to the DOE-RL including any special wording, as directed.

Generally it is permissible to photograph exhibits with a hand-held camera. Visitors should check as some exhibits are closed to photography. Photographers wishing to shoot exhibits with a tripod must check with the administration and provide information about the types of equipment to be used, and intended use of the photographs.

## **VI. COLLECTIONS CARE AND PROTECTION**

### **PREVENTIVE CONSERVATION**

Preventive conservation (also called preventive care) is the planned management of a collection to prevent deterioration, exploitation, destruction, or neglect. Conservation and maintenance schedules must reflect public access requirements, research and exhibition needs, funding, and staff resources. As artifacts are registered, exhibited, stored, or evaluated for loans, the need for conservation must be assessed for both preventative conservation and for upkeep and stabilization. Individual object needs are documented with condition reports.

### **COLLECTION HANDLING AND STORAGE**

The Curator will establish the handling requirements for collections within accepted museum parameters. All staff and volunteers handling collections will receive training in collection handling. Artifact storage will be appropriate to the collections to stabilize artifacts and prevent further deterioration.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

**ENVIRONMENTAL MONITORING**

Levels of relative humidity and temperature in exhibit and storage spaces are recorded on a daily basis to provide an accurate and complete record of changes throughout the year. These are reviewed monthly. A log of exceptional occurrences such as unusual exterior climatic conditions, a leaky roof, re-calibration of equipment or an unusual visitation pattern, is maintained to help explain any variations in relative humidity and temperatures. Relative humidity and temperature records and the log are retained in the collection's permanent files.

An integrated pest management program is in place that includes monitoring throughout the DOE-RL and storage areas. Activity records for critical species are kept permanently.

**HOUSEKEEPING**

Collections exhibit and storage areas are vacuumed regularly. A separate schedule is established for the cleaning needs of each exhibit and storage area. Objects in storage will be protected from dust by closed containers, cabinets or dust covers. See Appendix A.

**DRAFT: HANFORD CURATION PLAN, APRIL 2000**

**Appendix A**

**HOUSEKEEPING SCHEDULES**

The following schedules may be changed to reflect changing needs in the spaces. The goal is to achieve a balance between more frequent cleaning (for pest population control) and less frequent cleaning (to decrease wear and tear on artifacts).

**CREHST PERMANENT EXHIBITS**

- Shrub-steppe-- Vacuum the "stream" monthly. Vacuum taxidermy live mounts quarterly.
- 1920's Porch--Dust monthly. Vacuum floor quarterly.
- Trailer Camp--Dust and vacuum quarterly
- Engineering Office--Dust monthly. Vacuum quarterly
- Tank Models-- Vacuum monthly.
- Hanford models--Dust monthly.
- Geology exhibit-- Vacuum monthly.
- Mammoth exhibit-- Vacuum quarterly.
- Columbia River Fish--Dust weekly

**CREHST TEMPORARY EXHIBITS**

Establish protocol on a case-by-case basis.

**CREHST ARTIFACT STORAGE AREA**

Container exteriors and dust covers are cleaned quarterly (or more frequently depending on conditions). Floor is vacuumed monthly.

**ENERGY NORTHWEST BUILDING 55  
ARTIFACT STORAGE AREA**

Container exteriors and dust covers are cleaned quarterly (or more frequently depending on conditions). Interior window casings are vacuumed quarterly. Floor is vacuumed monthly; bathroom is cleaned monthly.

The document identified below will not be stored in ADAMS due to copyright restrictions.

Rivers of North America, A.C. Benke and C.E. Cushing, Editors, Elsevier Academic Press, Burlington, MA, and London, U.K., pp. 622-632 (Benke and Cushing 2005).

## Pacific Northwest National Laboratory

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

May 13, 2002

*No Historic Properties Identified  
7 Day "Emergency Review" Required*

Ron Ingram  
Fluor Hanford, S4-21  
Richland, Washington 99352

Subject: Cultural Resources Review for Security Upgrades/Easement to Energy Northwest (HCRC# 2002-600-021)

Dear Mr. Ingram,

In response to your request received May 8, 2002, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project located in the 600 Area of the Hanford Site adjacent to and in the Energy Northwest (ENW) footprint. DOE is granting ENW an easement on non-ENW leased lands for a 50 feet Right of Way Corridor measuring approximately 2 miles in length so ENW can comply with a recent Nuclear Regulatory Committee (NRC) Order requiring the Columbia Generating Station to evaluate for and identify where security barriers should be installed to address the risk of truck bombs reaching the reactor. RL has elevated this project to emergency status and is requiring ENW to expedite the installation of Jersey Barriers outside of the existing lease area. Security roads and barriers will be installed. Minimal excavation is required as it is anticipated grading will be conducted to level for placement. The road will be graded on the inside perimeter of the barriers.

### Notifications and Public Involvement

On May 10, 2002:

Per 36 CFR 800, the State Historic Preservation Officer (SHPO) and Tribes were notified of this cultural resources review request and the Area of Project Effect (APE). The Area of Potential Effect is defined as the project area delineated in the attached map.

- Per 34 Stat. 225, 16 U.S.C. 431, the United States Fish and Wildlife Service (USFWS) were notified of this request for cultural resource review.

**Results of the Identification of Historic Properties Survey (Literature and Records Review)**  
A records and literature search conducted by HCRL staff on May 9, 2002, revealed that the project area has not been surveyed for cultural resources. A review of cultural resources

**RECEIVED**

MAY 15 2002

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352      DOE-RL/RLCC  
Telephone (509) 376-4626 ■ Email ellen.prendergast@pnl.gov ■ Fax (509) 376-2210

Ron Ingram  
May 13, 2002  
Page 2

surveys conducted within 1 kilometer (KM) of the project area indicated that one survey (HCRC#87-400-002) located one prehistoric isolate (HI-87-018). The 1881 General Land Office maps were also reviewed. No structures or roads appear within the project area. Additionally, the project area is located between 3 - 3.5 miles away from the Columbia River, away from the 400 meter cultural sensitivity zone. On May 13, 2002, HCRL staff conducted a 100% cultural resources survey of the APE. No cultural resources were located.

**Findings and Actions Required**

It is the finding of HCRL that this project will not affect historic properties, as no cultural resources were located within the APE.

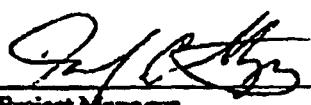
RL's Hanford Cultural Resources Program will submit official documentation to the SHPO, Tribes and interested parties of our findings. Pursuant to 36CFR Section 800.12 b (2) affording SHPO, ACHP, and tribes 7 days to comment, these parties have 7 days to respond in receipt of this letter. No project activities can begin until the SHPO has concurred with our findings stated above.

The workers must be directed to watch for cultural materials (e.g., historic artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL historian has been notified to assess the significance of the find, and, if necessary, arrange for mitigation of the impacts to the find. HCRL must be notified if any changes to project location or scope are anticipated. This project is a Class 5 Case Involving Undisturbed Ground. If you have any questions, please call me at 376-4626. Please use the HCRC# above for any future.

Very truly yours,



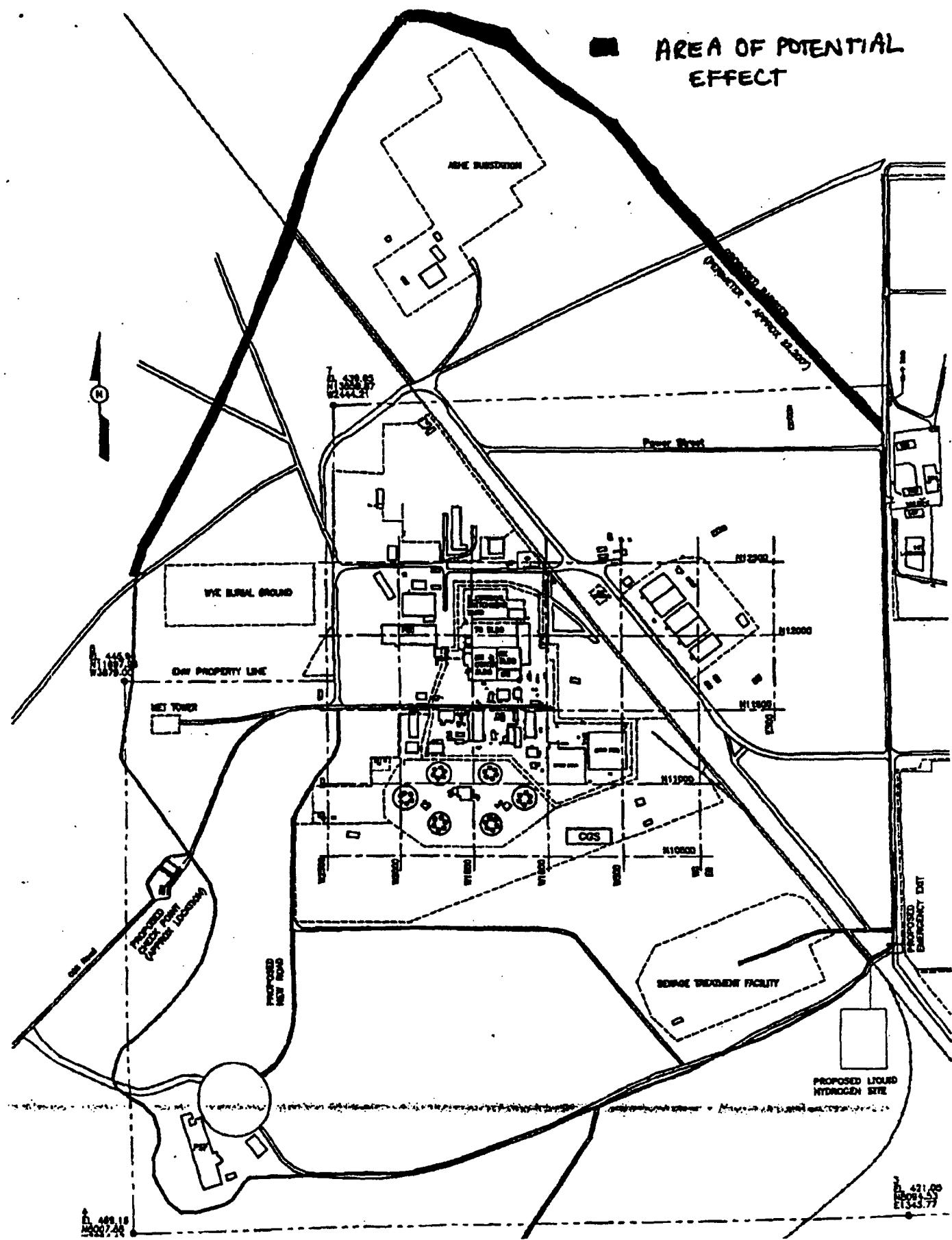
Ellen Prendergast, M. A.  
Research Scientist/Anthropologist  
Cultural Resources Project

Concurrence:   
D. C. Stapp, Project Manager  
Cultural Resources Project

Review and Concurrence:   
A. L. Rodriguez  
DOE, Richland Operations Office, Hanford Cultural Resources Program

[REDACTED]  
Environmental Portal, A3-01  
K.R. Welsch, N1-25  
File/LB

■ AREA OF POTENTIAL  
EFFECT



---

**From:** Prendergast-Kennedy, Ellen L [mailto:[Ellen.Prendergast@pnl.gov](mailto:Ellen.Prendergast@pnl.gov)]  
**Sent:** Wednesday, July 16, 2008 10:49 AM  
**To:** Urban, Scott J.  
**Cc:** Prendergast-Kennedy, Ellen L; Rodriguez, Annabelle L; Hathaway, H B (Boyd); Dage, Chantry  
**Subject:** FW: Notice to Proceed: Columbia Generating Station access road improvements along existing disturbed road shoulder and fire-break at Energy Northwest (NPCE#2008-600-026)

Mr. Urban:

Thank you for contacting our office regarding your project. The project area is located on lands owned by US DOE, but under easement with Energy Northwest, 600 Area, Hanford Site. The project activity consists of completing an upgrade making the current 2 lane access road a 3 lane road. The project will take place in the August/September time frame. The depth of excavation will be 1' to 2'. The activity will widen the existing road an additional 25 feet. The length of road to be widened will not exceed 5000 feet.

**Justification for the CGS access road upgrade.**

- Safety Top 10 List item from Employees (for Columbia Generating station)
- Current Access road lanes are 10 ft wide and current county standard is 12 ft
- Current road does not have adequate shoulders (no hardened shoulders, incase of an accident there is no area to pull off the road)
- This project would widen the lanes, add a 3rd lane and include 4 ft shoulders on each side. (NRC mandates at least 2 lanes of egress incase of an emergency)
- Would help alleviate traffic back up on Route 4 during outages (during the last refuel outage traffic was back up as far as FFTF, The potential of a serious accident on route 4)

Per 36 CFR Part 800, Subpart B, 800.3.a, the DOE-RL Cultural Resources Program has determined that this project is not the type of undertaking with potential to cause effects to historic properties and no further actions are required. The finding is based on the following:

- Field visit on 6/27/08 verified that the area is extensively disturbed.
- Literature review and field inspection indicate that there are no known cultural resources in the area.

All workers should be directed to watch for cultural materials (e.g. bones, artifacts) during all work activities. If any are encountered (in this case disturbed), work in the vicinity of the discovery must stop until an HCRP archaeologist has been notified,

assessed the significance of the find, and, if necessary arranged for mitigation of the impacts to the find. Please contact Doug McFarland or Ellen Prendergast-Kennedy, HCRP, if any changes to project location or scope are anticipated.

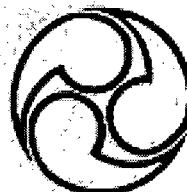
For tracking purposes, NPCE# 2008-600-026 has been assigned to your request.

Again, thank you for contacting us regarding your project.

**DRAFT**

Supplement to the  
**ENVIRONMENTAL STATEMENT**  
Fiscal Year 1975 Proposed Program

**Ashe-Hanford  
500 KV Transmission Line**



**U. S. DEPARTMENT OF INTERIOR  
BONNEVILLE POWER ADMINISTRATION**

#### NOTE TO REVIEWERS:

This supplement is one of a series prepared by BPA on various facets of its construction and maintenance activities. Each of these statements must be reviewed and used in relation to the others. For convenience the various components and their relationship are outlined in the chart below:

#### Environmental Statements and Supplements on BPA Construction and Maintenance Activities

General Construction and Maintenance Program Statement

Describes BPA's overall construction and maintenance program in general, the Pacific Northwest environment in which it operates, and the environmental impacts that typically occur from transmission line construction and maintenance activities. Provides a framework for evaluation of specific proposals. Draft was issued for comments on January 16, 1974.

Fiscal Year 1974 Program Statement

Describes the cumulative impact on the Northwest environment of all of the specific new transmission facilities and maintenance activities proposed in BPA's Annual Appropriation Request. These statements are prepared annually as part of the appropriations process. The Fiscal Year 1974 Final Environmental Statement with attached supplements was filed with the CEQ on April 3, 1973.

Facility Planning Supplement  
(Phase I)

Bound Together

Identifies the need for a specific new transmission facility proposed as part of the Annual Appropriation Request, and outlines in preliminary form the environment in the area of the proposed new facility.

Facility Location Supplement  
(Phases II & III)

Draft to be issued separately to facilitate review. Final will be bound with Program Statement.

Expands the Facility Planning Supplement to include alternative locations for the proposed new facility and environmental impacts associated with each alternative location. This supplement is prepared after public and agency review of Phase I Statement has been completed and reconnaissance studies have been made.

THIS  
DOCUMENT

DEPARTMENT OF THE INTERIOR  
(DES 74-25)

DRAFT SUPPLEMENT  
to the  
ENVIRONMENTAL STATEMENT  
Fiscal Year 1975 Proposed Program

FACILITY LOCATION EVALUATION  
for  
HANFORD NO. 2 INTEGRATING TRANSMISSION  
Ashe-Hanford 500-kV Transmission Line  
Study Area 74-3

Prepared by  
Bonneville Power Administration  
Department of the Interior  
(March 8, 1974)

*James L. Rose*  
Administrator

P BPA c1 DE  
BPA720 1975  
OLC  
Draft supplement to the  
environmental statement fiscal  
United States, Bonneville Power

**OFFICIAL USE ONLY**  
Sensitive Information  
National Critical Infrastructure Security  
No Unauthorized Sharing/Duplications

**Summary**

( X ) Draft

( ) Final

Supplement

Department of the Interior, Bonneville Power Administration

1. Type of Action: ( ) Administrative ( X ) Legislative

2. Brief description of action: Proposed construction of a 17.8-mile 500-kV single-circuit line running from BPA's Ashe Substation Site near the Hanford No. 2 nuclear powerplant site to the existing Hanford Switching Station. This facility would be located entirely within the Hanford Reservation of the Atomic Energy Commission north of the City of Richland in Benton County, Washington.

3. State and county involved: Benton County, Washington.

4. Summary of environmental impacts and adverse environmental effects: Construction of the proposed transmission line would require a total right-of-way easement of approximately 612 acres through grassland. That area actually occupied by the tower footings would be removed from rangeland uses. Disturbance of game in the immediate vicinity of the route will occur during construction as will some soil erosion primarily during and immediately after construction, siltation in nearby streams, disturbance of nearby residents from noise and dust during construction, and some degradation of AM reception immediately adjacent to the right-of-way.

5. Alternatives considered: (1) Nonconstruction, (2) an 18.8-mile alternate location to the proposed route. General alternatives to all transmission construction including alternative methods of electrical transmission and generation, transmission construction, disposal of slash and limiting the consumption of electricity are discussed in the General Construction and Maintenance Program Environmental Statement and the Fiscal Year 1975 Program Environmental Statement which this Facility Location Evaluation supplements.

6. Agencies commenting on Draft Environmental Statement: U.S. Department of the Interior: Bureau of Sport Fisheries and Wildlife; Bureau of Mines; Bureau of Indian Affairs; Bureau of Land Management; Bureau of Outdoor Recreation; National Park Service; Geological Survey; and Bureau of Reclamation; U.S. Department of Agriculture: Forest Service and Soil Conservation Service; U.S. Department of Housing and Urban Development; U.S. Environmental Protection Agency; U.S. Atomic Energy Commission; Federal Power Commission; Federal Aviation Commission; Advisory Council on Historic Preservation; and U.S. Department of the Army. (See pages 27 and 28 for complete list.)

7. Date made available to the Council on Environmental Quality and the Public:

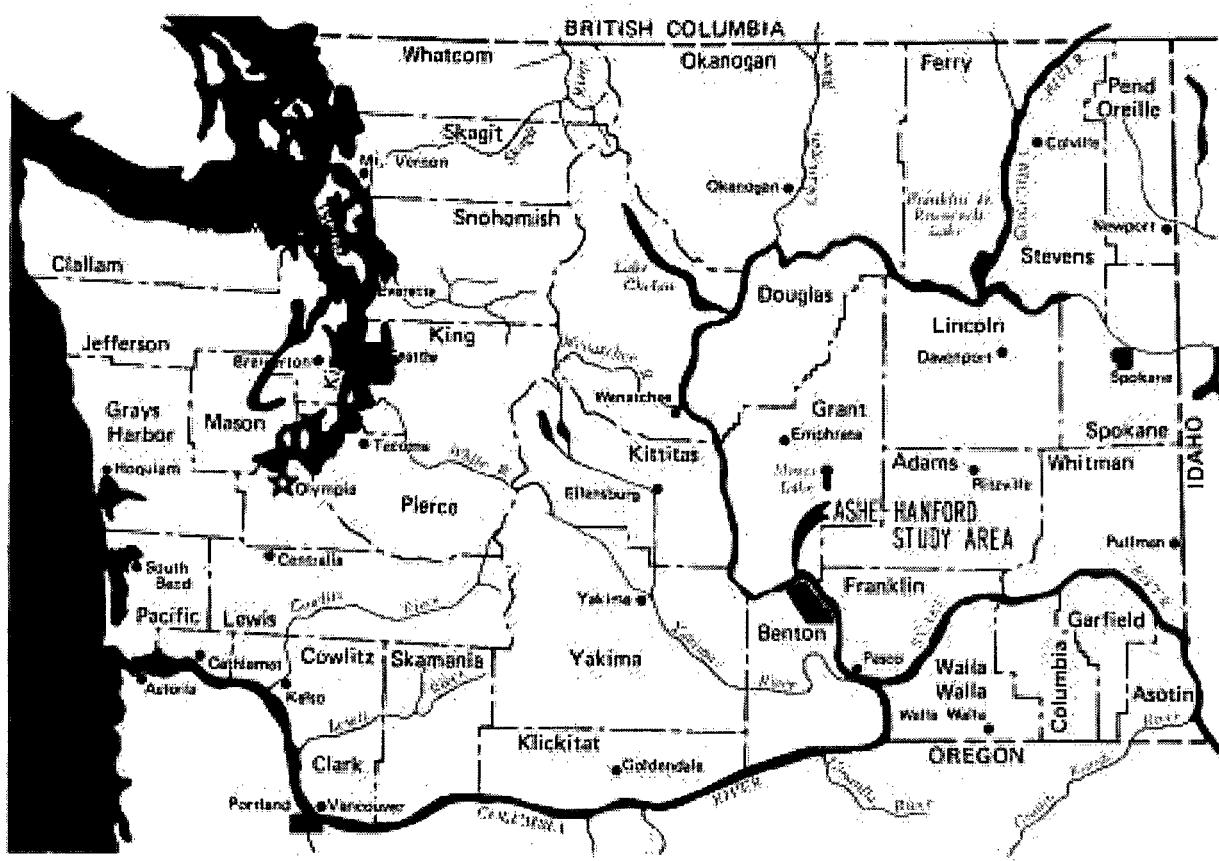
Draft Statement: March 8, 1974

Final Statement:

SUPPLEMENT

TABLE OF CONTENTS

	Page
SYSTEM REQUIREMENTS . . . . .	1
DESCRIPTION OF THE EXISTING ENVIRONMENT . . . . .	2
GENERAL DESCRIPTION OF THE PROPOSED AND ALTERNATE ROUTES . . . . .	8
DESCRIPTION OF PROPOSAL (ROUTE A) AND ITS IMPACTS . . . . .	9
DESCRIPTION OF THE ALTERNATE (ROUTE B) AND ITS IMPACTS . . . . .	17
UNAVOIDABLE ADVERSE IMPACTS . . . . .	25
RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY . . . . .	25
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES . . . . .	26
CONSULTATION AND COORDINATION WITH OTHERS . . . . .	27



## SYSTEM REQUIREMENTS

## INTRODUCTION

Washington Public Power Supply System (WPPSS), in agreement with Bonneville Power Administration and consumer-owned utilities, is constructing a 1,100-MW nuclear power plant (Hanford No. 2). Hanford No. 2 is within the Hanford Reservation of the Atomic Energy Commission, 12 miles north of the city of Richland. This plant is the second nuclear plant to be constructed under the 10-year Hydro-Thermal power program for the Pacific Northwest. Integration of power from nuclear plants into public and private electrical power systems is outlined in an agreement of 105 publicly owned systems, four private utilities, and the Bonneville Power Administration. Under this program, BPA provides the high-voltage transmission facilities to integrate thermal plants into the electrical transmission network.

BPA will provide a single 500-kV transmission line which will integrate the entire output of Hanford No. 2 into BPA's 500-kV system. The 500-kV line will connect a new BPA substation, named "Howard J. Ashe" at Hanford No. 2, to BPA's existing Hanford Switching Station, 17 miles northwest of Hanford No. 2.

The proposed 500-kV line will be of high capacity, for it is in the middle of a developing nuclear complex. Presently three nuclear plants are either scheduled or under construction in the Hanford area. The proposed line will initially integrate power from Hanford No. 2, but eventually will become part of a strong north-south transmission network integrating possible future nuclear plants.

Deferment or nonconstruction of the 500-kV transmission line and the Ashe Substation would postpone operation of the Hanford No. 2 Nuclear Generating Plant. A delay of this plant would result in deficiencies of power generation necessary to serve the Northwest's electrical energy requirements.

## STATUS

Ground and air reconnaissance were made during January, February, and March of 1973.

Surveying began in March and ended in June 1973. Commencement of construction is tentatively scheduled to begin in October 1976, with energization scheduled for April 1977.

This facility was covered as a Phase I Project, Study Area 3, under the title "Hanford No. 2 Integration," in BPA's Fiscal Year 1974 Environmental Statement. A public meeting was held in the Federal Building, Richland, Washington, on November 14, 1972.

The following agency was contacted during the reconnaissance phase:

Atomic Energy Commission, Richland, Washington

## DESCRIPTION OF THE EXISTING ENVIRONMENT

### PHYSICAL ENVIRONMENT

The study area, in the south central part of the State of Washington, is entirely within the Hanford Reservation of the Atomic Energy Commission in Benton County. The southern border is 12 miles north of the city center of Richland. The 93,000-acre study area is rectangular in shape (approximately 7 miles east to west and 20 miles north to south).

Study Area boundaries for this facility were established to: (1) include the terminal points of the line, (2) accommodate all viable alternate routes for the facility, (3) recognize restricted public use areas and hazardous areas such as the Cable Mountain explosive test area, and (4) recognize physical barriers such as the Columbia River and Sand Dunes areas.

The following information supplements that provided on the existing environment in BPA's Fiscal Year 1974 Environmental Statement. It includes detailed information provided by public review as well as additional reconnaissance and environmental studies.

#### Climate

The study area is within a basin. The basin is the lowest and driest of eastern Washington, producing a mild continental steppe climate with a wide seasonal range of temperatures. Average precipitation is approximately 6 inches per year, most of which falls as rain during the winter months. Snowfall is from 10 to 35 inches of which ground accumulation seldom exceeds 8 to 12 inches. The snow can remain on the ground from a few days to 2 months between mid-December and the last part of February. Summer precipitation is usually associated with thunderstorms and can include a few hail storms. It is not unusual for 4 to 6 weeks to pass without measurable rainfall.

### CLIMATE STATISTICS

	<u>Jan. Mean</u>	<u>July Mean</u>	<u>Annual Mean</u>
Temperature	29°	76°	53°
Precipitation	0.9**	0.15**	6**
Snowfall	5.3**	0**	13**
Cloud Cover (Tenths per day)	7.6	2.5	5.8
Precipitation of 0.01** or more:	24 days		
Snow, sleet 1.0** or more:	5 days		
Thunderstorms:		11 days (with)	
Growing season:		185 days; Mean from mid April to mid-October	

### Geology

The study area is within the Pasco Basin at the extreme southwest edge of the "Channeled Scablands" of the Columbia Plateau. The plateau is underlain by a thick succession of lava flows known collectively as the Columbia River basalts. A number of times during the Ice Age, glaciers dammed the Columbia River drainage north and east of Spokane and the study area, and extensive lakes formed in the river valleys. Periodically, one of the ice dams would be breached. Vast volumes of water would then rampage down the Columbia River valley, spill over the rim of the plateau, and flow southward over the plateau surface. In this manner, the plateau surface was scoured by numerous flood-water channels, creating the channeled scablands erosion landscape that we see today. At places the flood waters deposited sediment rather than erode. A notable example of this is the Gable Mountain gravel bar and gravel-filled channel.

The present geology within the study area consists mostly of glacial river gravel deposits, except for Gable Mountain, in the northern part, and sand dunes located in the southern part. The Gable Mountain gravel bar is somewhat obscured by sand dunes. In time, however, the gravel bar should become exposed as the dunes slowly migrate eastward.

The sand dunes are formed of wind-blown sand derived from glacial outwash and some recent alluvium. Although the majority of these dunes have been stabilized by vegetation, several large ones are still active. These dunes, up to 30 feet high, comprise a complex system including common barchans (typical dunes of most arid or semi-arid deserts), longitudinal dunes and parabolic dunes. Migration of the active dunes is slow, probably less than 1 foot per year.

### Terrain

The study area is within an almost plain-like region of gentle rolling hills, except Gable Mountain located near the center of the study area. The elevations range from 350 to 400 feet at the banks of the Columbia River, to 500 feet at the western boundary of the study area and from 500 feet at the base of Gable Mountain to 1,112 feet at its peak. Gable Mountain is approximately 6 miles long and 1 mile wide.

### Soils

Silt and sandy loam, with coarse fragments, the predominant soil in the area, is derived from glacial materials. This soil has good drainage with an average profile depth of 20-60 inches.

The entire area is subjected to wind erosion, especially during the spring when strong winds create sandstorms. Occasionally, water from heavy rains will erode the steeper slopes.

Soil capabilities are best suited to range management, and the growing of irrigated and limited dry-land crops. Major soil problems include erosion, sandy to gravelly profile and lack of water.

### Water

The area, due to the small amount of precipitation and high porosity of the soil, has no year-round flowing streams. The area is drained by the Columbia River through groundwater flows. The water table varies from zero feet below the surface at the Columbia River to 100 feet below the surface at the western boundary of the study area. Three small lakes are located southwest of Gable Mountain.

The quality of this portion of the Columbia River's water is classified as "Class A," excellent under the State of Washington Water Quality Classification System.

### LAND USE

The study area is entirely within the Atomic Energy Commission's Hanford Reservation. The reservation has not been open to the public since 1943 when the Manhattan District of the Corps of Engineers selected Hanford as an area permitting nuclear development. The area principally is used for the AEC's needs, such as nuclear reactor sites, nuclear fuel manufacturing, fuel processing, waste processing, and research facilities. Significant amounts of lands within the study area are set aside for ecological studies, such as isotopic uptake, dunes and vegetation recovery.

Although the Hanford Reservation is a Federal Reservation, county and state laws do apply to the project area. The reservation is denoted an "Unclassified District" by the Benton County Planning Commission as outlined in their "Comprehensive Plan of Benton County, Washington" prepared by the Benton Regional Planning Commission dated August 1966. There are 14 types of restrictions on land usage in an "Unclassified District," none of which pertain to an electric power generation plant and its electrical facilities such as substations and transmission lines.

The transportation system within the reservation consists of approximately 270 miles of paved two-lane and four-lane primary roads, 175 miles of secondary gravel roads, 225 miles of gravel and unimproved roads, State Highway 240, and an AEC-owned railroad system with over 150 miles of track.

Two to three thousand ton capacity barges can be operated at almost any point along the Columbia River in the reservation.

## NATURAL AND CULTURAL RESOURCES

### Historical and Archeological Sites

Wanapam Indians originally occupied the Columbia River banks between Priest Rapids and Pasco, Washington. Their main village was located at Priest Rapids, although archeological evidence points to other important village sites. Several areas were occupied seasonally by the Wanapum people as during salmon runs. The last Wanapum inhabited the Hanford areas in 1943 when the Hanford Reservation was established. Today, Wanapam Indians live either at Priest Rapids or on the Yakima Indian Reservation.

Before 1943, the Hanford Area was sparsely populated with a few small scattered irrigated farm plots and orchards. In January 1943, a decision to use the Hanford Reservation for nuclear development was made by the Manhattan District of the Corps of Engineers. Three towns were included in this reservation: Richland, White Bluffs and Hanford. White Bluffs was evacuated by 1945. Hanford became a wartime construction camp and in a few months increased in population from its original 400 to 51,000. In 1945 Hanford was completely evacuated. Richland, becoming the administrative center of the Hanford project, was taken over by the Federal Government. Richland expanded from 250 to over 25,000. In December 1958, Richland became a first class city, entirely converted from government to private ownership.

The Hanford Project was originally constructed to produce plutonium for nuclear weapons. By 1964, nine plutonium production reactors had been built. By January 1964, plutonium production was cut back and the older reactors were shut down.

Today, Hanford's new mission is "Peaceful Energy." It is becoming a nuclear park where commercial nuclear facilities can be located. In 1964, the dual purpose N-Reactor was completed. The reactor produces plutonium and with its by-product, heat, produces enough steam to turn two steam generators, each capable of producing more than 400 MW. As part of the Pacific Northwest Utility Industries Hydro-Thermal Program, the Washington Public Power Supply System (WPPSS) is building a 1,100 MW nuclear electric generating plant, Hanford No. 2, on leased AEC reservation land. Hanford No. 2 is scheduled to be in operation by September 1977.

Although the study area has an unusual history, it contains no property listed in the National Register of Historic Places, as published in the Federal Register, Volume 38, Number 39, dated February 28, 1973, or in subsequent monthly addenda.

The archeology of the Hanford area is largely unknown. An extensive excavation was conducted at Wahluke in 1926-1927 by the U.S. National Museum. Since then, the only other archeological research consisted of

preliminary survey and test programs along the Columbia River in 1968. Because of the lack of archeological research in the area, any archeological resources would be considerably important and would warrant further investigation.

The following archeological sites within the study area have been identified:

<u>Location</u>	<u>Type of Site</u>
NW1/4, Sec. 12, T14N, R26E, WM	ethnographic
SW1/4 of NE1/4, Sec. 22, T13N, R26E	open camp
NE1/4 of NE1/4, Sec. 4, T13N, R27E	open camp
At Hanford No. 1	open camp
At Hanford No. 1	housepit structures
Near Hanford No. 1	housepits
Gable Mountain	one of the principle places where Indian boys and girls were sent on their spirit quests
Shifting Sand Dunes	numerous small camp sites

#### Recreation

Hanford Reservation is entirely closed to the general public. Some limited visitor and information facilities are provided under the security limitations of the AEC. It is not anticipated public recreation facilities will be provided within the study area.

#### Scenic

Except for special public tours which are under constant surveillance of the AEC's personnel, the general public is not allowed on the Hanford Reservation nor the Columbia River within reservation boundaries.

The study area does not contain any unusual scenic resource with the possible exception of Gable Mountain and the Columbia River.

Gable Mountain stands as a giant basaltic rock formation above the otherwise flat to slightly rolling terrain of the study area. Gable Mountain can be viewed from almost any point on the Hanford Reservation and surrounding areas.

The scenic beauty of the Columbia River arises primarily from the experience of viewing expansive areas of flat topography and similar vegetative cover. The river provides a refreshing contrast. For the full impact of this feature, one should come upon it after a period of monotonous travel through

portions of the study area and be surprised by the presence of a major body of water bordered by a thin band of lush vegetation within a desert-like area.

#### Wildlife

Wildlife in the area are generally those species associated with grass and brushland habitats. In addition, the Columbia River provides for an abundance of aquatic species.

The Columbia River supports one of the most important anadromous fisheries in the West. The section of the river above Richland contains one of the most extensive natural spawning habitats remaining on the river. Thousands of chinook salmon and steelhead spawn there each year.

Large numbers of waterfowl also use the Columbia, and some of the last natural nesting habitat remaining on the river is found above Richland. The islands in this stretch of the river are especially important to approximately 200 pairs of Canada geese, and 6,000 pairs of gulls. Mule deer inhabit the area, however, because of a lack of cover, densities are low with only about 300 to 400 deer believed to reside on the entire Hanford Reservation.

Few species of birds can nest in the upland vegetation. Most abundant are the meadowlark, horned lark, and mourning dove. Other less abundant species include the sage sparrow, loggerhead shrike, longbilled curlew, chukar partridge, and raptorial birds (Swainson's hawk, sparrow hawk, marsh hawk, golden eagle, and horned owl).

Sage grouse, although few in number, have been able to survive on the reservation due to the presence of exclusion areas and the lack of hunting.

The following threatened wildlife species may at times occur within the study region although their exact ranges are not known.

<u>Species</u>	<u>Federal Status</u>
Ferruginous hawk ( <i>Buteo regalis</i> )	Undetermined
American osprey ( <i>Pandion haliaetus carolinensis</i> )	Undetermined
Prairie falcon ( <i>Falco sparverius</i> )	Threatened
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	Endangered

#### Vegetation

Upland vegetation consists mostly of cheatgrass with lesser amounts of Sandberg bluegrass, tansy mustard, tumble mustard, tumbleweed, rabbitbrush, and

sagebrush. When the vegetative shrub cover is removed or disturbed, cheat-grass can be expected to invade the land, carrying the dominant plant cover while maintaining itself for at least 30 years.

Riparian vegetation along the Columbia River consists of only a thin band. In some places this amounts to only a few yards of shrub willows, sedges, rushes and a relatively lush mixture of grasses and herbs. A few exotic trees planted by man along with some native cottonwood trees are scattered along the shore. These exotic trees are not capable of reproducing from seeds.

Riparian and gravel bar plant life have been affected by nonseasonal fluctuation of the Columbia River's water level by release of water from upstream dams.

The temporary vegetation recovery study areas near Hanford No. 2 are under investigation for grass and sagebrush regrowth. Approximately 19,000 acres of its vegetative cover was burned in July 1970.

#### Social and Economic Characteristics

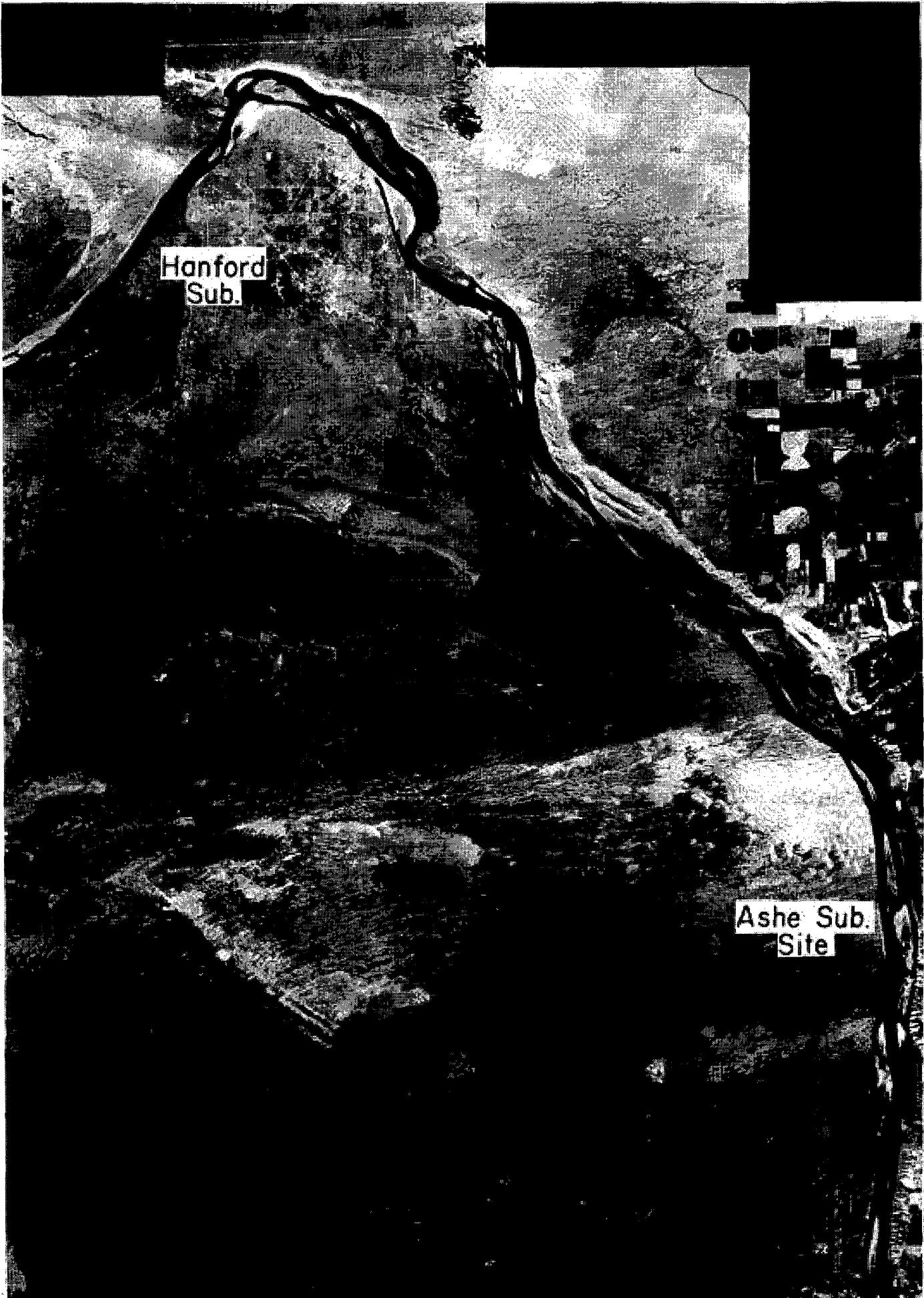
Although the public is not allowed on the reservation, it does provide jobs for many people, most of whom live in nearby Tri-Cities.

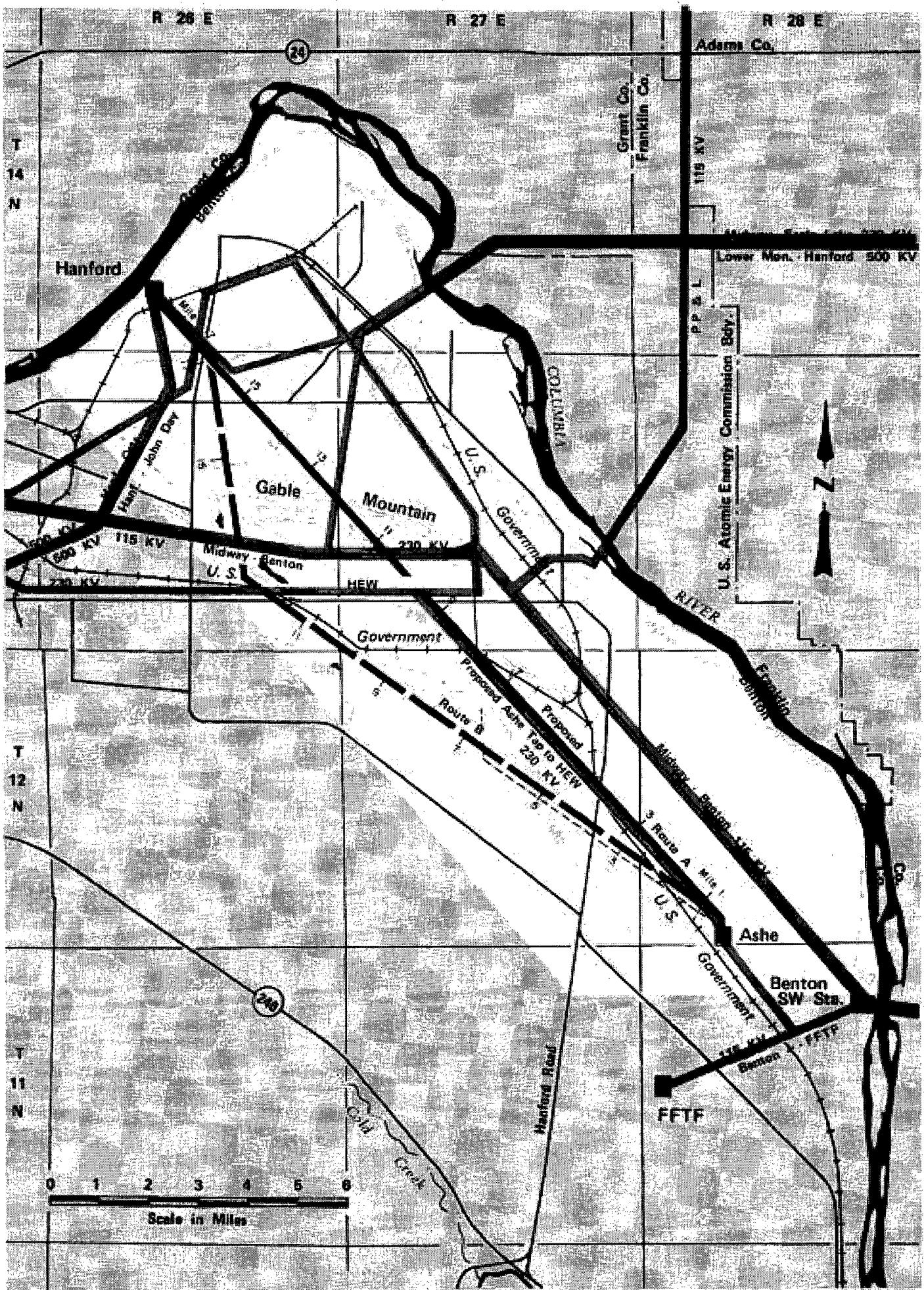
As new nuclear projects such as Hanford No. 2 and the Fast Flux Test Facility are built and become operational many new jobs and much money will be provided to spur the economy of the Tri-Cities. For example, the estimated cost of Hanford No. 2 is in excess of \$400,000,000. Peak employment at Hanford No. 2 will be 900 persons during the construction period and approximately 100 on a permanent basis.

#### GENERAL DESCRIPTION OF THE PROPOSED AND ALTERNATE ROUTES

Basic considerations in identifying the routing for the Ashe-Hanford line are:

1. Availability of corridor width to accommodate additional parallel circuits,
2. Avoidance of physical barriers,
3. Compatibility with testing activities in the explosive test area,
4. Environmental impact considerations, and
5. Economic costs.





Two alternative routes were identified and considered. Route A, the proposed route, is almost a straight-line corridor between Ashe and Hanford passing through the Explosive Testing Area. Alternative Route B is longer and therefore more costly to use than Route A. It avoids the Explosive Test Area.

We are not aware of other viable alternate routes which are practical and competitive from either environmental or economic points of view.

The proposed Ashe-Hanford 500-kV line corridor is located such that additional facilities may be constructed parallel to it as future needs dictate. A new 230-kV line which will interconnect Ashe with the existing 230-kV facilities will parallel the 500-kV line for several miles out of Ashe. The 230-kV line is discussed in the "Richland Area Service" Facility Evaluation Supplement to the Fiscal Year 1975 Environmental Statement.

#### Proposed Route A

The proposed route goes directly from the proposed Ashe Substation Site over Gable Mountain, through the Explosive Testing Area to the existing Hanford Switching Station, a total of 17.8 miles.

#### Alternate Route B

Alternate route B proceeds from the Ashe Substation Site to the western extreme of Gable Mountain and across the Explosive Testing Area, to the Hanford Switching Station for a total of 18.8 miles.

### D E S C R I P T I O N   O F   T H E   P R O P O S A L (R O U T E   A)   A N D   I T S   I M P A C T S

The proposed line has been separated into three sections to discuss the associated impacts and requirements.

