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Hanford Cultural Resources Management Plan

United States
Department of Energy
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EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE), Richland Operations Office (DOE-RL) has prepared the Hanford Cultural Resource Management Plan (HCRMP) in response to the following direction from DOE Headquarters:

> That a cultural resources management plan is developed and fully implemented at all DOE facilities and contractor-operated facilities. Using the *Environmental Guidelines for Development of Cultural Resource Management Plans, August 1995,* as a resource, each plan must appropriately reflect local concerns (DOE 2001).

This plan replaces the management plan prepared in the late 1980s (Chatters 1989), which became outdated in light of new federal requirements and changes in Hanford Site missions. This new plan describes the approach that DOE has developed for the Hanford Site to comply with federal laws, Presidential Executive Orders, the DOE Cultural Resource Policy, and other requirements. The plan provides guidance and strategies for protecting cultural resources specific to Hanford. The guidelines and strategies have been developed based on Hanford's unique cultural resources and in consultation with tribes; interested public; and state, local, and other federal agencies who have a desire to ensure the protection of resources that are intimately linked to our shared heritage. While the guidelines and strategies reflect current practices, other practices may also be used. DOE-RL intends to continue to refine its cultural resources program to ensure that it is based on complying with requirements.

This HCRMP describes the DOE-RL Hanford Cultural and Historic Resources Program, including its short-term and long-term goals, past accomplishments, methods, and procedures. The roles and responsibilities of program participants, the regulations that drive the compliance-based work, the activities that require cultural resource consideration, the strategies put in place to ensure agency compliance, and the activities planned for the future to ensure important places are protected, are also presented. Adherence to these guidelines will minimize the impact of Hanford Site operations on cultural resources and on the free exercise of Native American religions.

This HCRMP applies to all portions of the Hanford Site where cultural resource management activities take place. These areas include central Hanford and portions of the river corridor that are managed either by DOE's Richland Operations Office or DOE's Office of River Protection. The HCRMP does not apply to areas being managed by the U.S. Fish and Wildlife Service unless activities in these areas are DOE undertakings. Those lands will be managed under plans prepared by the U.S. Fish and Wildlife Service.

ACRONYMS AND ABBREVIATIONS

AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CREHST	Columbia River Exhibition of History, Science and Technology
CRM	Cultural Resource Management
DOE	U.S. Department of Energy
DOE-ORP	U.S. Department of Energy, Office of River Protection
DOE-RL	U.S. Department of Energy, Richland Operations Office
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ExHPIF	Expanded Historic Property Inventory Form
FY	Fiscal Year
HCRC	Hanford Cultural Resource Compliance
HCRL	Hanford Cultural Resources Laboratory
HCRMP	Hanford Cultural Resources Management Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
PNNL	Pacific Northwest National Laboratory
RCRA	Resource Conservation and Recovery Act
RIDS	Records Inventory Disposition Schedule
SHPO	State Historic Preservation Office
SPMU	Special Protection and Mitigation Unit
TCP	Traditional Cultural Place
Tri-Party Agreement	Hanford Federal Facility and Consent Order
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) is responsible for managing the Hanford Site's cultural and historic resources. To do this, the Department's Richland Operations Office (DOE-RL) maintains the Hanford Cultural and Historic Resources Program (the program). The program ensures that cultural resources entrusted to DOE are managed with vision, leadership, and responsibility.

This management plan provides the DOE-RL Hanford Cultural and Historic Resources Program goals; the facilities; the cultural and historical setting and associated cultural resources; the program accomplishments, methods, and procedures; and administrative details. Because accomplishments and requirements change regularly, the plan will be updated as necessary.

This introduction provides a brief overview of Hanford's cultural resources; the history, status, and direction of the program; how the program is technically structured to achieve the cultural resource management (CRM) goals; and how the DOE-RL program manager will administratively meet the CRM goals.

This plan follows the guidance provided by the U.S. Department of Energy Office of Environmental Policy and Assistance in its document, *Environmental Guidelines for Development of Cultural Resource Management Plans* (DOE 1995). The plan varies slightly from the recommended outline to accommodate the program and resources at Hanford. This plan will be reviewed and updated periodically, as appropriate.

1.1 HANFORD'S CULTURAL RESOURCES

Hanford's cultural resources are diverse, ranging from early prehistoric times to the atomic age. The Site contains a fragile and extensive record of human occupation documenting a series of overlapping cultural landscapes stretching thousands of years into the past. Each layer of history tells the story of how people have used the area. Archaeological remains combine with oral histories and traditional cultural places to document through time the changes in people's way of life on the Hanford Site.

The Native American landscape includes mythological, religious, and subsistence resources and a rich record of archaeological sites associated with prehistoric villages and activities. Food and medicinal plants important to Native Americans are dispersed across the landscape. Sacred and ceremonial places, many of which will never be revealed to non-native people, exist on the Site. Such traditional cultural places, together with archaeological sites and artifacts, are highly valued by Native Americans. In the traditional world, past, present, and future coexist in the foods that are eaten and the ceremonies that are performed. In fact, the customs and rituals surrounding the use of culturally recognized resources often constitute the core of the community's traditional cultural values. Examples of important sites include Gable Mountain, a sacred mountain highly revered by Native Americans in this region; Locke Island, an ancient fishing and village site; and areas where certain plants grow that are used by Native Americans for medicine.

Resources relating to western settlement and agriculture largely characterize the pre-Hanford historic landscape. From the 1850s through 1943, Euro-Americans farmed and raised livestock, mined, and built settlements throughout the Hanford Site. Historic archaeological resources mark the locations where gold

mining, stock raising, farming, and natural gas drilling took place from the 1850s to 1943. With the exception of six structures, which include the Hanford High School and the White Bluffs Bank, all other remnants of this pre-Hanford period have been removed. Pre-1943 cultural resources include not only archaeological remains such as old farmsteads but also the oral histories of early settlers and pioneers who called Hanford home.

After 1943, the transformation of an isolated agricultural region into a world-renowned nuclear research center again changed the nature of cultural resources on the Hanford Site. The built environment stands as mute testimony to the pioneering achievements in science and engineering that took place there. Because of the importance of its wartime mission to world history, Hanford's Manhattan Project/Cold War cultural landscape is critical for the interpretation of this time period. B Reactor where the plutonium for the atom bomb was made, the 300 Area where nuclear research was conducted, and the 200 Areas where the plutonium was processed are a few of the historic remains from the Manhattan Project/Cold War landscape.

1.2 HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM OVERVIEW

Cultural resource management at the DOE-managed portions of the Hanford Site is conducted under the auspices of the DOE-RL Hanford Cultural and Historic Resources Program. Program activities include performing cultural resource reviews for all federal undertakings conducted at Hanford in accordance with the National Historic Preservation Act, Section 106; monitoring Site conditions to ensure that important cultural resources are protected; maintaining a database of Site records, project records, and regional ethnohistory; maintaining archaeological and historical collections; and any other activities necessary to meet the minimum cultural resource-related requirements.

The DOE-RL Cultural and Historic Resources Program Manager oversees all program activities. Most technical activities are currently performed by contractors, in keeping with DOE's general approach to meeting all of its mission. Section 5.8.1 identifies the current contractor structure of the DOE-RL Hanford Cultural and Historic Resources Program and the specific staff performing the work.

The DOE-RL Hanford Cultural and Historic Resources Program has been managing cultural resources on the Hanford Site since 1987. In 1999, the U.S. Fish and Wildlife Service took over portions of the Hanford Site and managed those portions according to their own methods and procedures. Before 1987, DOE did not have an active cultural resource program but rather funded various cultural resource efforts to meet specific needs. Those activities are described in DOE (1997b).

During the DOE-RL Hanford Cultural and Historic Resources Program's first decade, emphasis was on getting the program established. Activities included producing a cultural resource management plan (Chatters 1989); establishing a cultural resource review process for all federal undertakings conducted at Hanford in accordance with the National Historic Preservation Act, Section 106; gaining an understanding of the cultural resources located at Hanford and their importance (DOE 1997b); and acquiring the archaeological collections that had been recovered from the Hanford Site after the government took possession in 1943. With these accomplishments made, program activities in recent years have focused on repatriating human remains from the collections; developing a site database; increasing tribal and interested party involvement; and developing a long-term monitoring and protection

program to ensure that significant cultural resources are managed and maintained in a way that considers the preservation of their historic, archaeological, architectural, and cultural value.

1.3 OUTLINE OF THE MANAGEMENT PLAN

The remainder of the Hanford Cultural Resources Management Plan is organized as follows:

- Section 2 includes a discussion of the short- and long-term goals of the DOE-RL Hanford Cultural and Historic Resources Program
- Section 3 provides an overview of past cultural resource management accomplishments at Hanford
- Section 4 discusses the methods that are used in managing and protecting cultural resources at Hanford
- Section 5 provides the specific cultural resources-related procedures that are in place at Hanford
- Section 6 provides references cited in the plan.

2.0 CRM GOALS

This section identifies the near-term and long-term goals of the U.S. Department of Energy (DOE) Richland Operations Office (DOE-RL) Hanford Cultural and Historic Resources Program. The intent of the program is to do the following:

- Maintain regulatory compliance
- Ensure that DOE stewardship responsibilities are being met
- Enhance DOE managers' awareness of and appreciation for cultural resource preservation and improve the effectiveness of their decision making
- Promote outreach with tribes, former residents, and the public, who are stakeholders in the local, natural, and cultural resources
- Adopt an approach to protection that is consistent with the U.S. Department of Interior's "National Strategy for Federal Archeology" (Table 1).