#### Location

##### Section I

The 17.8-mile route A begins at BPA's Ashe Substation Site near the Hanford No. 2 nuclear powerplant site.

It proceeds northwesterly for 4.6 miles. It then turns west at a slight angle and continues northwest for another 3.1 miles to where it crosses the existing HEW No. 3, 230-kV line.

This first 7.7 miles will be located 820 feet east of and parallel to a proposed new steel structure, 230-kV line, Ashe Tap to AEC's HEW No. 3 line. (See also the "Richland Area Service" Facility Evaluation Supplement to the BPA 1975 Fiscal Year Environmental Statement.)

##### Section II

The proposed route will continue for 3.4 miles to an angle point on Gable Mountain where it then turns east at a slight angle to continue northwest for 4.5 miles to point where it meets the existing Lower Monumental-Hanford 500-kV line right-of-way.

### Section III

The last 2.2 miles will parallel this existing 500-kV steel structured Lower Monumental-Hanford line, at a location of 110 feet west--Centerline to Centerline.

Additional right-of-way width for a future line will be acquired along the east side of the proposed route over its entire length.

New right-of-way width required is as follows:

<u>Section</u>	<u>Right-of-Way Width</u>
I	355 feet, to include the proposed 230-kV and future lines.
II	240 feet, except for the last 0.5 miles where the right-of-way width increases from 240 feet to 355 feet.
III	97.5 feet, of additional right-of-way will be needed west of and 87.5 feet east of the Lower Monumental-Hanford line.

### Design

Lattice steel, single circuit, delta configuration, 500-kV towers will be used on this line. The towers will average 123 feet in height and 44 feet wide, at an average spacing of 1,150 feet. The minimum conductor ground clearance will be 35 feet. Land requirements for the towers will average 400 square feet each.

Estimated costs for Route A are:

<u>Costs (9-19-73)</u>	
\$3,705,000	Transmission line
640,000	One Hanford Switching Station 500-kV terminal
609,000	Terminal equipment at Ashe Substation and land for the future 500-kV switchyard at Ashe
123,000	Modifications at Hanford Substation
<u>455,000</u>	Power System Control
\$5,526,000	TOTAL

### Access Roads

Access road requirements for the proposed route will be approximately as follows:

#### Section I

New location on right-of-way - 3 miles

New location off right-of-way - 5 miles

Through the Sand Dunes area, approximately 3 miles of existing gravelled telephone line access road will be utilized. Short temporary spur roads to the individual tower sites will be needed during the construction phase.

#### Section II

New location on right-of-way - 6 miles

New location off right-of-way - 0.5 miles

Improvement on and off right-of-way - none

Easement only - 0.5 miles

The existing Midway-Eagle Lake line access roads will be used on top of Gable Mountain. Only short spur roads will be required on top of the mountains

#### Section III

The existing Lower Monumental-Hanford line access road system will be used for access to this section of the new line. Some spur roads from the existing roads to the individual new towers will be required.

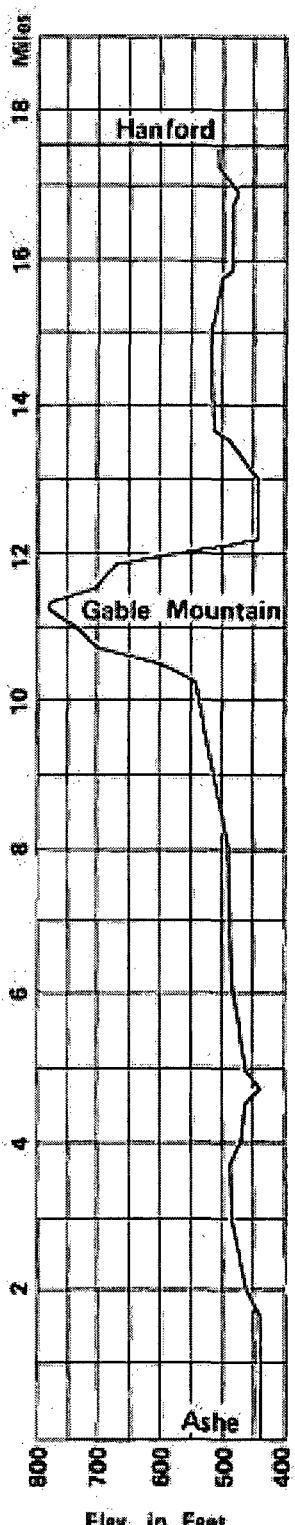
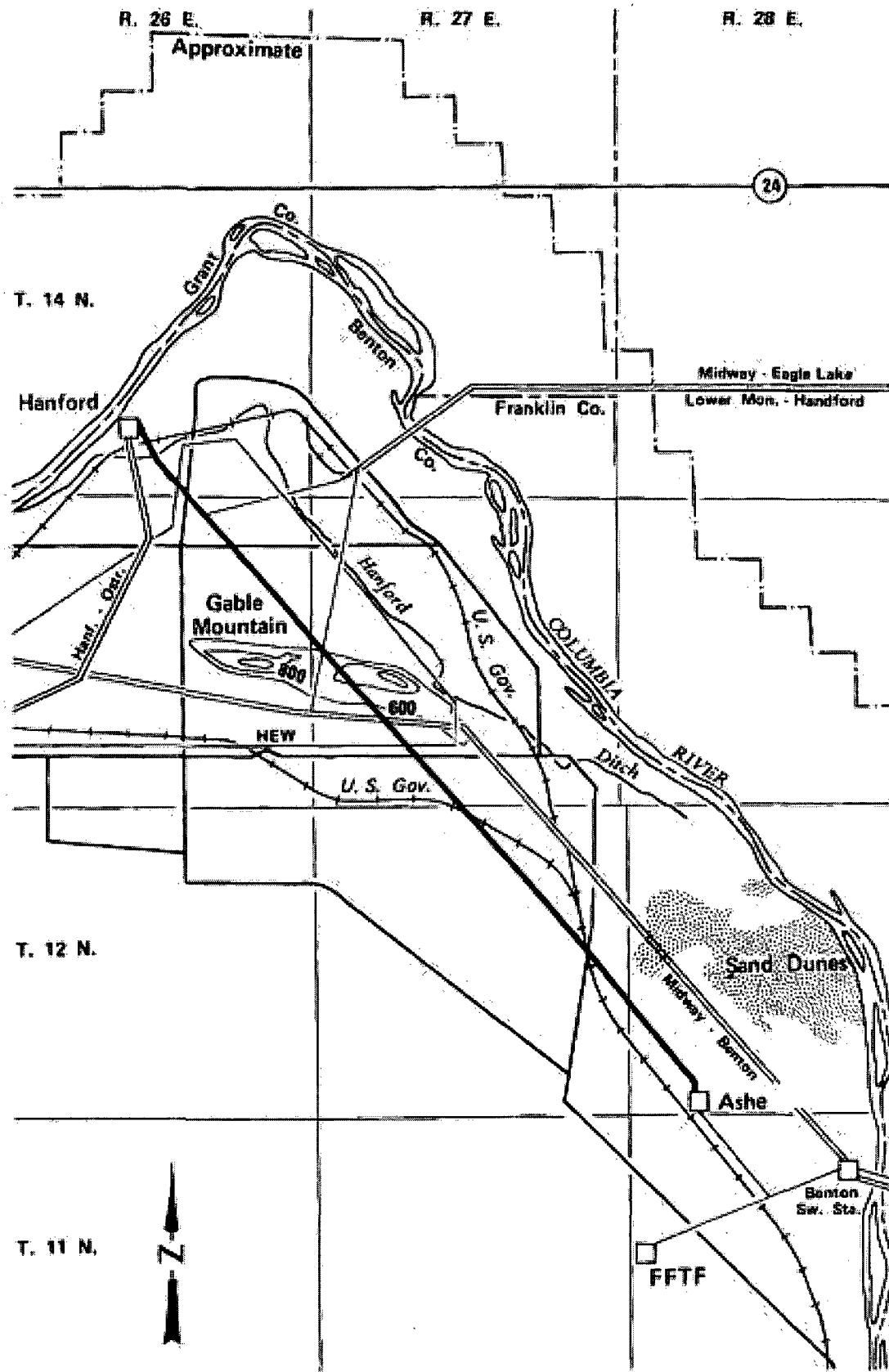
# ASHE-HANFORD

## ROUTE (A)

500 KV W.O. 840-317

BENTON CO. WASH.

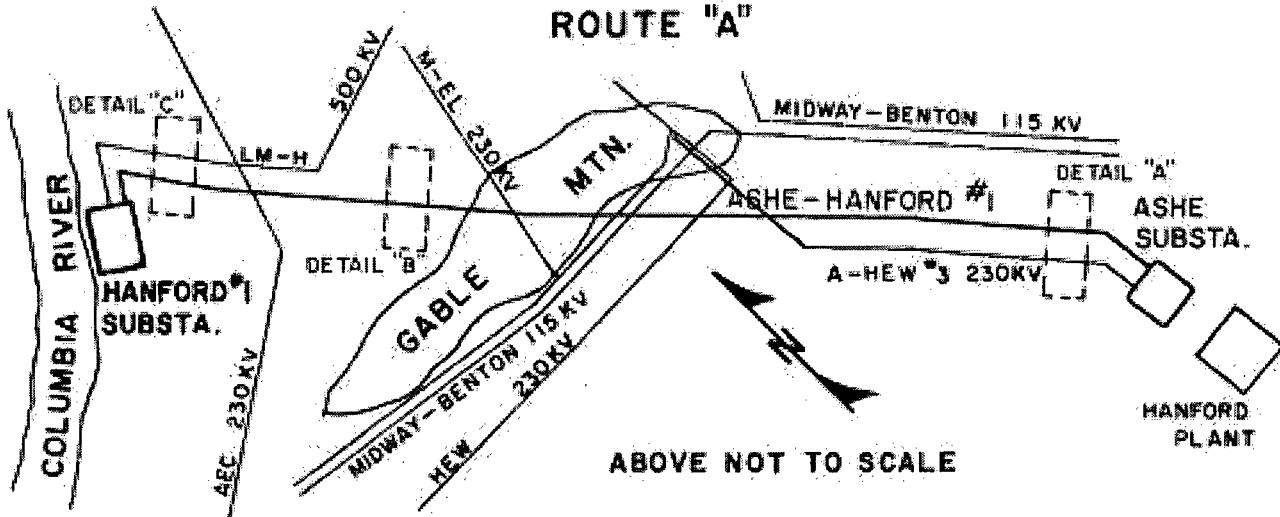
APPROX. SCALE 1" = 3 MILES



Profile

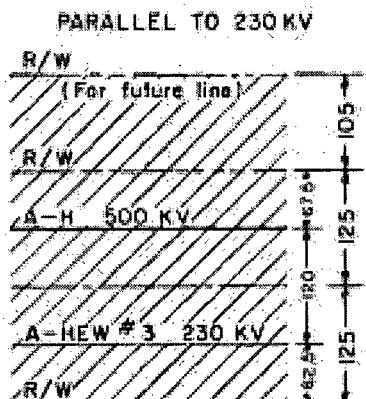
**ASHE - HANFORD #1**  
**500 KV SINGLE CIRCUIT**  
**RIGHT OF WAY DETAIL MAP**

**ROUTE "A"**

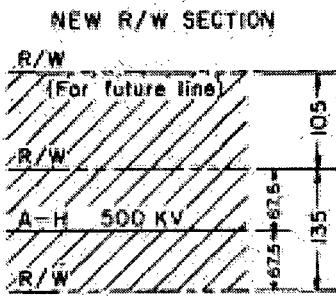


SCALE OF DETAILS BELOW ARE 1" = 200'

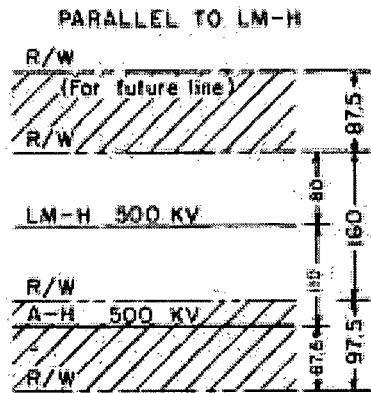
**DETAIL "A"**



**DETAIL "B"**



**DETAIL "C"**



R/W : RIGHT OF WAY

A-H : ASHE - HANFORD #1

A-HEW #3 : ASHE TAP TO HEW #3

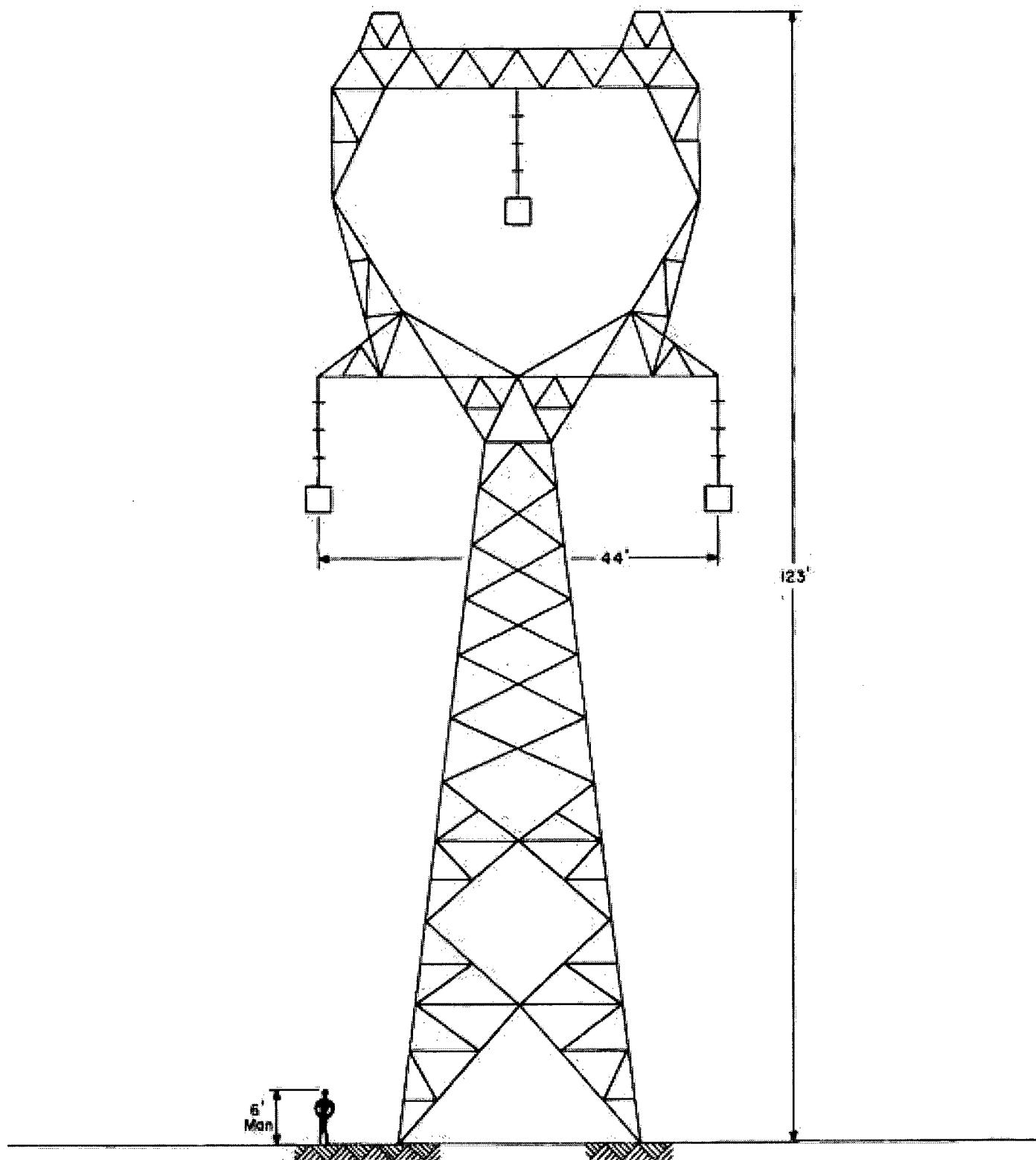
LM-H : LOWER MONUMENTAL - HANFORD

M-EL : MIDWAY - EAGLE LAKE

NEW : HANFORD ENERGY WORKS

||||| NEW R/W

**CONFIGURATION OF A  
500,000 VOLT TRANSMISSION TOWER**



**Single Circuit  
Delta Configuration**

## **GENERALIZED COVER AND LAND USE**

### **RANGELAND**

**Grassland**



### **OTHER**

**AEC Installation**



**Explosive Test Site**

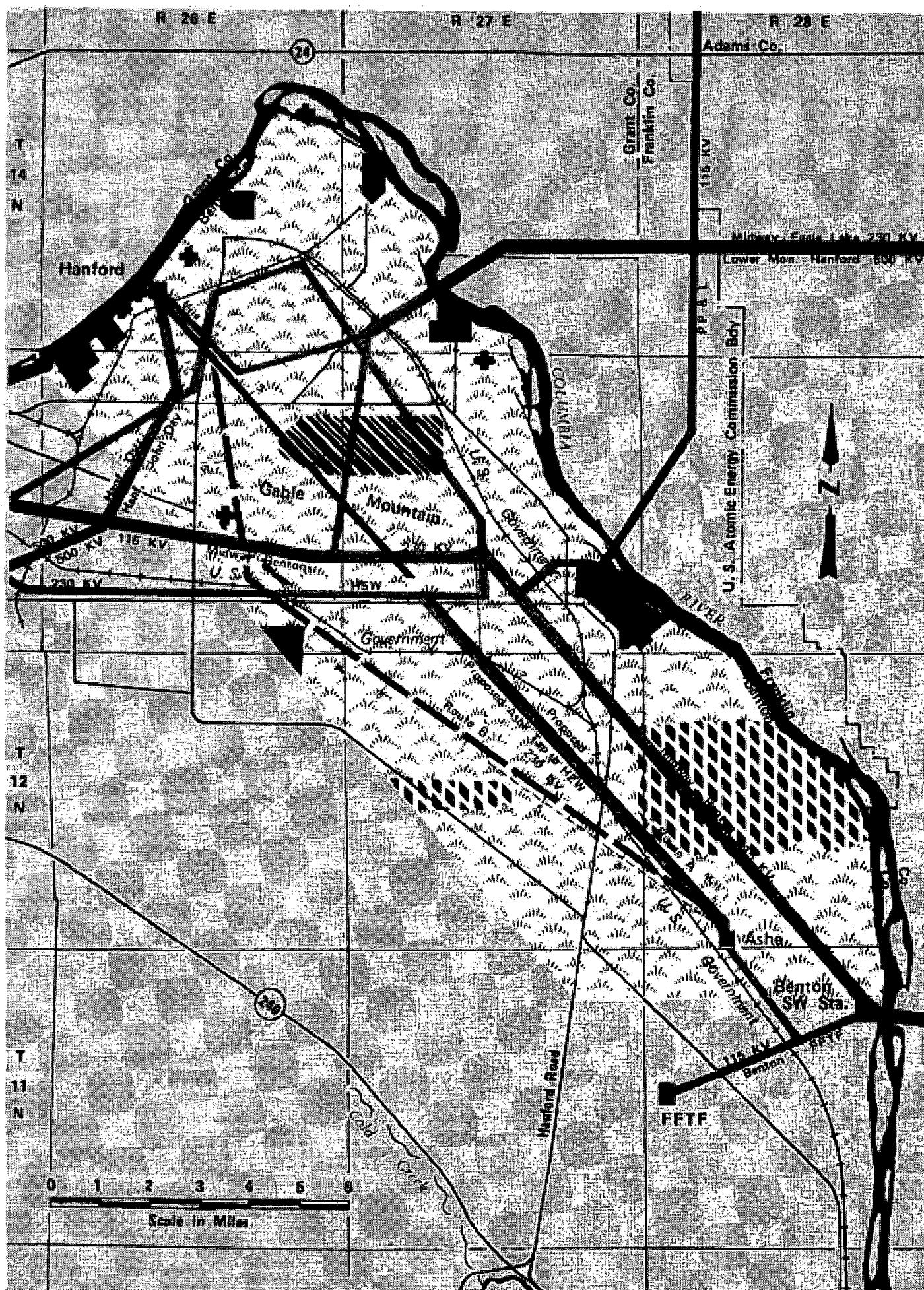


**Active Sand Dunes**



**Archeological Site**





### Land Use

The following table describes the miles of line and acres of easement of land cover crossed by the proposed route.

		<u>Sagebrush and Grass</u>	<u>Comments</u>
Section I	Miles of Land Use	7.7	Includes the proposed 500-kV and 230-kV lines and the future lines.
	approx. new easement required in acres	331	
Section II	Miles of Land Use	7.9	Includes the proposed 500-kV line and the future line
	approx. new easement required in acres	229	
Section III	Miles of Land Use	2.2	Includes the proposed 500-kV line and the future line.
	approx. new easement	52	

The 17.8 mile Route A corridor will require approximately 612 acres of new easement.

The following table lists the land uses other than open space found along the proposed route.

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation To Route A</u>	<u>Comments</u>
230-kV power line	0.0-7.7	BPA Ashe Tap to HEW No. 3	parallel at 120 ft. 230-kV is pro- separation west of posed to be Route A constructed in October 1975	
railroad	0.0-3.7	AEC	adjacent at a sep- aration of approx. 1,000 feet	
underground and overhead telephone; gravel road	0.0-1.4	General Telephone	at a separation of 1,500 ft. west of Route A at Mile 0.0 and converging to cross Route A at Mile 1.4	gravel road is used as part of access road system
underground and overhead telephone; gravel road	1.4	General Telephone	crossing	

\*The term Recon. Mile (Reconnaissance Mile) refers to the distance along the proposed line starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (17.8 miles).

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation To Route A</u>	<u>Comments</u>
underground and overhead telephone; gravel road	1.4	General Telephone	diverging easterly at an angle of 14 degrees of Route A	gravel road through sand will be used
railroad	3.7	AEC	crossing	
four-lane Hwy	3.8	AEC	crossing	
sand dunes	2.5		crossing	some dunes unstable
road, oil & sand	7.5	AEC, Arch 5	crossing	
road, gravel	7.6	AEC	crossing	
230-kV power line	7.7	EPA Ashe Tap to HEW No. 3	crossing	
railroad	7.8	AEC	crossing	
road, gravel	7.8	AEC	crossing	
telephone	8.3	General Telephone	crossing	
"BY" telephone exchange building	8.6	General Telephone	adjacent to highway 3,500 ft. east of Route A	
low voltage electric line	9.2	AEC	crossing	
telephone	9.2	General Telephone	crossing	
four-lane Hwy	9.2	AEC	crossing	
telephone	9.3	General Telephone	crossing	
230-kV power line	9.4	AEC	crossing	
road, paved	9.6	AEC	crossing	to nuclear burial ground 213 Area
low voltage electric line	9.6	AEC	crossing	

\*The term Recon. Mile (Reconnaissance Mile) refers to the distance along the proposed line starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (17.8 miles).

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation To Route A</u>	<u>Comments</u>
low voltage electric line; dirt road	10.4	AEC	crossing	
115-kV power line	10.5	BPA Midway-Benton	crossing	
230-kV power line	10.5	BPA Midway-Benton	crossing	
road, dirt	11.0	AEC	crossing	
road, dirt	11.4	AEC	crossing	
excavation pits	11.4	AEC	pits 200 & 400 ft. east of Route A	
Gable Mountain	10.5-12.1		crossing	
230-kV power line	11.6	BPA Midway-Eagle Lake	crossing	energized at 115-kV
Explosive Testing area	10.6-14.0		crossing	will be abandoned
road, dirt	12.1	AEC	crossing	
road, dirt	14.0	AEC	crossing	
highway, paved	14.5	AEC	crossing	
500-kV power line	15.3-17.8	BPA Lower Monumental-Hanford	parallel and east of Route A at a separation of 110 feet	
highway, paved	16.1	AEC	crossing	
230-kV power line	16.3	AEC	crossing	
telephone	16.4	General Telephone	crossing	
telephone, Hanford ditch	16.9	General Telephone ditch - AEC	crossing	ditch not active

\*The term Reconnaissance Mile (Reconn. Mile) refers to the distance along the proposed line starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (17.8 miles).

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation To Route A</u>	<u>Comments</u>
	16.9-	AEC	crossing	approaching the 100 N area which includes many man-made structures
	17.8			
Hanford Switching Station	17.8	BPA		End of Route A

#### IMPACT ON LAND USE

Since the land crossed by the proposed route A crosses mostly unused open space, impacts will be minimal. If the AEC opened the reservation for public use, existing cover and potential land use would be disrupted to the extent quantified for easement and access road requirements previously indicated. Route A, however, is within AEC's Hanford Reservation in which the public use is restricted. This route is also within AEC's safety zone where people who enter this zone must adhere to special guidelines set forth by the AEC to minimize radiation hazards.

BPA and the Atomic Energy Commission have reached an agreement which calls for removal of Explosive Testing Area.

#### NATURAL AND CULTURAL RESOURCES

##### Scenic

Except for Gable Mountain, Route A does not cross any scenic resources. Towers constructed on Route A will be visible from quite a distance due to flat terrain in the area.

##### Historic and Archeological Sites

Route A does not come near any identified historic or archeological sites. However, potential for discovery of archeological sites is great and any suspected archeological material discovered during surveys or construction will be immediately reported to appropriate officials.

##### Recreation

There are no recreational facilities within the study area.

##### Wildlife and Vegetation

Adverse effects upon resident wildlife including the sage grouse will be largely limited to the construction period. This route does not cross any streams.

Due to clearing of sagebrush from main access roads and tower sites, sage grouse within the vicinity of access roads and tower sites will be temporarily disturbed and some habitat will be lost.

## PHYSICAL SENSITIVITY

### Erosion

Loam soil's wind erosion potential in this dry climate is extremely high. If vegetative cover is removed or soil is disturbed, as during construction and clearing of access roads and tower sites, strong spring-time winds will move the soil about to such an extent, new vegetation will not reestablish for many years. Highest order of vegetation is sagebrush and one of the lowest orders is cheatgrass. If sagebrush is killed or removed it will eventually be replaced with cheatgrass. If cheatgrass is removed or killed, it will be replaced with more cheatgrass. Past experience within the Hanford Reservation has proven it takes nature at least 30 years to reestablish sagebrush.

Existing roads that are well gravelled seem to be very stable with little wind erosion. It has also been found if a disturbed area, such as temporary access road, is seeded in the fall with cheatgrass, the grass will establish itself within 1 to 2 years and again be capable of minimizing wind erosion.

Route A also crosses 3 miles of sand dunes. Some sand dunes are not stable, due to lack of vegetation cover and construction will impact on these as well as on stabilized dunes with a high potential for additional erosion. Sand dunes are up to 30 feet high and capable of moving eastward at a rate of up to 1 foot per year.

In order to minimize wind erosion caused by construction as many existing roads as possible will be used and gravel will be used to cover the principal new access roads. If possible, spur roads will not be cleared by blading with a bulldozer.

### Water Quality

This proposed corridor does not cross any streams nor come near the Columbia River, therefore, no siltation of the Columbia is expected.

### Noise

Construction and operation of the line on this route will create no noise impacts upon the general public.

### Electrical Interference

The proposed corridor might have some effects on telephone lines. The magnitude of effects will not be known until after the transmission line has been energized. Any adverse effects on telephone lines will be corrected.

## DESCRIPTION OF ALTERNATE (ROUTE B) AND ITS IMPACTS

This alternative will be discussed as if the proposed Ashe Tap to AEC's HEW No. 3, 230-kV line and a future line were to be built parallel to Route B as considered for Route A. Route B would then also be one wide corridor as is the proposed Route A.

Alternate Route B has been separated into three sections in order to discuss the associated impacts and requirements.

### Location

#### Section I

The 18.8 mile route would begin at BPA's Ashe Substation Site at the Hanford No. 2 nuclear powerplant site.

This alternate would proceed northwest for 5.9 miles to where it crosses the alternate Ashe Tap to AEC's HEW No. 3, 230-kV line.

The first 5.9 miles would parallel east of an alternate of the Ashe Tap to AEC's HEW No. 3, 230-kV line at a separation of 120 feet.

#### Section II

Route B would continue for 6.6 miles to an angle point. It would then turn north for 4.5 miles to a point 110 feet west of the Lower Monumental-Hanford 500-kV line.

#### Section III

This route would then turn northwest and proceed for 1.8 miles while paralleling the Lower Monumental-Hanford line at a separation of 110 feet to BPA's Hanford Switching Station.

Additional right-of-way width for a future line would be acquired along the east side of this alternative.

New right-of-way width that would be required is as follows:

<u>Section</u>	<u>Right-of-Way Width</u>
I	355 feet, would include the proposed 230-kV and future lines.
II	240 feet, except for the last 0.5 miles where the right-of-way width would increase from 240 feet to 355 feet.
III	107.5 feet, of additional right-of-way would be needed west of and 87.5 feet east of the Lower Monumental-Hanford line for a total of 195 feet.

#### Design

Tower design for Alternate B would be identical to those described for proposed Route A.

#### Costs

Estimated costs for Route B are:

<u>Costs</u> (9-19-73)	
\$3,940,000	Transmission line
640,000	One Hanford Switching Station 500-kV terminal
603,000	Terminal equipment at Ashe Substation and land for the future 500-kV switchyard at Ashe.
123,000	Modifications at Hanford Substation
<u>455,000</u>	Power System Control
<u>\$5,761,000</u>	<u>TOTAL</u>

#### Access Roads

Access road requirements would be approximately as follows:

#### Section I

New location on right-of-way	- 3 miles
New location off right-of-way	- 3 miles

## Section II

New location on right-of-way - 7 miles

New location off right-of-way - 6 miles

Existing dirt roads would be used to get onto the western extreme of Gable Mountain.

## Section III

In Section III there are no new access road locations, improvements, or easements, on or off right-of-way required.

The existing Lower Monumental-Hanford access road system would be used. Short spur roads from the existing access roads to the individual towers of Route B would be required.

### Land Use

The following table describes the miles of line and acres of easement of land use covered by the proposed route.

#### Land Use:

		<u>Sagebrush and Grass</u>	<u>Comments</u>
Section I	Miles of Land Use  approx. new easement that would be required in acres	5.9 255	Would include the alter- nate 500 and 230-kV lines and the future line.
Section II	Miles of Land Use  approx. new easement that would be required in acres	11.1 322	Would include the alter- nate 500-kV line and the future line.
Section III	Miles of Land Use  approx. new easement that would be required in acres	1.8 42	Would include the alter- nate 500-kV line and future line.

The 18.8 mile Route B would require approximately 619 acres of new easement.

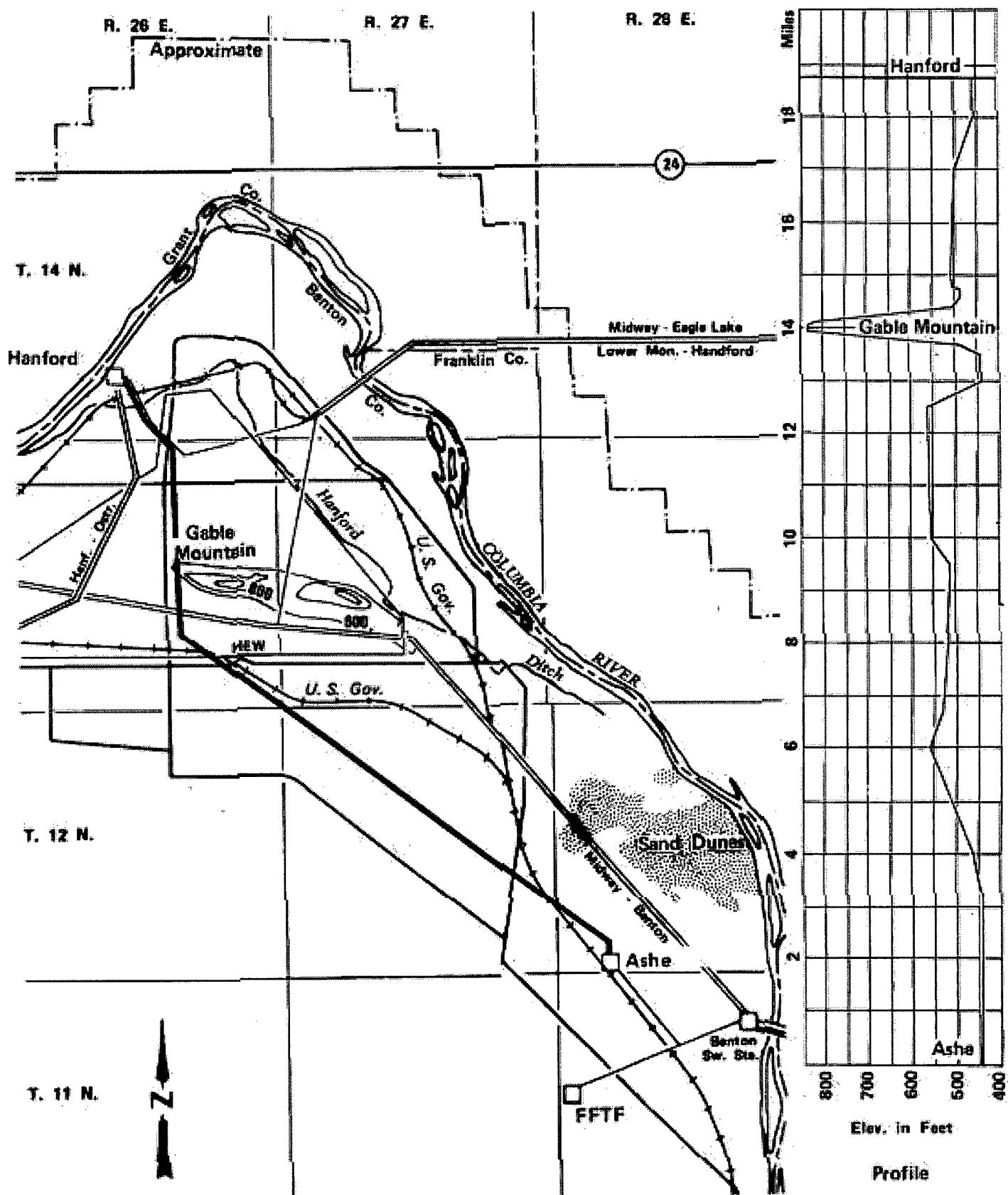
# ASHE-HANFORD

## ROUTE (B)

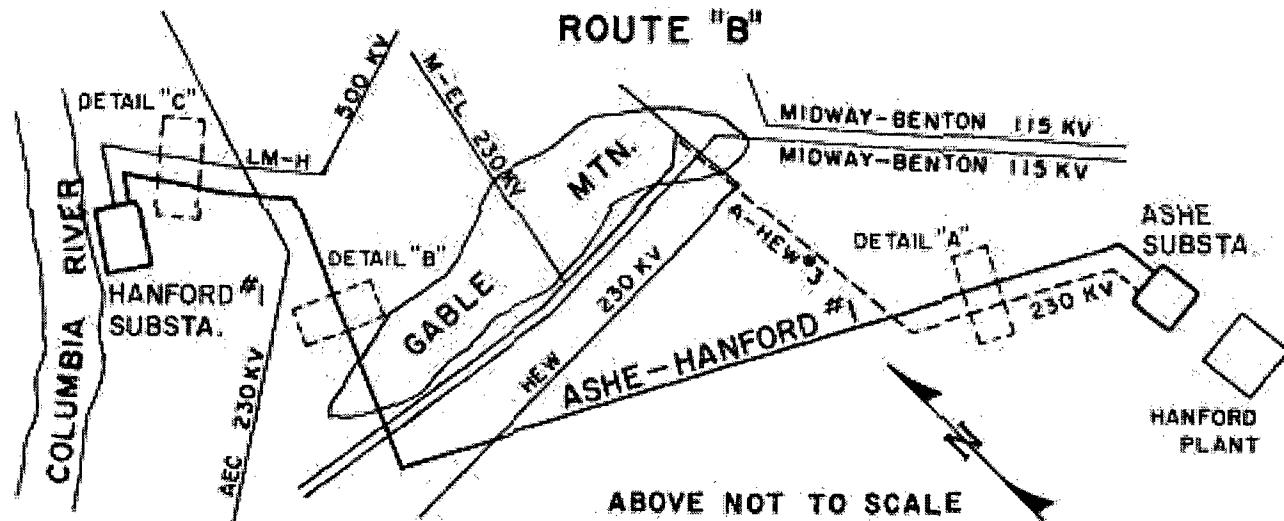
500 KV W.O. 840-317

BENTON CO. WASH.

APPROX. SCALE 1<sup>1/2</sup> MILES

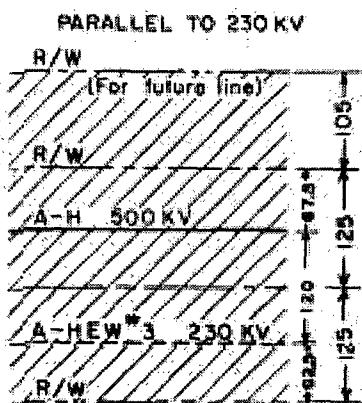


**ASHE-HANFORD #1**  
**500 KV SINGLE CIRCUIT**  
**RIGHT OF WAY DETAIL MAP**

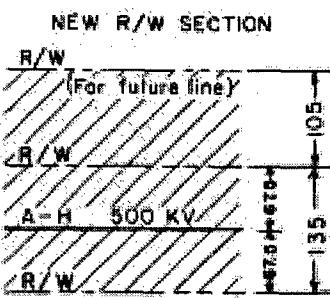


SCALE OF DETAILS BELOW ARE 1" = 200'

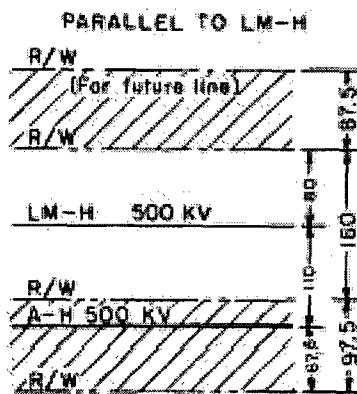
**DETAIL "A"**



**DETAIL "B"**



**DETAIL "C"**



R/W --- RIGHT OF WAY

A-H --- ASHE-HANFORD #1

A-HEW#3 --- ASHE TAP TO HEW#3 (ALTERNATE)

LM-H --- LOWER MONUMENTAL-HANFORD

M-EL --- MIDWAY-EAGLE LAKE

HEW --- HANFORD ENERGY WORKS

||||| NEW R/W

The following is a list of land uses found along Route B.

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation To Route A</u>	<u>Comments</u>
230-kV power line	0.0-5.9	BPA Ashe Tap to NEW No. 3 alternate	Parallel at 120 ft. separation west of Route B	230-kV alternative
underground and overhead telephone; road, gravel	1.1	General Telephone	crossing	
railroad	1.2	AEC	crossing	
sand dunes	2-5.5		crossing	sand dunes, unstable
underground and overhead telephone; road, gravel	1.1	General Telephone	crossing	
railroad	1.2	AEC	crossing	
four-lane Hwy.	3.4	AEC	crossing	
sand dunes	2-5.5		crossing	sand dunes, unstable
road, dirt	5.6	AEC	crossing	
230-kV power line	5.9	BPA Ashe Tap to NEW No. 3 230-kV line	crossing	
road, oil & sand	6.6	AEC, Arch 5	crossing	
road, dirt	8.1	AEC	crossing	
telephone	8.2	General Telephone	crossing	
lake, small	9.8		1,500 ft. west of Route B	
200-E area	10-11	AEC	west of Route B minimum distance 0.3 miles at Recon. Mile 11.0	

\* The term "reconnaissance mile" refers to the distance along the alternate starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (18.8 miles).

<u>Land Use or Crossing</u>	*Reconn. Mile	Name of Land Use	Land Use in Relation To Route A	Comments
deep well	11.1	AEC	0.2 miles west of Route B	
road, dirt	11.1	AEC	crossing	
low voltage electric line	11.4	AEC	crossing	
telephone	11.5	General Telephone	crossing	
four-lane Hwy	11.5	AEC	crossing	
230-kV power line	11.9	AEC	crossing	
railroad	12.1	AEC	crossing	
mountain pond	11.5- 12.2	Gable Mountain pond	within 2,000 ft. east of Route	
angle point	12.4			the line will now proceed northerly
low voltage electric line	12.9	AEC	crossing	
115-kV power line	13.1	BPA Midway- Benton	crossing	
230-kV power line	13.1	BPA Midway- Benton	crossing	
lake	13.4- 13.8	West Lake	0.3 miles west of of Route B	
road, dirt	13.7	AEC	crossing	
Gable Mountain	13.8- 14.4		crossing	
Explosive Testing Area	13.5- 14.8	AEC	Route B crosses the western fringes of the testing area	
road, dirt	14.4	AEC	crossing	
road, dirt	14.8	AEC	crossing	

\* The term "reconnaissance mile" refers to the distance along the alternate starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (18.8 miles).

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Route B</u>	<u>Comments</u>
highway, paved	16.0	AEC	crossing	
500-kV power line	17.1-	BPA Lower Monumental-Manford	parallel and east of Route B at a separation of 110 feet	
	18.8			
highway, paved	17.4	AEC	crossing	
230-kV power line	17.6	AEC	crossing	
telephone	17.7	General Telephone	crossing	
telephone; Hanford ditch	18.2	General Telephone ditch-AEC	crossing	ditch not active
	18.2-			
	18.8	AEC	crossing	approaching the 100 N area which includes many man-made structures
Hanford Substation	18.8	BPA		End of Route A

\* The term "reconnaissance mile" refers to the distance along the alternate starting at Ashe Substation Site (0.0 miles) and terminating at Hanford Switching Station (18.8 miles).

#### IMPACTS ON LAND USE

Since the land crossed by Route B is mostly unused, open space impacts will be negligible. If the AEC opened the reservation for public use, existing cover and potential land use would be disrupted to the extent quantified for easement and access road requirements previously indicated. This route would be within AEC's Hanford Reservation where the public access is restricted. This route would also be within AEC's safety zone where people who enter must adhere to special guidelines set forth by the AEC in order to minimize radiation hazards.

Route B would cross the Explosive Testing Area's western fringes, but would interfere little with actual testing.

#### NATURAL AND CULTURAL RESOURCES

##### Scenic

Except for Cable Mountain, Route B would not cross any scenic resources. Due to flat terrain, this route's towers could be seen from several miles. Some

towers on Gable Mountain would be skylined and therefore would be visible from greater distances.

#### Historic and Archeological Sites

Route B would not come near any identified historic or archeological sites. However, the potential for discovery of archeological sites is great. Any suspected archeological materials discovered during surveys and construction will be immediately reported to appropriate officials.

#### Recreation

There are no recreational facilities within the study area.

#### Wildlife and Vegetation

Route B would not adversely affect any wildlife other than sage grouse, except during the construction period, when some animals would be driven away for a short time. This route would not cross any streams.

Due to the clearing of sagebrush from main access roads and tower sites, sage grouse within the vicinity of access roads and tower sites would be temporarily disturbed.

### PHYSICAL SENSITIVITY

Route B would also cross 3 miles of sand dunes. Some sand dunes are not stable, due to lack of vegetative cover. Construction will impact these as well as stabilized dunes with a high potential for additional erosion. Sand dunes are up to 30 feet high and capable of moving eastward at a rate of up to 1 foot per year.

As on the proposed route, wind erosion caused by construction activities can be minimized by using as many existing roads as possible and by using gravel to cover the main new access roads. If possible, spur roads would not be cleared by blading with a bulldozer.

#### Water Quality

This alternate corridor would not cross any streams nor come near the Columbia River; therefore, no siltation of the Columbia would be expected.

#### Noise

This route would create no noise impacts upon the general public, not even during the construction period.

#### Electrical Interference

There is some potential for possible electrical interference with telephone lines if Route B were to be used. Significant adverse affects on the telephone lines would have to be corrected.

#### Nonconstruction

The proposed new facility will serve an evergrowing population and expanding industry of the Pacific Northwest. If the new transmission facilities are not built, it would not be possible for BPA to integrate the power output generated by Washington Public Power Supply System's No. 2, 1,100-MW thermo-nuclear plant into BPA's Pacific-Northwest main grid transmission system. This in turn, would result in mandatory curtailment of use of electricity throughout many regions of the Northwest by 1978, particularly the heavily populated and industrialized Puget Sound, Portland, and Willamette River Valley areas.

Mandatory curtailments would have varying effects depending on the intensity of the curtailment and the way in which it was imposed. Probably the most significant of these is the social and economic impact.

An adequate supply of reliable electric energy would contribute significantly to a relatively high regional standard of living which is dependent on the power supply in many ways. It is also essential to the various economic sectors which provide employment as well as goods and services for the region's inhabitants; it is virtually indispensable for the use of many labor-saving appliances; it is required by most forms of communication and many forms of environmental control devices (lighting, heating, air conditioning, and treatment of sewage and industrial wastes); and it is even utilized in many forms of recreation activities. In addition, a reliable energy supply is critical for the defense installations and defense industries located in the Northwest which benefit the nation as well as the region.

Some of the local short-term economic impacts resulting from not constructing the facility consist of the loss of employment and wages paid to construction workers and the loss of expenditures for materials and supplies furnished.

No new facilities would be required if approximately 1,100 MW of additional generation were added in the area. The only generation that could be added to the region in the short time involved would be a combustion turbine. Such additional generation would have the inconveniences and impacts typical for units of this kind as described in the BPA General Program Environmental Statement.

#### SUMMARY OF THE PROPOSED ROUTE (ROUTE A) AND ALTERNATE ROUTE (ROUTE B)

	Length	Cost	Amount of New R/W Acreage Required	Amount of Parallel R/W Acreage Required
A	17.8	\$5,526,000	560	52
B	18.8	\$5,761,000	577	42

Both routes cross sagebrush and grassland. Route A will cause the removal of the Explosive Testing Area.

Major Crossings

	Transmission Lines			Roads			Railroads	Telephone
	Low Voltage	115-kV	230-kV	4-Lane Hwy	2-Lane Hwy	Main dirt & gravel roads		
A	3	1	5	2	3	9	2	6
B	2	1	4	2	2	8	2	5

Both routes cross the sand dunes and Gable Mountain.

Access Road Comparisons	Route A	Route B
New location on R/W	9 miles	10 miles
New location off R/W	5.5 miles	9 miles

**UNAVOIDABLE ADVERSE IMPACTS**

Route A construction will have few unavoidable adverse impacts. Principal unavoidable impacts include soil erosion by wind, loss of vegetative cover, or habitat, and the removal of the Explosive Testing Area.

**RELATIONSHIP BETWEEN SHORT-TERM  
USE OF THE ENVIRONMENT  
AND LONG-TERM PRODUCTIVITY**

Based on present technology, this line and associated facilities will have an expected life of 50 years. Experience in past years has shown, in most cases, transmission corridors are upgraded to higher capacity in response to technological advancements and energy demands. This along with BPA's policy of constructing new facilities on or parallel to existing corridors, may result in a long-term use of this corridor. However, if required, complete removal of these transmission facilities, including tower footings, would be possible in order to make the land available for other uses.

## IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Unrecyclable steel, aluminum, copper, and other materials used for towers, conductors, and other hardware will be irretrievably committed. Manpower and fuel for construction and maintenance equipment will be irretrievable.

Although it would be possible to remove the entire facilities including tower footings at a future time, it is likely the land used for transmission corridors will be irreversibly committed. The land taken for tower footings will be unavailable for any other land use.

## CONSULTATION AND COORDINATION WITH OTHERS

### CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL

Draft Facility Location Supplement for the Ashe-Hanford 500-kV Transmission line (74-3) project discusses the alternate and proposed route locations for the new transmission facility and the environmental impacts associated with each location. This project was proposed for the first time in the Fiscal Year 1974 Annual Appropriations Request and was previously discussed in the Fiscal Year 1974 Environmental Statement filed with the Council on Environmental Quality on April 3, 1973.

In preparing the Final Environmental Statement for Fiscal Year 1974 BPA consulted with various Federal, regional, and local planning agencies. BPA will continue to consult with these agencies in the preparation of the Final Facility Location Supplement for this project. As part of this review process, a public information meeting will be held in connection with the proposed Ashe-Hanford 500-kV transmission line. Comments obtained as a result of this public and agency review process will be incorporated in the Final Facility Location Supplement.

### COORDINATION IN THE REVIEW OF THE DRAFT PROGRAM STATEMENT

This Draft Facility Location Supplement is being sent to Federal agencies, state clearinghouses, and to local clearinghouses where these have been established by states, or to county or metropolitan planning commissions and environmental agencies where local clearinghouses have not been established. These agencies are listed below. A notice of availability of the Draft Facility Location Supplement is being placed in the Federal Register and in local news media in advance of the proposed public meetings.

### AGENCIES REQUESTED TO COMMENT ON THE DRAFT PROGRAM STATEMENT

#### Federal Agencies

U.S. Department of the Interior  
Bureau of Sport Fisheries and Wildlife  
Bureau of Mines  
Bureau of Indian Affairs  
Bureau of Land Management  
Bureau of Outdoor Recreation  
National Park Service  
Geological Survey  
Bureau of Reclamation  
U.S. Department of Agriculture  
Forest Service  
Soil Conservation Service

Federal Agencies (Continued)

U.S. Department of Housing and Urban Development  
U.S. Environmental Protection Agency  
U.S. Atomic Energy Commission  
Federal Power Commission  
Federal Aviation Commission  
Advisory Council on Historic Preservation  
U.S. Department of the Army

State Agencies

State of Washington

Local Agencies

WASHINGTON

District 4 Council of Governments  
Benton-Franklin Governmental Conference

Others

Washington Environmental Council  
National Wildlife Federation  
Federation of Western Outdoor Clubs  
Friends of the Earth, Northwest Coordinator  
Natural Resources Defense Council  
The Wilderness Society  
Sierra Club, Northwest Representative  
    Northern Rockies Chapter  
    Pacific Northwest Chapter  
Northwest Steelheaders Council of Trout Unlimited  
Pacific Northwest Conservation Council

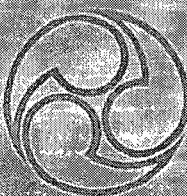
P BPA c1 DE  
BPA720.1975 ~~MQ14129~~  
Draft supplement to the  
environmental statement fiscal  
United States, Bonneville Power  
DATE DUE

HIGHGROWING

DRAFT

Supplement to the  
**ENVIRONMENTAL STATEMENT**  
Fiscal Year 1975 Proposed Program

Richland Area Electrical Service  
Transmission Lines & Substations



U.S. DEPARTMENT OF INTERIOR  
BONNEVILLE POWER ADMINISTRATION

BPA  
BPA  
720  
1975

C2  
DES 74-37

#### NOTE TO REVIEWERS

This supplement is one of a series prepared by BPA on various facets of its construction and maintenance activities. Each of these statements must be reviewed and used in relation to the others. For convenience the various components and their relationship are outlined in the chart below:

#### Environmental Statements and Supplements on BPA Construction and Maintenance Activities

General Construction and Maintenance Program Statement

Describes BPA's overall construction and maintenance program in general, the Pacific Northwest environment in which it operates, and the environmental impacts that typically occur from transmission line construction and maintenance activities. Provides a framework for evaluation of specific proposals. Draft was issued for comments on January 16, 1974.

Fiscal Year 1974 Program Statement

Describes the cumulative impact on the Northwest environment of all of the specific new transmission facilities and maintenance activities proposed in BPA's Annual Appropriation Request. These statements are prepared annually as part of the appropriations process. The Fiscal Year 1974 Final Environmental Statement with attached supplements was filed with the CEQ on April 3, 1973.

Facility Planning Supplement  
(Phase I)

Identifies the need for a specific new transmission facility proposed as part of the Annual Appropriation Request, and outlines in preliminary form the environment in the area of the proposed new facility.

Facility Location Supplement  
(Phases II & III)

Expands the Facility Planning Supplement to include alternative locations for the proposed new facility and environmental impacts associated with each alternative location. This supplement is prepared after public and agency review of Phase I Statement has been completed and reconnaissance studies have been made.

Bound Together

Draft to be issued separately to facilitate review. Final will be bound with Program Statement.

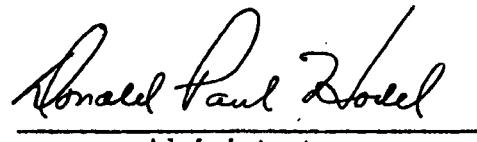
THIS DOCUMENT

DEPARTMENT OF THE INTERIOR  
(DES )

DRAFT SUPPLEMENT  
to the  
ENVIRONMENTAL STATEMENT  
Fiscal Year 1975 Proposed Program

FACILITY LOCATION EVALUATION  
for  
RICHLAND AREA ELECTRICAL SERVICE

Prepared by  
Bonneville Power Administration  
Department of the Interior  
( )



Administrator

P BPA c2 DE *OCLC*  
BPA720 1975  
Draft supplement to the  
environmental statement fiscal  
United States. Bonneville Power

**OFFICIAL USE ONLY**  
Sensitive Information  
National Critical Infrastructure Security  
No Unauthorized Sharing/Duplications

Summary

( X ) Draft

(   ) Final

Supplement

Department of the Interior, Bonneville Power Administration

1. Type of Action: (   ) Administrative ( X ) Legislative

2. Brief description of action: The proposal involves the construction of 35.2 miles of 230-kV and 3.6 miles of 115-kV transmission line as well as the associated construction of three new substation facilities.

3. State and counties involved: Benton and Franklin Counties, Washington.

4. Summary of environmental impacts and adverse environmental effects: A total of 697 acres of the new easement required for the proposed transmission facilities would occur entirely within the Atomic Energy Commission's Hanford Reservation where land uses and public access are already restricted for safety reasons. The removal of vegetative cover in the reservation during construction operations will increase an already high potential for wind erosion. An additional 5 miles of new right-of-way easement will be required outside of the Hanford Reservation crossing primarily sagebrush rangeland with some irrigated cropland being removed from production. Depending upon actual sites selected for the three new substation facilities a total of up to approximately 60 acres of sagebrush rangeland would be permanently removed from production. Disturbance of game in the immediate vicinity of the transmission facilities will occur during construction, as will some soil erosion primarily during and immediately after construction, siltation in nearby streams, disturbance of nearby residents from noise and dust during construction and some degradation of AM reception immediately adjacent to the right-of-way.

5. Alternatives considered: (1) Nonconstruction, (2) alternative plans of service, alternate line locations and alternate site locations for the proposed substations. General alternatives to all transmission construction including alternative methods of electrical transmission and generation, transmission construction, disposal of slash and limiting the consumption of electricity are discussed in the General Construction and Maintenance Program Environmental Statement and the Fiscal Year 1975 Program Environmental Statement which this Facility Location Evaluation supplements.

6. Agencies commenting on Draft Environmental Statement: U.S. Department of the Interior: Bureau of Sport Fisheries and Wildlife; Bureau of Mines; Bureau of Indian Affairs; Bureau of Land Management; Bureau of Outdoor Recreation; National Park Service; Geological Survey; and Bureau of Reclamation; U.S. Department of Agriculture: Forest Service and Soil Conservation Service; U.S. Department of Housing and Urban Development; U.S. Environmental Protection Agency; U.S. Atomic Energy Commission; Federal Power Commission; Federal Aviation Commission; Advisory Council on Historic Preservation; Natural Marine Fisheries Service; and U.S. Department of the Army. (See pages 50 and 51 for complete list.)

7. Date made available to the Council on Environmental Quality and the Public:

Draft Statement:

Final Statement:

## INTRODUCTION

The proposed transmission facilities designed to serve the increasing electrical needs of the Richland Tri-Cities Area, incorporated in this Draft Supplement, are covered in the following two sections.

The first section entitled Richland Area Service (74-6A) includes the following facilities:

1. A new substation, White Bluffs, to be located about 8 miles south of Hanford No. 2. A site evaluation for this substation is included in this supplement.
2. A new Howard J. Ashe Substation to be located 1,500 feet north of Hanford No. 2. A site evaluation for this substation is included in this supplement.
3. A 230-kV line connecting Ashe with the existing 230-kV facilities in the Hanford Reservation area.
4. A 230-kV line connecting Ashe to the new BPA White Bluffs Substation.
5. A 115-kV loop line connecting or looping the existing 300 Area-Stevens Drive 115-kV line through the White Bluffs Substation.

The second section entitled Franklin-Badger Canyon Transmission Facilities (74-6B) includes:

1. A new Badger Canyon Substation.
2. A new 230-kV double-circuit transmission line from BPA's Franklin Substation to the proposed new Badger Canyon Substation.

## SUPPLEMENT

### TABLE OF CONTENTS

	Page
SYSTEM REQUIREMENT . . . . .	1
DESCRIPTION OF THE EXISTING ENVIRONMENT . . . . .	2
<u>Richland Area Service (74-6A)</u>	
DESCRIPTION OF THE PROPOSED ROUTE AND ITS IMPACTS . . . . .	9
I. ASHE-HANFORD TAP LINE . . . . .	9
II. ASHE-WHITE BLUFFS TRANSMISSION LINE . . . . .	11
III. WHITE-BLUFFS LOOP . . . . .	12
WHITE BLUFFS SUBSTATION EVALUATION . . . . .	20
ASHE SUBSTATION EVALUATION . . . . .	22
UNAVOIDABLE ADVERSE IMPACTS . . . . .	26
RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY . . . . .	26
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES . . . . .	26
<u>Franklin-Badger Canyon (74-6B)</u>	
SYSTEM REQUIREMENTS . . . . .	27
DESCRIPTION OF THE EXISTING ENVIRONMENT . . . . .	29
DESCRIPTION OF THE ROUTES CONSIDERED . . . . .	35
DESCRIPTION OF THE ALTERNATES AND THEIR IMPACTS . . . . .	36
UNAVOIDABLE ADVERSE IMPACTS . . . . .	45
RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY . . . . .	45
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES . . . . .	45
BADGER CANYON SUBSTATION EVALUATION . . . . .	47
CONSULTATION AND COORDINATION WITH OTHERS . . . . .	50

## S Y S T E M   R E Q U I R E M E N T

## INTRODUCTION

Midway-Benton and Midway-Eagle Lake 115-kV lines supply power to Richland's urban and Eagle Lake's agricultural areas. By the winter of 1976, Richland's urban growth and Eagle Lake's increased irrigation demands will create such an electrical demand that Midway-Benton and Midway-Eagle Lake lines will be operating at near their capacities. Loss of either line will overload the 115-kV system resulting in a possible reduction, if not a total loss of electrical supply to the two areas.

Electric service is also needed to provide startup power for the Hanford No. 2 nuclear powered generating plant and distribute additional power from new generation at Ice Harbor Dam.

In order to meet these requirements, BPA is proposing a plan which involves constructing:

1. A new substation, White Bluffs, to be located about 8 miles south of Hanford No. 2. A site evaluation for this substation is included in this supplement.
2. A new Howard J. Ashe Substation to be located 1,500 feet north of Hanford No. 2. A site evaluation for this substation is included in this supplement.
3. A 230-kV line connecting Ashe with the existing 230-kV facilities in the Hanford Reservation area.
4. A 230-kV line connecting Ashe to the new BPA White Bluffs Substation.
5. A 115-kV loop line connecting or looping the existing 300 Area-Stevens Drive 115-kV line through the White Bluffs Substation.

These facilities collectively referred to as the Richland Area Service (74-6A) are one portion of the transmission plan to provide additional service and reliability to the Richland/Tri-Cities area. Other facilities in the plan include:

1. A new Badger Canyon Substation.
2. A new 230-kV double-circuit transmission line from BPA's Franklin Substation to the proposed new Badger Canyon Substation.

These latter two transmission facilities are included in that section of this supplement designated as the Franklin Badger Canyon Transmission Facilities (74-6B).

An alternative to this proposed system plan would be to reconduct the existing 115-kV line so it would carry more power. This alternate would require numerous additions and replacements of existing structures, resulting in a total cost greater than the cost of the proposed plan. Moreover, the reconductoring program would effect only temporary benefits not compatible with the long-range plan. With the reconductoring program, a new line would still be needed to provide startup power for Hanford No. 2.

#### STATUS

The following table provides schedule dates for performing work on the facilities included in this report.

	<u>Ashe-Hew No. 3 Line</u>	<u>Ashe-White Bluffs</u>	<u>White Bluffs Loop</u>
Reconnaissance	Jan.-March 1973	March & April 1973	March & April 1973
Surveying	March-June 1973	Sept.-Nov. 1973	Oct.-Dec. 1973
Construction Start	Oct. 1975	Oct. 1975	Oct. 1975
Energization	June 1976	July 1976	July 1976

This facility was covered as a Phase I project, Study Area 3, under the title "Richland Area Service," in BPA's Fiscal Year 1974 Environmental Statement. A public meeting was held to discuss the project in the Federal Building, Richland, Washington, on November 14, 1972.

Representatives of the following agencies were contacted during the reconnaissance phase:

Atomic Energy Commission, Richland, Washington

Benton-Franklin Governmental Conference

#### D E S C R I P T I O N   O F   T H E E X I S T I N G   E N V I R O N M E N T

##### PHYSICAL ENVIRONMENT

The study area, in the lower central part of the State of Washington, is entirely within Benton County. (See map.) It includes 88,000 acres within the Hanford Reservation of the Atomic Energy Commission, and 7,000 acres within Richland's city limits. The southern border of the study area is 3 miles north of the city center of Richland. The study area is rectangular, approximately 8 miles east to west and 20 miles north to south.

##### Climate

The study area is situated within the lowest and driest basin of eastern Washington in which a mild continental steppe climate and wide seasonal

HEW #2 Loop 230 KV

Ashe Sub.  
Site

FFTF

300 Area  
Sub.  
White Bluffs  
Sub. Site

range of temperatures are encountered. Average precipitation is approximately 6 inches per year, most of which falls as rain during the winter months. Snowfall is from 10 to 35 inches of which ground accumulation seldom exceeds 8 to 12 inches. Snow can remain on the ground for a few days to 2 months between mid-December and latter part of February. Summer precipitation is usually associated with thunderstorms and includes a few hail storms. It is not unusual if 4 to 6 weeks pass without measureable rainfall.

#### Climate Statistics

	<u>Jan. Mean</u>	<u>July Mean</u>	<u>Annual Mean</u>
Temperature:	29°	76°	53°
Precipitation:	0.9"	0.15"	6"
Snowfall:	5.3"	0"	13"
Cloud Cover: (days/month)	19	3	147
Precipitation of 0.01" or more:	24 days		
Snow, sleet 1.0" or more:	5 days		
Thunderstorms:	11 days (with)		
Growing season:	185 days; Mean from mid-April to mid-October		

#### Geology

The study area is within the Pasco Basin Physiographic Province at the extreme southwest edge of the "Channeled Scablands" of the Columbia River basalt. During the Pleistocene ice ages, seven floods rampaged across the "Scablands," burying most of the basalts with river gravel and sediments of the Ringold Formation. The floods created the Gable Mountain gravel bar, which trails southeast from Gable Mountain for a dozen miles, Cold Creek gravel bar, about 5 miles west of the Gable Mountain bar, and a channel filled with glacial gravel along the southwest margin of Gable Mountain. Gable Mountain is approximately 1 mile north of the study area's northern boundary.

Present geology within the study area consists primarily of glacial river gravel deposits, with sand dunes, in the north-central part of the study area. Gable Mountain and Cold Creek gravel bars are partially obscured by sand dunes. In time, as the dunes slowly migrate eastward, the gravel bars should become exposed.

The sand dunes are formed of wind-blown sand derived from glacial outwash and some recent alluvium. Although the majority of these dunes have been stabilized by vegetation, several large ones are still active. These dunes, up to 30 feet high, comprise a complex system including common bar-chans (typical dunes of most arid or semiarid deserts), longitudinal dunes, and parabolic dunes. Migration of the active dunes is slow, probably less than 1 foot per year.

#### Terrain

The study area is within an almost plain-like region of gentle rolling hills. The elevations range from 350 to 400 feet at the banks of the Columbia River to 500 or 600 feet at the western boundary of the study area.

#### Soils

Silt and sandy loam, with coarse fragments derived from glacial materials is the predominant soil in the area. This soil has good drainage with an average profile depth of 20-60 inches.

The entire area is subjected to wind erosion, especially during the spring when strong winds create sandstorms. Occasionally, water from heavy rains will erode the steeper slopes.

Soil capabilities consist of range management and the growing of irrigated and limited dry-land crops. Major soil problems include erosion, sandy to gravelly profile, and drought.

#### Water

Due to the small amount of precipitation and high porosity of the soil, the area has no year-round flowing streams. Surface water either seeps into the ground or evaporates. Groundwater flows from the area to the Columbia and Yakima rivers. Direction of flow is generally perpendicular to the ground contour. The water table varies from the surface at the Columbia River to a depth of 100 feet below the surface at the western boundary of the study area. The southern part of the study area is also drained by the Horn Rapids Ditch.

The quality of this portion of the Columbia River's water is classified, "Class A" or excellent.

#### LAND USE

The study area is almost entirely within the Atomic Energy Commission's Hanford Reservation. The reservation has not been open to the public since 1943 when the Manhattan District of the Corps of Engineers selected the Hanford area for nuclear development. The reservation principally is used for the AEC's needs, such as nuclear reactor sites, nuclear fuel manufacturing, fuel processing, waste processing, and research facilities. Significant amounts of lands within the study area are set aside for ecological

studies, such as dunes and two vegetative recovery study areas. An active rifle range, surrounded by a safety zone, is located at the extreme southern part of the reservation.

Although the Hanford Reservation is a Federal Reservation, county and state laws do establish the project area as an "Unclassified District." The "Comprehensive Plan of Benton County, Washington," dated August 1966, includes the reservation as an "Unclassified District." This type of district does not restrict construction of electric power generation plants or electrical facilities such as substations and transmission lines.

Transportation systems consist of approximately 270 miles of paved four-lane and two-lane primary roads, 175 miles of secondary gravel roads, 225 miles of gravel and unimproved roads. State Highway 240, crosses the area from east to west. An AEC-owned railroad with over 150 miles of track is on the reservation and 2,000 to 3,000 ton capacity barges operate along the Columbia River.

The extreme southern part of the study area is within Richland's corporate city limits. This area is classified by Benton County's Planning agency as "Industrial Area." While existing buildings are only at North Richland adjacent to the Columbia River, and adjacent to the Reservation 9,000 feet west of the Columbia River, industry is expected to move into this area creating an additional demand for the Stevens Drive 115-kV line.

State Highway 240, which has an average daily traffic count of 1,100, passes through the extreme southern part of the study area. Alternate Route 7 of the proposed Interstate Highway 82 is also projected through this area, with junctions at Highway 240 and north Richland. Projected average daily count for Route 7 in the year 1995 is 8,000. The remaining portions of the study area can be generally classed as barren or "open space" previously being utilized.

#### NATURAL AND CULTURAL RESOURCES

##### Historical and Archeological Sites

The Wanapum Indians originally occupied the Columbia River banks between Priest Rapids and Pasco, Washington. Their main village was located at Priest Rapids, although archeological evidence points to other important village sites. Several areas were occupied seasonally by the Wanapum people as during salmon runs. The last Wanapums inhabited the Hanford area in 1943 when the Hanford Reservation was established. Today Wanapum Indians live either at Priest Rapids or on the Yakima Indian Reservation.

Before 1943, the Hanford Area was sparsely populated with a few small scattered irrigated farm plots and orchards. In January 1943, the Manhattan District of the Corp of Engineers decided to use what is now the Hanford Reservation for nuclear development. Three towns were included in this

reservation: Richland, White Bluffs, and Hanford. White Bluffs was evacuated by 1945. Hanford became a wartime construction camp and in a few months increased from its original 400 to 51,000. In 1945, Hanford also was completely evacuated. Richland, becoming the Administrative center of the Hanford project, was taken over by the Federal Government, its population expanding from 250 to over 25,000. In December 1958, Richland became a first class city, entirely converted from government to private ownership.

Hanford Reservation was originally constructed to produce plutonium for nuclear weapons and by 1964, nine plutonium production reactors had been built. However, by January 1964, plutonium production was cut back and the older reactors shut down.

In 1964, the dual purpose N-Reactor was completed. The reactor produces plutonium and by-product heat, which produces enough steam to turn two very large generators, each capable of producing more than 400 MW.

Although the study area has an unusual history, it contains no property listed in the *National Register of Historic Places*, as published in the *Federal Register*, Volume 38, Number 39, dated February 28, 1973, or in subsequent monthly addenda.

Archeology of the Hanford area is largely unknown. An extensive excavation was conducted at Wahluke in 1926-1927 by the U.S. National Museum. Since then, the only other archeological research consisted of preliminary survey and test programs along the Columbia River in 1968, and a survey conducted by Battelle-Northwest, for the WPPSS Hanford No. 2 environmental report. Because of the lack of archeological research in the area, any archeological resources would be considered important and would warrant further investigation.

The following archeological sites within the study area have been identified:

<u>Location</u>	<u>Type of Site</u>	<u>Recommendation</u>
SE1/4 of SW1/4, Sec. 11, T.10 N., R.28 E. Center of NE1/4, Sec. 14, T.10 N., R.28 E.	open camp site open camp site	surface collection test excavation
SW1/4 of SE1/4, Sec. 11, T.10 N., R.28 E.	possible housepit	test excavation
E1/2 of NW1/4, Sec. 2, T.10 N., R.28 E.	possible housepit	test excavation
Center of Sec. 2, T.10 N., R.28 E.	open camp site	test excavation
NE1/4 of SW1/4, Sec. 35, T.11 N., R.28 E.	fishing station	no more work
SW1/4 of SE1/4, Sec. 26 & W1/2 of NE1/4, Sec. 35, T.11 N., R.28 E.	open camp site	test excavation
SW1/4 of NE1/4, Sec. 26, T.11 N., R.28 E.	open camp site	test excavation
NW1/4 of NE1/4, Sec. 26, T.11 N., R.28 E.	housepit site	test excavation
NW1/4 of NE1/4, Sec. 11, T.11 N., R.28 E.	housepit site	test excavation
Shifting Sand Dunes	numerous small campsites	

#### Recreation

Hanford and the Columbia River within the reservation are entirely closed to the general public. Some limited visitor and information facilities are

provided under the security limitations of the AEC. It is not anticipated that public recreation facilities will be provided within the reservation.

The area within Richland's city limits has no parks. The Columbia River, outside of the Hanford Reservation and Yakima River, however, does provide many recreational opportunities, such as fishing, boating and swimming. The islands of the Columbia are visited extensively by hunters.

#### Scenic

Scenic values within the study area are minimal. Terrain and vegetation, major elements of scenic value determinations, do not offer a great variety of form or texture. Gently rolling hills with sagebrush cover extend to the visual horizon. Man-made facilities are government-developed industrial sites. Design of structures and related features are all utilitarian in nature. The Columbia and Yakima Rivers offer a visual contrast to the desert-like conditions by their moving waters and lush shoreline vegetation. Their influence, though, is limited to the valleys in which they flow.

The terrain provides long vistas to the horizon. Gable Mountain, to the north, is a major terrain feature, visible from the area. Sunsets, weather, and other natural phenomena enhance its quality. To the south, the Tri-Cities Area provides a contrast of urbanization and agricultural development.

Appreciation of the scenic qualities of the area are primarily limited to the employees of the Reservation's industries. Except for special public tours which are under the constant surveillance of AEC personnel, the general public is not allowed on the Hanford Reservation.

#### Wildlife

Wildlife within the study area are generally those associated with grass and brushland habitat. The Columbia also provides for many aquatic species.

The Columbia River supports one of the most important anadromous fisheries in the West. The section of the river above Richland contains one of the most extensive natural spawning habitats remaining on the river. Thousands of chinook salmon and steelhead spawn there each year.

Large numbers of waterfowl also use the Columbia, and some of the last natural nesting habitat remaining on the river are found above Richland. The islands in this stretch of the river are especially important to approximately 200 pairs of Canada geese, and 6,000 pairs of gulls. Mule deer inhabit the area, however, because of a lack of cover, densities are low with only about 300 to 400 deer believed to reside on the entire Hanford Reservation.

Few species of birds nest in the upland vegetation. Most abundant are the meadowlark, horned lark, and mourning dove. Other less abundant species include the sage sparrow, loggerhead shrike, long-billed curlew, chukar partridge, and raptorial birds (Swainson's hawk, sparrow hawk, marsh hawk, golden

eagle, and horned owl). Sage grouse, although few in number, have been able to survive on the reservation due to exclusion areas and lack of hunting.

The following threatened wildlife species may at times occur within the study area, although their exact ranges are not known.

<u>Species</u>	<u>Federal Status</u>
Ferruginous hawk ( <i>Buteo regalis</i> )	Undetermined
American osprey ( <i>Pandion haliaetus carolinensis</i> )	Undetermined
Prairie falcon ( <i>Falco mexicanus</i> )	Threatened
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	Endangered

#### Vegetation

Upland vegetation consists mostly of cheatgrass with lesser amounts of Sandberg's bluegrass, tansy mustard, tumble mustard, tumbleweed, rabbitbrush, and sagebrush. When the vegetative shrub cover is removed or disturbed, cheatgrass can be expected to invade the area.

The riparian vegetation along the Columbia and Yakima Rivers consists of only a thin band, in some places only a few yards wide of shrub willows, sedges, rushes, and a lush mixture of grasses and herbs. A few exotic trees planted by previous inhabitants along with some native cottonwood trees are scattered along the shores.

The riparian and gravel bar plant life have been affected by nonseasonal fluctuation of the Columbia River's water level due to the release of water from upstream dams.

#### Social and Economic Characteristics

Although the general public is not allowed on the reservation, it does provide jobs for many people, most of whom live in the nearby Tri-Cities Area. As the new projects, Hanford No. 1 and No. 2, and the Fast Flux Test Facility are built, they will provide many new jobs and money to spur the economy of the Tri-Cities. For example, Hanford No. 2 has an estimated cost of over \$400,000,000 with an annual operating cost of approximately \$48,000,000. Hanford No. 2 will also employ a peak of 900 persons during the construction period and approximately 100 people on a permanent basis. Much of the construction and annual costs will be spent in the Tri-Cities, either through the spending of salaries or the procurement of supplies. Hanford No. 1 is estimated to initially cost over \$600,000,000.

D E S C R I P T I O N   O F   T H E   P R O P O S E D   R O U T E  
A N D   I T S   I M P A C T

The following location, design, and land use discussions are divided into three facility evaluations. Because of the short length of each facility the selection of alternatives was not particularly pertinent.

Facility I - Ashe Tap to AEC's HEW No. 3, 230-kV line;

Facility II - Ashe-White Bluffs 230-kV line;

Facility III - White Bluffs loop to 300 Area - Stevens Drive 115-kV line.

FACILITY I PROPOSED ASHE TAP TO AEC's  
HEW NO. 3, 230-KV LINE

This proposal's basic routing considerations include costs, reliability, and joint corridor use.

Most of this route's length will parallel the proposed Ashe-Hanford 500-kV line. The Ashe-Hanford construction is tentatively scheduled to begin in October 1976, with energization scheduled for April 1977. The proposed Ashe Tap to HEW No. 3 line will be built first with construction scheduled to begin in October 1975. The Ashe-Hanford 500-kV Facility Evaluation Supplement to the Fiscal Year 1975 Environmental Statement contains information pertaining to the Ashe Tap to AEC's HEW No. 3 line proposed and alternate route locations and their impact. This alternative to the proposed Ashe Tap to HEW No. 3 line is dependent on the location of the 500-kV Ashe-Hanford line. Since the impacts of the Ashe-Hanford 500-kV alternate have been discussed, the Ashe Tap to HEW No. 3 line report will not discuss this alternate.

It is anticipated a future line will be necessary to integrate possible future nuclear generating plants. This line will be built parallel and east of the Ashe-Hanford 500-kV line. Therefore, additional right-of-way will be required along the Ashe-Hanford's length creating a corridor which, for 7.7 miles out of Ashe, will include the proposed line.

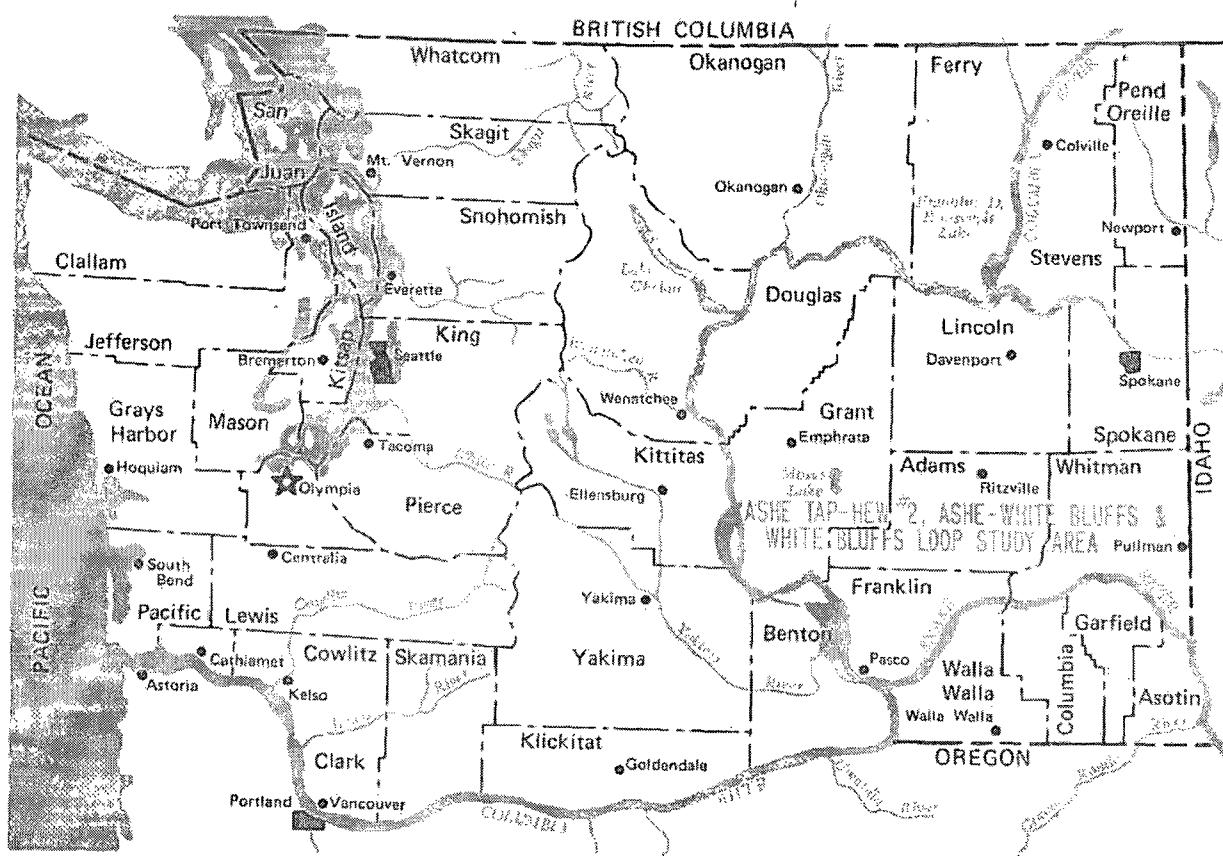
This proposed line will be divided into three sections:

Section 1 - Parallel to the 500-kV Ashe-Hanford line

Section 2 - New right-of-way

Section 3 - Parallel to the HEW No. 3, 230-kV line.

All further discussions pertaining to Section I will be considered as a corridor containing this proposal, the Ashe-Hanford 500-kV line and enough right-of-way for a future line.



### Location

Section 1: Refer to enclosed maps for graphic description of route locations. The 10.1-mile corridor begins at BPA's Ashe Substation Site at the Hanford No. 2 nuclear powerplant site. The proposed corridor proceeds northwesterly for 4.3 miles. It then turns at a slight angle toward the west and continues northwest for another 3.4 miles to an angle point, where this proposed line crosses underneath the Ashe-Hanford line.

Section 2: The proposed line proceeds on new right-of-way for 1.5 miles to where it crosses AEC's HEW No. 3, 230-kV line.

Section 3: It continues while paralleling the HEW No. 3 line for 0.9 mile into AEC's existing switching station where it will be connected to the HEW No. 3, 230-kV line.

New right-of-way width required is as follows:

Section 1: 355 feet to include the proposed Ashe-Hanford 500-kV line and future line.

Section 2: 125 feet.

Section 3: 125 feet.

### Access Roads

Access road requirements are approximately as follows:

#### Section 1

new location on right-of-way - 3 miles

new location off right-of-way - 5 miles

Approximately 3 miles of existing gravelled telephone line access road will be utilized through the sand dunes area. Short temporary spur roads to the individual tower sites will be needed during the construction phase.

#### Section 2

new location on right-of-way - 1.5 miles

new location off right-of-way - none

#### Section 3

Existing AEC access roads will be utilized. Short temporary spur roads to the individual tower sites will be needed during the construction phase.

### Design

The proposed line will be built on lattice steel, single circuit, flat configuration, 230-kV towers. (See enclosed drawing of tower configuration.) Steel from existing towers, taken from a BPA line to be removed, will be used for the towers of this proposed line. The towers will average approximately 80 feet in height with a base 28 feet square and a span length between towers averaging 1,150 feet.

### FACILITY II PROPOSED ASHE-WHITE BLUFFS 230-KV LINE

The Ashe-White Bluffs' basic routing considerations include:

1. Keeping the proposed line as short as possible to minimize costs.
2. Providing reliable service to the FFTF point. BPA's Benton-FFTF 115-kV line and an AEC 13.8-kV line provide power to the FFTF plant. For reliability reasons, the proposed Ashe-White Bluffs line should not cross these lines; this avoids the hazard of a conductor of the proposed line breaking and falling onto the Benton-FFTF line.
3. Not crossing the safety zone surrounding the rifle range. This eliminates possible damage to the proposed transmission line by stray bullets.
4. Avoiding the Wye radioactive waste burial site.
5. Providing a most direct corridor for future lines which should continue southward past the White Bluffs Substation site and provide enough width for the proposed and future lines.

### Location

The 10.1-mile proposed line begins at the Ashe Substation site and proceeds due west for 0.4 miles. (See enclosed location maps.) It then turns southwest for 1.5 miles and due south for 7.4 miles, bypassing the FFTF plant 1/2 mile to the west, where it turns easterly for 0.8 miles to the White Bluffs Substation site.

A new 245-foot right-of-way width will be required for the proposed corridor's entire length.

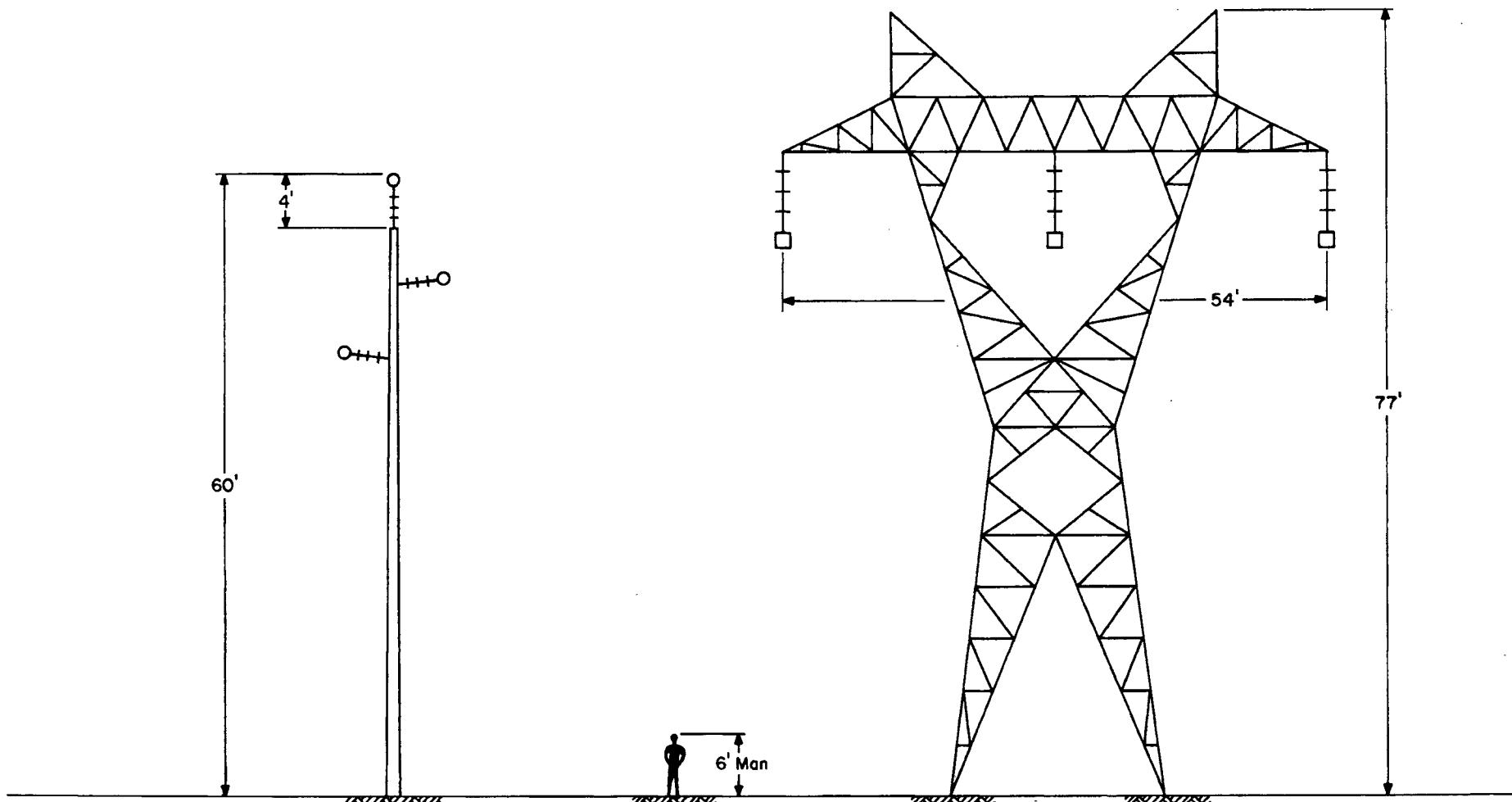
### Access Roads

Access road requirements on the right-of-way are approximately 10.1 miles. No off right-of-way roads are required.

### Design

The proposed line will be built on lattice steel, single circuit, flat configuration, 230-kV towers. Steel from existing towers, from a BPA line

## CONFIGURATIONS OF BPA TRANSMISSION TOWERS



Single Circuit  
Wood Pole, Stand-off Insulator  
115,000 volt  
White Bluffs Loop

Single Circuit  
Flat Configuration 230,000 volt  
Ashe Tap to HEW#2 loop line  
Ashe-White Bluffs

which will be removed, will be used for the towers of this proposed line. The towers will average approximately 80 feet in height with a base 28 feet square and a span length between towers averaging 1,150.

FACILITY III PROPOSED WHITE BLUFFS LOOP TO  
300 AREA-STEVENS DRIVE 115-KV LINE

The White Bluffs loop line's basic routing consideration include:

1. To be located entirely within the Hanford Reservation.
2. To avoid the rifle range.
3. To be of minimum length.

Location

The proposed line begins at White Bluffs Substation site and proceeds east for 3.6 miles to the 300 Area-Stevens Drive line, a section of the Benton-Richland 115-kV line. The proposed line will make a connection with the 300 Area-Stevens Drive 115-kV line.

The proposed line will consist of two, single-circuit 115-kV lines which will route the 300 Area-Stevens Drive 115-kV line through the White Bluffs Substation. The two proposed lines will have a separation of 30 feet.

A new right-of-way, 80 feet in width, will be required for this line's entire length.

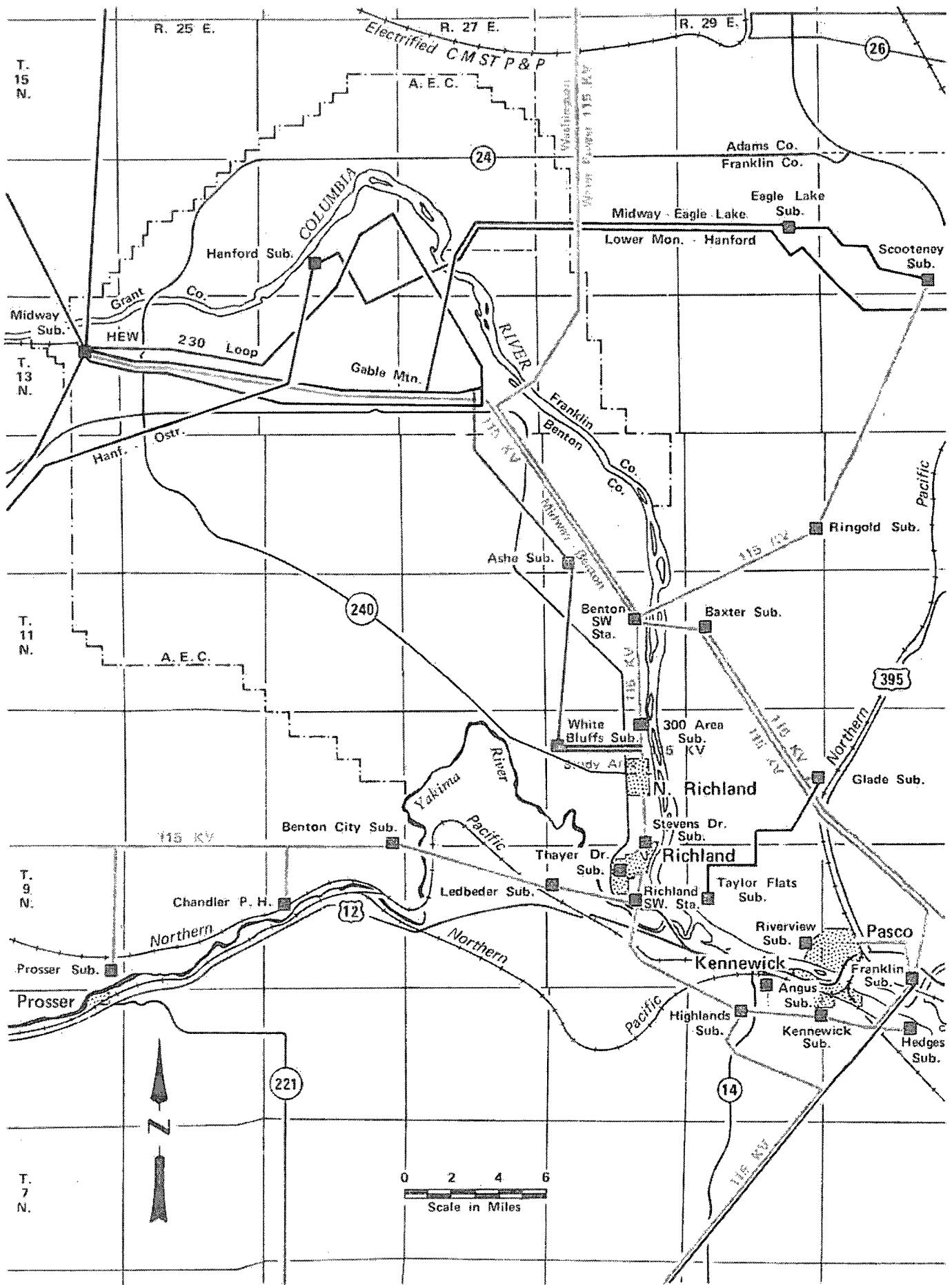
Access Roads

Access road requirements on the right-of-way are approximately 3.6 miles. No off right-of-way access road is required.

Design

The proposal will consist of two single wood-pole lines. The poles will average 56 feet in height with an average spacing between poles of 600 feet.