TABLE 1 National Strategy for Federal Archeology (Secretary of the Interior 1999)

Preserve and Protect Archeological Sites in Place

- Identify, evaluate, and document sites
- Increase understanding of the past and improve preservation through well-designed research
- Assess and document threats to sites and monitor their condition
- Prevent or slow deterioration of sites by stabilization and other means
- Fight looting with public awareness programs and effective legal strategies among archeologists, law enforcement officers, and public prosecutors

Conserve Archeological Collections and Records

- Locate collections and records, assess their condition, and conserve appropriately
- Identify actions needed to ensure long-term care of and access to collections knowledge, further preservation, and better inform the public
- Undertake, facilitate, and promote research using collections and records to better understand the past

Utilize and Share Archeological Research Results

- Synthesize research results, particularly gray literature, to advance scientific knowledge, further preservation, and better inform the public
- Facilitate use of archeological databases by managers and researchers
- Develop data standards to better share research results

Increase Public Education and Participation in Archeology

- Establish education programs as a regular agency function
- Interpret archeological research for the public in a way that is accurate and understandable
- Consider the views of diverse cultural groups when interpreting the past
- Engage the public in archeology through professionally directed volunteer programs and records

The program staff developed the goals identified below. In developing these goals, the staff performed an internal assessment of the program, considered the agency's mission and strategic vision at Hanford, and incorporated input from tribes, other descendant groups, interested parties, and regulators.

2.1 SHORT-TERM GOALS

Short-term goals for the DOE-RL Hanford Cultural and Historic Resources Program include the following:

- **Keep DOE-RL and DOE-Office of River Protection in Compliance** – Maintain and enhance a cultural resource program that keeps the Hanford Site in compliance with federal and state laws, Executive Orders, and DOE policies. The program will work to do the following:

  - Develop and maintain administrative procedures to ensure the program goals are implemented

  - Develop and maintain technical procedures to ensure all undertakings are sufficiently reviewed to address potential effects to historic properties and other places of cultural importance

  - Utilize to professionals meeting the Secretary of the Interior qualifications for history, architectural history, archaeology, and cultural anthropology

  - Implement new analytical procedures to improve the effectiveness of procedures and to reduce costs.

- **Consult with Tribes, Other Descendant Groups, and Interested Parties** – Maintain a consultation process specifically to address cultural resource issues with outside groups that involves government-to-government interactions when appropriate and technical-level interactions when appropriate. Specifically, the program will promote a cooperative management spirit and work to do the following:

  - Involve tribes with historical and legal ties to Hanford to ensure all decisions involving impacts to cultural resources or related to cultural resource activities have considered their interests, concerns, and expectations

  - Involve non-Native American descendant groups to ensure that all decisions involving impacts to cultural resources or related to cultural resource activities have considered their interests, concerns, and expectations

  - Outreach to involve others interested in Hanford's cultural resources for its scientific, educational, and historical value.

- **Protect Cultural Resources** – Refine the process and procedures for protecting important resources that are being damaged or threatened by natural and human forces. The program will work to do the following:

  - Document the condition of historic properties and other culturally important sites

- Analyze, predict, and assess impacts and determine when protective action (e.g., site stabilization, increased law enforcement) needs to be considered

- Develop alternatives for repairing or preventing damage

- Facilitate a decision-making process that includes tribes, other descendant groups, interested parties, and ultimately DOE-RL managers

- Implement protective actions.

- **Identify Cultural Resources** – Refine the understanding of the historical use of the Hanford Site and the relative importance of the archaeological sites and traditional cultural properties composing the Native American, Early Settler, and Manhattan Project/Cold War landscapes. The program will work to do the following:

  - Develop and implement a research design for locating and evaluating Native American-related sites from different eras, making maximum use of the Hanford STEWARD electronic database and geographic information system technology

  - Develop and implement a research design for locating and evaluating Early Settler-related sites, making maximum use of historical records, photographs, and oral histories

  - Work closely with Native Americans and other descendant groups to identify sensitive areas

  - Collect oral histories of former residents and workers when it will improve the management of the associated resources.

- **Maintain Integrity of Collections and Records** – Provide the infrastructure to ensure that cultural resource collections and records are protected, complete, accurate, and accessible for professional and cultural use. The program will work to do the following:

  - Ensure that existing collections, site and project records, and other archival material under our stewardship are complete, reliable, and cared for in an appropriate manner

  - Automate site and survey data to improve the cost of compliance, facilitate analysis, and improve site protection and understanding of past land use at Hanford

  - Identify a solution for Manhattan Project/Cold War artifacts currently housed in buildings located across the Hanford Site

  - Develop ways to make information related to Hanford's cultural and historic resources accessible to tribes, other descendant groups, interested parties, and the public.

2.2 LONG-TERM GOALS

Long-term goals focus on the DOE-RL Hanford Cultural and Historic Resources Program in the next 5 to 10 years. Many of the short-term goals, especially those that are process-oriented or procedural in nature, should be accomplished by that time. Further, the Hanford Site should be further along the way of achieving its cleanup mission and achieving its goals to shrink the Site (i.e., transfer clean parts of Hanford to other agencies, local governments, or the private sector).

There are two major long-term goals:

- **Be Successful Stewards of the Cultural and Historic Resources** – In the future, when tribes, other descendant groups, interested parties, and the public look at the condition of the three Hanford cultural landscapes, the goal is to ensure that RL has been a good steward of the resources.

- **Transfer Stewardship Responsibilities as Hanford Shrinks** – This goal involves working with neighboring public and private landowners, tribes, agencies, and interested parties to facilitate smooth transition of stewardship responsibilities to ensure protection of cultural resources.

3.0 EXISTING CONDITIONS

Section 3 provides an overview of the existing conditions at Hanford. The section begins with a facility description, including the current operational context and past and potential impacts that operations have on cultural resources. This is followed by the cultural and historical setting, a summary of known cultural resources, and a summary of accomplishments made by the U.S. Department of Energy (DOE) Richland Operations Office (DOE-RL) Hanford Cultural and Historic Resources Program (the program). The section concludes with summaries of cultural resource compliance activities at Hanford.

3.1 FACILITY DESCRIPTION

Complete descriptions of the Hanford Site, its components, condition, and related activities can be found in the *Hanford Site National Environmental Policy Act (NEPA) Characterization* report (Neitzel et al. 2002) and the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002). The following descriptions have been extracted from these documents.

The major areas on the Hanford Site (see Figure 1) include the following:

- The 100 Areas, on the south shore of the Columbia River, are the sites of nine retired plutonium production reactors, including the dual-purpose N Reactor (in the 100-N Area). The 100 Areas occupy ~11 square kilometers (4 square miles).

- The 200-West and 200-East Areas are centrally located on a plateau and are ~8 and 11 kilometers (5 and 7 miles), respectively, south and west of the Columbia River. The 200 Areas cover ~16 square kilometers (6 square miles).

- The 300 Area is located just north of the city of Richland. This area covers 1.5 square kilometers (0.6 square mile).

- The 400 Area is ~8 kilometers (5 miles) northwest of the 300 Area.

- The 600 Area includes all of the Hanford Site not occupied by the 100, 200, 300, 400, and 700 Areas.

- The former 311-hectare (768-acre) 1100 Area is located generally between the 300 Area and the city of Richland. It included site support services such as general stores and transportation maintenance. On October 1, 1998, this area was transferred to the Port of Benton as a part of the DOE-RL economic diversification efforts and is no longer part of the Hanford Site. However, DOE contractors continue to lease facilities in this area.

- The Richland North Area (off the Site) includes the Environmental Molecular Sciences Laboratory and other DOE and contractor facilities, mostly leased office buildings, generally located in the northern part of the city of Richland.