The estimated total cost of constructing the Ashe Tap to AEC No. 3, 230-kV line including clearing, erosion control, and access road improvement is \$687,000. For the WPPSS No. 2 Ashe 230-kV line the costs are estimated at \$99,000, and the White Bluffs-Ashe 230-kV line at \$653,000. The Benton-Richland Loop to White Bluffs 115-kV transmission line is estimated at \$412,000. Additional costs are involved for relays, metering, substations, and transmission connections to WPPSS No. 2 Substation from Hanford No. 2. The total cost for all facilities involved in the Richland Area Service proposal totals \$3,602.000.



### IMPACT ON LAND USE

The following table lists the miles and easement acreage of land cover crossed by each of the proposed facilities.

<u>Facility</u>	<u>Sagebrush and Grass</u>	<u>Comments</u>
I - miles of land use	10.1	Corridor includes the proposed Ashe-Hanford line and future line
approx. new easement required in acres	367	
II - miles of land use	10.1	Corridor includes the proposed line and enough width for a future line
approx. new easement require in acres	293	
III - miles of land use	3.6	Corridor includes two single-circuit wood-pole lines
approx. new easement required in acres	37	

The 23.8 total miles of proposed right-of-way for the Richland Area Service requires 697 acres of new easement.

The following is a list of land uses which are found along Section I, Ashe Tap to HEW No. 3 line:

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
230-kV power line	0.0-7.7	BPA Ashe- Hanford	parallel at 120 ft. separation east of proposed line	corridor includes pro- posed line, Ashe- Hanford, and a future line
railroad	0.0-3.7	AEC	adjacent at a separation of approx. 1,000 feet west	

\* In the chart, the term "Reconn. Mile" refers to the distance along the proposed line.

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
underground and overhead telephone; gravel road	0.0-1.4	General Telephone	at a separation of 1,500 ft. west of proposed line at Mi. 0.0 & converging to cross proposed line at Mi. 1.4.	gravel road is used as part of access road system
underground and overhead telephone; gravel road	1.4	General Telephone	crossing	
underground and overhead telephone; gravel road	1.4	General Telephone	diverging easterly at an angle of 14° of proposed line	gravel road through sand dunes will be used
sand dunes	2.5		crossing	some dunes unstable
railroad	3.7	AEC	crossing	
four-lane Hwy.	3.8	AEC	crossing	
road, oil & sand	7.5	AEC, "Arc 5"	crossing	
road, gravel	7.6	AEC	crossing	
angle point	7.7			
500-kV transmission line	7.7	BPA, proposed Ashe-Hanford	crossing	
railroad	7.9	AEC	crossing	
road, gravel	8.1	AEC	crossing	
telephone line	9.0	General Telephone	crossing	
four-lane Hwy.	9.0	AEC	crossing	
230-kV power-line and access road	9.2	AEC	crossing	

\* In the chart, the term "Reconn. Mile" refers to the distance along the proposed line.

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
230-kV power-line	9.2-10.1	AEC	parallel east of at 120 feet separation	
115-kV power-line	9.9	BPA	crossing	
Substation	10.1	AEC	end of line	proposed line taps HEW No. 3 230-kV line within substation

The following is a list of land uses found along Section II, Ashe-White Bluffs line:

<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
future line	0.0-9.4	BPA	to parallel west of proposed line	
gravel road	0.2	AEC	crossing	
railroad	0.2	AEC	crossing	
underground and overhead telephone cable	0.4	General Telephone	crossing	
Hanford No. 2	0.4		AEC Nuclear 0.6 miles east Power Plant	
Wye Burial Grounds	0.4		0.5 miles east	contaminated
4-lane hwy.	2.4	AEC	crossing	
FFT	4.4		0.5 miles east	
overhead telephone line & gravel road	5.1	General Telephone	crossing	
oil & sand road	7.4	“Arc 6” AEC	crossing	

\* In the chart, the term “Reconn. Mile” refers to the distance along the proposed line.

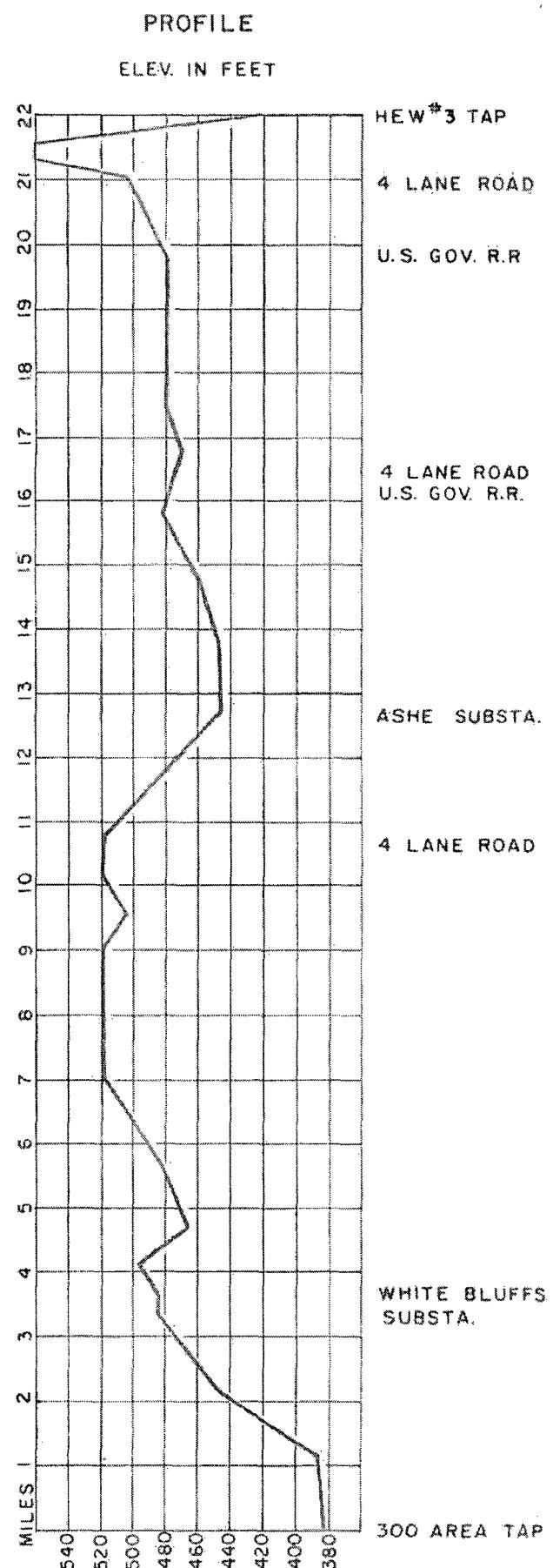
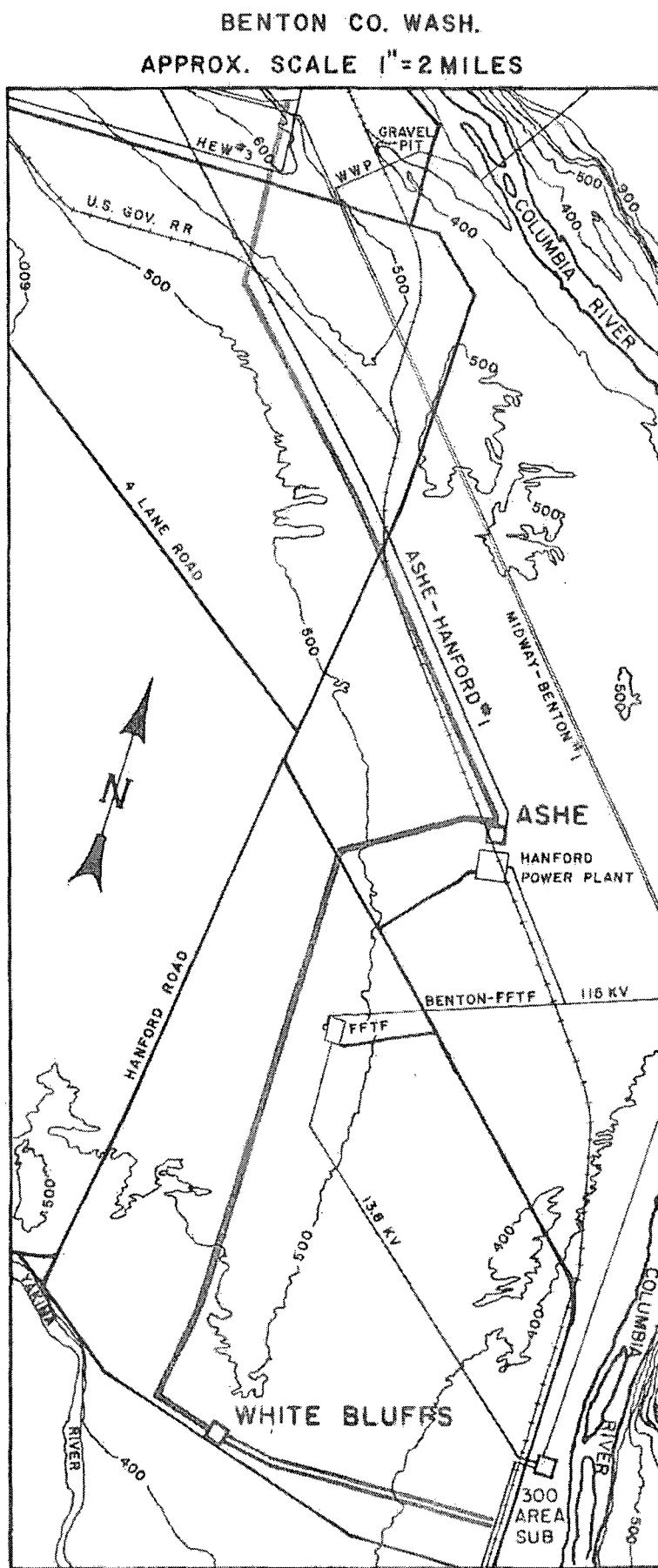
<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
angle point	9.3			
transmission line fence	9.3 10.1	PP&L	parallel 0.1 mile south	
2-lane paved road	9.3 10.1	City of Richland Rt. 10	parallel 0.15 miles south	very light traffic
White Bluffs Substation Site	10.1	BPA	Terminus	

The following is a list of land uses found along Section III, White Bluffs loop to 300 Area-Stevens Drive:

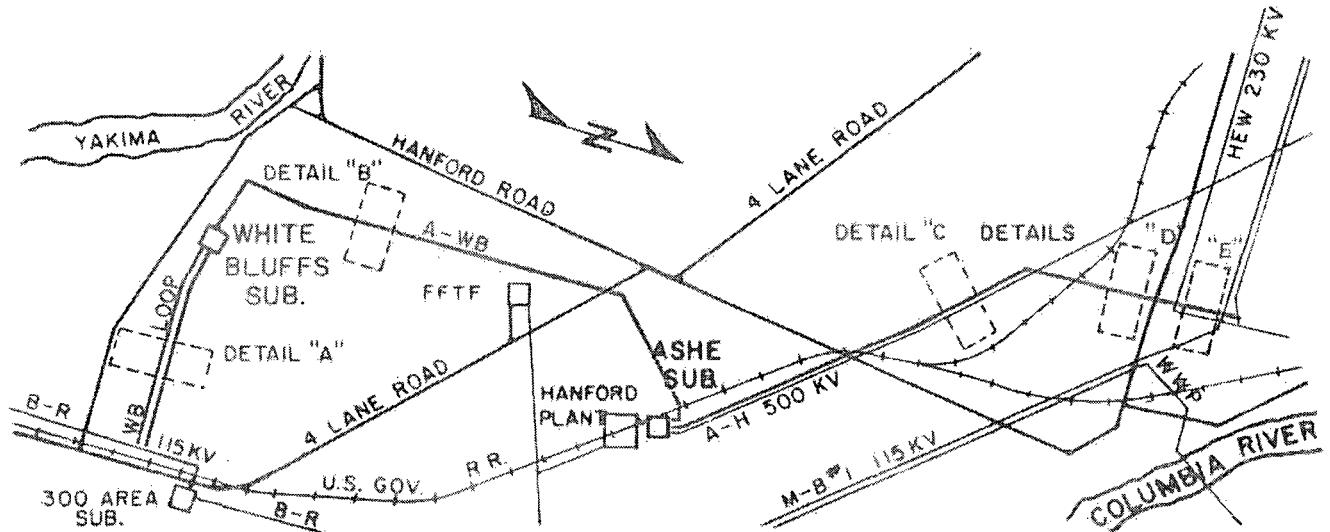
<u>Land Use or Crossing</u>	<u>*Reconn. Mile</u>	<u>Name of Land Use</u>	<u>Land Use in Relation to Proposed Line</u>	<u>Comments</u>
2-lane paved road	0.0-3.8	Horn Rapids Road	south at a separation of 0.2 to 0.6 miles	very light traffic
rifle range	0.0-2.6		north at a separation of 0.0 to 0.4 miles	direction of fire is away from line
2-lane paved road	1.6		crossing	traffic for rifle range
canal	2.5		crossing	abandoned
fence, barbed wire	3.1	AEC	crossing	security fence
disposal pit	3.1	AEC	0.5 miles south	
road, gravel	3.4	AEC	crossing	
115-kV line	3.6	BPA 300 Area-Stevens Drive	terminus	

\* In the chart, the term "Reconn. Mile" refers to the distance along the proposed line.

ASHE TAP TO NEW "3 ZOURKV, ASHE-WHITE BLUFFS™ 1 230 KV  
WHITE BLUFFS LOOP 115 KV DOUBLE CIRCUIT



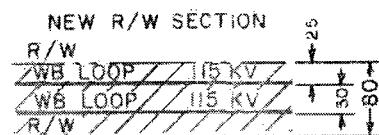
ASHE TAP TO HEW<sup>#3</sup> 230 KV, ASHE-WHITE BLUFFS<sup>#1</sup> 230 KV  
 WHITE BLUFFS LOOP 115 KV DOUBLE CIRCUIT  
 RIGHT OF WAY DETAIL MAP



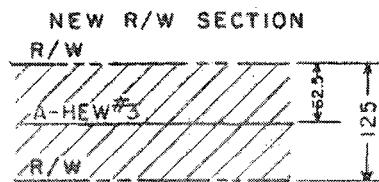
ABOVE DRAWING NOT TO SCALE

SCALE OF DETAILS BELOW ARE 1"=200'

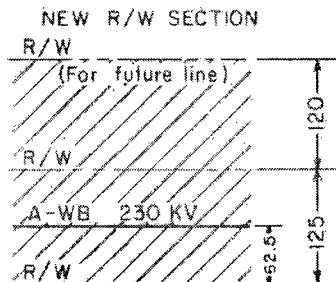
DETAIL "A"



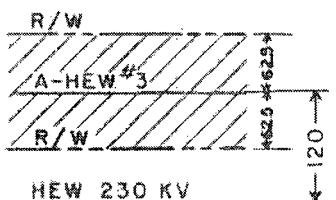
DETAIL "D"



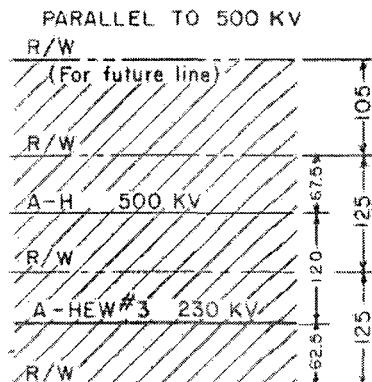
DETAIL "B"



DETAIL "E"  
PARALLEL TO HEW #3



DETAIL "C"



R/W - - - RIGHT OF WAY

A-H - - - ASHE - HANFORD<sup>#1</sup>

A-HEW<sup>#3</sup> - - - ASHE TAP TO HEW<sup>#3</sup>

B-R - - - BENTON - RICHLAND

HEW - - - HANFORD ENERGY WORKS

M-B - - - MIDWAY - BENTON

WWP - - - WASHINGTON WATER POWER

A-WB - - - ASHE - WHITE BLUFFS

/ / / / / - - - NEW R/W

ASHE TAP - - - ASHE TAP TO HEW<sup>#3</sup>

FFT - - - FAST FLUX TEST FACILITY

WB LOOP - - - WHITE BLUFFS LOOP TO 300 AREA

Proposed facilities will not have a significant impact on existing land use since most land is barren open space with restricted public use since they lie within AEC's Hanford Reservation. They also lie within AEC's safety zone. People who enter this zone must adhere to special guidelines set forth by the AEC in order to minimize radiation hazards.

The proposed Ashe-White Bluffs line crosses far enough away from the Hanford No. 2 nuclear powerplant site and the Fast Flux Test Facility site that little potential is seen for impact on future plant expansion.

If the AEC Reservation were returned to public domain or farming was allowed, there is the possibility that impacts on land potential would be incurred.

The proposed White Bluffs loop will not impact the rifle range. The direction of fire is away from the line.

All proposed sections would create a small temporary economic boost in the Tri-Cities area during the construction phase, as much of the salaries and per diem paid the construction workers would be spent there.

#### NATURAL AND CULTURAL RESOURCES

The proposed sections do not cross any identified scenic resources and on the flat terrain, all structures will be seen from several miles.

The area's scenic resources will not be physically affected by the line's location and construction. Major work is to be done in areas of the AEC Reservation where general public viewing is prohibited.

Parts of the last mile of Ashe-White Bluffs and parts of the entire White Bluff loop lines will be visible from State Highway 240. The structures will be visible only from a distance, for at the closest point the highway is still over 0.5 miles from the line. Most of the White Bluffs loop will also be visible from Horn Rapids Road.

#### Historic and Archeological Sites

The proposed sections do not come near any identified historic or archeological sites. However, potential for discovery of archeological sites is great, and any archeological material discovered during surveys or construction will be immediately reported to the appropriate officials.

#### Recreation

There are no recreational facilities within the study area except for limited visitor and information centers which will not be affected by the line.

### Wildlife and Vegetation

The proposed project will create minimal adverse impacts to wildlife and vegetation. Greatest effects will be during construction activity, which can be minimized by avoiding the mating and nesting seasons.

Vegetation removed by new tower sites and access roads will reduce total habitat available for game. Sage grouse, common to the study area, will be affected by the removal of sagebrush. The reduction in potential populations should be quite small.

### PHYSICAL SENSITIVITY

#### Erosion

Wind erosion potential of loam soil in this dry climate is extremely high. If vegetative cover is removed or soil is disturbed, as during construction and clearing of access roads and tower sites, strong springtime winds will move the soil to such an extent new vegetation will not establish itself for many years. Highest order of vegetation is sagebrush and one of the lowest orders is cheatgrass. If sagebrush is killed or removed, it will eventually be replaced with cheatgrass. If cheatgrass is removed or killed, it will be replaced with more cheatgrass. From past experience within the Hanford Reservation it takes nature at least 30 years to reestablish sagebrush.

Well gravelled existing roads seem to be very stable with little wind erosion. If a disturbed area, such as a temporary access road, is seeded in the fall with cheatgrass the grass will establish itself within 1 to 2 years and will again be capable of minimizing wind erosion.

Ashe Tap to HEW No. 3 line also crosses 3 miles of sand dunes where a high erosion impact is expected due to lack of vegetative cover and unstable sand dunes. They reach 30 feet in height and are capable of moving eastward to 1 foot per year. However, conductor will be well above the top of sand dunes.

To minimize wind erosion caused by construction of access roads, as many existing roads as possible will be used and gravel will cover the main new access roads. If possible, spur roads will not be cleared by blading with a bulldozer.

#### Water Quality

No impact expected.

#### Noise

No noise impacts upon the general public will be created by these routes during the construction period. Impacts to wildlife should be minimal.

Electrical Interference

The proposed corridors might have some impacts on telephone lines. Neither exact effects nor their magnitude will be known until after the transmission lines have been energized. Any adverse impacts will be corrected.

## WHITE BLUFFS SUBSTATION EVALUATION

The site analysis for White Bluffs Substation was conducted in an area 6 to 8 miles northwest of Richland, Washington, on the Atomic Energy Commission's Hanford Reservation.

Present land use in the area consists entirely of rangeland covered with sagebrush and associated vegetation. Future planning by the City of Richland indicates that land to the south of the site will be used for industrial development. Nearby there is a rifle range on AEC property but the vegetation and other appearance of this land is similar to the surrounding area. The only roads in the vicinity are an AEC road which was recently turned over to the City of Richland one of which forms the south boundary of the Hanford Reservation, and State Highway 240 about a mile to the south.

Following preliminary site investigation, two substation sites were selected for detailed analysis. The environmental impact at these sites is summarized in the location impact evaluation table.

### DESIGN REQUIREMENT

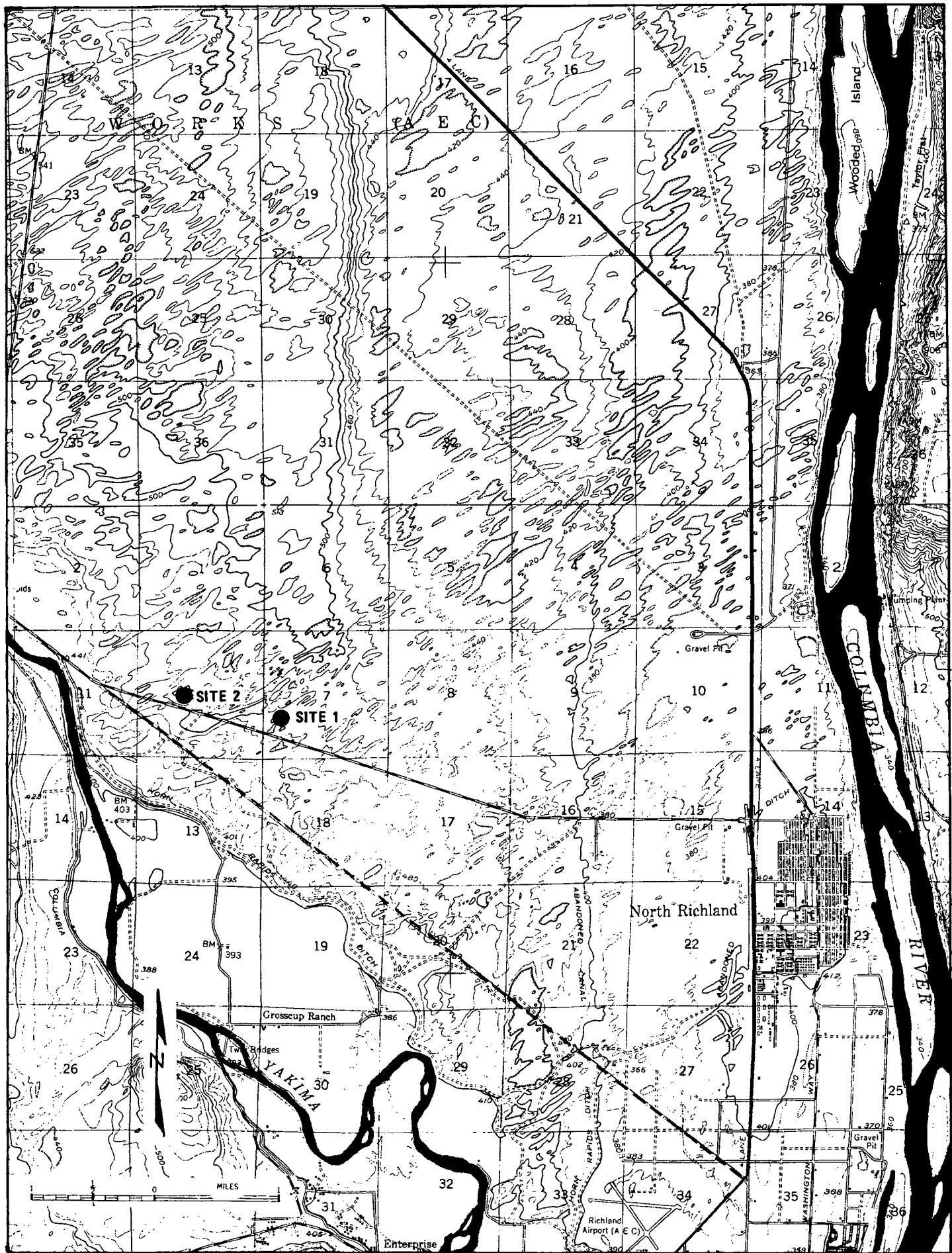
The substation development for 1976 will require 11.0 acres of land and will consist of one 230-MVA, 230/115-kV transformer, terminal facilities, power system control, and protective equipment. A simple design and standard BPA color scheme will be used. The new H. J. Ashe 230-kV line will connect into the substation while the existing Benton-Richland 115-kV line will be looped into the substation via two 115-kV lines. Ultimate development for 1986 may include a second 250-MVA, 230/115-kV transformer bank with associated equipment, one additional 230-kV line from Badger Canyon and two additional 115-kV lines.

### STATUS

A preliminary site investigation was conducted in April 1973. Alternative sites were identified and evaluated with two being selected for detailed analysis. Upon completion of public review a final selection notice will be issued on the proposed site. Facility surveys, design, and land acquisition are scheduled for spring 1974 with construction commencing fall 1974. Energization is scheduled for 1976.

### IMPACT EVALUATION

The following Substation Site Evaluation Table identifies the environmental impact of the alternative substation sites. See the Substation Site Location Map for detailed location.



WHITE BLUFFS SUBSTATION

LOCATION IMPACT EVALUATION TABLE

SITE	DESCRIPTION	CULTURAL RESOURCES	NATURAL RESOURCES	LAND USE
Site 1	SW1/4 Sec. 7, T10N, R27E, W.M., Benton County, Washington, 700 feet north of county road and immediately north of AEC fence. Short access road. Future room for expansion.	Some visual impact on future industrial development. Could cause some electrical interference for same types of industry if located nearby.	Would remove about 11 acres of sagebrush-bunchgrass-cheatgrass vegetation and wildlife habitat from the natural system. Slope is gentle, the land is essentially level except for local microrelief. Some cut and fill would be required. Removal of the vegetative cover would result in some wind erosion. Erosion from surface water runoff would be minimal.	Land use comes under the control of the Atomic Energy Commission. Other potential land uses include research natural area status, irrigated crop land, or sagebrush rangeland. Would remove about 11 acres of land from current or potential use, but would be compatible with AEC use of the Hanford Reservation.
21	SW1/4 Sec. 12, T10N, R27E, W.M., Benton County, Washington, 1,000 feet north of AEC fence. Long access road. Future room for expansion.	Some visual impact on future industrial development. Could cause some electrical interference for same types of industry if located nearby.	Would remove about 11 acres of sagebrush-bunchgrass-cheatgrass vegetation and wildlife habitat from current or potential use. The site is nearly level except for local micro-relief. Some grading would be required. Removal of the vegetation cover would result in some wind erosion. Erosion from surface water runoff would be minimal.	Land use is under the control of the Atomic Energy Commission's Hanford Reservation. Other potential land uses include research natural area status, irrigated cropland or sagebrush rangeland. Would remove about 11 acres of land from current or potential use for the life of the facility but would be compatible with AEC use of the Hanford Reservation.

## A S H E   S U B S T A T I O N   E V A L U A T I O N

### INTRODUCTION

The site analysis for Ashe Substation was conducted in an area about 12 miles north of the City of Richland, Washington, on the Atomic Energy Commission's Hanford Reservation.

General land use in the area consists of rangeland under control of the AEC. The limited vegetative cover includes sagebrush and other associated species as indicated in the description of the existing environment. The Hanford No. 2 Nuclear Power Plant Site and AEC railroad are just south of the proposed site.

The requirement for a location in a specific relationship to transmission lines coming from the powerplant does not allow considerable flexibility for the location of this substation and therefore only one potential site was identified. The environmental impact of this site is summarized in the impact evaluation table.

### DESIGN REQUIREMENT

The new substation development for 1976 will require 37.3 acres of land and will consist of two 230-kV power circuit breakers, terminal facilities for three lines, power system control, and protective equipment. Substation development for 1978-79 will include four 500-kV power circuit breakers, one 500-kV shunt reactor, terminal facilities, power system control and protective equipment. An improved design utilizing appearance-type box girder substation deadend structures w/wide-flange steel yard structures and standard BPA color scheme will be used. A 500-kV transmission line about 1,500 feet long utilizing simplified design tower structures will connect the substation to Hanford No. 2. The Ashe-Hanford No. 2, 500-kV line will be connected into the substation while the proposed Ashe-Pebble Springs, Ashe-Lower Monumental, and Ashe-Hanford No. 1, 500-kV lines will exit the substation. The Ashe-Midway and Ashe-White Bluffs 230-kV lines will also exit the substation. Ultimate development for 1986 may include two additional 500-kV lines (to Oregon City) and two additional 230-kV lines. A roof height antenna is planned for a microwave path to Hanford Substation via a reflector located 4.32 miles north, 70° east from the Substation control house. The reflector will be at least 16 by 24 feet in size on a 50- by 50-foot site.

The preliminary site investigation was conducted in April 1973. Alternative sites were identified and evaluated. Upon completion of public review a final selection notice will be issued on the proposed site. Facility surveys, design, and land acquisition are scheduled for June 1974 with construction commencing May 1975. Energization is scheduled for 1976.

#### **IMPACT EVALUATION**

The following Substation Site Evaluation Table identifies the environmental impact at the proposed substation site.

LOCATION IMPACT EVALUATION TABLE

SITE	DESCRIPTION	CULTURAL RESOURCES	NATURAL RESOURCES	LAND USE
Proposed Site	SW1/4 Sec. 11, T11N, R28E, W.M., 1,200 feet southwest of AEC road and 3,000 feet north of the Hanford No. 2 plant site, AEC Reservation. Because of the proximity to the load center and adverse topography encountered in other areas, this was recognized as the only available site.	The improved appearance design should be compatible with the architectural design of the Hanford No. 2 plant. The number of line towers and corridors will however create a visual impact for visitors at the plant. Archeological surveys conducted for siting of the Hanford No. 2 plant indicate that impacts on archeological resources are unlikely.	Would remove 37.3 acres of sagebrush-bunchgrass-cheatgrass vegetation and wildlife habitat from the natural system. The land is essentially level except for local microrelief. Some grading of the site is required. The removal of vegetative cover may cause some wind erosion. Water erosion from surface runoff may occur but would be limited in its extent.	Land use comes under the control of the Atomic Energy Commission. Other potential land uses include research natural area or sagebrush rangeland. Would remove 37.3 acres of land from current or potential use.

#### NONCONSTRUCTION ALTERNATIVE

The proposed facilities will serve a growing population of approximately 67,500 in Benton County, Washington; increased irrigation pumping demands in the Eagle Lake region of southeast Washington; and provide startup power for the Hanford No. 2 nuclear powered generating plant. If the new transmission and substation facilities are not built, mandatory curtailment of electricity will be required to avoid overloading of existing facilities and resulting brownouts or extended outages. Nonconstruction of the proposed plan of service would delay, if not make totally impossible, the startup of Hanford No. 2, depriving major parts of the Pacific Northwest of desperately needed electrical energy. Also by 1976, Richland and Eagle Lake would have an unreliable power system.

Mandatory curtailments would have varying effects depending on the intensity of the curtailment and the way in which it was imposed. Probably the most significant of these is the social and economic impact.

Reduced electric power to commercial customers resulting in decreased business activity would have economic and social impacts through layoff of workers and decline of economic activity.

If a mandatory reduction of consumption were imposed by rotating power outages which included residences, the effect, other than the obvious inconveniences, would be loss from food spoilage and other damage from lack of electric service; hazards from lack of adequate lighting, and operation of safety such as street lights and alarm systems. This assumes adequate backup generation can be obtained for fire fighting (which in some areas is dependent on electric pumps for water supplies), hospitals and other emergency services. This assumption may not be true in every case.

No new facilities would be required if approximately 1,100 MW of additional generation were added in the area. The only generation that could be added to the area in the short time involved would be combustion turbine. Such additional generation would have the inconveniences typical for units of this kind as described in the main text.

## UNAVOIDABLE ADVERSE IMPACTS

The proposed construction will have few unavoidable adverse impacts. The principal unavoidable impacts are soil erosion by wind and the visual impact in the vast open space of the Hanford Reservation.

### RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Based on present technology, these lines, substations, and associated facilities will have an expected useful life of 50 years for steel and 35 years for wood-pole construction. Experience in past years has shown, in most cases, transmission corridors are upgraded to higher capacity in response to technological advancements and energy demands. This, along with BPA's policy of constructing new facilities on or parallel to existing corridors, may result in a long-term use of these corridors. However, complete removal of these transmission facilities, including tower footings, would be possible in order to make the land available for other uses, if required.

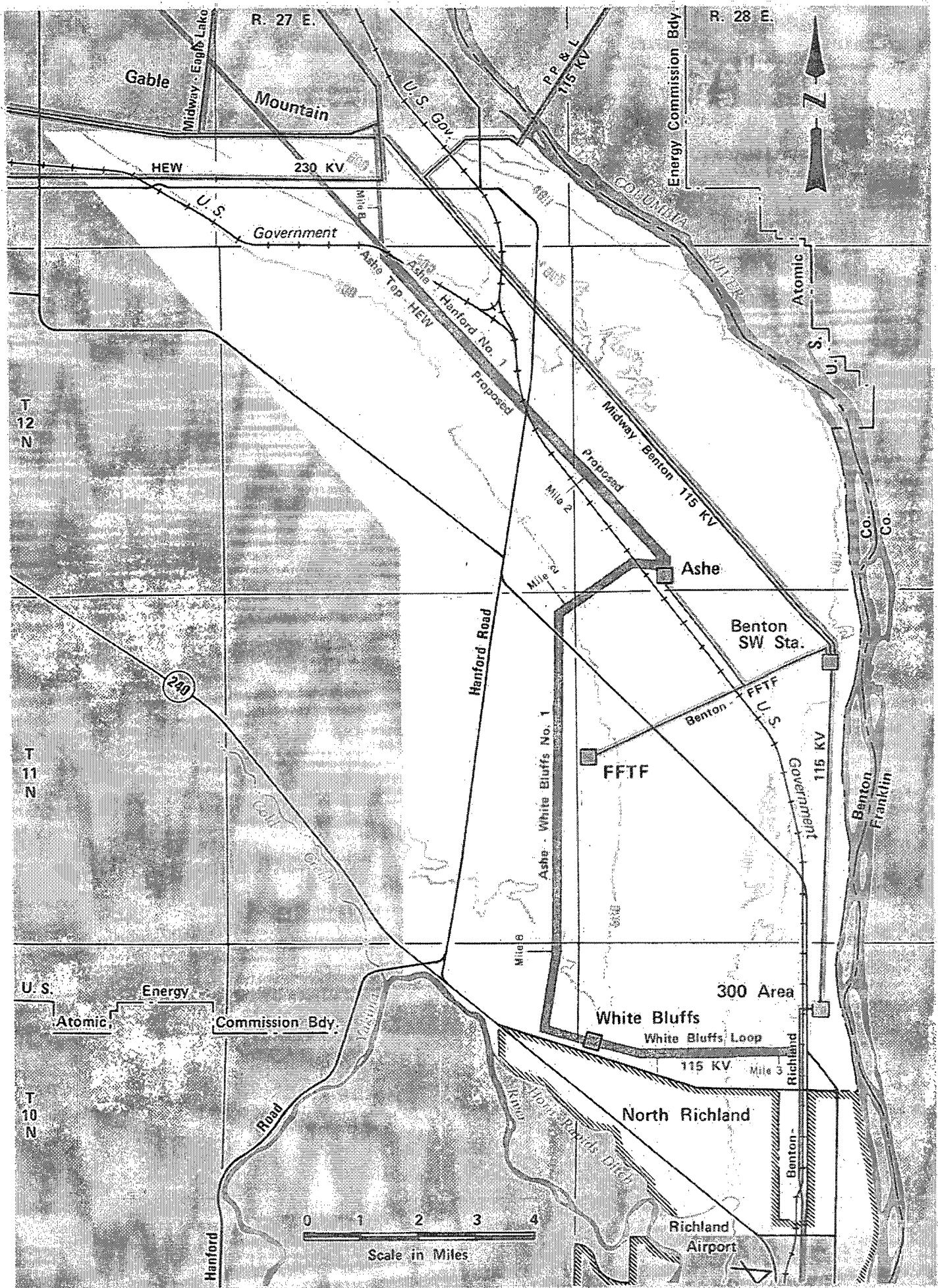
### IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Unrecyclable steel, aluminum, copper, concrete, and other materials used for construction of the lines and substations will be irretrievably committed. Manpower and fuel for construction and maintenance equipment will be irretrievable.

Vegetation removed, wildlife eliminated and soil lost will be irretrievable.

**FRANKLIN-BADGER CANYON TRANSMISSION FACILITIES**

**74-6B**



## S Y S T E M   R E Q U I R E M E N T S

## INTRODUCTION

In addition those facilities discussed in the previous section, the following facilities are also required to provide additional service and reliability to the Richland Tri-Cities Area.

These additional facilities, discussed in this section of the Supplement, are referred to as the Franklin-Badger Canyon Transmission Facilities (74-6B) and include the following:

1. A new 230-kV, double-circuit transmission line from BPA's Franklin Substation to the proposed new Badger Canyon Substation.
2. A new Badger Canyon Substation.

The existing transmission system emanating from Franklin Substation is inadequate to transmit the future output of the Ice Harbor Powerplant under an outage situation. The plant expansion is proposed for 1975. The new line and substation are necessary to insure a reliable system for distribution of peak power if an outage of another line within the existing system occurs. The proposal will also reinforce distribution of power to the Tri-Cities. The plan of development is for the construction of a 230-kV double-circuit system on steel structures. The line would originate at the existing Franklin Substation east of Pasco and terminate at the proposed Badger Canyon Substation site west of Kennewick.

## STATUS

Reconnaissance began in January 1973. Information has been gathered from meetings with various agencies, aerial photography, and both aerial and ground investigations. Construction is tentatively scheduled to begin November 1975 with energization scheduled for June 1976.

This facility was covered as a Phase I project, study area 6 in BPA's Fiscal Year 1974 Final Environmental Statement which was filed on April 5, 1973. A public meeting was held in Richland, Washington, on November 14, 1972.

Agencies contacted during the reconnaissance phase were:

U.S. Corps of Engineers, Walla Walla  
USDI, Bureau of Sport Fisheries and Wildlife  
USDA, Soil Conservation Service, Franklin and Benton Counties

Washington State Department of Game  
Washington State Department of Highways  
Washington State Park and Recreation Commission

Benton County Engineering and Planning Department  
Franklin County Engineering and Planning Department  
Benton-Franklin Government Conference

City of Richland Engineering and Planning  
City of Kennewick Engineering and Planning  
City of Pasco Engineering and Planning  
Tri-Cities Chamber of Commerce

Kennewick Irrigation District  
Columbia Irrigation District

# ASHE TAP-HEW NO. 3, ASHE-WHITE BLUFFS & WHITE BLUFFS LOOP STUDY AREA

## LAND USE EVALUATION

### GENERALIZED COVER AND LAND USE

#### RANGELAND

Grassland



#### OTHER

AEC Installation



Light Industry



Active Sand Dunes



Archeological Site





## DESCRIPTION OF THE EXISTING ENVIRONMENT

### PHYSICAL ENVIRONMENT

The study area for the Franklin-Badger Canyon line is in south central Washington at the confluence of the Columbia and Snake Rivers. Total acreage is over 57,000 including 51,300 acres in Benton, 3,800 in Franklin and 1,900 in Walla Walla Counties. Within the area boundaries is the City of Kennewick. Approximately 7 percent of the study area surface is water. Spokane is 147 miles northeast and Seattle 228 miles northwest.

#### Climate

Climatic conditions of the area are typical for the Central Basin Division, as defined by the Weather Bureau. Elevations of 400 feet where the Columbia and Snake Rivers merge make this the lowest point in eastern Washington. The area is also among the driest, averaging approximately 7 inches of precipitation per year. Snowfall averages between 10 to 35 inches per year, but rarely exceeds an accumulated depth of over 15 inches. During the winter season, the area is subject to warm southern winds called "Chinooks." These cause a rapid air temperature rise in a short period of time, melting whatever snow and ice was present.

The following data was recorded by the Weather Bureau in Kennewick:

#### CLIMATE STATISTICS

	<u>Jan. Mean</u>	<u>July Mean</u>	<u>Annual Mean</u>
Temperature	38.3°F.	91.5°F.	65.6°F.
Precipitation	1.05"	.17"	7.49"
Snowfall	10.7"	--	--
Cloud cover (tenths of sky per day)	7.3	2.3	5.3

---

Precipitation of 0.01 inches or more:	65 days
Snow, sleet, 1 inch or more:	4 days
Growing season (32°F. base):	187 days; Mean first - April 13; Mean last - October 17

#### Geology

The Franklin-Badger Canyon study area exhibits varied geologic features. Underlying bedrock is basalt of the Columbia River series. Individual flows average 100 feet thick, and more than 40 distinct flows are evident in parts of the plateau. Within the study area, outcrops of bedrock occur only along the ridge of Badger Mountain, an extension of the Rattlesnake Hills, which tends to the southeast.

Above the basalt, although not exposed within the study area, lies the loosely cemented sandstone and siltstone of the Ringold formation. These strata were deposited in lakes and along streambeds on the surface of the plateau. Most notable outcrop of the Ringold formation is the White Bluffs area along the Columbia River northwest of the study area.

Overlying the basalt and the Ringold formation is the Palouse formation, an eolian silt. This loess was derived by wind erosion from the Pasco Basin, and carried east and northeast by prevailing winds. In places, the Palouse soil is over 100 feet thick and is found along the southern third of the study area.

Scabland deposits of glacial outwash and flood sediments are found near the northeast extension of the study area. This is approximately the southwest limit of these deposits which were left when glacial Lake Missoula breached the ice dam across the Clark Fork River in Idaho. A catastrophic flood poured across the plateau cutting the coulees that typify the Channeled Scabland.

Recent alluvium is found in most stream and river courses. This is usually sand and gravel which have been reworked by the flowing water.

Erosion within the area is slight to moderate. Wind plays an active part in moving surface material, but the arid character of the region precludes extensive stream erosion. Occasional flash floods are responsible for almost all fluvial erosion.

#### Terrain

Terrain is dominated by two features, the Columbia River floodplain and the foothills of the Horse Heaven Hills. Transition between the two landforms is made by a series of plateaus, rising steadily in elevation from approximately 400 feet to 1,600 feet above sea level. An elevation of 340 feet is maintained in Wallula Lake, the slackwater of the Columbia formed by McNary Dam. The floodplain ranges in elevation from 340 feet at the river to approximately 400 feet at the base of the first plateau. The first foothills, up to 1,100 feet in height, are encountered on the second plateau whose elevation is between 600 and 900 feet. Jump Off Joe, a peak in the extreme southeast corners of the study area, rises to an elevation of almost 2,400 feet.

The floodplain is flat to gently rolling, typical of land created by river deposition. Elevation change to the base of the first plateau is very gradual with no major rises. Landfill operations have modified the river's natural shoreline.

Canyons, such as Badger and Zintel, breaching the plateaus, have been formed by water erosion. Numerous small unnamed ravines mark the lower plateau slopes, perpendicular to contour of the land.

#### Soils

Four soil associations have been identified in the study area. In the vicinity of Badger Canyon, the Warden-Shano and the Hezel-Quincy-Burbank

are present. The central section of line crosses soil of the Scooteney-Kennewick Association. The Finley-Burbank-Quincy soils are typical of the northeastern section.

Warden-Shano soils are typical of a silt-loam formed by deposition and loess and are well-drained. Where irrigated, they support wheat, barley, and rye. Where nonirrigated, grass and sagebrush are the typical cover.

The Hezel-Quincy-Burbank Association, is typified by well-drained soils. They are gently sloping and derived from windblown sand or alluvium. The primary use of this soil is for rangeland. Where irrigated, it will support hay and pasture. The third association, Scooteney-Kennewick, is a silt-loam soil. Its character is gently sloping and formed of old alluvium and lacustrine material. It is well-drained, and when irrigated, supports a variety of crops. Sagebrush and grass are typical cover in nonirrigated areas. Finley-Burbank-Quincy are level soils ranging from loamy sand to a very fine sand. They are formed in areas of old alluvium or windblown sand. This soil is generally well-drained. As with the third association, these soils are used extensively for irrigated crops. When nonirrigated, the natural vegetative cover is grass and sagebrush.

#### Water

Year-round water resources make up more than 3,700 surface acres of the study area. The Columbia and Snake Rivers are the major water bodies, with intermittent streams, irrigation canals, and flooded gravel pits contributing the balance. Due to substantial seasonal variations in size, no surface area statistics have been developed for these lesser water areas.

The Columbia River, in the vicinity of the study area, is joined by the Yakima and Snake Rivers. The confluence increases the volume of the river from over 43.1 million second feet per day, measured at Priest Rapids, above the Tri-Cities, to an average over 61.9 million second feet per day measured at McNary Dam, below the Tri-Cities. In addition to water volume, silt load and pollutants are also increased.

Numerous intermittent streams flow down from the plateau toward the Columbia. During seasonal runoffs or after periods of heavy rains, these streams flow to capacity or beyond, causing localized flash flooding. A stream originating in Zintel Canyon, when flowing at flood stage proportions, has inundated parts of the residential and business districts of Kennewick.

#### LAND USE

Land use in the study area is represented by three major categories--Crop, Range, and Other Land. Of the area's more than 56,000 acres, approximately 30 percent is cultivated, over 43 percent is in rangeland, 20 percent is in the other category, and the balance of the surface area is formed by the Columbia and Snake Rivers. The Other Land designation includes industrial and recreational sites as well as urban development.

The foothills of Horse Heaven Hills begin south of the City of Kennewick. A sharp gain in elevation takes place forming a natural barrier to the development of Kennewick. Local planning officials have determined this geographic barrier will limit southern development of Kennewick after 1990. Beyond this landform, there is no urban development and very little irrigated agriculture. Dryland wheat farming is the primary commercial use. The land continues south covered with sagebrush and grass to form Horse Heaven Hills.

Landownership within the study area is predominantly private holdings. They vary in size from small residential lots in the city to larger holdings of half sections or more in the agricultural areas. Government lands are limited primarily to municipal buildings and large recreation areas. A major industrial site is on the north shore of the river adjacent to the City of Pasco. Riverfront industrial areas owned by the Port of Kennewick are found along the south shore of the Columbia.

Croplands in the area cover approximately 17,000 acres. The soil has been cultivated for both orchards and rural crop production. Major crops grown in the area include alfalfa, asparagus, grapes, potatoes, sugar beets, peas, orchard crops, and cereal grains. Irrigation has facilitated development of this agricultural land which has flourished since 1957 when water was brought to the area.

The south section of the study area is the beginning of rangelands of the Horse Heaven Hills. The land is used primarily to support grazing livestock. If water is available and the terrain features are not prohibitive, these lands, once irrigated, can be cultivated.

The Other Land category includes the urbanized portions of the City of Kennewick as well as other scattered recreation and nonconflicting uses. The increase in population and growth of Kennewick is also true in the adjacent City of Richland. These cities may extend urban development to their common border. To date, a green belt created by agricultural land use lies between the two cities.

Proposed Interstate Route 82 will cross the southwestern section of the study area. Secondary roads and interchanges will be necessary to join the interstate to the Tri-Cities area.

#### NATURAL AND CULTURAL RESOURCES

##### Historical and Archeological Sites

No sites within the area are listed in the *National Register of Historic Places* as published in the Federal Register Volume 38, No. 39, dated February 28, 1973, or in subsequent monthly addenda. Two sites, Columbia Park Island and the Ainsworth Site in Sacajawea State Park have been submitted to Federal authorities to be added to the National Register. To date, they have not been accepted. Both areas are on the Washington State register of historic sites.

Although the region has been settled for a relatively long period, archeological exploration is still in its beginning stages. Systematic reconnaissance and excavation programs are needed before the full archeological potential of this area can be assessed. No known archeological sites have been identified within the study area.

#### Recreation

Recreation resources are numerous in the Tri-Cities area. In addition to extensive developed facilities, the mild climate and easy access to Lake Wallula provides an opportunity for many nonstructured activities. There are more than 30 public parks, 6 public swimming pools, 7 golf courses, and numerous public boat launching ramps in the area. The launching ramps provide boater access to Lake Wallula for water oriented activities.

Hunting and fishing are among the major outdoor recreational activities. Upland game and waterfowl are hunted during the fall season. The region is one of the best for this type of hunting in the state. Fishing is a year-round pursuit, with the runs of steelhead and chinook salmon being high points. Spinyray species can be caught consistently at all times.

Recreational opportunities for the spectator are also abundant. Rodeos and automobile racing are regular events throughout the summer. Parimutual betting is conducted at the County Fairgrounds. During July, the Atomic Cup races for unlimited hydroplanes are held on Lake Wallula.

#### Scenic

Contrast creates the primary scenic resource of the study area. Abrupt changes in landforms take place between the flat river floodplain and the steep sloped steppes. The movement and fluid quality of the Columbia River as compared to the barren uplands of the plateaus is quite noticeable. The lush green of the cityscape and irrigated farmlands contrasts against the backdrop of the dry sage covered foothills. These are the area's dominant visual values.

Individual instances of scenic quality are evident at specific points. Vistas of the Tri-Cities are viewed from the crest of the ridge line in the western part of the study area. Columbia Park along the river's shore at Kennewick creates a pleasing pastoral atmosphere. Sacajawea State Park on the river's north shore creates the same effect.

Seasonally the vegetation of the area greatly influences the scenic value. In the spring, apple orchards and desert wildflowers contribute to the variety of color in the area. Though these features are transient they are essential to scenic resources of the study area.

#### Wildlife

Fish resources in the area are primarily in the Columbia River. Through the Columbia and on into the Snake Rivers, major runs of anadromous fish take place. Major species found are: chinook, coho and sockeye salmon,

and steelhead. In the warmer slack waters of Lake Wallula rainbow trout, bass, perch, bluegill and crappie, have all been found. The lack of year-round standing water bodies in the study area precludes an extensive fishery other than in Lake Wallula.

There are numerous small mammals found in the study area. The most common species include mice, gophers, and shrews. Deer inhabit the study area, but their density per acre is low.

Carnivore species most commonly found include coyotes, fox, badger, and skunk. The cover adjacent to water courses is inhabited by raccoons and muskrats. Large populations of rabbits and ground squirrels also dwell throughout the area.

Bird populations include both game and nongame species. The area is intensively managed by the Washington State Game Department for upland and waterfowl hunting. This management program has introduced such species as chukar, pheasant, and Hungarian partridge to the area. These birds have established native breeding colonies, but are supplemented every year to allow for heavy hunting.

Waterfowl use the nesting and feeding resources in the McNary Refuge adjacent to the study area. Refuge personnel estimates indicate more than 6 million use days annually by ducks and geese. Approximately 400 birds are hatched per year. The Columbia River north of the study area is noted for its prime Canada goose nesting. The most common waterfowl species present in the region are mallard, pintail, and Canada geese.

A variety of nongame birds live in the area. The killdeer, red-winged blackbirds, robins, meadowlarks, and numerous species of sparrows, are all inhabitants of the study area. Identified birds of prey include the red-tailed hawk and great horned owl. Seagulls are found in abundance.

#### Vegetation

Vegetation types in the area vary directly with the amount of year-round water available to them. The arid climate limits them to primarily drought resistant species. Land adjacent to the water courses supports species that are water dependent and tolerant of flooding.

The arid plateaus and uplands support species typical of the extensive sagebrush/bluebunch/wheatgrass communities. Both the indicator species as well as Sandberg's and Cusick bluegrasses, longleaf phlox and needle and thread grasses are found. Shrubs such as bitterbrush, greasewood and rabbitbush also grow in the area. The sparse vegetation is normal for this climatic situation.

Along the margins of natural and manmade water bodies, water dependent communities have developed. The most common identified overstory species include white alder, peachleaf willow and western chokecherry. Golden currant, blueberry elder and shrubby willows are typical of the understory species.

Irrigation has allowed for the introduction of many plants foreign to the region. Commercial fruit trees are grown in abundance throughout the area. A variety of horticultural species have also been introduced for landscaping and specialized purposes.

#### Social and Economic Characteristics

The Tri-City's development as an urban center was the direct result of the Atomic Energy Commission's Hanford Site. Kennewick's population increased from 1,009 to 10,106 between 1940 and 1950. Its present population is 15,212 (1970 census). Growth trends for the city are still positive as 1970 figures show a 6.8 percent gain in residents over 1960. Mean family income for the city in 1970 was \$10,644.00, with an unemployment rate of approximately 8 percent.

The prime industry is the Hanford Project. The AEC and its private contractors employ more than 6,400 people in operating facilities and construction programs. Five major contractors, Atlantic Richfield Hanford Company; Battelle Northwest; Computer Sciences Corp.; Douglas United Nuclear and WADCO Corp., represent a substantial input of industrial involvement in Government operations.

Kennewick, in addition to supporting Hanford, has an agricultural and industrial economy. Irrigation systems completed in 1957, have spurred development of diversified crop planting. A number of fruit orchards have developed, capitalizing on abundant water and warm climate.

The Port of Kennewick has attracted industry to the city. At its facilities on the river, four chemical plants as well as a special metal and dry-ice plant have been constructed. The products from the chemical plants, mainly fertilizer, have greatly increased the local agricultural productivity. The port's river terminal also provides for grain elevators and a bulk cement distribution plant.

The Port of Pasco Industrial Park, is also in the study area. Extensive rail facilities within the park allow for easy shipment of goods and materials. A variety of manufacturing processes make up the park's industrial activity.

#### DESCRIPTION OF THE ROUTES CONSIDERED

Selection of potential alternate routes for the Franklin-Badger Canyon line has been very limited. Land-use patterns and planned direction of future growth have precluded development of new right-of-way across the City of Kennewick. When constructed, the Columbia River crossing towers were strung with adequate conductor to accommodate this system expansion. No new conductors can be strung across the river. This further restricts the choice of line direction.

Bonneville Power Administration policy is to utilize or parallel an existing corridor wherever practical. This is done to reduce new impacts on both the environment and land use patterns created by system expansion. The locations of the alternates considered for Franklin-Badger Canyon are shown on the following location map. Additional detail is shown on the profile and right-of-way detail maps.

#### ALTERNATE ROUTE A

This route is 15 miles in length, originating at the Franklin Substation and terminating at the proposed Badger Canyon Substation Site. A new double-circuit 230-kV system will be built on lattice steel towers, utilizing the existing Columbia River crossing structures. Improved appearance structures would be used from mile 11.1 to the Badger Canyon Substation. This route segment would be parallel to the proposed I-82 routing. Approximately 5 miles of new right-of-way will be necessary. Existing right-of-way will be utilized for the rest of the line.

#### Design Alternative, Route A

As an alternate to Route A, a design using improved appearance single-pole steel towers, rather than conventional lattice steel is suggested. The alignment of the system would be the same as in Alternate A, with all of the towers of lattice steel construction rather than tubular steel improved appearance structures.

#### ALTERNATE ROUTE B

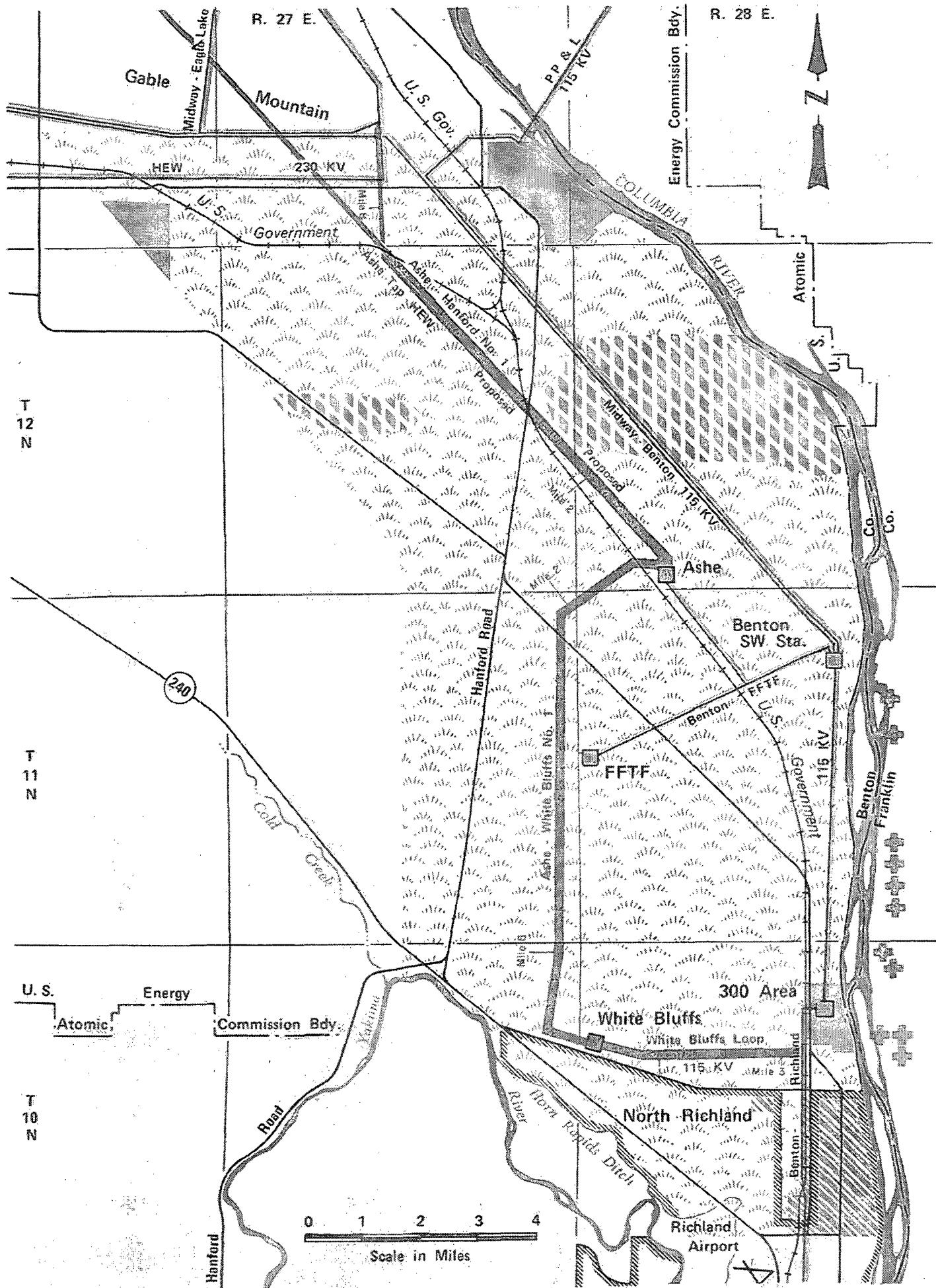
A preferred Alternate B is the same as Alternate A with the exception of a 5.6-mile length of line beginning at mile point 10.1. Rather than being built in the valley adjacent to the proposed alignment for I-82 as is Route A, the line will be located along the brow of a ridge north. The structures to be used are lattice steel, similar to the rest of the line.

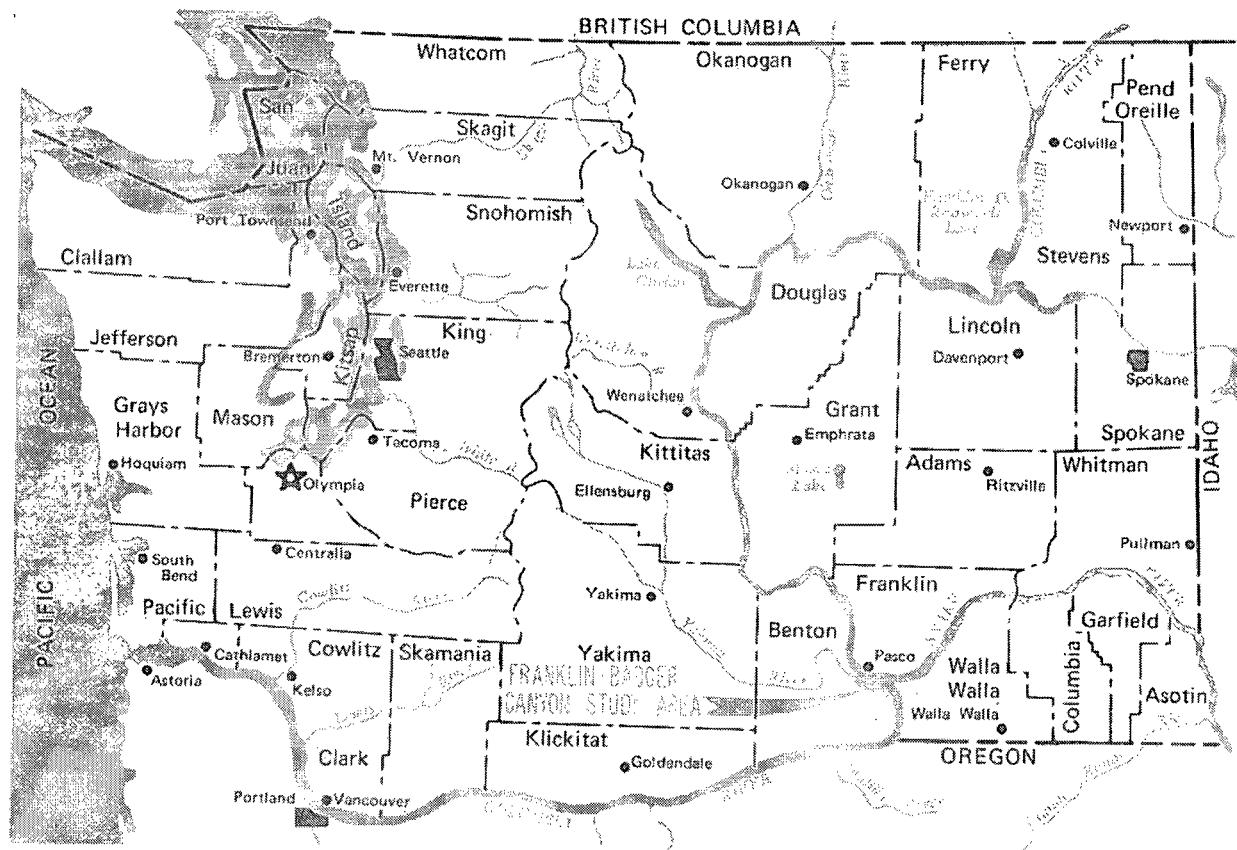
### D E S C R I P T I O N   O F   T H E   A L T E R N A T E S A N D   T H E I R   I M P A C T S

#### ALTERNATE ROUTE A

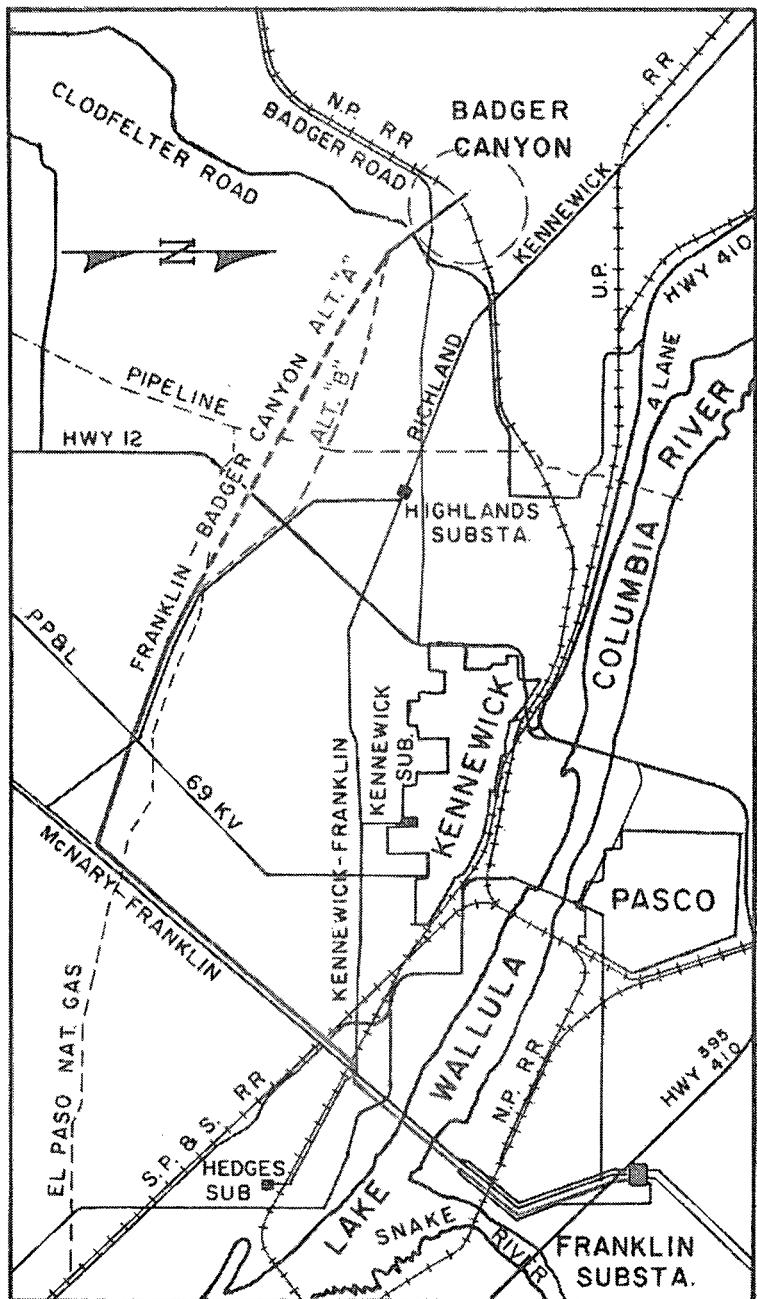
##### Location

Alternate A begins at the Franklin Substation approximately 3 miles to the east of Pasco. The line follows existing powerline right-of-way from the substation through Sacajawea State Park and spans the Columbia River at the existing crossing. From the river the line runs directly to the foothills of Horse Heaven Hills, within existing right-of-way. Once into the hills, the line angles northwest toward the new substation in Badger Canyon. Part of the line is within existing right-of-way. The last section of line from mile 11.1 to the termination point is along the

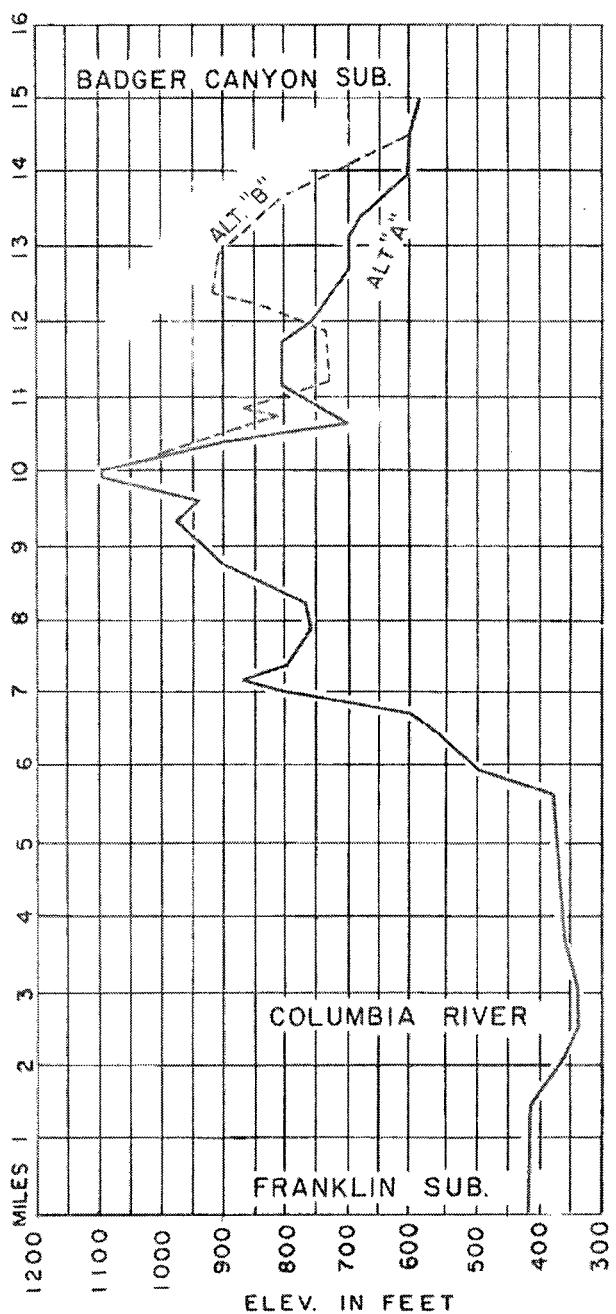


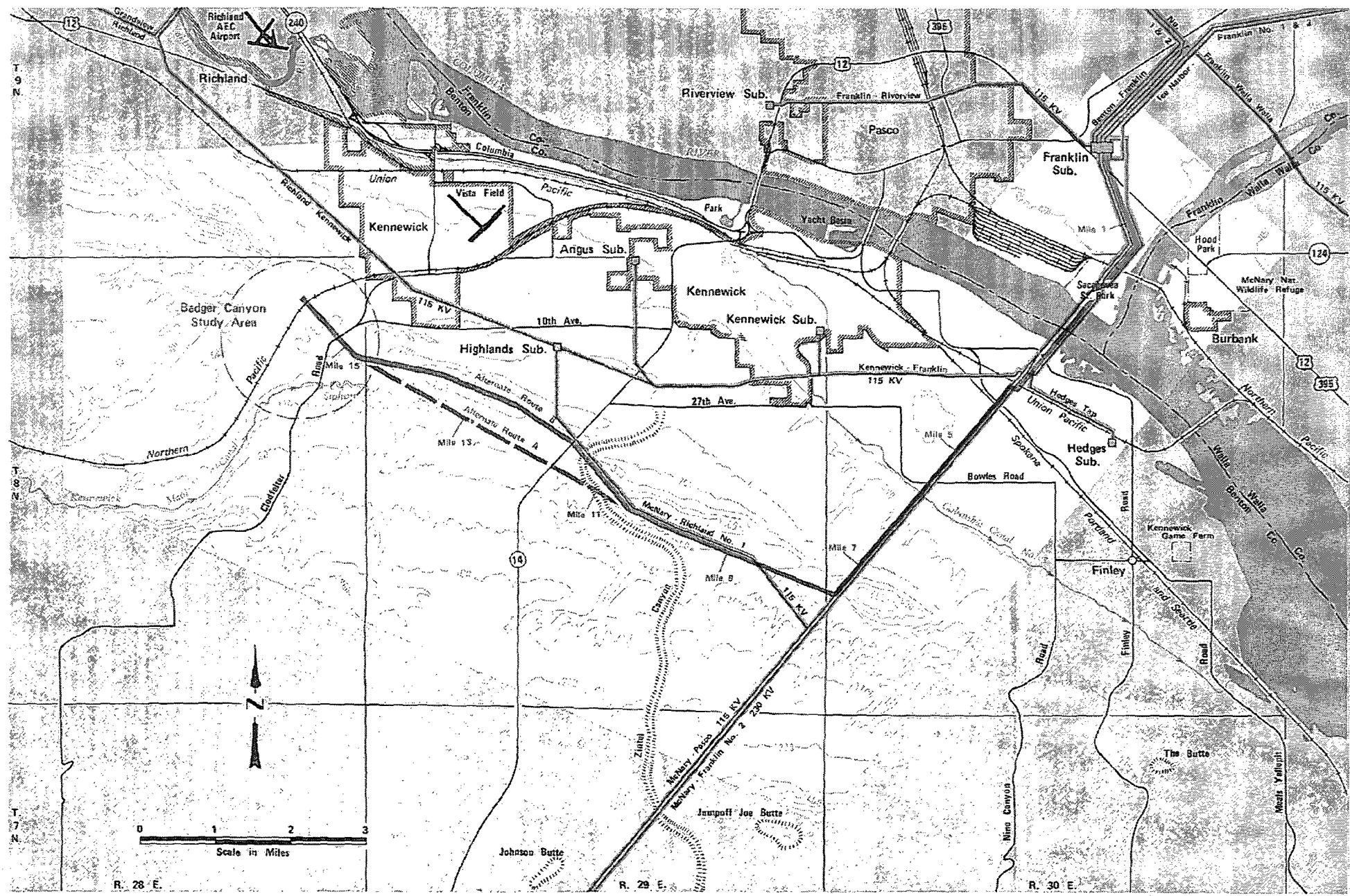


FRANKLIN-BADGER CANYON  
230 KV DOUBLE CIRCUIT  
FRANKLIN & BENTON CO'S WASH.  
APPROX. SCALE 1" = 2 MILES



PROFILE





valley floor in the vicinity of Hildebrand Road. The line crosses the Northern Pacific Railroad tracks and terminates in the vicinity of the Amon wasteway at the Badger Canyon Site Location Study Area.

#### Design

The Franklin-Badger Canyon line will be double-Circuit 230-kV extending 15.5 miles between Franklin and Badger Canyon Substations. Double-circuit lattice steel towers are planned to support the conductors or the first 11 miles from Franklin Substation. From that point to the substation site, Alternate A parallels the route selected for I-82 through the valley. Single pole double-circuit structure design would be used for this stretch of line.

To maintain necessary minimum safe ground clearance of 30 feet for the conductors, tower height may vary from 70 feet to 120 feet, depending upon the steepness of the terrain and the length of spans between towers.

#### Right-of-Way Requirements

Where possible this line will be constructed on existing right-of-way, part of which is vacant, while other portions will become available by removing existing lines. Listed below are right-of-way requirements for Alternate A.

<u>Mile</u>	<u>R/W Required</u>
1 - 7.2	No additional R/W required
7.2 - 8.1	125 feet new R/W
8.1 - 10.1	25 feet additional R/W
10.1 - 11.2	125 feet new R/W
11.2 - 15.5	100 feet new R/W (Alternate A with double-circuit steel poles)

#### Access Roads

Access road requirements are well provided over most of the route. However, some new road construction may be necessary. Estimated requirements show approximately 2,500 feet of new road construction for Alternate A.

#### Cost

Total estimated cost for this alternative is \$1,121,000.

#### Land Use

On the more than 10 miles of existing right-of-way, land use impacts should be minimal. The adjacent lands have been developed either along with the line or in spite of them. The corridor is adequate in width so that none of the patterns will be altered by additional right-of-way acquisition.

From mile 10.2 to the substation site, Alternate A crosses a variety of land uses. Within its initial 1.6 miles this alternate crosses the reservoir site for the proposed Zintel Canyon Flood Control Project. The

purpose of the dam is to control the flash flooding in the canyon and prevent downstream flooding in Kennewick. The reservoir will be dry most of the time and there are no plans for recreational facility associated with the project. The terrain allows for convenience planning from spur to spur with tower above the projected water level. No impacts to the proposed project are anticipated by the line's construction. On the last 0.5 mile of this section, there is a plan to clear the sagebrush and reclaim the land for a vineyard. Irrigation water is available to support such use. Alternate A will cross this proposed vineyard site. Between miles 11.8 and 13.0, the line crosses irrigated farmland used for raising alfalfa, grain, and pasture. Two dwellings are in the vicinity of the line. One approximately 1,000 feet to the south, the other approximately 800 feet to the south. From mile 13.0 to 14.3, the line continues across broken rangeland supporting sagebrush and bunchgrass, and has little potential for farming.

The line between miles 11.8 and 14.3 lies in a ravine. The Washington State Highway Department has proposed development of Interstate Highway 82 through this ravine. Assuming that this route is selected, it will parallel the Franklin-Badger Canyon line in this area.

From miles 14.3 to 14.5 the line crosses an apple orchard. One structure site will be required in the orchard necessitating the removal of from two to four trees at this site. The line continues from mile 14.3 to the proposed Badger Canyon Substation site, across rolling land covered with sagebrush. South of this section are dwellings, and the area has a potential for more residential growth. The substation will occupy approximately 10 acres to the northwest of the Burlington Northern Railroad. This substation site also has the potential for residential development.

#### Natural and Cultural Resources

##### Historical and Archeological Sites

This route does not cross any identified historical or archeological sites. It will be in proximity to the Ainsworth site located in Sacajawea State Park. No impacts to the physical site or its historic value are anticipated by the project. If, in the course of construction any sites are uncovered, the appropriate authorities will be contacted immediately.

##### Recreation

The alternate will have no impact on existing recreational lands. Between miles 1.6 and 2.2, the route will cross Sacajawea State Park. The State Park Commission and BPA have agreed on the location of a corridor bisecting an undeveloped area of the park. There presently are three powerlines within this area. The proposed work will add a fourth line to this right-of-way. No proposed recreation areas are known within the proposed routing of the line.

### Scenic

The initial visual impacts of powerline right-of-way and tower configuration have been made on more than 10 miles of this alternate. The new construction will replace presently operating lines within the existing corridor. Its tower shape and height will visually dominate the present wood-pole configuration. The new line will create additional visual impacts to the scenic values along its length because of size and structural type. Visual impacts created by Alternate A are primarily related to the proposed routing of Interstate 82. The line will parallel the roads' right-of-way forming a utility corridor through the valley. Improved appearance single pole steel towers will reduce the visual impact of the line for the road users. Middle ground and distant views will not be obstructed by the tower bases.

By building in the valley, the possibility of silhouetting the towers on the horizon has been eliminated. The line will not be visible from the City of Kennewick, nor will the access road scar associated with hillside construction be present.

### Wildlife/Vegetation

Impact to these resources should be minimal. The only fish habitat crossed by the alternate is the Columbia River. Existing towers will be utilized to span the river. No construction will be performed that would directly impact the water or fish resources. Some upland game habitat will be removed by the clearing of vegetation. Species are abundant and removal of habitat will not cause a significant reduction in the total species populations.

Vegetative species involved with the alternate route are primarily sagebrush and bunchgrass. There is not a significant number of trees other than orchard species impacted by the line. Clearing of vegetation will be necessary at each tower site and along the access roads to allow for the necessary construction. Natural vegetation will be allowed to return at the tower sites. In the areas where the line will follow on existing rights-of-way, the vegetative cover is already under a controlled growing situation.

### Social and Economic Characteristics

The alternate location should not affect any population growth trends in the area. The new right-of-way crosses some land developed for agriculture. Present population densities are extremely low. As projected by the local planning agencies, growth is not anticipated nor planned in this area. This line will not directly impact economic resources in the area. The proposed substation will service the general community rather than any particular industry. The availability of power will allow for the continued growth of the cities of Kennewick and Richland.

### Physical Sensitivity

#### Erosion

The primary erosion impacts created by the new line will be caused by either wind or water. Removing the vegetative cover at tower sites and for road construction will expose the soil to these erosive agents. Upland slopes that are more subject to erosion will have a minimum of vegetative cover removed. These conditions occur primarily between miles 6.0 and 9.0 of the alternate. Where necessary, reseeding will be done to ensure stabilization.

#### Water Quality

There will be no impacts to the water resources by the alternate route. The only water body crossed by the line is the Columbia River. At the river crossing the new line will be strung on existing structures so no new shore construction is necessary. No other natural water resources are encountered along the route. Irrigation canals pass under the line at various points. No impacts to these canals are anticipated.

#### Noise

Residences adjacent to the route will experience noise impacts associated with construction equipment. These impacts will be limited to 2 or 3 days when equipment is in their vicinity. No noise impacts are expected from the line itself.

## DESIGN ALTERNATIVE TO ROUTE A

#### Location

Location of Subalternate A is identical to that described by Alternate A.

#### Design

As with Alternate A, this alternate will also be a 230-kV double-circuit line constructed for the first 11 miles on double-circuit lattice steel towers. The last 5.4 miles of line parallels the I-82 route would be of lattice steel configuration rather than single-pole steel. Ground clearances, tower height and span length will be the same as described.

#### Right-of-Way Requirements

This design alternative has the same right-of-way requirements as Alternate A except for the last 3.8 miles of line. This section would be a 125-foot wide right-of-way, rather than a 100-foot wide right-of-way because of the difference between lattice and steel towers.

#### Access Roads

Access road requirements will be the same as those for Alternate A.

### Cost

Total estimated cost for this alternative is \$830,000.

### Land Use

Land-use impacts created by this design alternative to Alternate A will be essentially the same as others created by Alternate A. Additional right-of-way widths necessary in areas where right-of-way is to be required will have a greater physical impact. Actual change to land-use patterns affected will vary slightly with the small difference in width of right-of-way. Between mile points 14.3 and 14.5, where the route crosses an apple orchard, a greater number of trees would have to be removed due to the larger base configuration of the lattice steel towers. Exact numbers could be determined only when a final survey and design is completed.

## Natural and Cultural Resources

### Historical and Archeological Sites

Impacts to these resources would be the same as experienced in Alternate A.

### Recreation

Recreation resources would be impacted the same as those described by Alternate A.

### Scenic

Tower configuration is the only difference between Alternate A, and the subalternate. They both follow the same route paralleling the proposed I-82. Although the corridor concept is utilized, the latticed steel tower adjacent to the roadway would be a very dominant visual element. The base of the tower visible from the road would obstruct the views of the hills to the north. Views down the roadway would be dominated by the "fence" and detail of lattice towers within the foreground on the edge of the road's right-of-way.

### Wildlife/Vegetation

Impacts to fish and wildlife will be the same as Alternate A. Impacts to vegetation will be essentially the same as those for Alternate A. At the time of actual construction, some additional brush will have to be removed because lattice steel towers have a larger base configuration than do the single-pole steel. The exact amount of brush necessary to be removed will be determined at the time of construction.

### Other Impacts

All other impacts are similar to those of Alternate A.

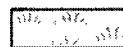
# FRANKLIN - BADGER CANYON STUDY AREA

## LAND USE EVALUATION

### GENERALIZED COVER AND LAND USE

#### RANGELAND

Grassland



#### CROPLAND

Non-Irrigated Grains



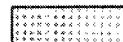
Irrigated Grains



Irrigated Row Crops



Orchards



#### OTHER LANDS

Industrial



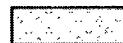
Urban



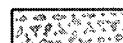
Airport or Trailer Park

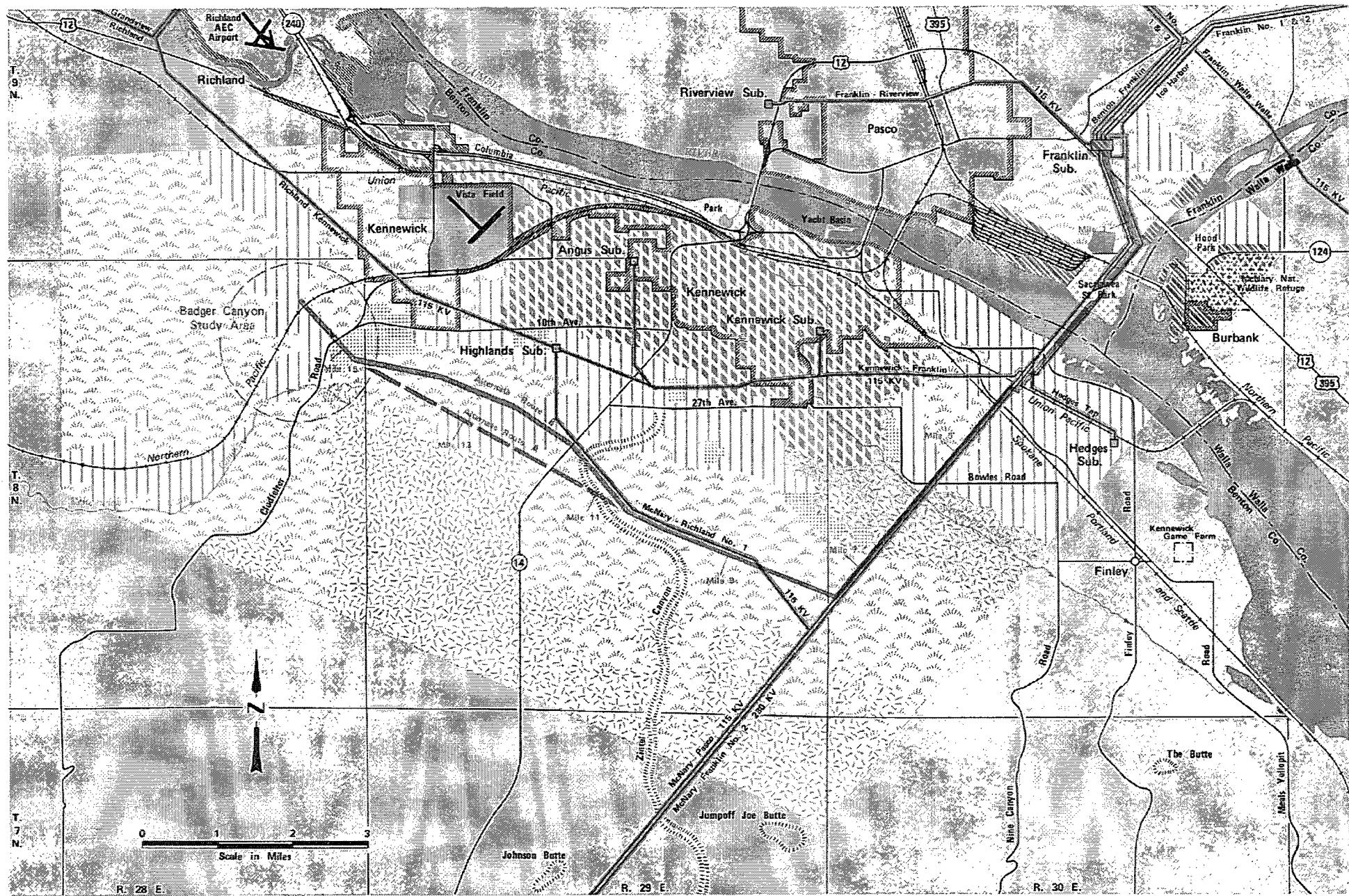


Public Parks



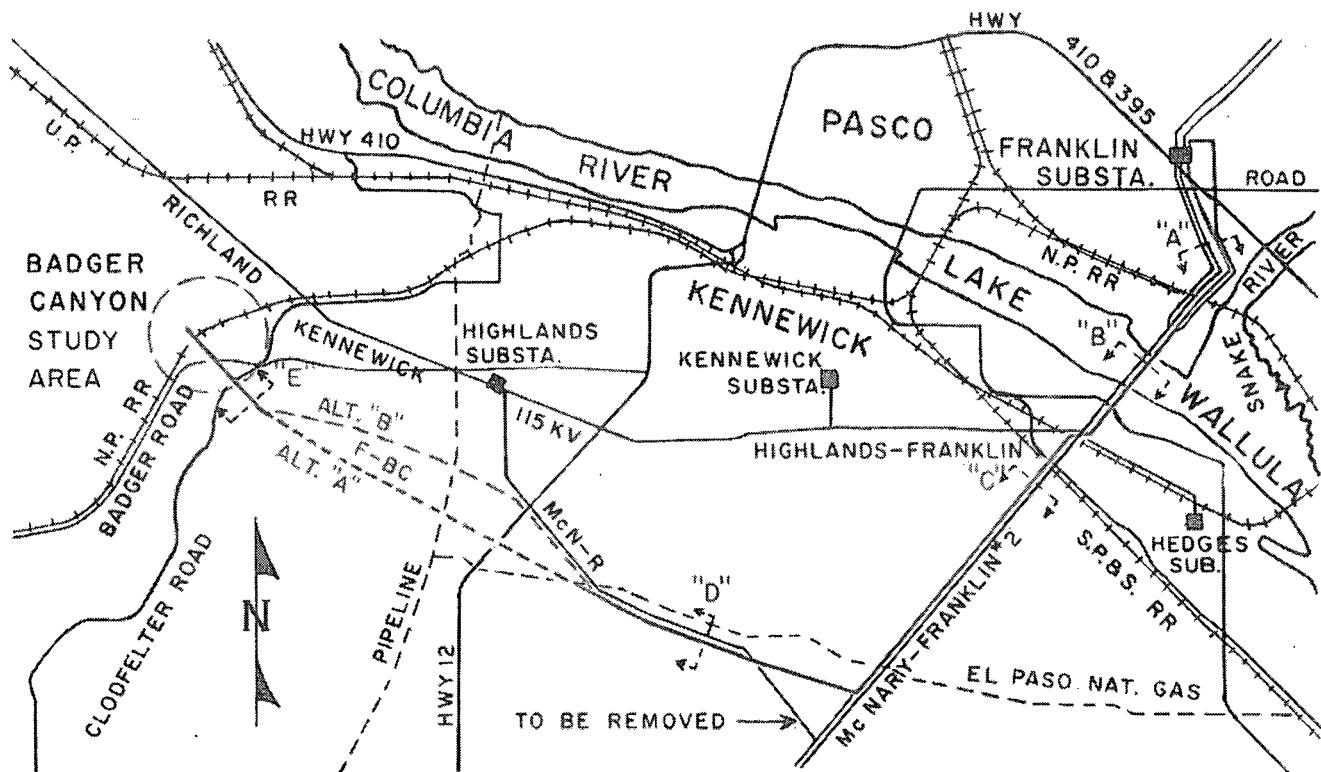
Wildlife Habitat





**FRANKLIN-BADGER CANYON  
230 KV DOUBLE CIRCUIT  
RIGHT OF WAY DETAIL MAP**

APPROX. SCALE 1"=2 MILES



DETAIL SCALE 1"=200'

**DETAIL "A"**

PARALLEL

R/W	
H-F 115 KV	450
F-H 115 KV	300
	137.5
F-BC	62.5
R/W	

**DETAIL "B"**

RIVER CROSSING

R/W	
H-F 115 KV	75
F-H 115 KV	75
R/W	75

**DETAIL "C"**

REBUILD

R/W	
F-BC	62.5
McN-F#2 230 KV	87.5
R/W	122.5

**DETAIL "D"**

REBUILD

R/W	
(TO BE REMOVED)	450
McN-R 115 KV	125
F-BC DC	62.5
R/W	125

**DETAIL "E"**

NEW R/W

R/W	
F-BC DC	62.5
R/W	125

**EXPLANATION**

F-BC = FRANKLIN-BADGER CANYON

McN-F = McNARY-FRANKLIN

McN-R = McNARY-RICHLAND

R/W = RIGHT OF WAY

NEW R/W //

H-F = HIGHLANDS-FRANKLIN

F-H = FRANKLIN-HEDGES

## ALTERNATE ROUTE B

### Location

Route B, the preferred route, like Alternate A, begins at the Franklin Substation. The route is identical to that described in A, up until mile point 10.1. From there, preferred route B continues on along existing right-of-way for an additional 1.3 miles. It then bears in a northwesterly direction just below the crest of a ridge for approximately 4.3 miles. The route parallels the existing aqueduct. At approximately mile point 14.3 it returns to Alternate Route A's alignment and continues to the proposed Badger Canyon Substation Site in the vicinity of the Amon wastewater.

### Design

System requirements for preferred route B are the same as Alternate A. The major differences are that the towers will be all double-circuit lattice steel and that the route varies from that of Alternate A.

### Right-of-Way Requirements

Right-of-way safety clearance criteria for the preferred route B are the same as those established for Alternate A. The following listing outlines the actual line requirements.

<u>Mile</u>	<u>R/W Required</u>
1 - 7.2	No additional R/W required
7.2 - 8.1	125 feet new R/W
8.1 - 11.4	25 feet additional R/W
11.4 - 15.6	125 feet new R/W

### Access Roads

Approximately 7,500 feet of new access road construction is required for Route B.

### Cost

Total estimated cost for this alternative is \$895,000.

### Land Use

Land-use impacts created by preferred route B would be the same as those created by A for the first 10.1 miles of the line while on existing right-of-way. Route B continues within existing right-of-way for approximately 1.3 miles beyond where Alternate A leaves the line. At that point it bears northwest across the face of the hillside.

The 4.3 mile route to the substation site avoids the existing and potential cultivated areas as well as the planned ecological study center. Primary land use encountered is rangeland, with a sagebrush/bunchgrass cover. A

skeet and rifle range is located on the existing right-of-way. The alternate also crosses the approximate site of the dam for the Zintel Canyon Flood Control Project. An irrigation aqueduct is parallel to the route on the upper slopes of the hillside.