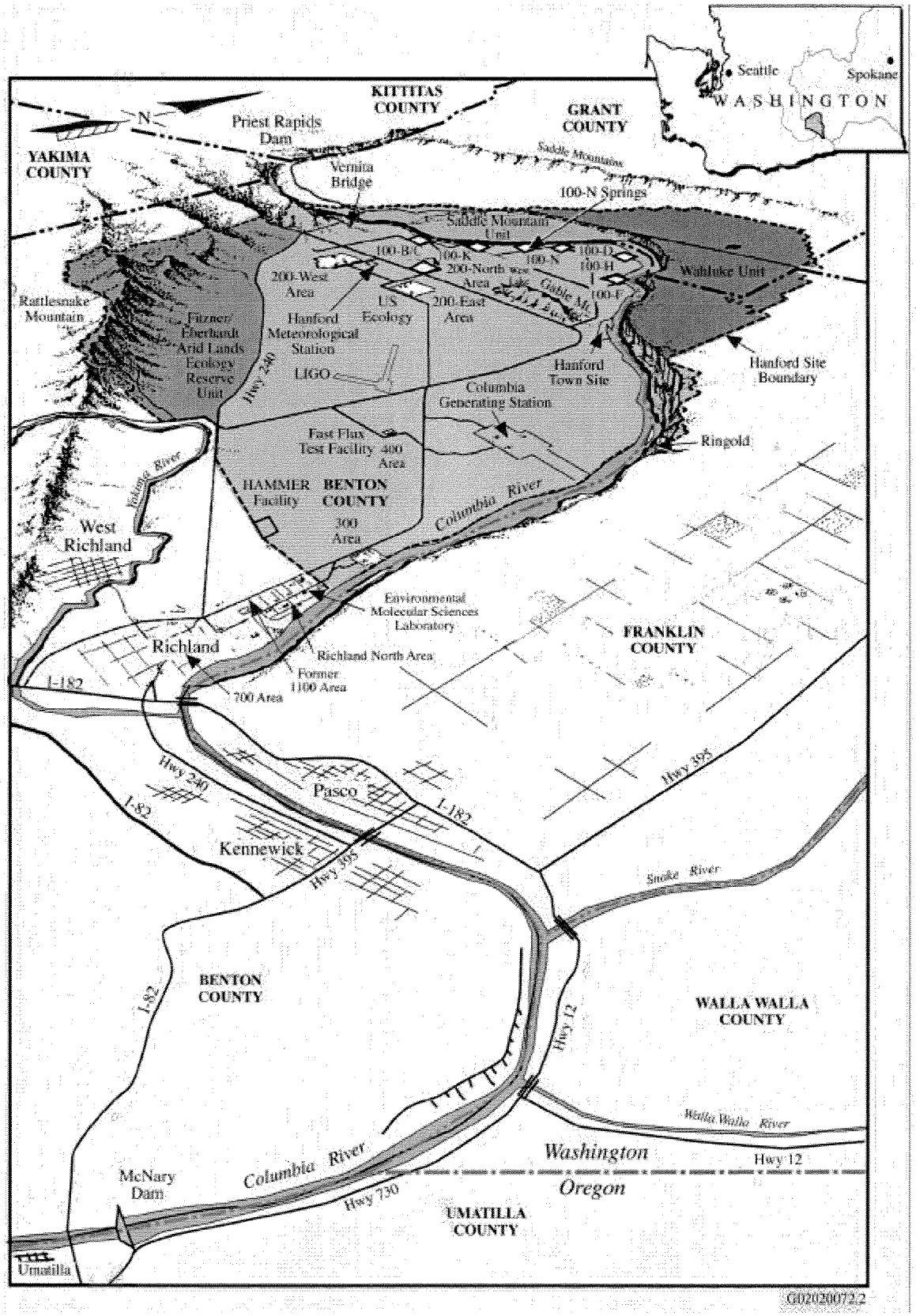

FIGURE 1 Hanford Site and Surrounding Areas

The 78,900-hectare (195,000-acre) Hanford Reach National Monument (Figure 2) was established by Presidential Proclamation in June 2000 (65 FR 37253) to protect the nation's only non-impounded stretch of the Columbia River above Bonneville Dam and the largest remnant of the shrub-steppe ecosystem once blanketing the Columbia River Basin. Under the existing MOU, DOE and the U.S. Fish and Wildlife Service (USFWS) are joint stewards of the monument. The USFWS administers three major management units of the Monument: 1) the Fitzner/Eberhardt Arid Lands Ecology Reserve Unit, a 312-square-kilometer (120-square-mile) tract of land in the southwestern portion of the Hanford Site; 2) Saddle Mountain Unit, a 130-square-kilometer (50-square-mile) tract of land located north-northwest of the Columbia River and generally south and east of State Highway 24; and 3) Wahluke Unit, a 225-square-kilometer (87-square-mile) tract of land located north and east of both the Columbia River and the Saddle Mountain Unit. The portion of the monument administered only by DOE includes the McGee/Riverlands area (north and west of State Highway 24), the Columbia River islands of Benton County, the Columbia River corridor (0.4 kilometer [0.25 mile] inland from the river shoreline) on the Hanford (Benton County) side of the river, and the sand dunes area located on the Hanford side of the Columbia River, north of Energy Northwest. Approximately 162 hectares (400 acres) along the north side of the Columbia River, west of Vernita Bridge and south of State Highway 243, are managed by the Washington State Department of Fish and Wildlife. All these lands have served as a safety and security buffer zone for Hanford Site operations since 1943, resulting in an ecosystem that has been relatively untouched for nearly 60 years.

Non-DOE operations and activities on Hanford Site leased land or in leased facilities include commercial power production by Energy Northwest (4.4 square kilometers [1.6 square miles]) and operation of a commercial low-level radioactive waste burial site by US Ecology, Inc. (0.4 square kilometer [0.2 square mile]). The National Science Foundation has built the Laser Interferometer Gravitational-Wave Observatory facility for gravitational wave studies. R. H. Smith Distributing operates vehicle-fueling stations in the former 1100 Area and in the 200 Areas. Washington State University at Tri-Cities operated several laboratories in the 300 Area until March 2002. Livingston Rebuild Center, Inc. has leased the 1171 Building in the former 1100 Area to rebuild train locomotives. Johnson Controls, Inc. operates 42 diesel and natural gas package boilers to produce steam in the 200 and 300 Areas (replacing the old coal-fired steam plants) and also has compressors supplying compressed air to the Site. Near the city of Richland, immediately adjacent to the southern boundary of the Hanford Site, Framatome-ANP, Inc. (formerly Siemens Power Corporation) operates a commercial nuclear fuel fabrication facility, and Allied Technology Group Corporation operates a low-level radioactive waste decontamination, supercompaction, and packaging facility.

3.1.1 Current Physical Setting

The Hanford Site lies within the semiarid Pasco Basin of the Columbia Plateau in southeastern Washington State (see Figure 1). The Site occupies an area of about 1,517 square kilometers (586 square miles) north of the confluence of the Yakima River with the Columbia River. The Hanford Site is about 50 kilometers (30 miles) north to south and 40 kilometers (24 miles) east to west. This land, with restricted public access, provides a buffer for the smaller areas currently used for storage of nuclear materials, waste storage, and waste disposal; only about 6 percent of the land area is known to have been disturbed and is actively used. The Columbia River flows through the northern part of the Hanford Site and, turning south, forms part of the Site's eastern boundary. The Yakima River runs near

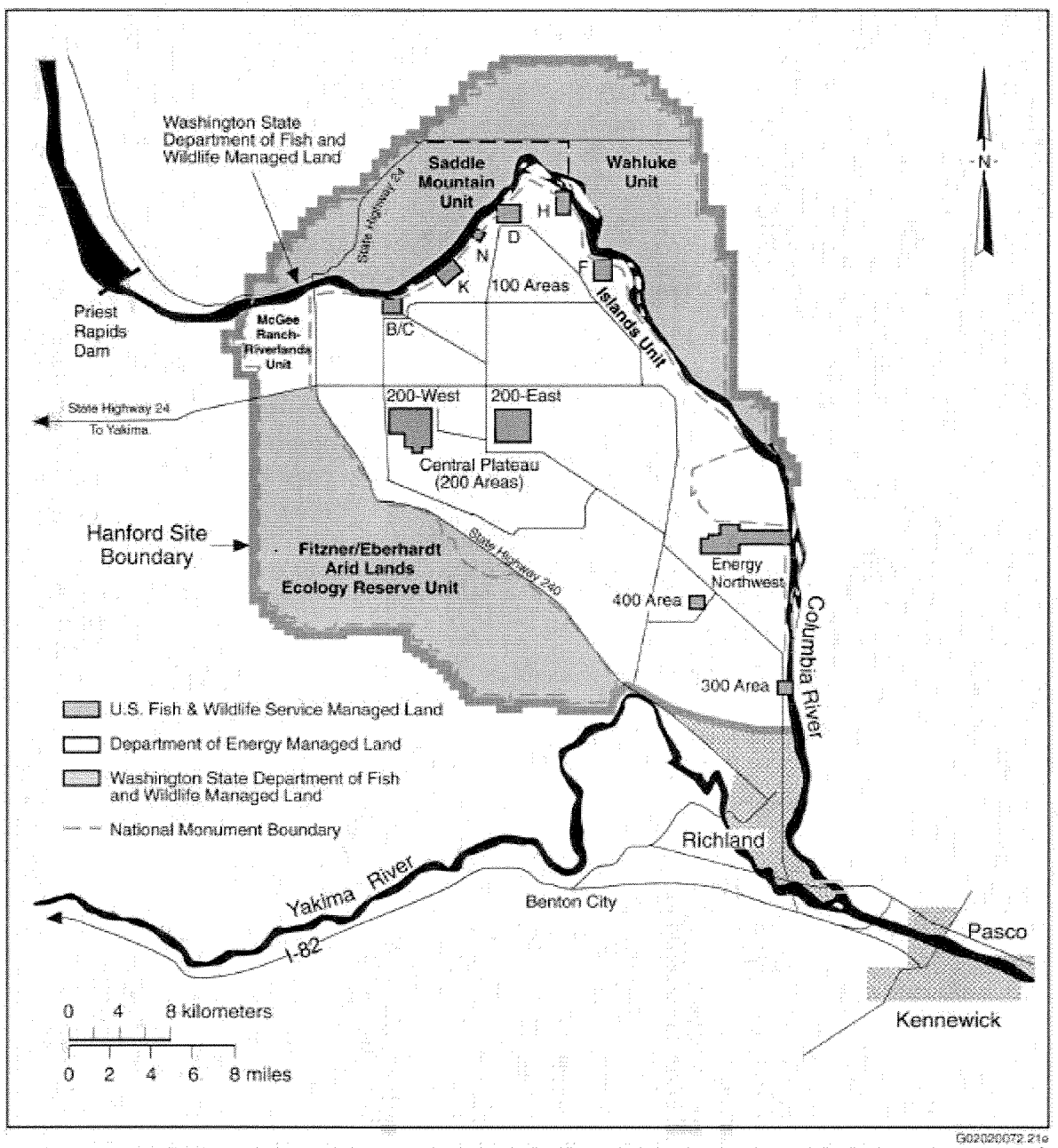

FIGURE 2 Hanford Reach National Monument

the southern boundary of the Hanford Site and joins the Columbia River at the city of Richland, which bounds the Hanford Site boundary on the southeast. Rattlesnake Mountain, Yakima Ridge, and Umtanum Ridge form the southwestern and western boundaries. The Saddle Mountains form the northern boundary of the Hanford Site. Two small east-west ridges, Gable Butte and Gable Mountain, rise above the plateau of the central part of the Hanford Site. Adjoining lands to the west, north, and east are principally range and agricultural land.

The cities of Kennewick, Pasco, and Richland (the Tri-Cities), West Richland, and Benton City constitute the nearest population centers and are located southeast of the Hanford Site.

3.1.2 Current Operational Context

The Hanford Site is managed by DOE-RL and DOE-Office of River Protection (DOE-ORP), each with its own responsibility. For example, the DOE-RL manages legacy cleanup, research, and other programs at the Hanford Site. Hanford supplied plutonium for the U.S. nuclear weapons defense for more than four decades and is now engaged in the world's largest environmental cleanup project. Three cleanup outcomes are being pursued: restoring the Columbia River corridor, transitioning the Central Plateau for waste treatment and long-term storage, and putting DOE's assets to work solving regional and global environmental challenges.

The DOE-ORP was established by Congress in 1998 as a DOE field office to manage DOE's largest, most complex environmental cleanup project—Hanford tank waste retrieval, treatment, and disposal. Sixty percent of the nation's high-level radioactive waste is stored at Hanford in aging, deteriorating tanks. In late spring of 2000, the DOE-ORP conducted an expedited bidding process to complete the design and construction of a waste vitrification facility. The contract was awarded in December 2000.

Contractors working at Hanford change as contracts elapse and new ones are awarded. For an up-to-date list of current contractors, see the Hanford contractor web site (http://www.hanford.gov/top/whowho.html). To provide the reader with a general understanding of the work performed by contractors at Hanford, the following descriptions of contracts in place in fiscal year (FY) 2002 are provided:

- **Fluor Hanford, Inc.** was the prime contractor for the nuclear legacy cleanup. Fluor Hanford, Inc.'s three principal subcontractors were Duke Engineering & Services Hanford, Inc.; Duratek Federal Services of Hanford, Inc.; and Numatec Hanford Corporation. Other subcontractors to Fluor Hanford included Day & Zimmerman Protection Technology Hanford.