The line merges with Alternate Route A at approximately mile 14.3. Impacts created from there to the substation will be the same as those created by Alternate A, Subalternate 1.

#### Natural and Cultural Resources

##### Historical and Archeological Sites

Preferred Route B does not cross any identified historical or archeological sites. As with Alternate A, it does pass near the Ainsworth Site in Sacajawea State Park. No impacts to the site are anticipated. If, during the construction period, any sites are uncovered, the appropriate authorities will be contacted immediately.

##### Recreation

Existing and proposed recreation resources will be impacted to the same extent as those described in Alternate A.

##### Scenic

Visual impacts to the existing right-of-way will be identical to those created by Alternate A. On the new right-of-way the visual character of the alternate becomes more evident.

Route B is on a hillside approximately 1,500 feet to the east of Alternate A's route and will be constructed of lattice steel double-circuit towers. Views to the north from the proposed I-82 route will be dominated by the line for approximately 2 miles. The tower tops will be above the hill-crest and be visible from Kennewick and silhouetted from the new road. Construction of the line's access road will also create a scar across the face of the hillside.

##### Wildlife/Vegetation

Impacts created by Route B's construction would be similar to those created by Alternate A. The new land required for the right-of-way does not provide any unique habitat nor cross any natural water bodies. The resultant impacts should be a reduction of minor upland game habitat and no effect on fish resources.

Impacts to vegetation again will be similar to those for Alternate A. The B route also crosses sagebrush and bunchgrass. As with Alternate A, Route B crosses through an existing orchard in the vicinity of the proposed Badger Canyon Substation. Approximately two to four trees will be removed for the tower site.

### Social and Economic Characteristics

Route B's location is not anticipated to have an impact on the present population trends in the vicinity of Kennewick. The line's routing on the hillside may affect the selection of the crest of the hill for residential view lots of the City of Kennewick. Impacts created will be to a very small percentage of the total population in the metropolitan area. No impacts to the existing economic resources are anticipated.

### Physical Sensitivity

#### Erosion

Erosion impacts will be the same as those for Alternate A.

#### Water Quality

There are no anticipated impacts to existing natural water systems from the construction of the alternate. The line will cross the Columbia River on existing river crossing structures. All of Alternate Route B will be parallel to an existing irrigation aqueduct. The line itself should have no impact on the aqueduct.

#### Noise

Noise impacts anticipated are the same as those noted for Alternate A.

### NONCONSTRUCTION

The proposed new facility will serve an evergrowing population and expanding industry of the Pacific Northwest. If the new transmission facilities are not built under certain outage conditions, it would not be possible for BPA to integrate the full power output generated by the additional future units at Ice Harbor Dam into BPA's Pacific-Northwest main grid transmission system. The Richland Service Area system would be unable to sustain new loads which could result in mandatory curtailment of use of electricity.

Mandatory curtailments would have varying effects depending on the intensity of the curtailment and the way in which it was imposed. Probably the most significant of these is the social and economic impact. Reducing electric consumption by commercial customers resulting in decreased business activity would have economic and social impacts through layoff of workers and decline of economic activity.

If the mandatory reduction of consumption were imposed by rotating power outages which included residences, the effect, other than the obvious inconveniences, would be loss from food spoilage and other damage from lack of electric service; hazards from lack of adequate lighting, and operating of safety devices such as street lights, alarm systems, etc. This assumes adequate backup generation can be obtained for fire fighting (which in some areas is dependent on electric pumps for water supplies) hospitals, and other emergency services. This assumption may not be true in every case.

No new facilities would be required if approximately 383 MW of additional generation and required supportive facilities were added in the area. The only generation that could be added to the region in the short time involved would be a combustion turbine. Such additional generation would have the inconveniences and impacts typical for units of this kind as described in the main text and the construction of supportive transmission facilities would also have substantial impacts.

#### U N A V O I D A B L E   A D V E R S E   I M P A C T S

Temporary and permanent adverse impacts will result from the construction phase. Building processes will create noise, dust, and visual impacts, adversely affecting local residents and wildlife populations. Existing vegetation growing within the right-of-way will also be removed during this state of development.

Permanent impacts will be generated by the acquisition of the substation site additional right-of-way. The existing vegetative cover will be removed to allow for proper clearances and safety requirements. Danger trees, adjacent to the right-of-way, will also be cut down. Wildlife populations dependent for food and cover on vegetation to be removed will be eliminated. Future land use of these strips by the owners will be greatly restricted by the transmission lines. Landowners will be compensated for the loss in accordance with standard Government policy.

#### R E L A T I O N S H I P   B E T W E E N S H O R T - T E R M   U S E   O F   T H E   E N V I R O N M E N T A N D   L O N G - T E R M   P R O D U C T I V I T Y

Based on present technology, this line and associated facilities will have an expected useful life of 50 years. Experience in past years has shown that, in most cases, transmission corridors are upgraded to higher capacity in response to technological advancements and energy demands. This, along with BPA's policy of constructing new facilities on or parallel to existing corridors, may result in a long-term use of this corridor. However, if required, complete removal of these transmission facilities would be possible to make the land available for other uses.

#### I R R E V E R S I B L E   A N D   I R R E T R I E V A B L E C O M M I T M E N T S   O F   R E S O U R C E S

Unrecyclable steel, aluminum, copper, and other materials used for towers, conductors, and other hardware will be irretrievably committed. Manpower and fuel for construction equipment will be irretrievable.

Although it would be possible to remove the entire facility at a future time, it is likely the land used for transmission corridors will be irreversibly committed. The land taken for tower footings will be unavailable for any other land use.

Vegetation removed during construction, wildlife eliminated, and soil lost by erosion will be irretrievably committed.

# BADGER CANYON SUBSTATION EVALUATION

## INTRODUCTION

The site analysis for Badger Canyon Substation was conducted in an area about 5 miles west of Kennewick, Washington (see map). Existing land use consists primarily of range or barren land, irrigated cropland, and orchards. Meadowsprings Condominium development and Columbia Mall about 1 and 2 miles away respectively, are the major exceptions to this general land use pattern. Transportation routes are Clodfelter, Badger and Keene Roads, west 10th Avenue, and the Burlington Northern Railroad. A proposed route for Interstate Highway 82 passes through the area.

The land in the area of the site investigations is fairly flat and slopes gently northward down to the Columbia River. The elevation is about 550 feet while Badger Mountain about 3 miles northwest reaches nearly 1,600 feet. The only drainage feature is the Amon Wasteway which carries irrigation water back into the Columbia River. Vegetation is sparse and is limited to sagebrush, bunchgrass, cheatgrass, and associated vegetation. Along the Amon Wasteway poplar, willow and some smooth sumac and Russian olive are found.

Preliminary site investigation was conducted in February 1973. As a result three substation sites were selected for detailed analysis. The environmental impact of these sites is summarized in the Location Impact Evaluation Table.

## DESIGN REQUIREMENT

The substation development for 1976 will require approximately 10 acres of land and will consist of four each 115-kV line terminals, three each 115-kV circuit breakers with associated power system control and protective equipment for serving Richland and Kennewick area communities.

Ultimate development of Badger Canyon Substation for 1986 includes two 250 MVA, 230-115-kV transformers and conversion of Badger Canyon-McNary, Badger Canyon-Franklin line to 230 kV, and an additional Badger Canyon-Richland-White Bluffs 230-kV line. Other substation facilities include four additional 115-kV breakers, power system control, and protective equipment. Associated transmission facilities include new 115-kV lines to Thayer Drive, Ledbeder, Vista and Meadow Springs in 1986.

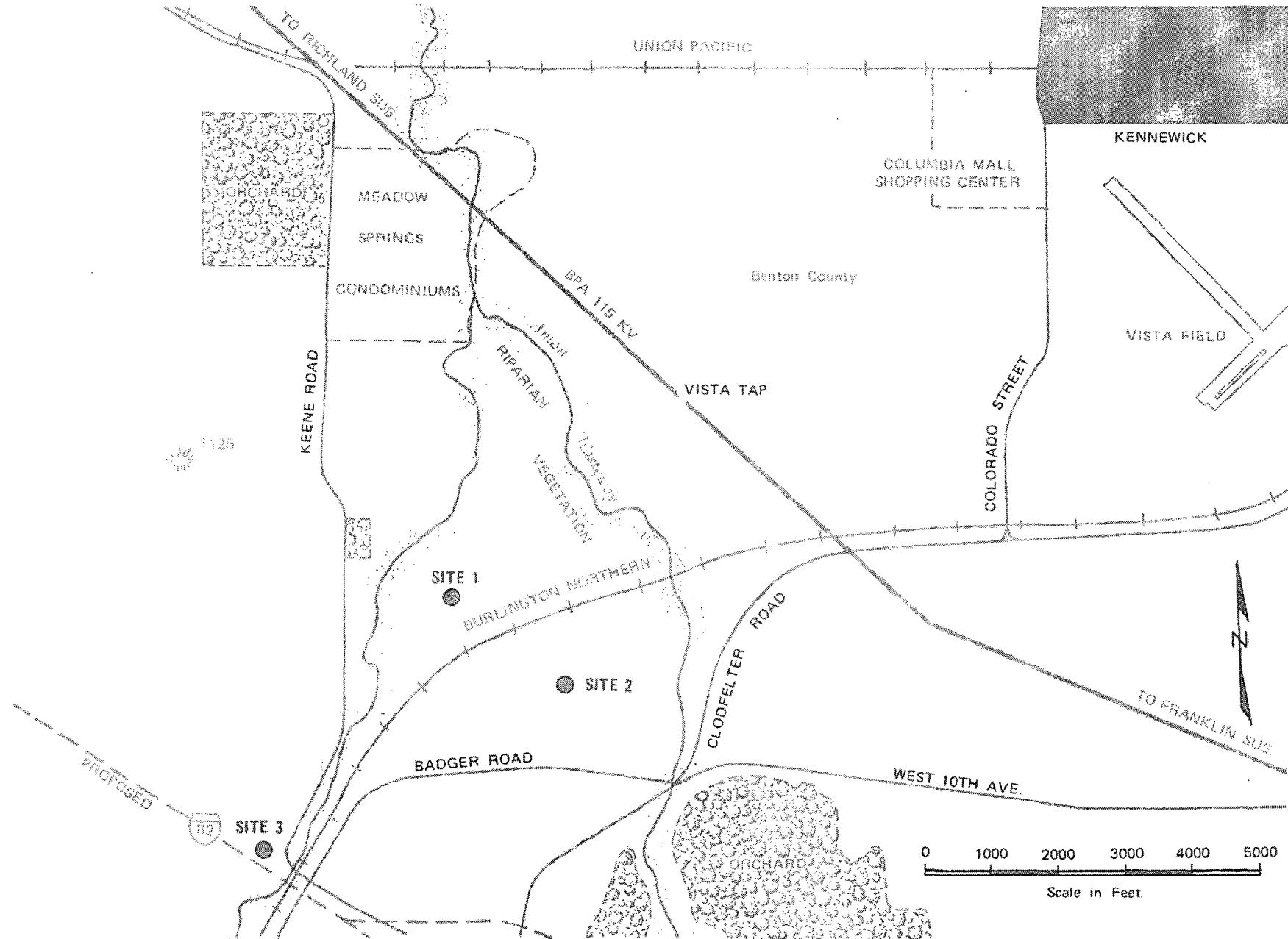
An improved appearance design utilizing appearance-type box girder substation deadend structures with wide-flange steel yard structures, standard BPA color schedule, and landscaping will be used.

#### STATUS

Preliminary site investigations were conducted in February 1973 and October 1973. Alternative sites were identified and evaluated. Upon completion of public review a final selection notice will be issued on the proposed site. Facility surveys, design, and land acquisition are scheduled for mid-1974 with construction commencing late 1974. Energization is schedules for 1976.

#### IMPACT EVALUATION

The following Location Impact Evaluation Table identifies the environmental impact of the substation. See the Substation Site Location Map for site location.



BADGER CANYON SUBSTATION

LOCATION IMPACT EVALUATION TABLE

<u>SITE</u>	<u>DESCRIPTION</u>	<u>CULTURAL RESOURCES</u>	<u>NATURAL RESOURCES</u>	<u>LAND USE</u>
Alt. 1	Sec. 1, T8N, R28E, W.M., Benton Co., Wash., 1700 feet east of Keene Road. 800 feet northwest of Burlington Northern Railroad. Long access road, room for future expansion.	Limited impact on cultural resources. Isolated from any major roads lowest potential for public contact. Will be visible from Meadowsprings development. Railroad berm in background will reduce this impact.	Would remove 11.5 acres of sagebrush-bunchgrass/cheatgrass vegetation and wildlife habitat. Some grading required. Potential for wind erosion after removal of vegetative cover. Erosion of material into Amon Wasteway is possible.	Would remove 11.5 acres sagebrush range and potentially irrigable cropland from production or possible use for urban development.
Alt. 2	Sec. 1, T8N, R28E, W.M., Benton Co., Wash., 600 feet southeast of Burlington Northern Railroad, 1,200 feet north of Badger Road. Long access road, room for future expansion.	Some impacts on cultural resources. Visible from Badger and Clodfelter Roads, 1,500-2,000 feet away. Proposed route for Interstate 82 about 4,000 feet away. One nearby residence may be subject to visual and noise impacts.	Would remove 10.7 acres of sagebrush-bunchgrass/cheatgrass vegetation and wildlife habitat. Some grading and leveling would be required. Potential for wind erosion after vegetation is removed. Erosion of material into the Amon Wasteway drainage is possible.	Would remove 10.7 acres of sagebrush range or potential irrigable cropland or possible use for urban development.
Alt. 3	Sec. 11, T8N, R28E, W.M., Benton Co., Wash., 900 feet northwest of intersection of Keene Road and Badger Road. Approx. 600 feet west-northwest of Burlington Northern Railroad. Short access road, room for future expansion.	Some impacts on cultural resources. Located very near the intersection of Badger and Keene Roads and adjacent to the proposed route for Interstate 82. A long tap line (1.7 mi.) with high visibility would be required.	Would remove 10.2 acres of sagebrush-bunchgrass/cheatgrass vegetation and wildlife habitat. Some grading and leveling would be required. Potential for wind erosion and a possibility of water erosion or runoff into Amon Wasteway.	Would remove 10.2 acres of sagebrush range and potentially irrigable cropland from production or possible use for urban development. Adjacent to proposed route for Interstate 82.

C O N S U L T A T I O N   A N D   C O O R D I N A T I O N  
W I T H   O T H E R S

CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE PROPOSAL

Draft Facility Location Supplement for the Richland Area Electrical Service project discusses the proposed location for the new transmission facilities and their associated environmental impacts. This project was proposed for the first time in the Fiscal Year 1974 Annual Appropriations Request and was previously discussed in the Fiscal Year 1974 Environmental Statement filed with the Council on Environmental Quality on April 3, 1973.

In preparing the Final Environmental Statement for Fiscal Year 1974 BPA consulted with various Federal, regional, and local planning agencies. BPA will continue to consult with these agencies in the preparation of the Final Facility Location Supplement for this project. As part of this review process, a public information meeting will be held in connection with the proposed transmission lines and substations. Comments obtained as a result of this public and agency review process will be incorporated in the Final Facility Location Supplement.

COORDINATION IN THE REVIEW OF THE DRAFT FACILITY LOCATION SUPPLEMENT

This Draft Facility Location Supplement is being sent to Federal agencies, state clearinghouses, and to local clearinghouses where these have been established by states, or to county or metropolitan planning commissions and environmental agencies where local clearinghouses have not been established. These agencies are listed below. A notice of availability of the Draft Facility Location Supplement is being placed in the Federal Register and in local news media in advance of the proposed public meeting.

AGENCIES REQUESTED TO COMMENT ON THE DRAFT STATEMENT

Federal Agencies

U.S. Department of the Interior  
Bureau of Sport Fisheries and Wildlife  
Bureau of Mines  
Bureau of Indian Affairs  
Bureau of Land Management  
Bureau of Outdoor Recreation  
National Park Service  
Geological Survey  
Bureau of Reclamation  
U.S. Department of Agriculture  
Forest Service  
Soil Conservation Service

Federal Agencies (Continued)

U.S. Department of Housing and Urban Development  
U.S. Environmental Protection Agency  
U.S. Atomic Energy Commission  
Federal Power Commission  
Federal Aviation Commission  
Advisory Council on Historic Preservation  
U.S. Department of the Army  
National Marine Fisheries Service

State Agencies

State of Washington

Local Agencies

WASHINGTON

Benton-Franklin Governmental Conference  
Benton County Engineering and Planning Department  
Franklin County Engineering and Planning Department  
Benton-Franklin Governmental Conference  
City of Redland Engineering and Planning  
City of Kennewick Engineering and Planning  
City of Pasco Engineering and Planning Department  
Tri-Cities Chamber of Commerce  
Kennewick Irrigation District  
Columbia Irrigation District

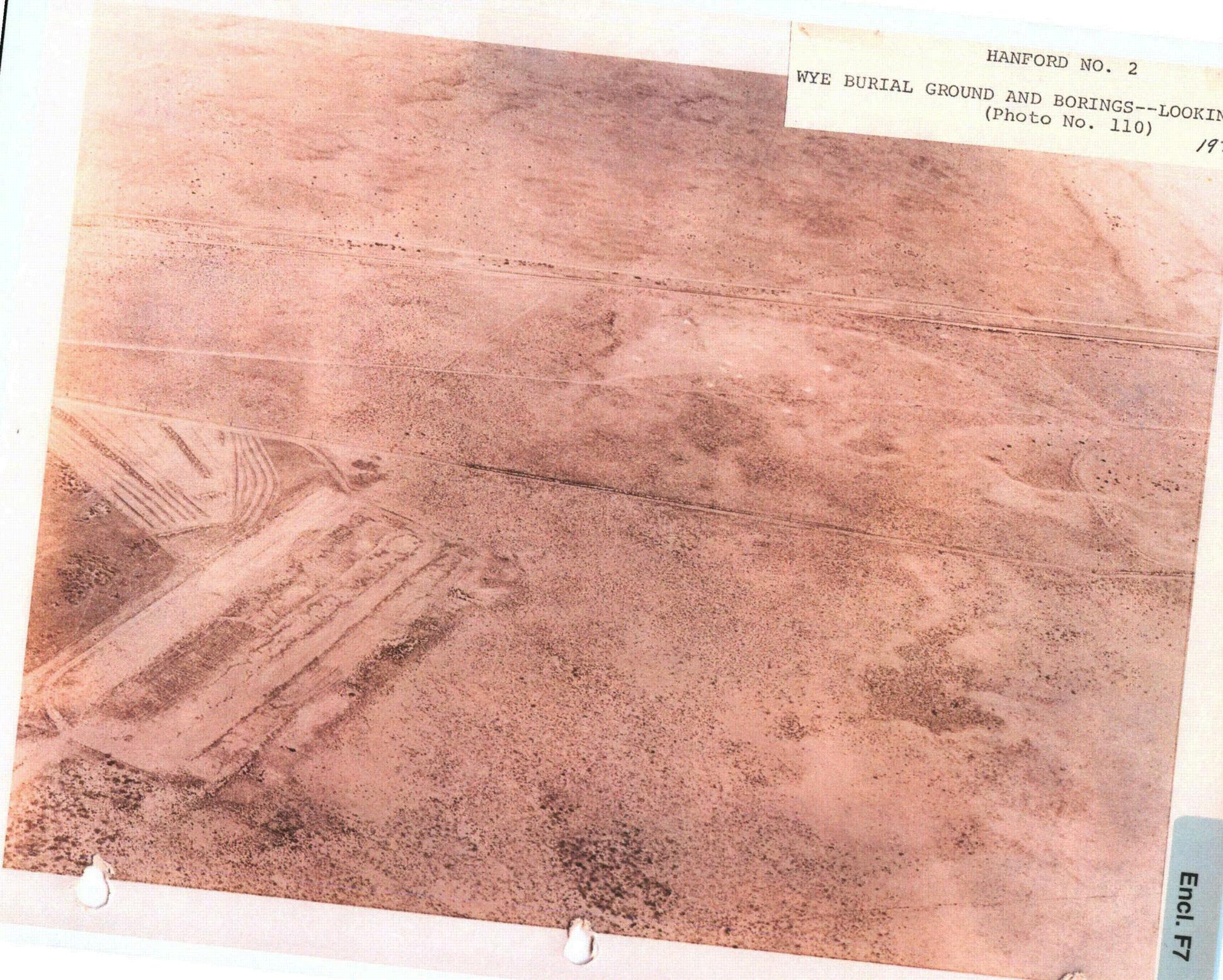
Others

Washington Environmental Council  
National Wildlife Federation  
Federation of Western Outdoor Clubs  
Friends of the Earth, Northwest Coordinator  
Natural Resources Defense Council  
North Cascades Conservation Council  
The Wilderness Society  
Sierra Club, Northwest Representative  
    Northern Rockies Chapter  
    Pacific Northwest Chapter  
Northwest Steelheaders Council of Trout Unlimited  
Pacific Northwest Conservation Council

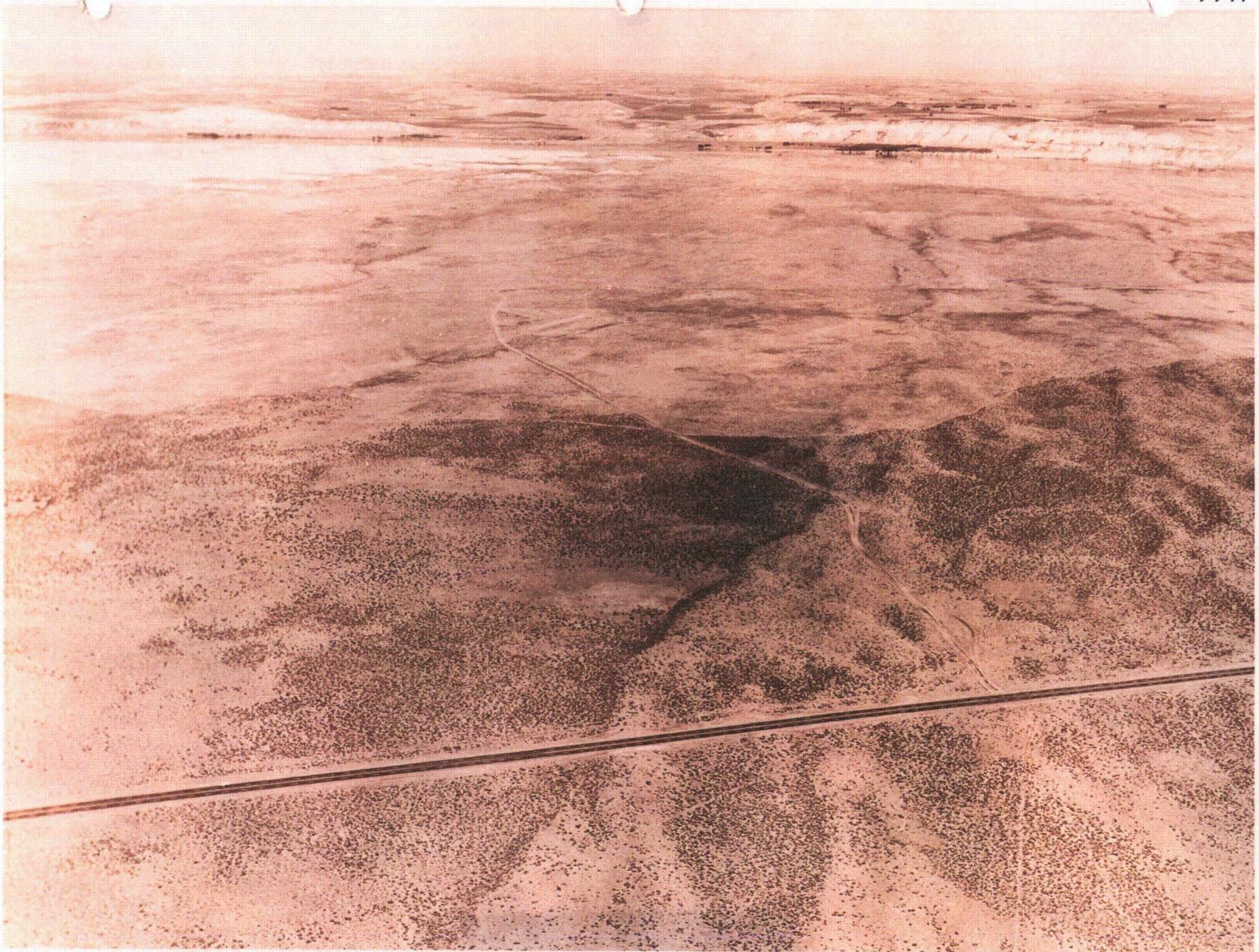
HANFORD NO. 2

WYE BURIAL GROUND AND BORINGS--LOOKING WES  
(Photo No. 110)

1971



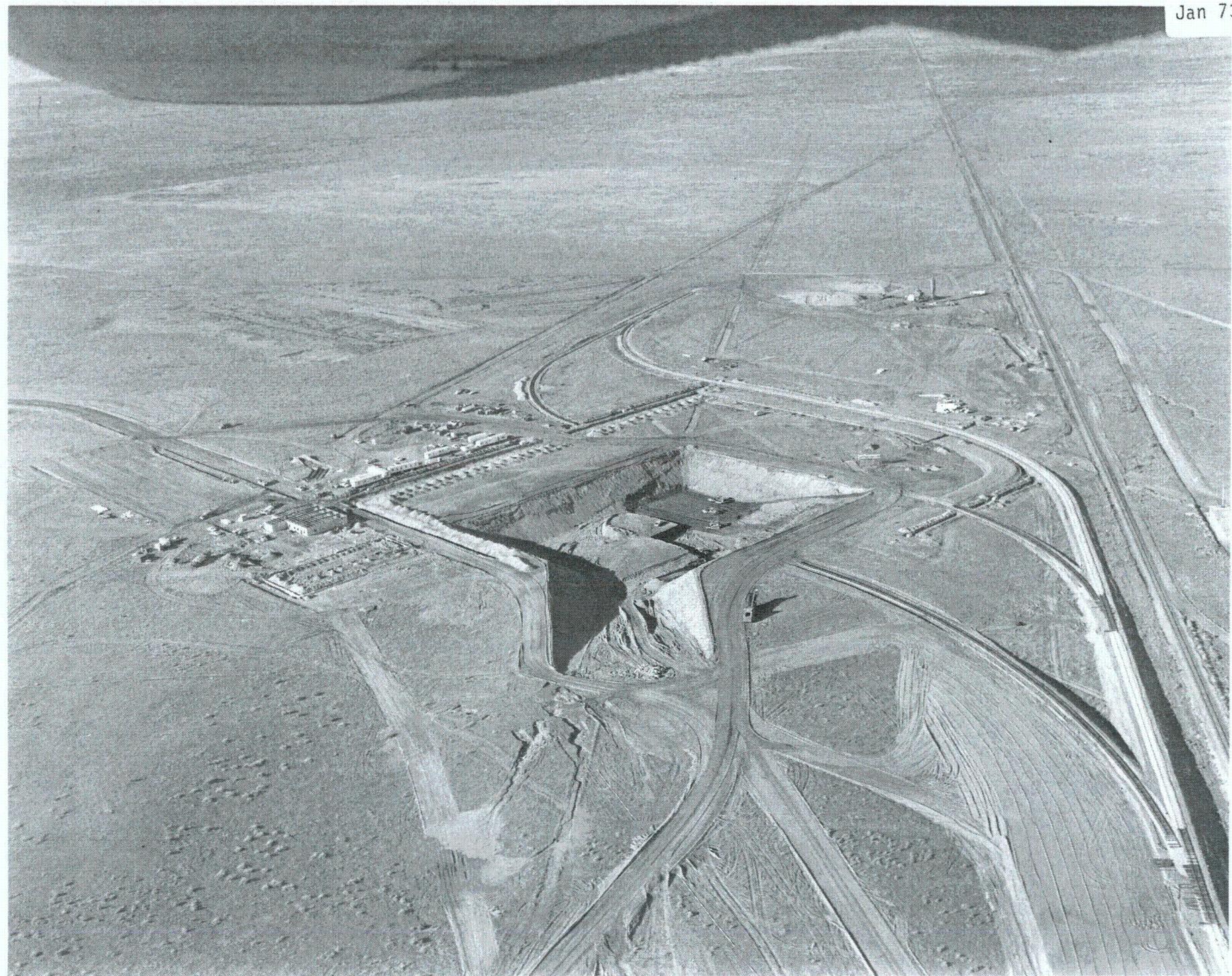
Encl. F7



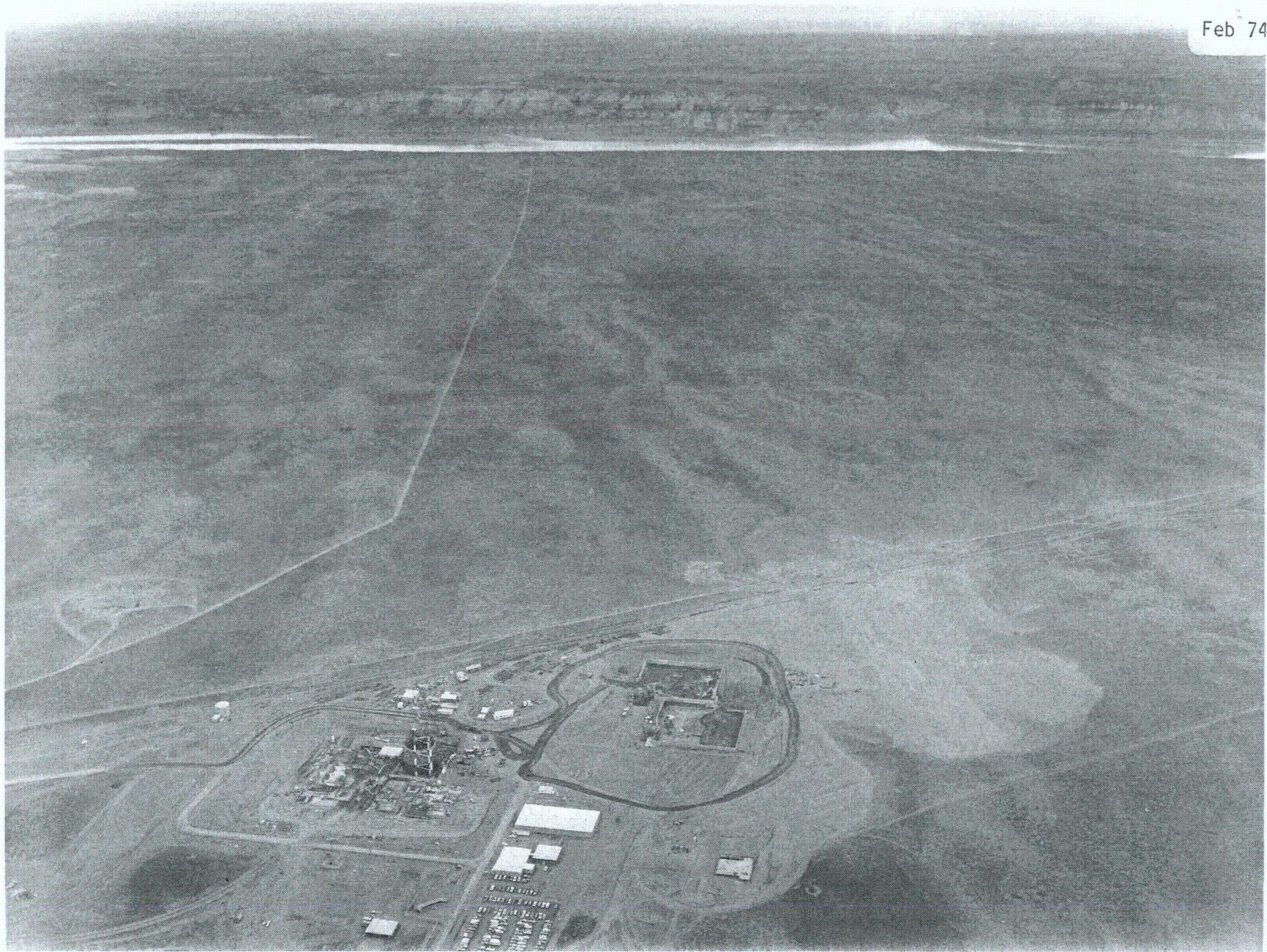
6

1971

Jan 73



Feb 74



Jul 03



**United States Government****Department of Energy****memorandum****Bonneville Power Administration****DATE:** February 27, 2002**REPLY TO**  
**ATTN OF:** KEP-4**SUBJECT:** Supplement Analysis for the Transmission System Vegetation Management Program FEIS  
(DOE/EIS-0285/SA-45)**TO:** William T. Erickson - TFP/Walla Walla  
Natural Resource Specialist

**Proposed Action:** Benton County noxious weed management along BPA rights-of-ways, transmission structures, roads, and switches listed in Attachment 1. Attachment 1 identifies the ROW, ROW width, and ROW length of the proposed action. Includes all BPA 115kV, 230kV, 345kV and 500 kV ROWs in Benton County, Washington.

**Location:** The ROWs are all located in Benton County, Washington, Walla Walla Region.

**Proposed by:** Bonneville Power Administration (BPA).

**Description of the Proposed Action:** BPA proposes to clear noxious and/or unwanted low-growing vegetation in all BPA ROWs in Benton County, Washington. In a cooperative effort, BPA, through landowners and the Benton County Weed Control Board, plan to eradicate noxious plants and other unwanted, low-growing vegetation within the ROW width including all structures and access roads. BPA's overall goal is to eradicate all noxious and unwanted vegetation through chemical treatment and reseeding. Selective and nonselective chemical treatment using spot, local and broadcast methods. All work will be executed in accordance with the National Electrical Safety Code and BPA standards. Work is to begin in March 2002.

**Analysis:** This project meets the standards and guidelines for the Transmission System Vegetation Management Program Final Environmental Impact Statement (FEIS) and Record of Decision (ROD).

The Planning steps are described in Attachment 1, Checklist.

- All activities will be carried out in accordance with Section 15, Noxious Weed Act Amendment, 1990, Farm Act.
- Selective and nonselective chemical treatment will remove noxious and unwanted vegetation. Reseeding will take place to minimize reoccurrence of noxious vegetation. Retreatment may be required on an annual basis.
- Water resources (streams, rivers, wetlands and well) will be protected with the mitigation measures shown in Attachments 1.

- T&E Species will be protected as per the mitigation measures shown in Attachment 1. Species identified for mitigation include salmonids and bald eagles.
- No 'in stream' work is to take place without prior consultation with the appropriate government agencies and permits are in place.
- Herbicides will be applied by licensed applicators following manufacturers' label instructions and BPA's management prescriptions.
- Re-seeding /re-planting regimes have been identified as per Attachment 1.
- Notification of property owners and land management agencies, listed in Attachment 1, will be coordinated through the Benton County Weed Control Board as per the stipulations contained in Attachment 2, Statement of Work, Noxious Weed Management, Benton County, FY 2002.

This Supplement Analysis finds that 1) the proposed actions are substantially consistent with the Transmission System Vegetation Management Program FEIS (DOE/EIS-0285) and ROD, and; 2) there are no new circumstances or information relevant to environmental concerns and bearing on the proposed actions or their impacts. T&E fish and wildlife are not affected, with implementation of the attached mitigation measures, therefore, no formal consultation is required.

/s/ Mark W. Hermeston

Mark W. Hermeston – KEP-4  
Physical Scientist (Environmental)

CONCUR: /s/ Thomas C. McKinney

Thomas C. McKinney  
NEPA Compliance Officer

DATE: 2/27/02

## **Vegetation Management Checklist**

## 1. IDENTIFY FACILITY AND THE VEGETATION MANAGEMENT NEED

### 1.1 Describe Right-of-way BENTON COUNTY NOXIOUS WEED MANAGEMENT

Corridor Name	Corridor Length & kV	Easement width	Miles of Treatment
Benton Franklin # 1&2	22 miles 115 kv	150	1 miles 1/1 to '1/2
Benton Scooteney	22 miles 115 kv	100	1 miles 1/1 to '1/2
Franklin Badger Canyon #1	16 miles 115 kv	69-100	14 miles 3/2+ SUB
Franklin Badger Canyon #2	14 miles 115kv	100	13 miles 3/2+ SUB
Franklin Hedges	6 miles 115 kv	125	3 miles 3/2+ to sub
McNary Franklin #2	28 miles 230 kv	112	26 miles 2/1 to 25/1
Lower Monumental Ashe	40 miles 500 kv	247 115	5 miles 36/4+ to Sub
Lower Monumental Hanford	54 miles 500 kv	160	47/3+ to Sub
McNary Badger Canyon	30 miles 115 kv	100	13 miles 1/10+ to sub
McNary Ross McNary Horse Heaven. Harvarlum	28 miles 343 kv	500	26 miles 2/3- to 30/1+650
Badger Canyon-Reata	4.5 mile 115 kv	50-125	4.5
Badger Canyon Richland	7 miles 115kv	100	7 miles
Benton DOE B3-S4	7 miles 115 kv	100	7 miles
Benton-451 B	6 miles 115 kv	90	6 miles
Grandview Richland sub	11 miles 115 kv	100	19 miles Sub to 19/3

Hedges tap	1 miles 115 kv	150	1 mile
Kennewick Tap	2 miles	150	0.5 miles
Riverland Midway	3 miles	15	3 miles
Midway Benton #1&2	29 miles 230kv	200	28 miles
Scooteney Tap	8 miles	100	7 miles 1/1 to 20/1
White Bluffs Richland	13 miles 115 kv	50-100	10 miles
White Bluffs Tap	11 miles 115 kv	70	9 miles
WNP 2 Tap to Benton 451B	3 miles 115 kv	90	3 miles
DOE B3-S4 White Bluffs #1	6 miles 115 kv	40	5 miles
451B-451A	1 mile	90	0.5 miles
Ashe Tap	10 230kv	125	1/1 to 9/7
Ashe White Bluffs	10 230 kv	120	1/1 to 10/3
Ashe Hanford	18 miles 500 kv	150	1/1 to 18/3
Benton Othello	11 230 kv	100	1/1 to 11/1
Midway Grandview	9 miles 115 kv	100	Sub to 9/6
N. Bonneville Midway	230 KV		129/4 to Sub 10 MILES
Midway Moxee	115 kv	100	Sub to 8/4+200
Hanford Ostrander Hanford Johnday	22 mile 500 kV 26 miles 500 KV	300 150	Sub to 17/2+770 17/2+770 to 22/2 Sub to 17/2+770
Bid Eddy Midway John Day Midway	230 kv 500 Kv	300	88/4 to Sub 19/4 to 26/2+

Midway Vantage Midway Potholes Midway Rocky Ford	230	1200	SUB TO 1/3+668
Prosser Tap	115 kv	100	1/1 to 7/3
Chandler Tap	115	100	1/1 3/9
Ashe Slatt Ashe Marion	500 kv	125	Sub to 52/5++
Vantage Hanford	500 kv	125	94 to Sub
Coulee Hanford	500 kv	125	97/1 to Sub

See Handbook — List of Right-of-way Components for checkboxes and the requirements for the components Rights-of-way, Access Roads, Switch Platforms, Danger Trees, and Microwave Beam paths.

#### Right Of Way:

Transmission Structures – clearing around  
 Access Road clearing - approximate miles –  
 Other Noxious weed Management

#### 1.2 Describe the vegetation needing management.

See handbook — List of Vegetation Types, Density, Noxious Weeds for checkboxes and requirements.

#### Vegetation Types:

Noxious Weeds - Knapweed species, and county listed weeds

Other/Description – low brush and weeds around structures and roads

Weed density ranges for light to heavy.

- In the following places the landowner may be provided herbicides for noxious weed control.  
 Noxious weed board performs almost all of the work. If BPA does provide herbicides to landowners in the future, they will be provided with the appropriate environmental information.

		Others as requested	Tordon 22K (Picloram), Trooper/Vanquish (Dicamba), 2,4-d. TELAR
--	--	---------------------	--

Tordon is being considered since it is one of the most effective products known to control knapweeds and other broadleaf species. Care must be taken due to its persistence and ground and surface water issues.

#### Suggested Seed mixture to reduce and prevent noxious weeds.

To	From	Approved and Suggested seeds	*Native	Reason for seeding
		<p>Mixes can be developed from the following seed species. Based on site and adaptation.</p> <p><u>Name</u></p> <p>Sheep fescue (Festuca ovina) N  Smooth Brome I  Canada bluegrass (Poa compressa) N  Big Bluegrass N  Intermediate Wheatgrass I  Bluebunch Wheatgrass N  Pubescent Wheatgrass N  Sand dropseed N  Needlegrass N  Crested Wheatgrass I  Perennial Ryegrass I</p> <p>Sickle-keeled lupine N  And/or Lupinus bicolor N  clovers I  Alfalfa I</p>	N=Native I=Introduced	Re-seeding and Fertilization after noxious weed treatments has been shown to be effective in preventing the re-establishment of noxious weeds and which reduces the need for future herbicide applications

**1.3 List measures you will take to help promote low-growing plant communities. If promoting low-growing plants is not appropriate for this project, explain why. See Handbook — for requirements and checkboxes.**

N/A

**1.4 Describe overall management scheme/schedule.**

See Handbook - Overall Management Scheme/Schedule.

Initial entry – BPA in Cooperation with the BENTON County Noxious weed Control Board will provide resources to assist landowners in controlling noxious weeds on the listed lines.

The Weed board performs all activities of BPA at this time. Survey, and application.

Listed noxious weeds are present in the ROW. A cooperative effort to control noxious weeds is also proposed with landowners and the BENTON County Noxious Weed Control Board. These listed noxious weeds are non-native species that need to be controlled to prevent any additional spread of these weeds and encroachment of habitat for native species on the right-of-way. These noxious weed species will be controlled using an Integrated Vegetation Management Approach (IVM) using a combination of manual, mechanical herbicides, and biological methods.

Noxious Weeds- The selection of methods and herbicides for noxious weed management will be based on their location and proximity to water resources. Treatment will be Spot, localized and broadcast treatments (see descriptions page 12). Non-selective treatments using ground and aerial broadcast treatment may be required in areas of high infestation of weeds on the ROW, and access roads and tower sites. Localized and Broadcast Granular treatments will also be considered.

## 2. IDENTIFY SURROUNDING LAND USE AND LANDOWNERS/MANAGERS

### 2.1 List the types of landowners and land uses along your corridor.

See Handbook — Landowners/Managers/Uses for requirements, and List of Landowners/Managers/Uses for a checkbox list.

Agricultural

Residential

Rural

Agricultural

Grazing lands

Industrial Forest lands

Urban

BLM

Other Federal lands Corp of Engineers, US FISH AND WILDLIFE, Hanford

Tribal Reservation Yakama Tribe on Hanford

State/City/County Lands

Span		Landowner/use	Specific measures to be applied
To	From		
47/3+	SUB	USF&W (Reach) LOMO HANFORD	
1/1	20/1	USF&W (Reach) Scooteney tap	
1/6	1/7	WA DNR Badger Canyon Richland	Sec 36 T9N R28E
2/3 6/3	4/1 6/4	Greenbelt/Golf Course grapes Badger Canyon Richland line	No Pole Treatment needed Intensive use
5/2	5/8	BLM Badger Canyon Richland line	NO Herbicide use until Review
1/1	6/10	Hanford Res. Benton DOE- B3-S4	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	5/7	Hanford Res. Benton 451B	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	1/3	Hanford Res. Benton Franklin	Hanford DOE and Fish and Wildlife Reviewed 2001

		#1&2	
1/1	2/3	Hanford Res. Benton Scooteney	Hanford DOE and Fish and Wildlife Reviewed 2001
20/7	21/1	Blackwood vineyards Grandview Richland	No herbicide
21/5	22/6	Hedges Vineyard Grandview Richland	No Herbicide
22/8	23/1	BLM CK Grandview Richland	NO Herbicide use until Review
26/8	26/10	Robert Bobbett Grandview Richland	Tree Agreement
27/9	28/4	State Of Washington Grandview Richland	Orchard Tree Agreement
8/4	8/5	DNR State McNary Badger Canyon #1	Sec 14 T6N R28E
15/2	15/8	DNR State McNary Badger Canyon #1	Sec 16 T7N R 29E
19/1	19/9	DNR State McNary Badger Canyon #1	Sec 36 T7N R29E
8/5	8/6	DNR State McNary Franklin #2	Sec 14 T6N R28E
15/2	15/8	DNR State McNary Franklin #2	Sec 16 T7N R 29E
19/2	20/2	DNR State McNary Franklin #2	Sec 36 T7N R29E
1/1	29/6	Hanford Res. Midway Benton #1&2	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	5/5	White Bluffs Richland Hanford Res	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	3/7	White Bluffs tap Hanford Reservation	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	7/3	White Bluffs 451B Hanford Res.	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	2/11	WNP 2 Tap Hanford	Hanford DOE and Fish and Wildlife Reviewed 2001

		Res.	2001
1/1	5/16	DOE B3-B4 Hanford Res	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	½	451B-451A Hanford Res	Hanford DOE and Fish and Wildlife Reviewed 2001
1/1	9/7	Ashe Tap	Hanford DOE
1/1	10/3	Ashe White Bluffs	Hanford DOE
1/1	sub	Ashe HAnford	Hanford DOE
1/1	11/1	Benton Othello	Hanford DOE
18/4	19/1+ 602	Hanford Ostrander Hanford John Day	State DNR Sec 16 T12N R24E
23/3+ 196	23/4+3 57	Hanford John Day Big Eddy Midway	BLM No Herbicides except for Noxious weeds
SUB	3/1	Midway Moxee	Hanford DOE
Sub	3/1	Midway Grandview	Hanford DOE
100/4 +422	Sub	N. Bonneville Midway	Hanford DOE
Sub	17/2	Hanford Ostrander Hanford John Day	Hanford DOE
6/2	6/3+688	Midway Moxee	BLM No Herbicides except for Noxious weeds
Sub	1/3+668	Midway Vantage Midway Potholes Midway Rocky Ford	Hanford DOE
6/2	7/3	Grandview Richland	State Sec 36 T10N R 24E
12/4	13/4	Grandview Richland	State Sec 35 T10N R 25E
Sub	11/1 +739	Ashe Marion	DOE Hanford REACH MONUMENT
11/1+ 739	11/1 +960	Ashe Marion	BLM No Herbicides except for Noxious weeds
11/1+ 960	11/4 +435	Ashe Marion	State Dept Fish and Wildlife
11/4+ 435	12/5 +245	Ashe Marion	BLM No Herbicides except for Noxious weeds
12/5+ 245	13/1 +305	Ashe Marion	State Dept Fish and Wildlife

15/2+ 407	15/2 +617	Ashe Marion	BLM No Herbicides except for Noxious weeds
18/1+ 862	18/1+1 182	Ashe Marion	State DNR
19/4+ 714	20/5 +170	Ashe Marion	BLM No Herbicides except for Noxious weeds
24/4+	25/3+9 30	Ashe Marion	Sec 16 T8N R26E State DNR
30/4+ 1015	30/5+5 25	Ashe Marion	Sec 16 T7N R26E State DNR
35/1	36/2+	Ashe Marion	Sec 36 T7N R25E State DNR
39/4+ 450	39/5+2 75	Ashe Marion	Sec 16 T6N R25E State DNR
52/5	55/1	Ashe Marion	USFWS McNary Refuge
97/1-	Sub	Coulee Hanford	Hanford DOE and Fish and Wildlife
94-	Sub	Vantage HAnford	Hanford DOE and Fish and Wildlife

**2.2 Describe method for notifying right-of-way landowners and requesting information (i.e., doorhanger, letter, phone call, e-mail, and/or meeting). Develop landowner mail list, if appropriate.**

See Handbook — Methods for Notification and Requesting Information for requirements.

The Local weed board works closely with local landowners and Agency's when controlling weeds.

**2.3 List the specific land owner/landuse measures — determined from the handbook or through your consultations with the entities — that will be applied.**

See handbook — Requirements and Guidance for Various Landowners/Uses for requirements and guidance, also Residential/Commercial, Agricultural, Tribal Reservations, FS-managed lands, BLM –managed lands, Other federal lands, State/ Local Lands.

Most of the acres is either dry cropland or rangeland.

**Agricultural**

- Prevent the spread of noxious weeds by cleaning seeds from equipment before entering cropland.
- If using herbicides on grazing lands, comply with grazing restrictions as required per herbicide label.

- If using herbicides near crops for consumption, comply with pesticide-free buffer zones, if any, as per label instructions.
- For rights-of-way adjacent to agricultural fields, observe appropriate buffer zones necessary to ensure that no drift will affect crops.

**2.4 Review any existing landowner agreements (e.g. tree/brush Permits or Agreements). List in table above any provisions that need to be followed and where they are located.**

The following landowners have responsibility for vegetation maintenance.

Span		Landowner	Agreement ID number (?)
T o	Fro m		
15/5 +34 9	16/2 +845	Barbee Orchards McNary Ross	90199
18/2 +	18/4 +500	Stimpson Farms McNary Ross	980575
12/3 +56 0	23/3 +220	Sandpiper Farms	990212
27/4	29/1	Mercer Ranches	990212

See handbook — Landowner Agreements for requirements.

N/A

**2.5 List any known casual informal use of the right-of-way by non-owner publics. List any constraints or measure's to take due to the informal use.**

See handbook — Casual Informal Use of Right-of-way for requirements.

Limited use on Private land

**2.6 List other potentially affected people, agencies, or tribes (that are not landowners/managers) that need to be notified or coordinated with. Describe method of notification and coordination.**

See handbook — Other Potentially Affected Publics for requirements and suggestions.

### 3. IDENTIFY NATURAL RESOURCES

See Handbook — Natural Resources

**3.1 List any water resources (streams, rivers, lakes, wetlands) that may be impacted by vegetation control activities. For each water body describe the control methods and requirements or mitigation measures that will be used.**

See Handbook — Water Resources for requirements for working near water resources including buffer zones.

Span		Water body	T & E?	Method	Herbicide	Application Technique	Buffer	Other
To	From							
1/2	1/3	Columbia River Benton Franklin #1&2	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
½	1/3	Columbia River Benton Scooteney	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
3/1	3/2	Franklin Badger Canyon #2 Columbia River	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
3/1	3/2	Franklin Hedges Columbia River	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
25/1	25/2	Columbia River McNary Franklin #2	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

36/4	37/1	Columbia River LOMO Ashe	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	Tree Ag
2/2	2/3	Columbia River McNary Franklin #2	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
1/4	1/5	Amon Wasteway Badger Canyon Richland line	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	Steel N/A
6/9	Sub	Yakima River Badger Canyon Richland line	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	Steel N/A
1/2	1/3	Columbia River Benton Franklin #1&2	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	Steel N/A
13/2	13/3	Esquatzel Wasteway Benton Franklin #1&2	N o	Manual Herbicide	Weedblast Imazapyr Spike 2,4-d glyphosate	Localized Granular Broadcast Localized Foliar	100 ft 35 ft 35 ft 35 ft up to edge	

1/2	1/3	Columbia River Benton Scooteney	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast , and Aerial Broadcast	See specs	Steel N/A
3/1	3/2	Franklin Badger Canyon #2 Columbia River	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast , and Aerial Broadcast	See specs	Steel N/A
15/4	15/5	Amon Wasteway Franklin Badger Canyon #2 line	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast , and Aerial Broadcast	See specs	Steel N/A
3/1	3/2	Franklin Hedges Columbia River	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast , and Aerial Broadcast	See specs	Steel N/A
19/11	20/1	Slough Grandview Richland	n o	Manual Herbicide	Weedblast Imazapyr Spike 2,4-d glyphosate	Localized Granular Broadcast Localized Foliar	100 ft 35 ft 35 ft 35 ft up to edge	

20/2	20/5	Yakima River Grandview Richland	yes	Manual Herbicide	Weedblast Imazapyr Spike  2,4-d glyphosate	Localized Granular Broadcast  Localized Foliar	100 ft 35 ft 35 ft  35 ft up to edge		
29/7	29/8	Yakima River Grandview Richland	yes	Manual Herbicide	Weedblast Imazapyr Spike  2,4-d glyphosate	Localized Granular Broadcast  Localized Foliar	100 ft 35 ft 35 ft  35 ft up to edge		
1/10	1/11	Columbia River McNary Badger Canyon #1	yes						Steel N/A
2/2	2/3	Columbia River McNary Franklin #2	yes						Steel N/A
25/1	25/2	Columbia River McNary Franklin #2	yes						Steel N/A
48/1	47/3	LOMO Hanford Columbia River	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs		
4/2	4/3	Cold Creek	No	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs		

96/5	97/1	Grand Coulee Hanford Columbia River	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
1/3	1/4	Columbia River Midway Vantage Midway Potholes Midway Rocky Ford	yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
5/1	5/2	Spring Creek Grandview Richland	Yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
17/8	17/9	Sunnyside main Canal Grandview Richland	Yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
16/4	16/5	Sunnyside main Canal Ashe Marion	Yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
52/5	53/1	Columbia River Ashe Marion Ashe Slatt	Yes	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

54/5	55/1	Columbia River Ashe Marion Ashe Slatt	Y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
12/3	12/4	Creek Ashe Marion	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
17/2	17/3	Creek Ashe Marion	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
17/3	17/4	Creek Ashe Marion	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
18/1	18/2	Yakima River she Marion	Y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
28/1	28/2	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
29/3	29/4	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

29/4	29/5	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
31/2	31/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
31/4	32/1	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
33/3	33/4	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
33/4	34/1	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
34/1	34/2	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
34/3	34/4	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

35/1	35/2	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
36/1	36/2	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
36/2	36/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
36/4	36/5	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
37/1	37/2	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
38/2	38/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
38/4	38/5	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

38/5	39/1	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
39/2	39/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
40/2	40/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
40/4	40/5	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
41/1	42/1	Ashe Marian Glade Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
42/4	43/1	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
51/2	51/3	Ashe Marian Creek	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

1/1	1/3	Yakama River Ashe Marion Ashe Slatt	Y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
3/2	3/3	Creek Chandler Tap	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
2/6	2/7	Creek Chandler Tap	n o	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
2/2	2/3	McNary Ross McNary Horse Heaven	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
96/5	67/1	Grand Coulee Hanford Columbia River	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	
93	94	Vantage Hanford Columbia River	y e s	Manual Biological Herbicide mechanical	2,4-d dicamba clopyralid chlorsulfuron metsulfuron picloram	Spot, localized Ground Broadcast, and Aerial Broadcast	See specs	

### SALMON T&E STREAMS

State and/or Private lands within 122 m (400 ft.) of a listed stream. Available: manual, mechanical, spot and localized herbicide, broadcast treatments, and biological treatments. No mechanical within 100 feet of streams except for tower sites and access roads.

**Manual:** Hand tools and chainsaws

**Mechanical:** None within 100 feet of stream. Except for Access Roads and Tower sites

**Herbicide:** From 0 to 100 feet away from water, use only Non-toxic formulations to moderately toxic (to aquatic species) formulations of glyphosate (such as Rodeo®), dicamba (Trooper/Vanquish), Telar, Escort, clopyralid, picloram, and 2-4-d using wick and spot-foliar treatments (localized) and ground broadcast treatments with handgun only. Highly Toxic and very Highly toxic (to fish) herbicides will not be used within 100 feet of a T&E Stream. Use appropriate buffers as described in the buffer table.

From 100 to 400 feet away from water use appropriate buffers as described in the buffer table.

**OTHER STREAMS:** Land 100 ft of a stream, water and wetlands. Available: all manual, spot and localized herbicide, and biological treatments. No mechanical treatments within 50 feet of streams or wetlands.

**Manual:** Hand tools and chainsaws

**Mechanical:** None, within 50 feet of streams or wetlands. Only on Access Roads and Tower sites

**Herbicide:** Only Non-toxic formulations and slightly toxic (to aquatic species) formulations of glyphosate (such as Rodeo®), dicamba (Trooper/Vanquish), Telar, Escort, clopyralid, picloram, and 2-4-d may be prescribed for wick, and spot-foliar treatments (localized). Ground Broadcast treatments can be completed with the appropriate buffers on noxious weeds, access roads and tower sites.

**BPA BUFFER**  
**Herbicide**

HERBICIDE	Ground water Advisory	Surface Water Advisory	Highest Aquatic Toxicity Invertebrates/Vertebrates	Spot treat	Localized	Broadcast	Aerial
Transline Clopyralid	x		Practically Non Toxic	25 ft	35 ft	100 ft	250 ft
2,4-d Dimethyl amine Salt	x		Practically Non Toxic	25 ft	35 ft	100 ft	250 ft
Glypro/Accord Glyphosate			Practically Non Toxic	Up to edge	Up to edge	35 ft	100 ft
2,4-d Dodecyl/amine salt	x		Slightly toxic	25 ft	35 ft	100 ft	250 ft
Tordon 22K picloram	x	x	Moderately Toxic	25 ft	35 ft	100 ft	250 ft
Vanquish dicamba	x	x	Slightly Toxic Practically Non Toxic	25 ft Up to edge	35 ft Up to edge	100 ft 35 ft	250 ft 100 ft
Escort			Practically Non Toxic	Up to edge	Up to edge	35 ft	100 ft
Telar			Practically Non Toxic	Up to edge	Up to edge	35 ft	100 ft
Garlon 3A			Practically Non Toxic	Up to edge	Up to edge	35 ft	100 ft
Garlon 4*			Highly Toxic	35 ft	100 ft	400 ft	400 ft

Buffers:

- Non-toxic and slightly toxic formulations of Glyphosate, Escort, Telar, and Garlon 3A may be used to the waters edge when using spot and localized treatments.
- Garlon 4\* may be used when more than 35 feet from streams and seasonally dry wetlands. When not within a T & E salmon stream
- The buffers for dicamba, 2,4-d, clopyralid, and Picloram are 25 feet for spot treatment and 35 feet for localized treatments, 100 feet for ground broadcast, and 250 for aerial applications.
- Ground Broadcast treatment buffers will be 35 feet for approved formulations of Glyphosate, Escort, Telar, and Garlon 3A.

**3.2 If planning to use herbicides, list locations of any known irrigation source, wells, or springs (landowners maybe able to provide this info if requested).**

See Handbook — Herbicide Use Near Irrigation, Wells or Springs for buffers and herbicide restrictions.

None Known

Span	Well/irrigation/or spring	Herbicide	Buffer	Other notes/measures
From				
	When present	Low toxicity Garlon 3A Glyphosate Escort <u>Clopyralid</u> <u>Garlon 4</u>	50 ft	

**3.3 List below the areas that have Threatened or Endangered Plant or Animal Species and the name of the species, and any special measures that need to be taken due to their presence. Attach any BAs, T&E maps, or letters from US Fish and Wildlife.**

See Handbook — T&E Plant or Animal Species for requirements and determining presence.

**Eagles Located at 47/3 to 48/1 LOMO HANFORD LINE  
14/3 to 15/2 McNary Ross**

**Bald Wintering bald eagles:** No work within 100 meters (328 feet) of any known wintering bald eagle roosts from Nov. 1 through March 15 unless clearance surveys are done daily to determine that no bald eagles are present within 100 meters of activities.

If roosting trees are to be removed, you will need to do formal consultation with USFWS.

**Nesting bald eagles:** No work within 0.25 miles if out of line-of-sight of nesting tree, or 0.5 miles if in line-of-sight of nesting tree from January 1 to August 31, unless clearance surveys show that there is no nesting occurring. May be able to cut sooner if consult with USFWS and can show that young have fledged.

**3.4 List any other measures to be taken for enhancing wildlife habitat or protecting species.**

See Handbook — Protecting Other Species for requirements.

Control and Management of Noxious weeds will improve habitats

**3.5 List any visually sensitive areas and the measures to be taken at these areas.**

See Handbook — Visual Sensitive Areas for requirements.

None known

**3.6 List areas with cultural resources and the measures to be taken in those areas.**

See Handbook — Cultural Resources for requirements.

No Ground disturbing activities planned

**3.7 List areas with steep slopes or potential erosion areas and the measure and methods to be applied in those areas.**

See Handbook — Steep/Unstable Slopes for requirements.

<b>Span</b>	<b>Describe sensitivity</b>	<b>Method/mitigation measures</b>
<b>To</b>	<b>From</b>	
	<b>Throughout project area.</b>	<ul style="list-style-type: none"><li>• Do not use ground (soil)-disturbing mechanical equipment to clear on slopes over 20%.</li><li>• Avoid using granular or total vegetation management (non-selective) herbicides on slopes over 10%.</li><li>• Do not use herbicides that have surface water advisories.</li><li>• Perform mechanical clearing when the ground is dry enough to sustain heavy equipment.</li></ul>

**3.8 List areas of spanned canyons and the type of cutting needed.**

See Handbook — Spanned Canyons for requirements.

N/A

## **4. DETERMINE VEGETATION CONTROL METHODS**

See Handbook — Methods

**4.1 List Methods that will be used in areas not previously addressed in steps above.**

See Handbook — Manual, Mechanical, Biological, Herbicides for requirements for each of the methods.

**Manual:** Hand tools and chainsaws

**Mechanical:** None, within 50 feet of streams or wetlands. Only on Access Roads and Tower sites

**Herbicide:** glyphosate, dicamba (Trooper/Vanquish), Telar, Escort, clopyralid, picloram, and 2-4-d may be prescribed for wick, and spot-foliar treatments (localized). Broadcast treatment can be completed using ground broadcast methods or aerial application with the appropriate buffers.

## APPLICATION METHOD DESCRIPTIONS

### Spot Herbicide Application

A spot application treats individual plant(s) with the least amount of chemicals possible. The methods include, but are not limited, to the following:

- **Wick and carpet roller applications.** The herbicide is wiped on the plant(s) (noxious weeds) using hand held or equipment mounted rope wicks, sponges, fiber covered wipers, or carpet wiper designs. This application devise uses saturated ropes, wick or sponges that are used to apply the herbicide selectively on the plant. This method is effective where drift or sensitive water sources are a concern.

### Localized Herbicide Application

“Localized” herbicide application is the treatment of individual or small groupings of plants. This application method is normally used only in areas of low-to-medium target-plant density.

The application methods for this application group include, but are not limited to, the following:

- **Low-volume foliar treatment.** Herbicides are applied with the use of a backpack sprayer, all terrain vehicle (ATV), or tractor with a spray gun. Herbicide is applied to the foliage of individual or clumps of plants during the growing season, just enough to wet them lightly. A relatively high percentage of herbicide is used mixed with water. Thickening agents are added where necessary to control drift. Dyes may also be added to see easily what areas have been treated.
- **Localized granular application.** Granular or pellet forms of herbicide are hand-applied to the soil surface beneath the driplines of an individual plant, or as close to a tree trunk or stem base as possible. Herbicide is applied when there is enough moisture to dissolve and carry the herbicide to the root zone—but not so much water that it washes the granules off-site.

### Broadcast Ground Herbicide Application

Broadcast herbicide applications treat an area, rather than individual plants. Broadcast applications are used to treat rights-of-way that are thickly vegetated (heavy stem density), access roads, and noxious weeds. The application methods for this group include, but are not limited to, the following:

- **High-volume foliar treatments.** Herbicides are applied by truck, ATV, or tractor with a spray gun, broadcast nozzle, or boom. A hydraulic sprayer mounted on a rubber-tired tractor or truck or tracked-type tractor is used to spray foliage and stems of target vegetation with a mixture of water and a low percentage of herbicide. The herbicide mixture is pumped through hoses to a hand-held nozzle. A worker activates the nozzle and directs the spray to the target vegetation. Boom application methods involve a fixed nozzle or set of nozzles that spray a set width as the tractor passes over an area.
- **Broadcast granular treatment.** Granular forms of herbicide are spread by hand, belly grinder, truck or tractor. The herbicide is spread over a relatively large area, such as in an electric yard, or around tower legs.

### Aerial Herbicide Application

Aerial herbicide applications are used to treat large areas that usually have heavy, dense vegetation needing control (including noxious weeds); steep slopes that make other methods unsafe; or poor road access. The application methods for this group include the following:

- **Helicopter.** Booms attached to a helicopter deliver herbicide to the target area. The helicopter may fly above or below transmission-line conductors.

## VEGETATION

---

The following mitigation measures would be observed to reduce impacts on vegetation:

As much as practical, be careful not to disturb low-growing plants. When possible, use only selective vegetation control methods (such as spot herbicide applications) that have little potential to harm non-target vegetation.

- Use only those biological control agents (insects) that have been tested to ensure they are host-specific.
- *When possible*, wash vehicles that have been in weed-infested areas (removing as much weed seed as possible) before entering areas of no known infestations.
- *Consider, if appropriate*, reseeding after noxious weed treatments.
- *Where cost-effective and to the extent practicable*, use regionally native plants for landscaping.
- Use seeds, seedlings, or plants that are consistent with management objectives and adapted to climatic conditions, soils, landscape position, and the site itself.
- Use native seed/plants if the species meet the objectives of the re-vegetation project, if the costs are reasonable, and if the seeds/plants are readily available in the quantity and quality needed to perform the project.
- *If native seed mixes are not reasonably priced or available in needed quantities*, consider a seed mix with some percentage of native seeds.
- Use high-purity seed; take actions to prevent purchase of seed contaminated with noxious weeds.
- Apply mitigation measures (such as timing restrictions, or specific method use) resulting from T&E determinations or consultations.
- Follow herbicide product label directions for appropriate uses, restrictions etc.
- Use herbicide-thickening agents (as appropriate), label instructions, and weather restrictions to reduce the drift hazard to non-target plants.
- Do not apply pellet herbicides within three times (3X) the crown width (or dripline) of an off-right-of-way tree.
- *In the rare case of an herbicide spill*, follow all herbicide spill requirements, including containment and clean-up procedures.
- Visit rights-of-way after treatments to determine whether target vegetation was controlled and whether non-target plants were affected.

## SOILS

The following mitigation measures would be observed to reduce impacts on soils:

- Do not use ground-disturbing mechanical equipment to clear on slopes over 20%.
- Use mechanical clearing or heavy equipment when the ground is sufficiently dry to sustain the equipment and excessive rutting will not occur.

- Re-seed or re-plant seedlings on slopes with potential erosion problems and/or take other erosion control measures as necessary.

## **WATER RESOURCES**

The following mitigation measures would be applied for water resources.

- In riparian areas, use selective control methods and take care not to affect non-target vegetation.
- In riparian areas, leave vegetation intact, where possible.
- *For all methods using machinery or vehicles (i.e. chainsaws, trucks, graders)* keep the equipment in good operating condition to eliminate oil or fuel spills.
- Do not wash equipment or vehicles at a stream.
- Follow herbicide product label directions for appropriate uses, restrictions etc.
- Use herbicide thickening agents (as appropriate), label instructions, and weather restrictions to reduce the drift hazard to water resources.
- Ensure that there is no danger of granular herbicides being washed from the areas of application.
- Notify inspector and the State of any amount of herbicide spill in or near water.
- Always use siphon prevention devices/methods when filling herbicide tanks from domestic water supplies.
- Consider climate, geology and soil types in selecting the herbicide with lowest relative risk of migrating to water resources.
- Protect surface water and groundwater by observing all riparian buffer widths and herbicide-free zone.
- *Before herbicide application*, thoroughly review the right-of-way to identify and mark, if necessary, the buffer requirements.
- Monitor to determine whether desired results for water resources were achieved or whether follow-up mitigation measures are necessary (e.g., erosion control measures).

- Table VI-2: Buffer Widths to Minimize Impacts on Non-Target Resources

Herbicide/Adjuvant Ecological Toxicities and Characteristics	Buffer Width from Habitat Source per Application Method (i.e., stream, wetland, or sensitive habitats)				
	Spot	Localized	Broadcast <sup>1</sup>	Aerial <sup>2</sup>	Mixing, Loading, Cleaning
Practically Non-toxic to Slightly Toxic	Up to Edge <sup>3,4</sup>	Up to Edge <sup>3,4</sup>	10.7 m <sup>3,4</sup> (35 ft.)	30.5 m <sup>4</sup> (100 ft.)	30.5 m <sup>4</sup> (100 ft.)
Moderately Toxic, or if Label Advisory for Ground/Surface Water	7.6 m <sup>3,4</sup> (25 ft.)	10.7 m <sup>3,4</sup> (35 ft.)	30.5 m <sup>3,4</sup> (100 ft.)	76.2 m <sup>4</sup> (250 ft.)	76.2 m <sup>5</sup> (250 ft.)
Highly Toxic to Very Highly Toxic	10.7 m <sup>3,4</sup> (35 ft.)	30.5 m <sup>3,4</sup> (100 ft.)	Noxious weed control only. Buffer as per local ordinance.	Noxious weed control only. Buffer as per local ordinance.	76.2 m <sup>5</sup> (250 ft.)

<sup>1</sup> Using ultra low volume (ULV) nozzles with orifice size and spray pressure set to produce droplets at a minimum of 150 microns, boom or nozzle heights at the lowest possible height, and cross-wind speed of less than 10 mph.<sup>3</sup>

<sup>2</sup> Using ULV nozzles with orifice size and spray pressure set to produce droplets at a minimum of 150 microns, minimizing air shear relative to nozzle angle and aircraft speed, boom length at 70% or less of wingspan/rotor, swath adjustment not to exceed 60 feet based on maximum cross-wind speed of less than 10 mph, minimum safety clearance application height, and herbicide tank mixture dynamic surface tension is less than 50 dynes/cm.<sup>3</sup>

<sup>3</sup> Goodrich-Mahoney, J.W., Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality, Electric Power Research Institute, Report No. TR-113160, September 1999

<sup>4</sup> Calculated from: A Summary of Ground Application Studies, Spray Drift Task Force, 1997

<sup>5</sup> BPA Best Management Practice

## AQUATIC SPECIES

- Apply all appropriate mitigation measures outlined in the Water section of this chapter.
- Apply all appropriate T& E mitigation measures outlined in Wildlife section.

## WILDLIFE SPECIES

The following mitigation measures would apply for wildlife species.

- Apply mitigation measures (such as timing restrictions, or specific method use) resulting from determinations or consultations.

## AGRICULTURE

The following mitigation measures would apply to agricultural areas.

- Prevent the spread of noxious weeds by cleaning seeds from equipment before entering cropland.
- If using herbicides on grazing lands, comply with grazing restrictions as required per herbicide label.
- For rights-of-way adjacent to agricultural fields, observe appropriate buffer zones necessary to ensure that no drift will affect crops.

- *If using herbicides near crops for consumption*, comply with herbicide-free buffer zones, if any, as per label instructions.
- *For rights-of-way near organic farms*, observe appropriate buffer zones, or provide for the owner to maintain the right-of-way, by way of a vegetation management agreement.
- *If reseeding*, determine whether any of the adjacent properties are being, or will in the immediate future be, used for growing grass seed, especially high-purity strains.
- *If reseeding near grass seed fields*, consult with the area seed certification and registration authority to determine whether buffer zones are necessary, appropriate grass mixtures allowed, and appropriate modes of seeding used.

- **OTHER FEDERAL LANDS**

- Notify and cooperate with other federal agencies when scheduling site-specific right-of-way vegetation control activities on their lands.

**STATEMENT OF WORK  
NOXIOUS WEED MANAGEMENT  
BENTON County  
FY 2002**

The Contractor will provide all labor, materials, herbicides, fuel, transportation, and bio-agents to implement noxious weed management activities under their jurisdiction.

Activities will be carried out in an "Integrated Pest Management" approach as outlined by the Section 15, Noxious Weed Act Amendment, of the 1990 Farm Bill.

1. The amount of funding will not exceed XXXX. The local county weed board will determine control methods and sites to be controlled on Bonneville Power Administration (BPA) easements.
2. The Control Measures approved for BPA rights-of-way can be a combination of the following measures:
  - A. Educational Methods which create an awareness of undesirable plant species in BPA rights-of-way.
  - B. Prevention Measures, such as inventory, and measures which prevent the spread of weeds.
  - C. Competitive Plantings to replace and/or prevent the establishment of undesirable plants.
  - D. Cultural Control Methods such as barriers and cultivation.
  - E. Chemical use of herbicides.
  - F. Biological release of agents which feed on or destroy undesirable plants.
  - G. Physical control such as hand pulling or cutting of individual plants.
3. All herbicide applications will be according to state and local laws. All applicators must be licensed in the state where applications are performed. The Bonneville Power Administration has completed a

Vegetation Management Program Environmental Impact Statement. The Contractor will follow the enclosed mitigations when completing vegetation management projects

4. Records of all control measures must be completed the day the control measures are performed. Records must be according to state law, and location must be identified by BPA line names and structure numbers. All records of control measures will be due by September 15, 2002.
5. BPA will not fund control measures in areas which do not have active noxious weed control programs being performed by landowners, except when required by easement acquisition documents.
6. Monitoring will be completed by the Contractor. Monitoring will consist of a field review of areas where BPA has financed control measures, preferably within one month of control actions. Documentation of monitoring will be a short written summary consisting of the identification of the location, species controlled, methods of control used, and a judgment of the effectiveness of control. The Monitoring area will be based on practical management units that have similar habitats, noxious weeds, control methods and/or management.
7. Partial payments will be allowed during the contract period, with 20% being retained until all requested records, monitoring data, landowner herbicide transaction forms, and final summaries are turned into the COTR (Contracting Officer's Technical Representative).
8. If the Contractor provides herbicides to landowners, the Contractor will have the landowners fill out BPA form 6530.11e and show that they are appropriately licensed to apply that product. The landowner must be provided BPA's herbicide list and given the buffer zones that are part of BPA's requirements

**Noxious Weed Management Contracts**

**Walla Walla Region**

2/14/02

- 1. The Contractor will notify federal, state, or tribal entities in advance before applying herbicide on those lands.**
- 2. Application on BLM lands is restricted to certain herbicides and conditions for the control of noxious weeds. use only those herbicides that are approved for both BLM use and Bonneville use.**

**Those herbicides presently approved for both Bonneville and BLM—Washington, eastern Oregon\*, Idaho, and Montana Districts—are as follows:**

Bromacil	Glyphosate+ 2,4-D
Bromacil+	Hexazinone
Diuron	Imazapyr
Chlorsulfuron	Mefluidide
Clopyralid	Metsulfuron methyl
2,4-D	Picloram
Dicamba	Picloram+ 2,4-D
Dicamba + 2,4-D	Sulfometuron methyl

Diuron	Tebuthiuron
Glyphosate	Triclopyr

Oregon and Washington continues under herbicide injunction except for control of noxious weeds. This herbicide list would then apply only for the use on noxious weeds.

3. Work will be planned and implemented according to the recently finished Environmental Impact Statement for the Control of Vegetation on Bonneville Power facilities. This analysis document can be accessed via the BPA's web Site located at:

<http://www.efw.bpa.gov/cgi-bin/PSA/Introduction>

## 5. DETERMINE DEBRIS DISPOSAL AND REVEGETATION

### 5.1 Describe the debris disposal methods to be used and any special considerations.

See Handbook — Debris disposal for a checkbox list and requirements.

N/A

### 5.2 List areas of reseeding or replanting (those areas not already described in steps 1, 2, or 3).

See Handbook — Reseeding/replanting for requirements.

See previous

### 5.3 If not using native seed/plants, describe why.

Soils and adaptation of introduced species are more competitive with noxious weeds. Efforts will be made to include native species into seed mixtures.

### 5.4 Describe timing and any follow-up that will need to take place to ensure germination/success of seeding/planting.

Seeding should be completed when there is enough moisture to allow for 2 months of growth. Seeding can be completed early and late fall, or late winter or early spring

## 6. DETERMINE MONITORING NEEDS

See handbook — Monitoring for requirements.

### 6.1 Describe the follow-up/monitoring cycle that will be used to evaluate the effectiveness of the vegetation control methods used.

Site will be inspected during treatment. In addition routine patrols by BPA ground and aerial patrols. And Weed board members

**6.2 Describe any follow-up or monitoring needed to determine if mitigation measures were effective.**

Routine patrols by BPA ground and aerial patrols. The Local Weed Board Patrols and inspects for weeds on a yearly basis.

## **7. PREPARE APPROPRIATE ENVIRONMENTAL DOCUMENTATION**

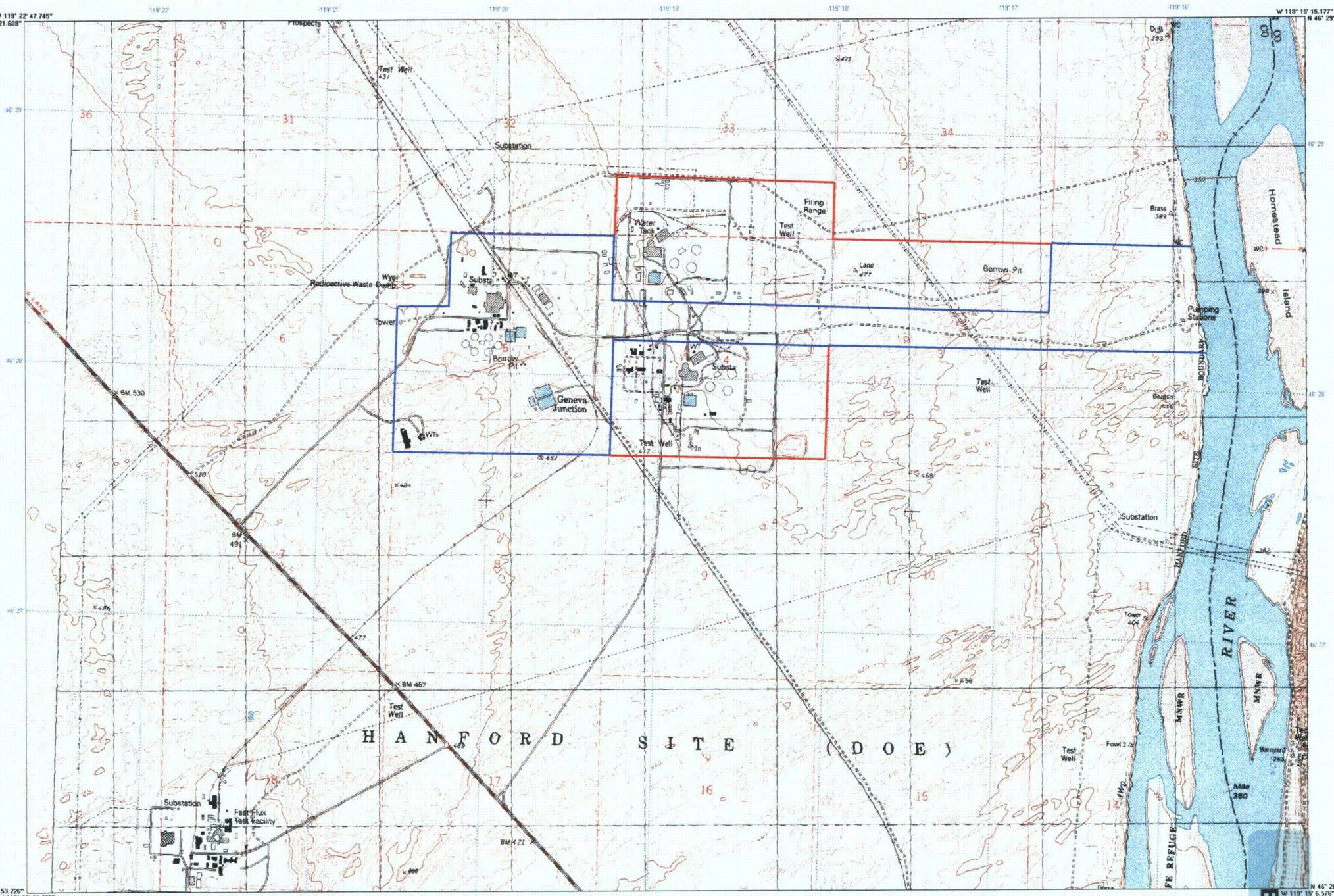
See handbook — Prepare Appropriate Environmental Documentation for requirements.

**7.1 Describe any potential project impacts or project work that are different than those disclosed in the Transmission System Vegetation Management Program EIS. Describe how those differences impact natural resources and if the differences are “substantial”.**

None

**7.2 Is there a need for additional NEPA documentation (i.e. Forest Service requirement, Record of Decision, supplemental EIS)? If so, attach.**

none



Encl. F9



**ENERGY  
NORTHWEST**

**Encl. F10**

Gregory V. Cullen  
Regulatory Programs  
P.O. Box 968, Mail Drop PE20  
Richland, WA 99352-0968  
Ph. 509-377-6105 F. 509-377-4317  
gvcullen@energy-northwest.com

November 12, 2009  
GO2-09-152

Rob Whitlam, Ph.D.  
State Archaeologist  
Department of Archaeology & Historic Preservation  
PO Box 48343  
Olympia, WA 98504-8343

Dear Dr. Whitlam:

**Subject: COLUMBIA GENERATING STATION  
CULTURAL RESOURCE PROTECTION PROGRAM PROCEDURE**

Energy Northwest (EN) has made recent program improvements to protect the natural and cultural resources within the area we lease from the U.S. Department of Energy in Benton County. Within the 1,089 acre lease boundary, EN operates the Columbia Generating Station (CGS).

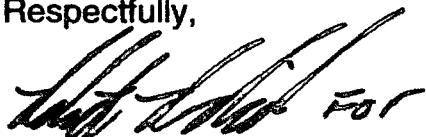
As part of our recent program improvements, we have completed a procedure designed to protect historical and cultural resources at this site. Our procedure outlines how CGS assesses and considers impacts to potential or existing historical and archaeological sites when planning and performing work activities; establishes a process to protect identified cultural resources and culturally sensitive areas; and outlines how EN should address discovery or inadvertent disturbance of archaeological material or human remains, including stoppage of work, protection of remains, notification and communication with applicable authorities and agencies.

Our procedure was completed under the guidance of professional archeologist Ellen Prendergast-Kennedy at the Pacific Northwest National Laboratory. As EN implements planned work in accordance with the procedure, correspondence and coordination with your agency may be necessary. For this reason, I have included a copy of our Cultural Resource Protection Program Procedure for your reference files. Additional copies can be provided at your request.

Rob Whitlam, Ph.D  
**COLUMBIA GENERATING STATION**  
**CULTURAL RESOURCE PROTECTION PROGRAM PROCEDURE**  
Page 2

If you have questions or require additional information, please call Shannon Khounnala of our Environmental & Regulatory Programs group at (509) 377-8639 or e-mail at [sekhounnala@energy-northwest.com](mailto:sekhounnala@energy-northwest.com).

Respectfully,



G.V. Cullen  
Manager, Regulatory Programs

Attachment: SWP-ENV-04 Cultural Resource Protection Program Procedure

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 1 of 15

**ENERGY NORTHWEST  
COLUMBIA GENERATING STATION  
SITE-WIDE PROCEDURES**



SWP-ENV-04

Effective Date:

03/02/09

DIC #

1308.1

PCN # (If applicable)

N/A

QPR:	Donald	C.	Coody	6113
	First	MI	Last Name	Ext. #
Sponsor:	Shannon	E.	Khouunnala	8639
	First	MI	Last Name	Ext. #

All review and approval signatures are documented on the Procedure Revision Form

**Synopsis**

This procedure provides guidance for protecting historical and cultural resources during planned or unplanned earth disturbing activities on Columbia Generating Station (CGS) property leased by Energy Northwest (EN) from the Department of Energy (DOE).

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 2 of 15

#### TABLE OF CONTENTS

1.0	PURPOSE & SCOPE .....	3
2.0	DISCUSSION .....	3
3.0	PROCEDURE.....	4
4.0	DOCUMENTATION.....	8
5.0	DEFINITIONS.....	9
6.0	REFERENCES .....	10
7.0	ATTACHMENTS.....	11

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 3 of 15

## 1.0 PURPOSE & SCOPE

### 1.1 In accordance with applicable federal and state requirements, this procedure:

- describes how the Columbia Generating Station (CGS) assesses and considers impacts to potential or existing historical and archaeological sites when planning and performing work activities;
- establishes a process to protect (i.e., prevent impact or damage to) identified cultural resources and culturally sensitive areas; and
- outlines how Energy Northwest (EN) should address discovery or inadvertent disturbance of archaeological material or human remains, including stoppage of work, protection of remains, notification and communication with Department of Energy – Richland (DOE), Washington Department of Archaeology and Historic Preservation (DAHP), affected Native American tribes (tribes), Benton County Sheriff, and Benton County Coroner, and how items should be dispositioned if they are discovered.

### 1.2 Applicability – This procedure applies to all employees and persons working for or on behalf of EN, who perform activities with the potential to affect culturally sensitive areas, undisturbed lands, archaeological materials, and human remains on CGS lands depicted in Attachment 7.1 and CGS sponsored activities that may occur on DOE land adjacent to EN leased land.

## 2.0 DISCUSSION

### 2.1 Background

CGS is owned and operated by EN. Because EN is a joint operating agency and municipal corporation under the laws of Washington, it is required to comply with certain state requirements, including: Washington State Environmental Policy Act, RCW 43.21C and WAC 197-11; Washington State Executive Order 05-05; Archaeological Sites and Resources, RCW 27.53; Archaeological Excavation and Removal Permits, WAC 25.48; and, Indian Graves and Records, RCW 27.44. These policies outline specific requirements for consulting with the DAHP and interested parties and tribes prior to the commencement of any work that has the potential to impact historical and archaeological sites or if cultural resources are encountered. CGS is located on lands leased by EN from the DOE. Because CGS leases federal lands and operates under a federal license, EN may also be impacted by federal laws. These include, but are not limited to, Section 106 of the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), and National Environmental Policy Act. DOE has prepared a Hanford Cultural Resources Management Plan (DOE 2003) that meets the policy requirements and provides inadvertent discovery procedures in compliance with NAGPRA.

GIH-8.2.7, Work Planning and Control, and GIH-8.2.1, Aspects Procedure, require identification of environmental aspects and impacts for the entire life-cycle of a work activity before the work commences. CGS land use (including structure erection or alteration and disturbance of land for construction) that could damage or disturb historical or cultural resources is an environmental aspect that should be considered, assessed, and managed, as required, per EN's Environmental Management System.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 4 of 15

## 2.2 Site Characterization

Cultural resources have been identified on parts of the CGS property in the Culturally Sensitive Area depicted in Attachment 7.1 and adjacent DOE land. An overview of cultural resource investigations and cultural resources located on the CGS property is found in Attachment 7.2.

## 3.0 PROCEDURE

### 3.1 Introduction

- 3.1.1 If any activities are planned on undisturbed lands within the Culturally Sensitive Area depicted in Attachment 7.1, project managers shall comply with NHPA requirements of Section 3.3 and all personnel should follow the steps and restrictions in Section 3.3.1.
- 3.1.2 If any land disturbing activities are planned within the undisturbed lands identified in Attachment 7.1, project managers should work with Environmental and Regulatory Programs (E&RP) to follow the procedures outlined in Section 3.4.
- 3.1.3 CGS land disturbing activities planned outside of the undisturbed lands and Culturally Sensitive Area, but within the CGS boundary identified in Attachment 7.1, will be governed by the requirements regarding discovery of archaeological material or human remains, as outlined in Section 3.5.
- 3.1.4 CGS activities that occur outside of the CGS boundary identified in Attachment 7.1 (surveys, travel on access roads, etc) will be governed by the requirements regarding discovery of archaeological material or human remains, as outlined in Section 3.5.
- 3.1.5 The Cultural Resources Program Flow Chart in Attachment 7.3 depicts the steps associated with protection of archaeological materials when performing earth disturbing activities on CGS lands.

### 3.2 Responsibilities

- 3.2.1 Environmental & Regulatory Programs – provides primary oversight of cultural resources compliance issues for the CGS, provides technical assistance to line organizations, approves excavation permits, documents findings per Section 4.0, and acts as liaison to the DAHP, DOE, affected tribes, and other regulatory agencies.
- 3.2.2 Project Manager – Identifies activities involving land disturbance in undisturbed lands or Culturally Sensitive Areas depicted on Attachment 7.1 during the planning process; submits project description and location memo to Environmental & Regulatory Programs for review; obtains an E&RP approved soil excavation permit per PPM 10.2.32, Soil Excavation, Backfill and Compaction; assures that any

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 5 of 15

requirements or restrictions are implemented; provides notice of any changes (i.e., depth of disturbance, size) to the approved land disturbing activities; and immediately notifies E&RP of any suspected discovery or disturbance of archaeological materials or human remains during land disturbing activity.

- 3.2.3 **Personnel** – Immediately stop work and report the potential discovery of any archaeological materials encountered during land disturbing activity to the Project Manager. Adhere to restrictions for all activities occurring in the Culturally Sensitive Area as required herein.

**NOTE:** As the owner and lessor of the real property comprising the CGS boundary, the DOE is an interested party and may be responsible for human remains that are discovered on the property, and therefore, EN must comply with the NAGPRA. DOE's NAGPRA procedures are outlined in Section 5.4 of the Hanford Cultural Resources Management Plan (DOE 2003) found at <http://www.hanford.gov/doe/history/?history=rmp>. DOE may also be responsible for curation and storage of any artifacts recovered from CGS lands.

### 3.3 **Special Protection Measures for the Culturally Sensitive Area**

Cultural resources are known to be located within the 400 meter (~1300 feet) Culturally Sensitive Area, depicted in Attachment 7.1, which is adjacent to the Columbia River. Because culturally sensitive materials have been found in this area, all land disturbing activities of undisturbed lands shall have a cultural resource assessment completed as deemed applicable through consultation with the DAHP, and be approved by E&RP in accordance with Section 3.4. Mitigation may be required.

- 3.3.1 Access for approved management and maintenance of CGS facilities on disturbed lands in this area is authorized. However, the following restrictions should apply to all personnel working for or on behalf of EN while performing activities in the culturally sensitive area:

- a. Non emergency access to undisturbed lands in this area requires prior approval by E&RP.
- b. All vehicles shall stay on existing CGS maintained roads. No off-road travel is permitted in this area unless there is an emergency requiring off-road access such as a fire or security threat. If there is an emergency, a cultural resources assessment will be completed after the emergency response has occurred in accordance with procedures outlined in 3.4.
- c. Unauthorized persons working for or on behalf of EN or visitors should not pick up any rocks, shells or artifacts on undisturbed lands in the 400 meter (~1300 feet) culturally sensitive area.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 6 of 15

- d. Persons working for or on behalf of EN should report unauthorized activities to the E&RP.
- e. Persons working for or on behalf of EN shall follow procedures outlined in Section 3.5 if any suspected archaeological material located within the Culturally Sensitive Area is discovered, disturbed, or damaged.

3.4 Cultural Resources Assessment Requirements for Land Disturbing Activities Occurring in Undisturbed Lands

All land disturbing activities occurring on undisturbed lands identified in Attachment 7.1 require environmental review and approval from E&RP. Approval must be obtained during the work planning process, in accordance with GIH-8.2.7, Work Planning and Control.

- 3.4.1 Project Managers shall request that E&RP approve the soil excavation permit per PPM 10.2.32, Soil Excavation, Backfill and Compaction. The permit request shall provide details of the ground disturbing activity (i.e., depth, size, and purpose) and location of the area to be disturbed (i.e., map).
- 3.4.2 Using this information, the E&RP cultural resources representative consults with the DAHP for input on the level of cultural resources assessment required.
- 3.4.3 If DAHP determines that no cultural resources assessment is needed, the E&RP cultural resources representative notifies the Project Manager that their work scope has been cleared of cultural resources protection requirements and approves the soil excavation permit.
- 3.4.4 If the DAHP requires that a formal cultural resource assessment be completed, the Project Manager shall coordinate with the E&RP cultural resources representative to have a cultural resources assessment conducted by a cultural resources contractor who meets National Park Service Secretary of Interior and Washington DAHP guidelines for professional qualifications.
- 3.4.5 The E&RP cultural resources representative will serve as a liaison to the Project Manager, the contractor selected by the Project Manager, and the DAHP, DOE, and other interested parties or affected tribes identified by the DAHP.
- 3.4.6 If cultural resources are located during the assessment, the DAHP may require implementation of avoidance, protection and/or mitigation measures. These measures are implemented in consultation with the DAHP, and other interested parties or affected tribes identified by the DAHP.
- 3.4.7 If archaeological data recovery is required as a part of mitigation, the E&RP cultural resources representative will work with the DAHP and other interested parties or affected tribes identified by the DAHP regarding the collection and dispositioning of artifacts in an appropriate storage and curation facility.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 7 of 15

- 3.4.8 E&RP notifies the Project Manager when the assessment process has been completed and approves the soil excavation permit, with any conditions or special requirements, for commencement of the work. The E&RP will also create a record of the information, results of the assessment, and any correspondence generated or received in accordance with 4.1.