- **Bechtel Hanford, Inc.** was the environmental restoration contractor. Bechtel Hanford, Inc. planned, managed, executed, and integrated a full range of activities for the cleanup of groundwater, contaminated soil, and inactive nuclear facilities. Bechtel Hanford, Inc.'s preselected subcontractors were CH2M HILL Hanford, Inc. and Eberline Services Hanford, Inc.

- The Health Risk Management Program at the **Hanford Environmental Health Foundation** worked with the Site to identify and analyze the hazards that Hanford personnel faced in the work environment. The foundation's occupational health services provided occupational medicine and nursing, medical surveillance, ergonomics assessment, exercise physiology, case management, psychology and counseling, fitness for duty evaluations, health education, infection control, immediate health care, industrial hygiene, and health, safety, and risk assessment.

- Battelle Memorial Institute operated the **Pacific Northwest National Laboratory** (PNNL) for DOE's national security and energy missions. The core mission was to deliver environmental science and technology in the service of the nation and humanity. Additionally, PNNL's capabilities were used to meet selected human health needs, to strengthen the U.S. economy, and to support the education of future scientists and engineers. The Laboratory's services included molecular science research, advanced processing technology, biotechnology, global environmental change research, and energy technology development. The Laboratory also operated the Hanford Cultural Resources Laboratory (HCRL) for DOE-RL, which provided Site-wide cultural resources services at Hanford.

- **Bechtel-Washington** was the team the DOE-ORP chose to design, build, and start up waste treatment facilities that will transform liquid radioactive waste into a stable glass form. The waste is currently stored in 177 huge underground tanks at the Hanford Site. It will be treated and converted to a glass waste form, a process known as vitrification, in facilities that will be built on a 26-hectare (65-acre) site on the Central Plateau of Hanford. Once immobilized, the high-level radioactive waste will be shipped to a federal geologic repository for permanent disposal. The low-level radioactive waste will be disposed at Hanford. The Bechtel-Washington team comprised Bechtel National, Inc. as the prime contractor with Washington Group International, Inc. as a subcontractor. The 10-year, $4-billion contract was awarded in December 2000.

- **CH2M HILL Hanford Group, Inc.** was the DOE-ORP prime contractor with the responsibility for storing and retrieving for treatment ~204 million liters (~54 million gallons) of highly radioactive and hazardous waste stored in 177 huge underground tanks. The company's role included characterizing the waste and delivering it to the future waste vitrification facility. In January 2001, the contract for CH2M HILL Hanford Group, Inc. was extended through 2006.

- **MACTEC-ERS** was a prime contractor to the DOE Grand Junction Office. The Grand Junction Office has contracted with DOE-RL and DOE-ORP to conduct vadose zone, geophysical characterization, and monitoring work at former waste disposal facilities on the Site.

On June 9, 2000, President William J. Clinton, by Presidential Proclamation 7319, created the Hanford Reach National Monument under the 1906 Antiquities Act (65 FR 37253). As established, the monument totals 32,076 hectares (195,843 acres) and includes the Fitzner/Eberhardt Arid Lands Ecology Reserve, Saddle Mountain National Wildlife Refuge, McGee Ranch/Riverlands Area, Wahluke Slope, federally owned islands in the Hanford Reach, a portion of White Bluffs, the sand dune area northwest of the Energy Northwest site, and the 82-kilometer (51-mile) long Hanford Reach, the last free-flowing, non-tidal stretch of the Columbia River (see Figure 2). This designation establishes the protection and management of the lands within the region of the monument. By memorandum, the President also directed the Secretary of Energy to consult with the Secretary of the Interior on including additional Hanford Site lands into the monument as the land is remediated.

The national monument is jointly administered by DOE and USFWS. The USFWS administers the portions for which it is responsible (Arid Lands Ecology Reserve and Wahluke Slope) under the National Wildlife Refuge System in accordance with the Presidential Proclamation (65 FR 37253) establishing the Hanford Reach National Monument.

3.1.3 Potential Impacts to Cultural Resources

Potential impacts to cultural resources on the Hanford Site come from past and present operations at Hanford. These are discussed below. It should also be noted that before the federal government's arrival, nineteenth- and twentieth-century development, primarily farming, caused substantial damage to the Native American-related resources as well.

3.1.3.1 Past Practices

The Hanford Site was established in 1943 to use technology developed at the University of Chicago and the Clinton Laboratory in Oak Ridge, Tennessee, to produce plutonium for two of the nuclear weapons tested and used in World War II. Hanford was the first plutonium production facility in the world. The Site was selected by the U.S. Army Corps of Engineers because it was remote from major populated areas and had 1) ample electrical power from Grand Coulee Dam, 2) a functional railroad, 3) clean water from the nearby Columbia River, and 4) sand and gravel that could be used to construct large concrete structures. When the government acquired the land, everyone living there had to move. For security, safety, and functional reasons, the Site was then divided into the numbered areas (see Figure 1).

The government quickly constructed large production facilities and many support buildings to create its plutonium production facility; several expansions occurred into the 1960s (DOE-RL 2002). Where former and present-day living sites, cemeteries, and traditional-use areas were co-located, construction activities would have destroyed the integrity of the resources. In addition to buildings, construction of numerous structures related to the wastes generated by the plutonium production processes also took place over several decades.

Much of the current Hanford mission is to remove the buildings constructed over the years and clean up the wastes that were deposited in the ground and, in some cases, have since spread. A brief description of the wastes and the way they were handled are presented below.

Hanford Site operations produced liquid, solid, and gaseous waste. Most waste resulting from Site operations had at least the potential to contain radioactive materials. From an operational standpoint, radioactive waste was originally categorized as "high level," "intermediate level," or "low level," which referred to the level of radioactivity present. Some high-level solid waste, such as large pieces of machinery and equipment, was placed onto railroad flatcars and stored in underground tunnels. Both intermediate- and low-level solid waste, consisting of tools, machinery, paper, or wood, were placed into covered trenches at storage and disposal sites known as "burial grounds." Beginning in 1970, solid waste was segregated according to the makeup of the waste material. Solids contaminated with plutonium and other transuranic materials were packaged in special containers and stored in trenches covered with soil for possible later retrieval.

High-level liquid waste was stored in large underground tanks. Intermediate-level liquid waste streams were usually routed to underground structures of various types called "cribs." Occasionally, trenches (specific retention trenches) were filled with the liquid waste and then covered with soil after the waste had soaked into the ground. Low-level liquid waste streams were usually routed to surface impoundments (ditches and ponds). Non-radioactive solid waste was usually burned in places called "burning grounds." This practice was discontinued in the late 1960s in response to the Clean Air Act, and the materials were buried at sanitary landfill sites. These storage and disposal sites, with the exception of high-level waste tanks, are now designated as "active " or "inactive " waste sites, depending on whether the Site currently receives waste.

3.1.3.2 Planned Activities

The DOE, the U.S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology) signed a comprehensive cleanup and compliance agreement on May 15, 1989. The Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement (Ecology et al. 1998), is an agreement for achieving compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial action provisions and with the Resource Conservation and Recovery Act (RCRA) treatment, storage, and disposal unit regulations and corrective action provisions. More specifically, the Tri-Party Agreement 1) defines and ranks CERCLA and RCRA cleanup commitments, 2) establishes responsibilities, 3) provides a basis for budgeting, and 4) reflects a concerted goal of achieving full regulatory compliance and remediation with enforceable milestones in an aggressive manner.

The Tri-Party Agreement is a legally binding agreement consisting of two main documents:

1. The "Legal Agreement" itself describes the roles, responsibilities, and authority of the three agencies, or "Parties," in the cleanup, compliance, and permitting processes. It also sets up dispute resolution processes and describes how the agreement will be enforced.

2. The "Action Plan" to implement the cleanup and permitting efforts includes milestones for initiating and completing specific work and procedures the three agencies will follow (see Appendix D).

All the Hanford production reactors and most associated facilities have been shut down, and each 100 Area is in some stage of cleanup, decommissioning, or restoration. For example, C Reactor has been cocooned and placed into interim safe storage as a large-scale demonstration, an economical state that it can safely remain in for many years pending final disposal of the reactor core. Of the 24 facilities associated with the reactor, 23 have been removed.

The Hanford Site encompasses more than 1,500 waste management units and groundwater contamination plumes that have been grouped into 62 operable units. Each unit has complementary characteristics of parameters such as geography, waste content, type of facility, and relationship of contaminant plumes. This grouping into operable units allows for economies of scale to reduce the cost and number of characterization investigations and remedial actions that will be required for the Hanford Site to complete environmental cleanup efforts. The 62 operable units have been aggregated into four areas: 22 in the 100 Area (17 source, 5 groundwater), 33 in the 200 Areas (29 source, 4groundwater), 3 in the 300 Area (2 source, 1 groundwater), and 4 in the former 1100 Area.[1]

In 2000, the DOE-RL Manager introduced a draft plan for Hanford cleanup that focused on three outcomes: restore the river corridor, transition the Central Plateau, and prepare for the future. The final version is called *Hanford 2012* (http://www.hanford.gov/rl/index.asp). This plan establishes several goals to be accomplished by 2012.

For example, Hanford's river corridor consists of about 54,390 hectares (210 square miles) beginning at the shores of the Columbia River and extending inland towards the Central Plateau in the middle of the

[1] Source: Personal communication with L. Dietz, Bechtel Hanford, Inc., August 1999.

Hanford Site. While 0.4 kilometer (0.25 mile) along the river is included in the Hanford Reach National Monument, the monument is primarily composed of the Fitzner/Eberhardt Arid Lands Ecology Reserve and the Wahluke Slope. Cleanup of the river corridor will allow DOE, in consultation with area tribal nations, regulators, and stakeholders, to make land available for other uses, conservation of ecological resources, and protection of historic cultural resources. The footprint for active Hanford cleanup operations will reduce to ~19,420 hectares (75 square miles).

One goal is to remediate most sources of radiological and chemical contamination that threaten the air, groundwater, or Columbia River. Much of that work has already begun (digging up contaminated soil, taking down the old reactor complexes, moving spent fuel away from the river, etc.), and nearly all can be completed by 2012, with two notable exceptions. First, decisions have yet to be made on which groundwater contamination plumes need to be remediated and which technologies to use. Second, DOE will meet the Tri-Party Agreement requirements to establish a schedule for remediation of 618-10 and 618-11 burial grounds by 2002 but, because of technical complexity and safety concerns, will not complete remediation until after 2012. If ongoing studies and monitoring determine earlier action is required, DOE will work with regulators to establish a path forward.

Another goal involves transitioning the Central Plateau to long-term waste management. The Central Plateau is ~19,420 hectares (75 square miles) near the middle of the Hanford Site and includes the 200-East and 200-West Areas. The 200 Areas are home to a large number of facilities formerly used for spent nuclear fuel processing and plutonium metal production, and to Hanford's 177 underground high-level radioactive waste storage tanks, which are managed by DOE-ORP. The DOE is transitioning the Central Plateau from primarily inactive storage to active waste characterization, treatment, storage, and disposal operations. New, state-of-the-art, environmentally compliant facilities will be used to support completion of the Hanford Site cleanup. Some of these facilities, including the Canister Storage Building, Waste Receiving and Processing Facility, and Environmental Restoration Disposal Facility, have already begun operation.

Cleanup activities in the Central Plateau are expected to continue for more than 40 years. During this period, DOE will transition areas to long-term stewardship to monitor and verify the effectiveness of cleanup actions in ensuring protection of the public and the environment over the long term.

Hanford's cleanup mission is finite. As the environmental remediation work is completed, DOE is committed to fulfilling its responsibility to derive the maximum taxpayer benefits from the nation's multi-billion dollar investment in the Hanford Site. The DOE anticipates multiple future uses for the Hanford Site, including long-term stewardship, other DOE missions, non-DOE federal missions, and other public and private sector uses. The largest part of the Hanford Site will emphasize conservation of ecological and cultural resources and will be managed as the Hanford Reach National Monument jointly by DOE and the USFWS.

3.1.4 Summary of Current Planning Procedure

The DOE adopted a Comprehensive Land-Use Plan (CLUP) for its Hanford Site in 1999. The purpose of the Hanford CLUP (DOE 1999) and its implementing policies and procedures is to facilitate decision-making about the site's uses and facilities over at least the next 50 years. The Department's decision

seeks to balance the Department's continuing land-use needs at Hanford with its desire to preserve important ecological and cultural values of the site and allow for economic development in the area. This land-use plan consists of several key elements which are included in the Department's Preferred Alternative in the Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS). These elements are a land-use map that addresses the Hanford Site as five geographic areas – the Wahluke Slope, the Columbia River Corridor, the Central Plateau, All Other Areas of the Site, and the Fitzner-Eberhardt Arid Lands Ecology (ALE) Reserve – and depicts the planned future uses for each area; a set of nine land-use designations that define the permissible uses for each area of the site; and the planning and implementing policies and procedures that will govern the review and approval of future land uses. Together these four elements create the Hanford CLUP.

The DOE-RL manages its cultural resources through its Hanford Cultural and Historic Resources Program, under the direction of a program manager. Most technical activities are performed by cultural resource contractors and, in some cases, by cleanup contractors who perform their own cultural resource work. The DOE-RL Hanford Cultural and Historic Resources Program Manager provides oversight of all cultural resource work done on DOE-managed portions of the Hanford Site.

The DOE-RL Hanford Cultural and Historic Resources Program Manager provides overall direction to contractors on work that is needed. Contractors then perform the work according to agreed-to costs and schedules. Plans and reviews of major products are prepared in consultation with the Washington State Historic Preservation Officer, tribes, and interested parties.

The DOE-RL Hanford Cultural and Historic Resources Program Manager also participates in USFWS planning related to those portions of the Hanford Reach National Monument it manages (i.e., the Fitzner/Eberhardt Arid Lands Ecology Reserve Unit and Wahluke Unit of the Hanford Site). This participation is performed according to the terms of the Memorandum of Understanding [DOI/DOE 2001] between the two organizations signed in 2001. Additionally, the USFWS has begun the process of creating a management plan for the entire Hanford Reach National Monument. This plan, known as a "Comprehensive Conservation Plan," will guide the management of the monument for the next 10 to 15 years. The DOE-RL Hanford Cultural and Historic Resources Program will be reviewing planning documents and providing comments to the USFWS.

3.1.5 Funding

The DOE-RL Hanford Cultural and Historic Resources Program Manager oversees and integrates all cultural resource activities performed on the Hanford Site. Funding for program activities conducted by the parties in FY 2002 was provided through separate funding mechanisms at the program and project level.

3.2 CULTURAL AND HISTORICAL SETTING

Hanford's cultural resources are diverse, ranging from early times to the atomic age. The Site contains a fragile and extensive record of human occupation documenting a series of overlapping cultural landscapes stretching thousands of years into the past. Each layer of history tells the story of how people have used

the area. Archaeological remains combine with oral histories and traditional cultural places (TCPs) to document through time the changes in peoples' life ways on the Hanford Site.

In describing the historical development of Hanford, it is important to recognize that members of the Native American tribes with historical ties to Hanford have their own descriptions of how the landforms were created and the animals and people appeared. These explanations are generally considered sacred and have not been shared with Hanford cultural resource staff. As a result, they are not available to provide here.

The following sections, therefore, are dominated by the more common scientific explanations provided by the fields of geography, geology, geomorphology, history, archaeology, and anthropolo gy.

3.2.1 Historic and Prehistoric Natural Environments

The DOE's Hanford Site occupies an area of ~1,517 square kilometers (586 square miles) in southeastern Washington State. Generally speaking, the physiographic setting here results from three major categories of physical processes: 1) Miocene-age flood basalt volcanism and subsequent regional deformation resulting in uplifted basalt folds; 2) Pleistocene-age large-scale cataclysmic and sequentially occurring floods; and 3) the more recent physical appearance resulting from river and wind dynamics during the Holocene. For a scientific but succinct discussion of history and affects of these processes on the landscape, the reader is referred to information contained in the most recent *Hanford Site National Environmental Policy Act (NEPA) Characterization* report (Neitzel et al. 2002), from which most of the information presented herein is extracted.

The integrated result of this geologic timeframe and its landscape-forming processes is the Hanford Site panorama of today. The Site covers about one-third of the semiarid Pasco Basin and is primarily located within the Columbia Basin subprovince of the Columbia Intermontane Province, immediately northwest of the confluence of the Columbia River with the Yakima, Snake, and Walla Walla Rivers. The local setting is dominated by the Columbia River, which flows through the northern part of the Hanford Site and, after turning southward, forms part of the Site's eastern boundary. The stretch of the Columbia River extending through the Hanford Site is some 82 kilometers (51 miles) long, and is commonly referred to as the "Hanford Reach." Uplifted basaltic folds comprise the major topographic features on the landscape, including the Saddle Mountains on the north edge of the Site, the east-west trending Umtanum Ridge-Gable Butte-Gable Mountain continuum in the central portion, and the prominent Rattlesnake Hills along the southwestern Site boundary, dominated by Rattlesnake Mountain. Elevation within the Hanford Site ranges from about 110 meters (360 feet) at the Columbia River near the southern Site boundary, to about 1,097 meters (3,600 feet) at Rattlesnake Mountain in the southwest corner, and to over 610 meters (2,000 feet) at the Saddle Mountains in the north-central portion of the Site.

In addition to the Columbia River and the prominent elevated ridges and mountains, several other physiographic features stand out on the landscape as a result of the cataclysmic flooding and more recent physical processes. Features left behind by a series of Pliestocene and earlier floods flowing southward through the Pasco Basin periodically formed deep temporary lakes in the basin, resulting in the nearly complete inundation of the area that is the Hanford Site. Surface features left from the floods include flood channel boundaries such as the White Bluffs; giant current ripples; giant flood bars such as the Cold Creek

Bar that forms the Central Plateau area of the Hanford Site; and bergmounds, representing places where icebergs melted and dropped the sediment and boulder loads they had carried into the basin in a frozen state.

More recent active and stabilized sand dunes are widespread over the Pasco Basin, and are prominent in the southern and eastern sectors of the Hanford Site as northeast-trending longitudinal shaped dunes (Gaylord et al. 1991). Active dunes on the Hanford Site are found above the White Bluffs and in an area north of the city of Richland, known as the Hanford Dune Field. The Hanford Dune Field is a more-than 2,550-hectare (6,300-acre) area of migrating barchan dunes and partially stabilized transverse dunes with bare rock-rubbled areas between the dunes. This field is distinctive enough that in the late 1970s it was evaluated to be of national significance and was recommended for inclusion into the National Natural Landmark system (DOI 1994).

Like the physical features of the Hanford Site landscape, the ecological picture is similarly diverse. The Site is characterized as a shrub-steppe ecosystem in which 725 species of vascular plants have been identified, along with 240 species of terrestrial vertebrates and 44 species of fish in the Hanford Reach of the Columbia River. Several terrestrial vegetation and wildlife zones have been delineated at Hanford, including shrublands, grasslands, tree zones, riparian areas, and unique habitats such as bluffs, dunes, river islands, and basalt outcrops.

3.2.2 Prehistory and History

The historical setting for Hanford spans the last 10,000 years. This section summarizes the chronology from the period when archaeological evidence indicates people first started living in the Hanford area to the period when Native Americans and non-Native Americans were removed from the area by the U.S. government in 1943.