### 3.5 Inadvertent Discovery of Archaeological Materials and/or Human Remains

If construction or maintenance activities cause disturbance to subsurface archaeological resources anywhere within the CGS boundary identified in Attachment 7.1, or are discovered while performing activities in support of CGS on DOE land, the following procedure shall be implemented.

- 3.5.1 If potential archaeological material or human remains are believed to have been discovered, or if existing cultural resources are inadvertently disturbed or damaged, all personnel shall immediately stop all work adjacent to the discovery in accordance with SWP-CAP-08, Stop Work Authority.
- 3.5.2 Personnel shall not move any archaeological material or human remains from the location of the discovery.
- 3.5.3 Personnel shall immediately notify the Project Manager responsible for the work.
- 3.5.4 The Project Manager shall immediately notify the E&RP cultural resources representative.
- 3.5.5 The Project Manager shall take appropriate steps to adequately secure and protect the discovery site from vehicles, equipment or unauthorized personnel, by placing a non-invasive protective barrier such as flagging tape around the area.
- 3.5.6 If archaeological materials are found, the Project Manager shall immediately contact E&RP. The E&RP cultural resources representative will notify DOE, DAHP, and other interested parties or affected tribes identified by the DAHP. With the approval of the Project Manager, the E&RP cultural resources representative shall arrange for the site to be evaluated by a qualified cultural resources management specialist in consultation with DOE, DAHP, and other interested parties or affected tribes identified by the DAHP. If the cultural resources find is determined by the DAHP to be significant, the E&RP cultural resources representative will consult with DOE, DAHP and other interested parties or affected tribes identified by the DAHP regarding the National Register eligibility of any further discovery.
- 3.5.7 If skeletal remains are found that have the potential to be human, the E&RP cultural resources representative shall immediately notify the Benton County Coroner, Benton County Sheriff, DOE, DAHP, and other interested parties or affected tribes identified by the DAHP, in accordance with DOE and the NAGPRA procedures.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 8 of 15

- 3.5.8 If skeletal human remains are identified, E&RP shall contact Security and request 24-hour security of the area where the remains were discovered until they have been dispositioned.
- 3.5.9 E&RP cultural resources representative works with the DOE, DAHP, and other interested parties or affected tribes identified by the DAHP on the disposition of any recovered archaeological material and repatriation of human remains or items of cultural patrimony in accordance with NAGPRA.
- 3.5.10 E&RP maintains a record that documents details of the find, results of the assessment, final disposition of the find, and any correspondence generated or received, in accordance with Section 4.2.

#### 3.6 Program Oversight

Periodically, but at least every five years, E&RP should oversee a self assessment of the Cultural Resources Protection procedure. The self assessment team should include a cultural resources management professional, to assure that the procedure continues to meet DAHP guidelines and requirements.

#### 4.0 DOCUMENTATION

- 4.1 E&RP shall maintain a record of all ground disturbing activities occurring in undisturbed areas within the CGS boundary. The record shall contain a description of the ground disturbing activity (i.e., size, purpose and location), a map depicting the location of the excavation, the results of the cultural resources assessment, correspondence between the DAHP and E&RP, and the date of cultural resource compliance completion.
- 4.2 E&RP documents and records all information related to inadvertent discoveries of archaeological material or human skeletal remains per DAHP guidance. This documentation includes the name of the individual(s) who located the find, the date and location of the find, and the date and time of communications with the organizations identified in 3.5.7. It should also contain a summary of the outcome of the resulting investigation, and any professional cultural resource reports and/documentation completed.
- 4.3 Cultural resource assessments are performed and documented by qualified professional cultural resources specialists in accordance with DAHP guidelines.
- 4.4 E&RP should maintain all records generated from cultural resource protection activity in accordance with EMS-01, Environmental Management System Program Description, and GIH-3.4.9, Records Management.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 9 of 15

## 5.0 DEFINITIONS

- 5.1 **Activities** – Operations and functions of all organizational units of CGS. This includes projects, maintenance, design, normal and abnormal operating conditions, shut-down and start-up conditions, as well as reasonably foreseeable emergency situations.
- 5.2 **Archaeological Material** – Potential evidence that a historical or archaeological site may exist including the presence of items that have been modified by humans such as stone tools, stone flakes, arrowheads, cobble tools, glass, ceramics, nails, brick, wood, bone, piled rocks, a fire hearth, a lens of shell, or metal.
- 5.3 **Cultural Resources** – Resources include but are not limited to:
- 5.3.1 **Archaeological sites** – areas containing archaeological material or features (more than 50 years old). *Historic era sites* tend to contain cans, glass, ceramic, metal, foundations, roads, irrigation ditches, trash dumps etc. *Pre-contact era sites* tend to contain, pithouse depressions, rock cairns, lithic material, projectile points, cobble tools, ritual artifacts, shell deposits, etc.
  - 5.3.2 **Historic buildings, structures, or building remains** – that are more than 50 years old. They can include railroads, bridges, transmission lines, industrial buildings, residential buildings, commercial buildings, etc.
  - 5.3.3 **Cemeteries** – burial sites, funeral monuments or other sites with human remains (i.e., funerary objects, human bones).
  - 5.3.4 **Traditional cultural properties** – locations associated with the cultural practices or beliefs of a living community that are rooted in the history of that community. Examples include Native American fishing locations or vision questing locations.
- 5.4 **Culturally Sensitive Area** – 400 meter (~1300 feet) corridor along the Columbia River, as depicted in Attachment 7.1.
- 5.5 **Disturbed Lands** – Land areas including subsurface that have been disturbed and/or altered significantly by construction and operation activities.
- 5.6 **Land Disturbing Activities** – Any activity that involves scraping, grading, excavation, blading, digging, landscaping, land alterations, modifications to plants or wildlife species, or placement of any fill or spoil or other terrestrial impact.
- 5.7 **Personnel** – persons working for or on behalf of EN (e.g., employees, contractors, subcontractors)
- 5.8 **Undisturbed Lands** – Land areas that have not been disturbed on the surface or subsurface by construction of the CGS Site or during recent operations.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 10 of 15

## 6.0 REFERENCES

- 6.1 National Historic Preservation Act of 1966. Public Law 89-665, as amended, 16 USC 470 et seq.
- 6.2 36 CFR Part 800, "Protection of Historic Properties." *Code of Federal Regulations*, Advisory Council on Historic Preservation.
- 6.3 40 CFR 1500. "National Environmental Policy Act." *Code of Federal Regulations*, Council on Environmental Quality
- 6.4 43 CFR 10. 1995, "Native American Graves Protection and Repatriation Act." *Code of Federal Regulations*, U.S. Department of the Interior
- 6.5 Washington State Executive Order 05-05. Archaeological and Cultural Resources.
- 6.6 RCW 27.44, Indian Graves and Records. Revised Code of Washington
- 6.7 RCW 27.53, Archaeological Sites and Resources. Revised Code of Washington
- 6.8 RCW 43.21C, State Environmental Policy Act. Revised Code of Washington.
- 6.9 WAC 25-48, Archaeological Excavation and Removal Permit. Washington Administrative Code
- 6.10 WAC 197-11, State Environmental Policy Act Rules. Washington Administrative Code
- 6.11 DOE 2003, Hanford Cultural Resources Management Plan. DOE/RL-98-10, Rev. 0, U.S. Department of Energy Richland Operations Office, Richland, Washington.  
<http://www.hanford.gov/doe/history/?history=rmp>
- 6.12 EMS-01, Environmental Management System Program Description
- 6.13 GIH-3.4.9, Records Management
- 6.14 GIH-8.2.1, Environmental Aspects Identification
- 6.15 GIH-8.2.7, Work Planning and Control
- 6.15 PPM 10.2.32, Soil Excavation, Backfill and Compaction
- 6.16 SWP-CAP-08, Stop Work Authority

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 11 of 15

## 7.0 ATTACHMENTS

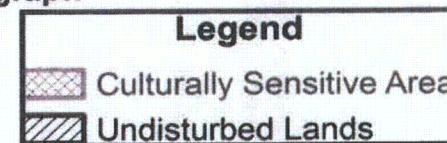
- 7.1 Map of Columbia Generating Station Boundary
- 7.2 Previous Cultural and Historical Resource Investigations and Cultural Resources Located on or near CGS Property
- 7.3 Cultural Resources Protection Procedure Flow Chart

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 12 of 15

MAP OF DISTURBED AND UNDISTURBED AREAS AND CULTURALLY SENSITIVE AREA (2006 AERIAL PHOTOGRAPH)



**Attachment 7.1. Map of Disturbed and Undisturbed Lands and Culturally Sensitive Area on a 2006 Aerial Photograph**



END

Attachment 7.1, Map Of Disturbed And Undisturbed Areas And Culturally Sensitive Area (2006 Aerial Photograph)

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 13 of 15

PREVIOUS CULTURAL AND HISTORICAL RESOURCE INVESTIGATIONS AND  
CULTURAL RESOURCES LOCATED ON OR NEAR CGS PROPERTY

CGS is located on property leased from the DOE by EN. Various cultural and historical overviews have been developed for the DOE Hanford Site. These reviews provide a historical and cultural context (see DOE 2003, DOE 1997, and Duncan, et al, 2007). Additional information can be found in documentation of the cultural resources investigations completed specifically for the construction of CGS on EN leased property (Rice 1983:62-77). These investigations resulted in the recordation of archaeological site 45BN257<sup>1</sup> along the Columbia River shore near the current location of the intake structures.

Site 45BN257 is a multi-component site containing both pre-contact and historic era archaeological material. During construction of the intake and pump house structures, a fire hearth, associated lithic material, and cobble tools were recovered. A radiocarbon sample dated the material to 1600AD suggesting a late pre-contact fishing camp. A Chinese rice bowl ceramic fragment dating from the 1860s was also found. Archaeological rock features observed along the Columbia River shore were determined to likely be associated with placer mining that was prevalent in the region in the 1850s (Rice 1983:68). Chinese immigrants from Canada and Oregon were known to have been in the region during this period (Rice 1983:64 citing Victor 1870:577). No other resources were recorded on the EN leased property by these investigations. Archaeological materials recovered from 45BN257 are currently stored in the DOE's Hanford Cultural and Historical Program curation and storage facility.

In 1999, DOE Hanford Cultural Resources Program staff conducted a cultural resource field inventory of the Columbia River corridor area that also covered lands within the CGS boundary, in the vicinity of the location of 45BN257. Several pre-contact and historic era artifacts were identified on the ground surface that are likely associated with 45BN257 (Hale 1999). Items recorded include lithic flakes, shell, fire-cracked rock, cobble tools and miscellaneous historic debris- bottle glass and cans (45BN706, 45BN688, 45BN700, 45BN689 and Hanford Temporary (HT) archaeological site # 99-048).

With the exception of the investigations completed for the original construction of the CGS in 1970s and 1980s, only a few small cultural resources surveys have been completed of the CGS boundary areas located outside of the Columbia River corridor. None of these surveys resulted in the recordation of cultural resources (Cadoret 1990, Hale 1998 and Prendergast 2003). A review of historic aerial photographs from 1941 and 1943 and historic maps from 1917 and 1943 provided no evidence of substantial historic settlement within the CGS boundary outside of the Columbia River corridor and inland for about 400 meters (~ 1300 feet), which constitutes the primary culturally sensitive area for cultural resources. This suggests that the potential for such resources being located outside of the 400 meter (~1300 feet) culturally sensitive area in previously undisturbed areas would be low.

Based on these investigations, all known significant resources and/or artifacts appear to be contained within a 400 meter (~1300 feet), corridor along the Columbia River. For example, other archaeological sites located in close proximity to the CGS boundary are located near the Columbia River; including pre-contact era fishing stations just north and south of the CGS boundary (45BN113, 45BN114, and 45BN224). These archaeological sites were re-inspected in 1999, confirming that these sites are not located within the CGS boundary and have not been impacted by CGS operations (Hale 1999).

<sup>1</sup> Smithsonian trinomials are formal numerical designations for archaeological sites used in the United States. The number 45 represents Washington State. BN represents Benton county, and the number after is the consecutive number given to that site recorded. Washington DAHP maintains the master list for all Smithsonian trinomial designations for archaeological sites in Washington State.

Number: SWP-ENV-04	Use Category: INFORMATION	Revision: 0
Title: CULTURAL RESOURCE PROTECTION PROGRAM		Page: 14 of 15

### REFERENCES

Cadoret, NA. 1990. WPSS Fiberoptic Telecommunications Cable, HCRC# 90-600-012. Pacific Northwest Laboratory, Richland Washington.

DOE-RL. 1997. National Register of Historic Places Multiple Property Documentation Form - Historic, Archaeological and Traditional Cultural Properties of the Hanford Site, Washington.

DOE-RL/RL-97-02, U.S. Department of Energy Richland Operations Office, Richland, Washington.  
<http://www.hanford.gov/doe/history/?history=archaeology>

Duncan JP, KW Burk, MA Chamness, RA Fowler, BG Fritz, PL Hendrickson, EP Kennedy, GV Last, TM Poston, MR Sackschewsky, MJ Scott, SF Snyder, MD Sweeney, and PD Thorne. 2007. Hanford Site National Environmental Policy Act (NEPA) Characterization. PNNL-6415, Rev. 18, Pacific Northwest National Laboratory, Richland, Washington.

[http://www.pnl.gov/main/publications/external/technical\\_reports/PNNL-6415Rev18.pdf](http://www.pnl.gov/main/publications/external/technical_reports/PNNL-6415Rev18.pdf)

Hale, Laurie L. 1998. Cultural Resources Report Narrative #98-600-024, WPPSS Industrial Sites. Pacific Northwest National Laboratory, Richland, Washington.

Hale, L.L. 1999. Draft Cultural Resources Survey Narrative Report - Dunes Archaeological Block Survey. HCRC #99-0600-009. Prepared for the U.S. Department of Energy, Richland Operations Office. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

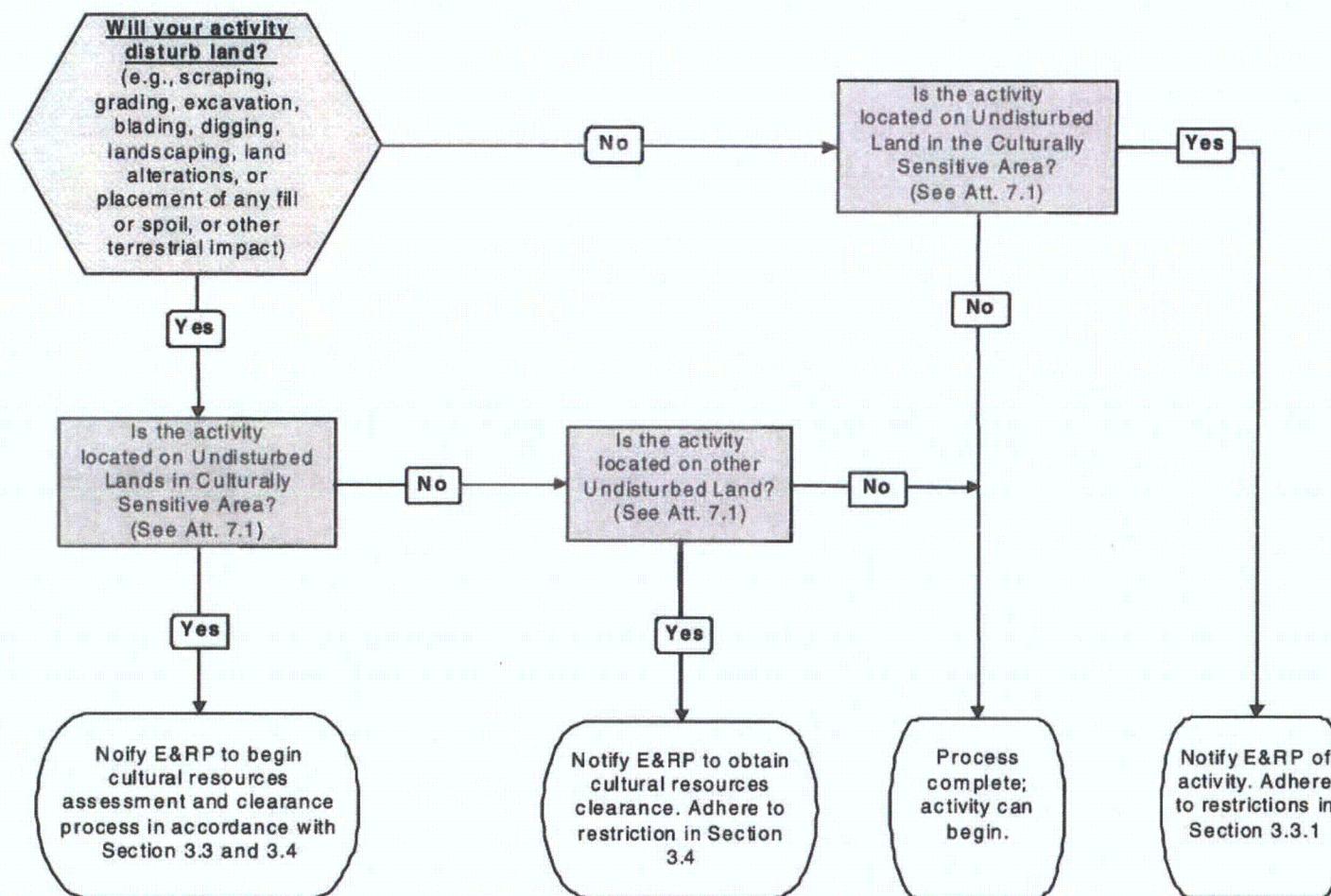
Prendergast, Ellen. 2003. Cultural Resources Review of Restoration and Maintenance of Bonneville Power Association (BPA) Access Roads Lower Monumental Ashe Powerline (HCRC# 2003-600-013). Pacific Northwest National Laboratory, Richland, Washington.

Rice 1983. Archaeological Investigations at Washington Public Power Supply System Nuclear Plants on the Hanford Reservation, Washington. Washington Public Power Supply System, Richland, Washington.

Victor, Frances Fuller. 1870. The River of the West. Hartford, Connecticut. R.W. Bliss and Company.

END

Attachment 7.2, Previous Cultural and Historical Resource Investigations and Cultural Resources Located on or Near CGS Property

CULTURAL RESOURCES PROTECTION PROGRAM FLOW CHART

END

Attachment 7.3 Cultural Resources Protection Program Flow Chart



---

January 10, 2005

GO2-05-003

P.O. Box 968 • Richland, WA • 99352-0968

Mr. Greg Hughes  
U.S. Fish & Wildlife Service  
Hanford Reach National Monument  
3250 Port of Benton Boulevard  
Richland, WA 99354

Dear Mr. Hughes:

**Subject: VALID AND EXISTING RIGHTS**

As recommended by U.S. Fish and Wildlife, we are providing a summary of Energy Northwest activities that we consider to fall within the definition of valid and existing rights. These activities were previously authorized by USDOE or occur on lands leased to Energy Northwest that are now designated as the Hanford Reach National Monument ("Monument"). We have also identified the potential impact of future development of the Monument as recommended by the Federal Advisory Committee.

Under the Monument designation Energy Northwest's goal is to preserve the ability to take any and all reasonable actions to assure the continued safe and cost effective operation of Columbia Generating Station. Energy Northwest operates the Columbia Generating Station in accordance with the operating license issued by the U.S. Nuclear Regulatory Commission and the Site Certification Agreement issued by the Washington State Energy Facility Site Evaluation Council. The ability to continue operations includes, but is not limited to, the following types of activities:

1. Maintain the privileges of existing property contracts, leases, easements and right-of ways, and preserve the ability to renew these agreements as necessary to support operation of Columbia Generating Station.
2. Renew the Columbia Generating Station operating license and other permits without loss of existing rights.
3. Operate and maintain the river pumphouses and associated intake and discharge structures located on Monument land.
  - a. Continuous (24/7) access for plant personnel.
  - b. Perform underground maintenance (e.g., excavate pipelines, river intakes, electric service, septic field, etc. for maintenance or replacement).
  - c. Maintain a roadway / parking lot to access facilities with motor vehicles.
  - d. Utilize large construction equipment (cranes, backhoes, dump trucks, etc.).

Mr. Hughes

**VALID AND EXISTING RIGHTS**

Page 2

- e. Restrict access for purposes of security (including the installation of fences and gates).
  - f. Use night time lighting for security / safety purposes.
  - g. Operate pumps and withdraw and discharge water in accordance with regulatory requirements.
4. Perform required Emergency Plan notifications, actions, warnings and evacuations, as appropriate, within the 10-mile emergency planning zone and 50-mile ingestion zone.
- a. Access to maintain and operate public signals (sirens, etc.).
  - b. Access Monument lands for the purpose of taking field team measurements during training exercises and emergencies.
  - c. Evacuate Monument lands as directed by public officials.
  - d. Obtain and maintain easements / leases for the location of public signals on Monument land.
5. Operate and maintain Radiological Environmental Sampling Program in accordance with regulatory requirements.
- a. Access to Monument lands to obtain environmental samples and maintain monitoring stations.
  - b. Ability to launch boat from shoreline for sampling / research.
  - c. Establish new monitoring stations, as necessary, on Monument land.
6. Operate, maintain, and upgrade the communication building, tower, and equipment on Rattlesnake Mountain.
7. Sell or transfer Energy Northwest facilities now located on Monument lands to another party.

We have followed the Advisory Committee's preliminary plans to make the Monument more accessible to the public. While we are supportive of the endeavors, we are concerned about the potential impacts to Energy Northwest operations and obligations. These include the following:

1. Emergency Plan requirements for notifications and evacuations within the 10-mile emergency planning zone (EPZ).
  - a. The current public notification system of sirens was designed to notify members of the public who may be transiting the area by boat or stopped on the shore. Opening up new areas of the Monument to the public, such as the dunes area, the old Hanford town site, or Rattlesnake Mountain may require additional sirens. Any additional sirens come at a considerable expense.

Mr. Hughes

**VALID AND EXISTING RIGHTS**

Page 3

- b. The opening of the south / west shore of the Columbia River to the public, brings the public into close proximity of the emergency notification sirens. This makes the sirens more susceptible to vandalism.
  - c. In the event of an emergency at Columbia Generating Station, it may be necessary to evacuate the public from the Hanford town site utilizing normally restricted roads through USDOE property.
2. Energy Northwest is concerned about vandalism and liability issues if the public is allowed access to the shoreline near our river pumphouses.
  3. Energy Northwest is concerned about the potential for vandalism of our communications equipment if public access is allowed on Rattlesnake Mountain.

Should you have any questions or desire additional information regarding this matter, please contact Mr. M. P. Hedges at 509-377-8277.

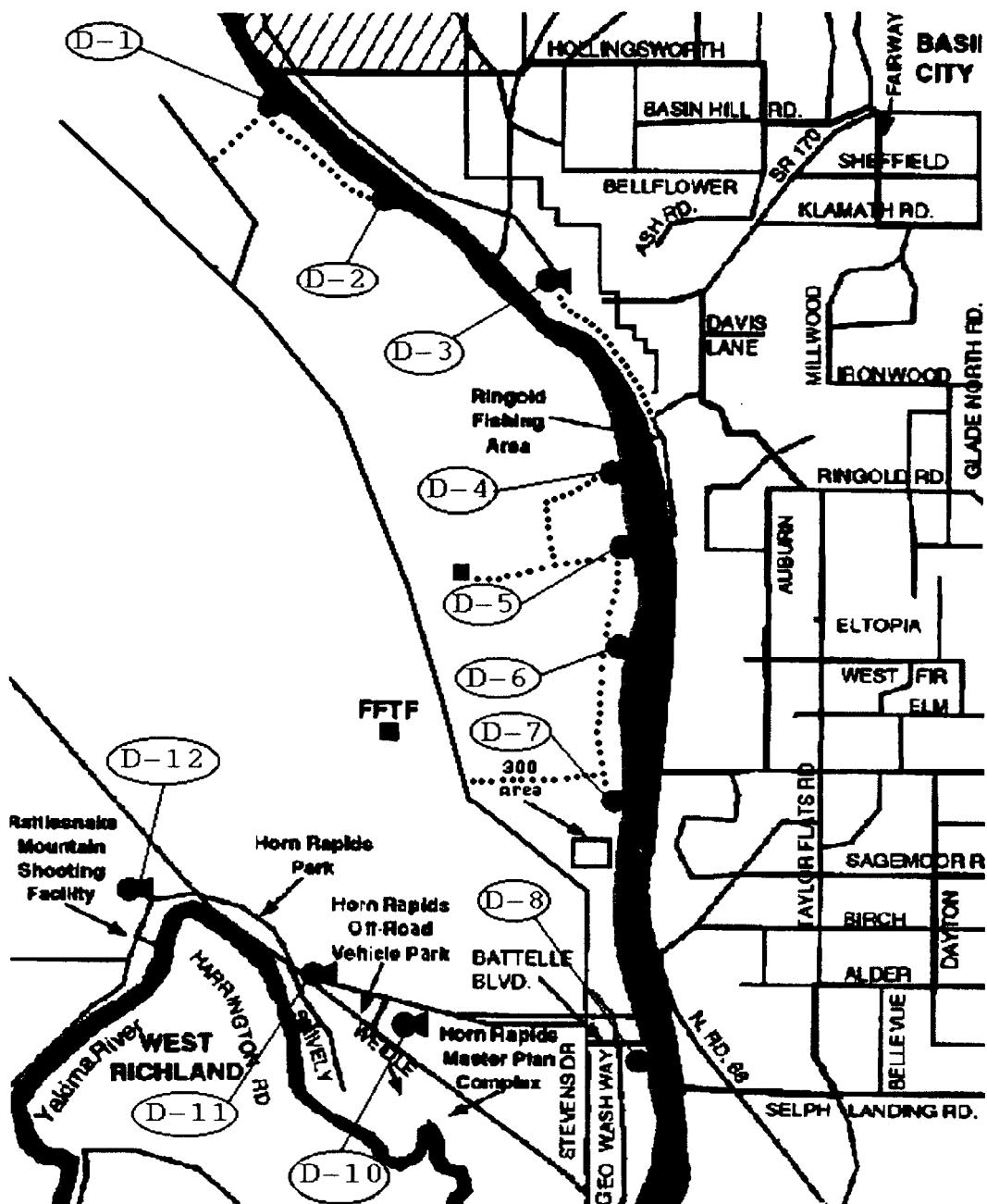
Respectfully,



D.K. Atkinson

Vice President, Technical Services

Mail Drop PE08

SIREN MAP AND LOCATIONS

Attachment 1  
Page 1 of 2

NUMBER	REVISION	PAGE
EPI-08	4	5 of 10

## SIREN MAP AND LOCATIONS

D1 - 46-35-19N LAT 119-23-13W LONG

200 feet downriver from old High School at the Hanford townsit. Accessed by the first right turn beyond the Wye Barricade.

D2 - 46-33-35N LAT 119-19-38W LONG

Approximately 3.5 miles SE of D1 following the road which parallels the Columbia River. Accessed via the Wye Barricade as for D1.

D3 - 46-32-20N LAT 119-16-42W LONG

In Franklin County approximately two miles upriver from the Ringold Aqueduct. Accessed via the Wahluke Hunting Area road.

D4 - 46-29-39N LAT 119-16-12W LONG

Located 200 yards south of the LOMO-ASHE 500 KV power line crossing at the Columbia River. Accessed via off road trail from Security Training parking lot.

D5 - 46-28-21N LAT 119-15-59W LONG

Located between the Columbia Generating Station and WNP-1/4 pumphouses at the Columbia River. Accessed via the Pumphouse Road.

D6 - 46-25-55N LAT 119-16-19W LONG

Located between the power line road and the Columbia River approximately 2.75 miles downriver from D5. Accessed by the Benton Switching Station right of way road.

D7 - 46-23-16N LAT 119-16-46W LONG

Approximately one mile north of the DOE 300 Area between the highway and the power line road. Accessed by the Benton Switching Station right of way road.

D8 - 46-20-24N LAT 119 16-11W LONG

Located at Energy Northwest Office Complex, APEL Facility in north Richland - on the TEC tower.

NOTE: No D9 siren

D10 - 46-20 32N LAT 119-20-03W LONG

Located just inside the Richland Landfill fence, five miles northwest of Richland.

D11 - 46-21-16N LAT 119-23-09W LONG

Located approximately three miles west of D10 on the edge of an irrigation circle. It is reached by turning south off state route 240 near the turnout and following the ditchroad.

D12 - 46-22-31N LAT 119-26-42W LONG

The site is adjacent to the gate to the DOE Arid Lands Ecology Area near the entrance to Rattlesnake Mountain Facilities.

Attachment 1  
Page 2 of 2

NUMBER	REVISION	PAGE
EPI-08	4	6 of 10

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

**LICENSE RENEWAL APPLICATION**

Enclosure G

**Enclosure G**

**Cumulative Impact Documents**

- G1. Letter dated February 9, 2010, J.V. Parish (EN) to D.A. Brockman (USDOE), Re: Mid-Columbia Energy Park (re: Site Audit Request 3043)
- G2. TRIDEC Presentation on Mission and Goals of the Mid-Columbia Energy Initiative (re: Site Audit Request 3043)

Encl. G1



J. V. Parrish  
Chief Executive Officer  
P.O. Box 968, Mail Drop 1023  
Richland, WA 99352-0968  
Ph. 509.377.8031 F. 509.377.8637  
jvparrish@energy-northwest.com

February 9, 2010

Mr. David A. Brockman  
Manager, Richland Operations Office  
Department of Energy  
P.O. Box 550  
Mail Stop A7-50  
Richland, WA 99352

Dear Mr. Brockman,

*Dave*

Thank you for meeting with Mid-Columbia Energy Initiative (MCEI) representatives. In order for the MCEI vision to become a reality, one of the first steps is to secure the right to lease the land for the proposed Mid-Columbia Energy Park. I am pleased to submit this proposal to the Department of Energy (DOE) on behalf of Energy Northwest (EN) to lease approximately twenty square miles of the Hanford Site. The land will be made available for public/private energy demonstration projects and partnerships. Initial efforts will focus on pilot and utility scale deployment of solar and energy storage projects. This park will also support efforts to develop pilot scale biofuels plants and the potential future deployment of a small modular nuclear effort.

This proposal, I believe, is in alignment with the Hanford Comprehensive Land-Use Plan Environmental Impact Statement and DOE Hanford's mission of shrinking the Hanford Site footprint while supporting national energy independence through the development and deployment of renewable energy technologies. Additionally, the park will provide economic development and job creation opportunities for the local and regional economies. MCEI is fully endorsed by Tri-City Industrial Development Council, Pacific Northwest National Labs (PNNL), WSU Bioproducts Science and Engineering Laboratory (BSEL) and the Tri-City Research District.

Mid-Columbia Energy Park will be operated by EN with input from an Advisory Board made up of local stakeholders such as the DOE, Port of Benton, Pacific Northwest National Laboratory, TRIDEC, and EN. The advisory board will provide advice to EN in areas of strategic planning, energy park policies and guidelines, and tactical integration of regional and community renewable energy initiatives.

Energy Northwest is in a unique position to operate the energy park. We have a wide-range of experience in the renewable energy business as the developer and operator of the Nine Canyon Wind Project near Kennewick, Wash., two solar test projects located at sites 1 and 4

Mr. David Brockman  
Page 2 of 2  
February 9, 2010

and operation of the Columbia Generating Station and the Packwood Hydroelectric Generating Project. The proposed site is located near land currently leased by EN from DOE, which has existing facilities and infrastructure that will significantly reduce start-up and operational costs. Also, EN has an excellent track record when working with diverse stakeholders such as DOE, local tribes, state and federal agencies, and private business as demonstrated with the successful Combined Community Communications Facility (CCCF).

I have challenged my staff to have the lease in place by June 30, 2010. This proposal represents a new mission for a portion of the Hanford Site, a goal DOE has championed for many years. We look forward to working with you to put this proposal in place.

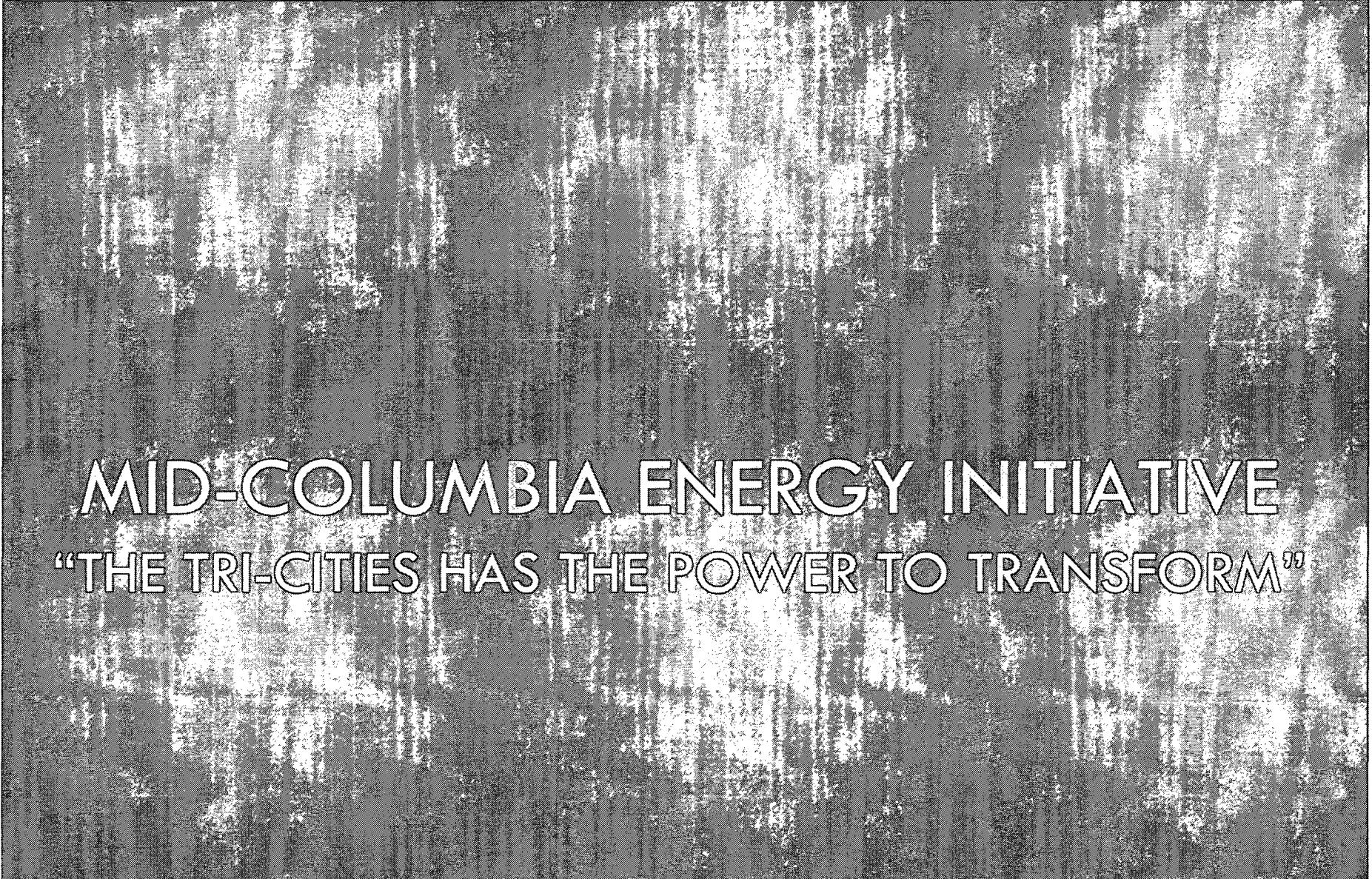
Respectfully,



J. V. Parrish  
Chief Executive Officer

cc: K. Flynn, DOE  
K. Alkema, MSA  
G. Peterson, TRIDEC  
T. Walton, PNNL  
S. Keller, POB

JVP/jdp



# MID-COLUMBIA ENERGY INITIATIVE

"THE TRI-CITIES HAS THE POWER TO TRANSFORM"



TRIDEC ENERGY COMMITTEE

# VISION



- Transform the Tri-Cities into a recognized leader in providing local, state and national clean, sustainable energy solutions.

# MISSION



- Use local and regional energy resources to provide solutions to national energy challenges (e.g. energy storage, generation and integration of renewable energy, smart grid installation, and load leveling).
- Leverage research, development, and commercialization expertise from Pacific Northwest National Laboratory (PNNL), Washington State University (WSU), the Tri-Cities Research District (TCRD), business entrepreneurs, and local energy companies to implement new energy technologies.

# NEAR TERM GOALS (BY 2013)



1. A business plan for the Mid-Columbia Energy Initiative (MCEI) will be in place, endorsed by local, regional, state and national leaders. Initial projects will be implemented.
  - **LEAD ORGANIZATION – PNNL**
  - **TASK MEMBERS – TRIDEC , INFINIA, TCRD (DIAHANN HOWARD), MSA**

## **NEAR TERM GOALS (BY 2013)**



2. Provide several alternate energy proposals for DOE's Waste Treatment Plant (WTP) to replace up to 45,000 gallons diesel/day currently identified for the Steam Plant and provide a more sustainable solution for the 70 Average MW of power needed for WTP. By 2013 DOE will accept one or a combination of proposed alternatives.
  - **LEAD ORGANIZATION – TRIDEC**
  - **TASK MEMBERS – MSA, DOE-RL (RANDY KRECKEL), DOE-ORP, ENERGY NORTHWEST (JACK BAKER), INFINIA, BPA**

# NEAR TERM GOALS (BY 2013)



3. Secure 20-60 Square Miles of the Hanford Site from DOE consistent with their land-use plan making it available for public/private energy demonstration projects and partnerships.
    - a. Phase-1 will be a fully functional Clean Tech Energy Park utilizing existing Hanford land. This should include 5MWe of solar generation (a mix of both CSP and PV); 1MWe of energy storage; and conceptual design for a pilot biofuel plant.
    - b. Planning for Phase-2 of the Clean Tech Energy Park should be underway and include early site permitting for a modular nuclear plant.
- **LEAD ORGANIZATION - ENERGY NORTHWEST (JACK BAKER)**
  - **TASK MEMBERS – TRIDEC, DOE-RL, MSA, PNNL, WSU-TC, BSEL**

# NEAR TERM GOALS (BY 2013)

- 
4. Establish training and education programs through Columbia Basin College (CBC), WSU Tri-Cities and affiliates, along with local labor to support national needs for utility and workforce training in clean/sustainable energy (carbon neutral) technologies.
    - **LEAD ORGANIZATION – INFINIA (JESSICA BALLARD) AND TCRD (DIAHANN HOWARD)**
    - **TASK MEMBERS – WSU-TC (VICKY CARWEIN), CBC (RICH CUMMINS), WORKSOURCE (PATRICIA KING), CWBCT (MIKE KEIZER/BC SMITH), TEAC, DELTA HIGH SCHOOL (PHIL OHL), TRI-TECH, HAMMER, HANFORD COMMUNITIES (PAM BROWN-LARSON), ANR GROUP(ANGIE COPENHAVER), IBEW 77/ NUTS (JOHN TRUMBAL)**

# NEAR TERM GOALS (BY 2013)

---

5. Fully endorse PNNL, Bioproducts Sciences Engineering Laboratory (BSEL) and TCRD to implement new energy technologies.
  - a. Showcase the Mid-Columbia's smart grid technology (with focus on integration of renewable energy into the grid) through the organization of events and local, regional, national, and global awareness.
  - b. Transform the existing van pool fleet into rechargeable vehicles.
  - c. Utilize local facilities to demonstrate advanced clean energy technologies.
    - **LEAD ORGANIZATION – TCRD (DIAHANN HOWARD)**
    - **TASK MEMBERS – INNOVATEK (PATRICIA IRVING), BEN-FRANKLIN TRANSIT, CITY OF RICHLAND (KRIS STAUFFER), RICHLAND SCHOOL DISTRICT, APEL (SUZANNE MITCHELL), BENTON PUD (JIM SANDERS)**

# NEAR TERM GOALS (BY 2013)



6. Support commercialization, technology transfer and manufacturing of equipment designed for use in sustainable/carbon neutral energy production.
  - **LEAD ORGANIZATION – INNOVATEK (PATRICIA IRVING)**
  - **TASK MEMBERS – INFINIA, TCRD (DIAHANN HOWARD), BSEL (BIRGITTE AHERING), APEL (SUZANNE MITCHELL)**

# **NEAR TERM GOALS (BY 2013)**



7. Educate policy makers on local and national energy issues.

- **LEAD ORGANIZATION – TRIDEC AND TCRD (DIAHANN HOWARD)**
- **TASK MEMBERS – WSU-TC (VICKY CARWEIN), BSEL (BIRGITTE AHERING)**

8. Recruit like-minded leaders and organizations to make the Mid-Columbia a “hub” for energy in the Pacific Northwest.

- **LEAD ORGANIZATION – TRIDEC AND TCRD (DIAHANN HOWARD)**
- **TASK MEMBERS – KEITH KLEIN**

# MCEI SUBCOMMITTEE'S



1. Energy Park Committee – *Jack Baker, Energy Northwest*
2. Utility Committee – *Jim Sanders, Benton PUD*
3. Technology Committee – *Diahann Howard, TCRD*
4. Manufacturing & Vendor Committee – *Peter Brehm, Infinia*
5. Workforce & Education Committee – *Vicky Carwein, WSU-TC*

# **ENERGY PARK COMMITTEE GOALS**



- 1. Deploy pilot and utility scale sustainable electrical energy projects.**
  - a. Obtain ~20 square miles of DOE land for project development**
  - b. Develop infrastructure to enable pilot and utility scale projects**
  - c. Offer open access to engage maximum providers and optimal deployment**
  - d. Provide opportunity for demonstration and deployment of solar and small modular nuclear plants and other sustainable energy technologies**

# ENERGY PARK COMMITTEE GOALS

(CONT.)



e. Produce Commercial Solar

- 10MWe by 2014
- 100MWe by 2017
- 500MWe by 2025

*Note: Solar generated will be a mix of both CSP and PV*

- f. Determine economic and technical feasibility of small modular nuclear by 2012
- g. Develop 500 jobs within Clean Tech Energy Park by 2020

# **ENERGY PARK COMMITTEE GOALS**

(CONT.)



2. Deploy pilot and manufacturing scale carbon neutral biofuels production.
3. Provide a more sustainable energy solution to the electrical and steam needs of the Waste Treatment Plant.
4. Provide for the integration of energy supply/energy usage/energy storage within the Clean Tech Energy Park.

# UTILITY COMMITTEE GOALS



1. Be a leader in testing, installation and operation of new energy smart technologies developed by PNNL and others, and in providing a test bed for the integration and distribution of energy from wind, solar, biomass and other renewables.
2. Develop strategies for energy storage to maximize wind, hydro, solar energy resources.
3. Showcase recycling and conservation initiative for commercial and residential energy consumption.

# TECHNOLOGY COMMITTEE GOALS



1. Undertake those activities that support the Vision Statement and that support the success of the various entities and businesses located within the Tri-Cities in creating new jobs and tax base and diversifying the economy.
  - a. Pursue local, state, federal partnerships and funding support.

# TECHNOLOGY COMMITTEE GOALS

(CONT.)



2. Assist Columbia Basin College (CBC), Pacific Northwest National Laboratory (PNNL) and Washington State University Tri-Cities (WSU-TC) to market and commercialize new technology and research to firms that will generate additional family wage jobs and further economic diversity.
  - a. Create a “sense of place” and community awareness of MCEI vision and goals.
  - b. Identify and replace outdated infrastructure to enhance future development.
  - c. Institute an adequately funded and organized program to market available land and buildings in order to attract new businesses to create new jobs and tax base.

# TECHNOLOGY COMMITTEE GOALS

(CONT.)



3. Create a physical and intellectual environment where companies and workers can interrelate and learn; where technology transfer and product commercialization can happen; where educational and training opportunities are available for professional and support workers; where we can establish and support vertical and horizontal industry clusters and, finally, as a focal point for technology-related community outreach activities throughout the Tri-Cities area.
  - a. Create communication vehicles that inform and help both companies and entities located in the Tri-Cities develop a relationship with MCEI .
  - b.. Develop and fund employee education and training programs and mentoring and technical assistance programs with area school districts, colleges and universities .
  - c. Develop and fund internships and other workforce development programs and relationships through the Benton-Franklin Workforce Development Council.

# MANUFACTURING & VENDOR COMMITTEE GOALS



1. Work with state and federal offices to identify and create state tax incentives and federal funding support to encourage new sustainable energy/carbon neutral manufacturers in the region.
2. Develop the means for energy manufacturers, vendors and labor activities to succeed.
3. Showcase the Mid-Columbia's smart grid technology (with focus on integration of renewable energy into the grid) through the organization of events and local, regional, national, and global awareness.

# **WORKFORCE & EDUCATION GOALS**



- 1. Bolster local curriculum (K-12, technical schools, colleges, and universities) to build and hone an exportable resource of skilled workers with focus on engineering, technology, and management of sustainable energy projects/sites.**
- 2. Create a physical and intellectual environment where companies and workers can interrelate and learn.**

# WORKFORCE & EDUCATION GOALS



3. Develop and fund employee education and training programs and mentoring and technical assistance programs with area school districts, colleges, and universities.
4. Develop and fund internships and other workforce development programs and relationships through the Benton-Franklin Workforce Development Council.