3.2.2.1 Pre-Contact History

The pre-contact era refers to the time before the arrival of non-Indians to the regions. The following descriptions of periods within this era are based primarily on archaeological studies in keeping with the typical approach used in cultural resource management. It is recognized that Native American chronologies typically differ from archaeological reconstructions as they are based primarily from oral traditions handed down from generation to generation. Referring to these oral traditions from the Mid-Columbia, Boxberger (2000) explains

> The oral traditions speak of a way of life not unlike that described in the ethnographies of the Plateau. From this perspective we might see the oral traditions as a form of historical documentation that can be used to supplement the descriptive ethnographic accounts. Plateau oral traditions recognize three main historical periods (Jacobs 1929, p. 244; Ramsey 1977, p. xxiv). The first period was when all animals were people, not only previous forms of animals that still exist but also monsters and other creatures that have since disappeared. The second period was the time of transformation, when some transformer, usually Coyote, made changes in preparation for the people. The final period is the period of the people which links the previous periods with the present time.

> The Plateau people distinguish between oral histories that speak of the earlier periods, the myth time, and stories that speak of events that occurred in the time more customarily referred to as the "historical period."

The cultural chronology based on archaeological investigations conducted within the Columbia Plateau dates back to the end of the Pleistocene, approximately 12,000 years ago. Upriver cultural chronologies most often referenced for the Hanford Reach originated from archaeological work initially conducted by Earl Swanson and later expanded by Charles Nelson at the Sunset Creek Site in the late 1960s. From collected data, Nelson established five cultural phases for the Vantage area. Downriver chronologies are based on the work conducted in the lower Snake River (Leonhardy and Rice 1970). Over the years, other researchers have continued to develop and refine a regional cultural chronology. A generalized chronology, based primarily on work conducted by Ames (2000) is summarized below.

Period Ia/b (Paleo-Indian/Windust 13,500 to 7000/6400 B.P.)

The Period Ia/b Paleo-Indian/Windust Phase represents the oldest known cultural complex in the Columbia Plateau region. Period Ia refers to Clovis culture, which is very weakly represented on the Columbia Plateau, and is not discussed here because of that limitation. Period Ib has been called post-Clovis, and, although rare, is fairly well represented on the plateau. Although archaeological evidence is somewhat limited, it is believed the people of this period were highly mobile, most likely employing a subsistence strategy referred to by Binford (1980) as "foraging." This strategy entails continuous movement of small groups of people between resource patches throughout the year. The food source was primarily large mammals supplemented with small mammals and fish, with plant processing implements beginning to appear following 9000 B.P. Population density was very low, with total population possibly numbering in the hundreds in the early part of the period. Living areas are believed to have been primarily in rock shelters and caves, with some evidence demonstrating the use of temporary shelters, huts, and windbreaks.

Projectile point styles include Windust, Clovis, and Cascade, all of which are assumed to be dart points used in conjunction with the atlatl. Lithic raw materials are dominated by cherts, with significant quantities of fine-grained basalt exploited during the later portions of the period. Other items within the assemblage include cobble tools, scrapers, gravers and burins, hammerstones, grooved stones, utilized flakes, bone awls, ocher beads, and antler wedges.

All sites from both Period Ia and Ib are considered relatively rare, although several have been located in the Columbia Plateau region. Most of these sites are associated with Period 1b, and include the following: Marmes Rockshelter, Bernard Creek, Lind Coulee, Kirkwood Bar, Deep Gully, Granite Point, Fivemile Rapids, and Bobs Point. Supporting evidence of a Period Ib culture on the Hanford Reach was discovered in both 2000 and 2001, when Windust style projectile points were discovered near Vernita Bridge (Hazelbrook 2000) and the 100-K Area (Sharpe and Marceau 2001), respectively.

Period II (7000/6400 B.P. to 3900 B.P.)

Ames (2000) notes that in select areas of the plateau this period differs little from the preceding Period I (particularly in the southwest), while other areas see significant cultural change. The most telling sign of a change in adaptive strategy is the appearance of pithouses in the southeastern and south-central plateau around 5000 B.P., and possibly earlier. The appearance of pithouses has been taken by archaeologists as proxy evidence for a more sedentary lifestyle, the exact nature of which is still under debate.

Much debate has also been focused on the degree to which fish and/or plant resources were utilized during this period, with little agreement among researchers outside the idea that subsistence was drastically changed during this period. In general, a wide range of animal resources were utilized; however, medium-sized mammals (e.g., rabbits) are conspicuously absent. Plant resources were apparently exploited to a higher degree than in pervious times, with plant processing tools being sometimes present in large numbers.

Characteristic artifacts for this phase include leaf-shaped Cascade projectile points, stemmed projectile points, ovate knives, edge ground cobble tools, microblades, hammerstones, core tools, and scrapers. The chipped stone artifacts themselves seem to be more expedient, with less investment of time and skill than the preceding period. A variety of well-made bone tools are found during this period, including large needles and leister parts.

Chatters (1989) outlines a possible abandonment of the sedentary/semi-sedentary adaptive strategy associated with the appearance of the housepits at around 4500 B.P., which lasted approximately 500 to 600 years. The reasons behind this inferred reversion to a previous mobile foraging strategy are defined by Chatters as being bounded within demography and shifting productivity/reliability of the resource base.

Period III (3900 to 1720 AD)

A number of cultural changes from the previous period mark Period III. The most significant of these changes is the widespread use of pithouses, which had virtually disappeared at the end of Period II. Evidence for the storage of gathered foods in conjunction with the use of pithouses have led researchers to surmise that the roots of the sedentary "Winter Village Pattern" observed at the time of Euro-American contact has its roots within the phase.

Plant, animal, and riverine resources were all intensively exploited at specific times throughout the year. The winter months were spent in large pithouse villages, located along the major rivers and trunk streams, where people subsisted on large quantities of stored fish, meat, and plant foods collected during the previous seasons of the year. As observed by initial Euro-American settlers, salmon appears to have a central role as a food source on the plateau during this time. Archaeological sites from this period are found throughout the Columbia Plateau, showing widespread use of the entire region.

Projectile point styles become quite variable, with a general trend towards smaller size. The reduction of projectile point sizes indicates the adoption of the bow and arrow, although larger dart points are still found until about 1000 A.D., demonstrating continued use of the atlatl. Raw material used in the creation

of chipped stone tools is dominated by cherts, with occasional use of obsidian, obtained through trade from sources in Oregon. This period also marks the appearance of basketry, fiber, and wood artifacts in the archaeological record, although the survival of these perishable items is possibly the result of favorable storage practices (i.e., within caves), and a lesser span of time they have been exposed to the elements of decay.

Suggested Pre-Contact Archaeological Site Types

Based on the association of features and artifacts found at individual archaeological sites, the following is a generalized classification of site types found at the Hanford Site.

Base Camps: These are sites of permanent or semi-permanent habitation, typically associated with pithouse depressions. Associated artifact/tool and feature assemblages are diverse, due to a wide variety of activities being conducted at the Site. Sites of this type are predominately found along the shores and mid-channel islands of the Columbia River. Approximately 70 of these base camps have been located on the Hanford Site.

Field Camps: In contrast to base camps, field camps are sites of no, or very temporary, habitation. These sites are associated with resource procurement and/or processing. Artifact/tool and feature assemblages are quite narrow in diversity, as very limited, task specific, activities are conducted. Field camps are by far the most common site type located on the Hanford Site, with several hundred being located. Many are found within the interior of the Hanford Site, at some distance from the Columbia River. As activities at field camps are limited and resource specific, they can be further subdivided into specific types based on the artifacts/tools and features present.

This field camp subdivision includes the following:

Plant Processing/Collecting Sites – Defined by artifacts such as pestles, bifaces, mortars, milling stones, fire-cracked rock, cobble tools, and hopper mortar bases.

Animal Processing/Collecting Sites – Defined by artifacts such as projectile points, scrapers, fire-cracked rock, knives, lithic debris, animal bone, cobble tools, bifaes, blades, and modified flakes.

Primary Lithic Procurement/Processing Sites – Defined by artifacts such as cores, lithic debris, and hammerstones. Natural outcrops of raw material are present.

Secondary Lithic Processing Sites – Defined by artifacts such as cores, lithic debris, and hammerstones. Natural outcrops of raw material are not present.

Fishing Sites – Defined by artifacts such as net weights, lithic debris, shell, fire-cracked rock, bifaces, and cobble tools. Often these sites are found on rivers near rapids, riffles, or river channel constrictions.

Trails: Several trails at Hanford were used ethnohistorically and have significance to Native Americans. The White Bluffs Road is the best known road, but others existed as well from camps and villages to the various use areas.

Cairn Sites: Defined specifically by the presence of rock cairns, these sites have been associated with ceremonial or religious practices. Most are found on prominent peaks and crests, such as Gable Mountain, Gable Butte, and Rattlesnake Mountain, all of which are considered as sacred places and held in reverence by local Native American tribes.

Overview of Pre-Contact Settlement of the Hanford Area

For the most part, pre-contact archaeological sites on the Hanford Reach tend to be on the alluvial flats and lower terraces near the shorelines and islands of the Columbia River. Shoreline sites are generally long, narrow, and parallel to the river (Rice 1980c). Inland sites have been discovered on Gable Butte, Rattlesnake Mountain, and near the few isolated springs existing on the Site. Because of the unique geomorphology of the area, there are no rock shelters or mesa top sites, which are typically found both upriver and downriver from the Hanford Site.

Pre-contact settlement patterns and seasonal rounds in this section of the Columbia Basin were associated with non-agricultural practices that included fishing, upland root gathering, and hunting. Archaeological evidence suggests that pre-contact settlement patterns consisted of consolidated winter villages and dispersed summer camps. Winter villages consisted of long tule mat lodges placed in shallow, bermed pits. Open summer camps were associated with seasonal procurement strategies.

Long-term prehistoric winter sites tend to have pithouses and a tool assemblage that could support stone tool manufacture as well as plant and animal preparation. In contrast, short-term seasonal use sites do not have pithouses, but contain artifacts similar to long-term use sites (Green 1976). The distinction between the two rests primarily with the presence or absence of pithouses and the density of artifacts, with winter sites tending to accumulate more debris. Rice reported in 1980 that 53 percent of the recorded archaeological sites along the Hanford Reach were open camps, 26 percent were fishing stations, and 14 percent were open camps with housepits. His findings revealed that seasonal use of the area centered around the fall fish migrations and winter villages (Rice 1980c).

Seasonal rounds began in the spring with the maturing of plants in the lowland areas and gradually moved to the higher elevations as plant maturation continued into the early fall. Fishing continued from April until September. Hunting was undertaken in the winter months. Collected food reserves were stored for later winter consumption when plant and fish supplies were the lowest of the year.

Archaeological evidence indicates the west bank of the Columbia River contains greater concentrations of sites than the east bank, probably as a result of several factors. Overall, the west bank contains greater numbers of ephemeral drainage channels with more desirable areas for food sources, storage, shelter, water, and travel. The west bank is logistically closer to a more diverse supply of upland resources. Water may also have been a consideration of upland sites. Upland sites on the west side of the Columbia River contain more inland springs and ephemeral streams than do the upland areas east of the river.

3.2.2.2 Ethnohistory

Historical information indicates that the Sahaptin-speaking Wanapum people occupied the region of the Columbia River between the Wenatchee and Snake Rivers. Pre-contact population numbers were estimated to be as high as 10,000 before the beginning of the 1800s. By the early to middle 1800s, several epidemics reduced the population to a fraction of their original size.

The Hanford area was used by Native Americans before the arrival of the Euro-Americans. These groups include the Columbia, Nespelem, Sanpoil, Southern Okanogan, Umatilla, Walula, Wanapum, Wauykma, and Yakama. Nearby groups, such as the Cayuse; Chelan; Columbia; Colville; Kittitas; Lower, Middle, and Upper Spokane; Methow; Nez Perce; Palus; Wayampum; Wenatchi; and Wishram; also occasionally used the area (Andrefsky et al. 1996). Vern Ray referred to the Kittitas, Yakamas, Wayampama, and Wanapum as Northwestern Sahaptins, and the Cayuse, Palus, Walula, and Umatillas as the Northeastern Sahaptins (Ray 1936). These groups continued to use the area until the non-Native Americans created treaties that relocated most of the indigenous people to reservations.

In the mid-1800s, a large group of indigenous people lived at Priest Rapids, referred to by early traders as Priest Rapids People. This group was later referred to as Wanapum, believed to mean "distant" or "people at the end or extremity" (Teit 1928). Below Priest Rapids, the Wanapum resided at 15 different village locations. One of the villages, *Tacht*, was located near what would later be referred to as White Bluffs. Author Ron Anglin reported that a village named *Teplash* was located at this location (Anglin 1995). Scattered between these village sites along this portion of the Columbia River were areas where small family groups also resided and places where food was cached (Relander 1986).

The Wanapum year was divided into six seasons. It began in the winter months and was based on the maturation of plants, the arrival of animals used in the seasonal rounds, and the end of winter (Relander 1986).

Generally, the Wanapums wintered along the shoreline of the Columbia River relying on stored foods collected during the yearly seasonal rounds. Seasonal rounds consisted of collecting roots as they matured to desirable stages of growth, and advancing to higher elevations throughout the growing season. Plant collecting began in the low elevations in the spring and culminated each year in the upland areas near the end of the summer and early fall months. Midsummer was a time of hunting large and small game with seasonal camps near the foothills. By fall, they would return to the river to pursue the fall fish migrations and prepare for the upcoming winter (Rice 1980c).

An ethnohistoric context for Hanford provides additional details concerning the people and their life in the Hanford area during this period (DOE 1997c).

3.2.2.3 Early Settler/Farming History

The Lewis and Clark expedition of 1805 ushered in the initial group of explorers/traders to the southern Columbia Plateau. Their travels began the exploration and subsequent settlement of the region, and ultimately, the Hanford Reach. The explorers sought trade items from the Native Americans and trade routes for traded goods. They were later followed by gold miners, livestock producers, and homesteaders.

An historic context for the pre-government era has been prepared as part of a National Register Multiple Property Documentation form to assist with the evaluation of the National Register eligibility of historic archaeological resources, TCPs, and historic structures (DOE 1997c). A brief summary follows (Table 2).

Gold Mining Era. By the 1860s, the discovery of gold to the north and east of the Mid-Columbia Region, and to a lesser extent along the Hanford Reach, resulted in a large influx of miners traveling through the region on their way to the gold fields. Several locations along the Hanford Reach, such as Ringold, White Bluffs, and Wahluke, were part of the transportation routes used by miners and the support industry. Numerous locations believed to be gold mining features created by Euro-American and Chinese remain along the shoreline of the Hanford Reach (Sharpe 1999, 2000). The mining industry created a demand for beef, and the Columbia Basin was quickly discovered to be an ideal location for livestock production.

Livestock Era. A noticeable increase in Euro-American settlement began in eastern Washington in the late 1800s. The initial, permanent settlement by non-Native Americans within the area began slowly with

TABLE 2 Historic Timeline

1805	Lewis and Clark travel up the Columbia River from the mouth of the Snake River to the mouth of the Yakima River, approximately 11.3 kilometers (7 miles) from Hanford.
1811	The explorer David Thompson passes through the Hanford Site.
1855	Ben Snipes of Yakima finances cattle drive through Hanford.
1858	Steamboats arrive at White Bluffs.
1859	Ferry starts at White Bluffs by Thomas Howe.
1860s	Chinese mine along the Hanford Reach.
1861	Jordan Williams ranges cattle at east White Bluffs.
1863	Trading post starts at White Bluffs by AR Booth.
1876	20 soldiers stationed at White Bluffs to control Indians.
1888	Completion of the Northern Pacific Railroad bridge across the Columbia stimulates settlement in the White Bluffs area.
1905	Priest Rapids Irrigation and Power Company announces plans to develop an irrigation system to water 12, 950 hectares (32,000 acres) using water pumped from the Columbia. Company purchases land in White Bluffs and Hanford areas.
1907	Hanford townsite platted.
1908	White Bluffs II townsite platted.
1913	Chicago, Milwaukee, and St. Paul Railroad branch completed to White Bluffs and Hanford providing a transcontinental rail link for the White Bluffs-Hanford area.
1920s	State sponsors soldier settlements in Hanford and White Bluffs.
1930s	488 Midwest farm families and others buy irrigated farms through the railway's land agent.
1939	Mormon farmers move to White Bluffs area.
1943	Government condemns properties for Manhattan Project.

livestock producers who discovered the area was extremely suitable for the production of cattle to support gold miners in Alaska and Idaho. Pasture was free for the taking and very abundant. Ranchers relied on the bountiful supply of bunchgrass and open rangeland to graze thousands of cattle and later sheep and horses. It was also an ideal winter pasture. The open range lasted from the 1880s to about 1910 when homesteaders settled into the area and began to plow up the rangeland to plant crops. Even though open rangeland was no longer available, livestock remained an important economic commodity to agricultural producers. As farmland replaced large portions of open rangeland, cattle were confined by fences, but sheep continued to pasture the Rattlesnake Hills and Horse Heaven Hills on remaining open range (Fridlund 1985). Agricultural producers gradually replaced the open-range livestock operations that had dominated the area in the later part of the 1800s and early 1900s.

Agricultural Era. Homesteaders developed the agricultural landscape in the Columbia Basin by removing unwanted sagebrush and bunchgrass and plowing the land. Their opportunity to do so was brought about by the passage of the Homestead Act by Congress in 1862 (DOE 1997b). Under the Act, anyone, 21 years of age or older, who was willing to live on and devebp 160 acres of public land for 5 years, was declared the legal owner. Near the turn of the twentieth century, many would-be homesteaders moved west to begin a new life. Many of the homesteaders traveled by one of the three transcontinental railroads (Northern Pacific, Great Northern, or Chicago Milwaukee) to the Columbia Basin area. Local transportation systems in the Columbia Valley were very limited at that time, so many of the new settlers arrived by river transportation.

Steamboat and ferry service were the primary transportation systems on the Columbia River in the early non-Native American settlement of the area. The new agricultural towns of Hanford and White Bluffs, the small communities of Allard-Vernita, Wahluke, and Fruitvale, and local rural residents alike relied almost exclusively on river transportation during the early development of the area.

River transportation played a significant role in the development of the Hanford Reach. Initially, when population numbers were low, canoes and ferry operations met the demand; however, as the population increased, an opportunity to earn large profits was realized by steamboat owners. Many steamboats operated on the Hanford Reach carrying the larger cargoes, while canoes and ferries carried small cargoes of people, animals, and equipment, primarily from one shore to the other. At least 10 ferry services operated on the Hanford Reach. The earliest known ferry service began at White Bluffs in 1859 (Sharpe 2001).

As increasing numbers of farmers moved into the region, it became apparent that more water, other than the small amounts supplied by rain, was needed to produce higher yields. Irrigation projects were under construction throughout eastern Washington shortly after the turn of the twentieth century. Many irrigation projects began as small-scale, privately funded projects, usually with insufficient funding, and the Hanford area was no exception. The Hanford area was sought after by developers and producers for its unique geographical ability to produce agricultural crops, especially fruit, from 2 to 3 weeks ahead of surrounding areas, which generally resulted in better profits. In the early 1900s, dryland wheat and livestock were the primary agricultural commodities produced in Benton County.

By the early 1900s, land speculators began constructing large-scale, privately funded irrigation canals to supply water to thousands of acres in the White Bluffs, Hanford, Fruitvale, Vernita, and Richland areas. A variety of irrigation techniques were initiated to produce the most affordable irrigation system. These

included pumping from wells, pumping directly from the Columbia River, and canals (Sharpe 1999). Irrigation systems generally consisted of a mainline, rill ditches, and occasionally, return lines. Irrigation systems were constructed of wire-wrapped wood pipe, wood flumes, metal, or cement pipe. Early irrigation pipe of wood and wire-wrapped wood pipe were later replaced with cement. Poor economic conditions, brought about by depressed commodity prices and the depression of the 1930s, created economic hardships on most local residents. These conditions continued until the area was taken over by the government for the Manhattan Project in 1943.

3.2.3 Traditional Lands and Resource Uses

Native Americans made widespread use of the Hanford landscape. When non-Native Americans arrived in the Hanford area, Native Americans were living in numerous villages from the mouth of the Yakima River to Priest Rapids. When the U.S. government entered into treaties with local tribes at Walla Walla in 1855, lands comprising the present-day Hanford Site were ceded either by the Confederated Tribes of the Umatilla Indian Reservation or the Yakama Nation.

During the Walla Walla Treaty negotiations, one Native American leader, Smohalla, led a small group of followers to Priest Rapids, choosing not to participate in the treaty process. Here they existed for decades, maintaining their traditional way of life to the extent possible. As non-Indians moved into the regions, this group, commonly referred to as the Wanapum, formed relationships with the new settlers, relationships that have continued into the present. In the early decades of the twentieth century, many Wanapum villages and camps were still occupied in the Hanford area, for example, near Vernita, at Wahluke, Coyote Rapids, near White Bluffs, and at Horn Rapids. In addition to Wanapum, people associated with other groups who had traditionally used the area came to these villages and camps to visit, trade, and carry on traditional activities.

By 1943, when the U.S. government condemned the land and forced the residents, including the Wanapum to relocate, the Vernita, White Bluffs, and Horn Rapids camps were the last ones routinely occupied.

Various resources located at Hanford were used by the Wanapums and others as part of their traditional way of life. Resources known or suspected to have been used include fish, birds, and mammals for food and other purposes; plants for medicinal uses, ceremonies, and tools; driftwood for fuel; and minerals for ceremonies. In addition, there are many places at Hanford that hold special meaning to Native Americans for spiritual and other cultural reasons. In many cases, the Native Americans prefer not to document use of traditional lands and resources, and therefore, the DOE-RL Hanford Cultural and Historic Resources Program does not have a complete understanding of this use.

The following types of traditional uses for lands and resources at Hanford by Native Americans are presented, based on information found in the multiple properties document (DOE 1997b):

Cemeteries. Numerous places exist at Hanford that were used to inter those who died. Some places were identified in the 1950s by tribal elders and are recognized as ethnohistoric cemeteries. Many other places are associated with human remains that have been discovered largely through erosion. Many of these places may be cemeteries or they may be single interments.

Camp Sites and Villages. Although Native American habitation of the Hanford area had declined precipitously in the early twentieth century, several areas were still used into the 1940s as villages or for various purposes (e.g., fishing).

Former Living Sites. Many living areas at Hanford predate the memories of recent generations of Native Americans. These former living areas hold special significance to the descendants of those earlier generations. What are viewed by many non-Native Americans as archaeological sites, are seen by Native Americans as links to their ancestors and places that are important to protect for current and future generations.

Trails. Several trails at Hanford were used ethnohistorically and have significance to Native Americans. The White Bluffs Road is the best known road, but others existed as well, from camps and villages to the various use areas.

Fisheries. Several areas along the Hanford Reach and the Yakima River were used into the early twentieth century as fisheries. Some areas, such as *Wanawish* at Horn Rapids Dam on the Yakima River, still are used. There is also discussion among native groups about reestablishing fisheries along parts of the Columbia River that flow through the Hanford Site.

Hunting Grounds. Hunting areas were common throughout the area. No hunting currently occurs on Hanford because of safety concerns.

Plant Gathering Areas. Many plants play an important role in the Native American culture, both in the past and the future. These include plants for foods, medicines, and fibers. Many desired plants existed at Hanford in the past and some still do, although their use since the government took possession has been curtailed for potential safety concerns. Hunn (1990) identifies many plants important to Native Americans in the region.

Traditional Sacred Places. The Hanford Site is an important region to members of the present-day Yakama, Umatilla, Nez Perce, and Wanapum tribal groups because their ancestors resided there for thousands of years before non-Indian occupation. During these thousands of years, the Native Americans used the land and its resources and built these into a cultural definition of themselves as people. Most of the Native Americans who traditionally lived at Hanford perceive that they were created there and, that in so doing, the Creator gave them a special supernatural responsibility to protect and manage the land and its resources. In western terminology, the Hanford Site and surrounding areas is their Holy Land (Stoffle and Evans 1988). Associated property types might include dwelling places of the spirits, vision quest sites, Washat dance sites, and ceremonial sites where first salmon or first food rites took place, among others.

Many of these places are sensitive and knowledge of them are retained by the Native Americans. Two places at Hanford highly revered by Native Americans are Gable Mountain and Rattlesnake Mountain.

Cultural Landscapes. As identified above, there are many specific areas within the Hanford Site boundaries that are important to tribes with historical ties to Hanford. It is important to note, however, that the entire landscape is important to Native Americans in its totality. Protecting the integrity of the landscape as a whole is as important as protecting the integrity of the landscapes individual components.

3.2.4 Treaties

The Hanford Cultural and Historic Resources Program interacts and consults directly with four federally recognized tribes: the Confederated Tribes of the Colville Reservation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Yakama Nation. In addition, the Wanapum people, who still live adjacent to the Hanford Site, are a non-federally recognized tribe who have strong cultural ties to the Site. The Wanapum are also consulted on cultural resource issues in accordance with DOE-RL policy and relevant legislation.

Three of the federally recognized tribes have treaties with the U.S. government. In June 1855, at Camp Stevens in the Walla Walla Valley, representatives of the United States negotiated treaties with leaders of various Columbia Plateau American Tribes and Bands. The negotiations resulted in three treaties, one with the 14 tribes and bands of what would become the Yakama Nation, one with the three tribes that would become the Confederated Tribes of the Umatilla Indian Reservation, and one with the Nez Perce Tribe. The U.S. Senate ratified the treaties in 1859.[2] The negotiated treaties are as follows:

1. Treaty with the Walla Walla, Cayuse, etc. (June 9, 1855; 12 Stats. 945)
2. Treaty with the Yakama (June 9, 1855; 12 Stats. 951)
3. Treaty with the Nez Perce (June 11, 1855; 12 Stats. 957).

The terms of the three preceding treaties are similar. Each of the three tribes agreed to cede large blocks of land to the United States. The Hanford Site is within the ceded lands. The tribes retained certain lands for their exclusive use (i.e., reservations) and also retained certain rights and privileges to continue traditional activities outside the reservations. These included 1) the right to fish (and erect temporary fish-curing facilities) at usual and accustomed places in common with citizens of the United States, and 2) the privileges of hunting, gathering roots and berries, and pasturing horses and cattle on open and unclaimed lands.

The Confederated Tribes of the Colville Reservation was established by Presidential Executive Order in 1872. Today, over 8,700 descendants of 12 aboriginal tribes of Indians are enrolled in the Confederated Tribes of the Colville Reservation. Tribes on the Colville Reservation with historical ties to the Hanford area are the Palus, the Moses Columbia, and the Nez Perce of Chief Joseph's Band.

3.2.5 Recent Scientific Significance

The Manhattan Project/Cold War cultural landscape has recent scientific significance. The U.S. government came to Hanford in 1943 to construct a secret war-time plutonium production plant, the first of its kind. Existing communities, including Native American villages, were removed and the facility constructed.

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[2] The text of the three treaties can be viewed in Appendix A of the *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement and Comprehensive Land-Use Plan* (HRA-EIS) (DOE 1999). The treaties can be accessed at the following URL: http://www.rootsweb.com/~usgenweb/wa/indians/treaties.htm.

From the early 1940s until the advent of the cleanup mission, most research and development at the Hanford Site were carried out in the 300 Area, located just north of Richland. The 300 Area was also the location of nuclear fuel fabrication. Nuclear fuel in the form of pipe-like cylinders (fuel elements) was fabricated from metallic uranium shipped in from offsite production facilities. Metallic uranium was extruded into the proper shape and encapsulated in aluminum or zirconium cladding.

The fabricated fuel elements were shipped by rail (and later by truck) from the 300 Area to the 100 Areas. The 100 Areas are located along the Columbia River shoreline, where up to nine nuclear reactors were in operation. The main component of the nuclear reactors consisted of a large pile of graphite blocks that had tubes and pipes running through it. The tubes were receptacles for the fuel elements while the pipes carried water to cool the graphite pile. Placing large numbers of slightly radioactive uranium fuel elements into the tubes created an intense radiation field, and a radioactive chain reaction resulted in the conversion of some uranium atoms into plutonium atoms.

The first eight reactors, constructed between 1943 and 1955, used water from the Columbia River for direct cooling. Large quantities of water were pumped through the pipes in the graphite piles and discharged back into the river. The ninth reactor, N Reactor, was completed in 1963 and was a modified design. Purified water was recirculated through the reactor core in a closed-loop cooling system. Beginning in 1966, the heat from the closed-loop system was used to produce steam that was sold to Energy Northwest to generate 860 megawatts of electricity at the adjacent Hanford Generating Plant.

When fresh fuel elements were pushed into the front face of a reactor's graphite pile, irradiated fuel elements were forced out the rear into a deep pool of water called a "fuel storage basin." After a brief period of storage in the basin, the irradiated fuel was shipped to the 200 Areas for processing. The fuel was shipped in casks by rail in specially constructed railcars.

The 200-East and 200-West Areas are located on a plateau approximately in the center of the Hanford Site. These areas house facilities that received and dissolved irradiated fuel and then separated out the valuable plutonium. These facilities were called "separations plants."

Three types of separations plants were used over the years to process irradiated fuel. Each of the separation processes began with the dissolution of the aluminum or zirconium cladding material in solutions containing ammonium hydroxide/ammonium nitrate/ammonium fluoride followed by the dissolution of the irradiated fuel elements in nitric acid. All three separations plants, therefore, produced large quantities of nitric acid waste solutions that contained high levels of radioactive materials. This waste was neutralized and stored in large underground tanks. Fumes from the dissolution of cladding and fuel and from other plant processes were discharged to the atmosphere from tall smokestacks. Filters were added to the stacks in the early 1950s.

Both B and T Plants used a bismuth phosphate process to precipitate and separate plutonium from acid solutions during the early days of site operations. Leftover uranium and high-level waste products were not separated and were stored together in large, underground, single-shell tanks (i.e., tanks constructed with a single wall of steel). The leftover uranium was later salvaged, purified into uranium oxide powder at the Uranium Trioxide Plant, and transported to uranium production facilities in other parts of the country for reuse. The salvage process used a solvent extraction technique that resulted in radioactive liquid waste that was discharged to specific retention trenches and covered with soil at the BC cribs area

south of the 200-East Area. After T Plant stopped functioning as a separations facility, it was converted to a decontamination operation, where pieces of equipment and machinery could be radiologically decontaminated for reuse.

B Plant was later converted into a facility to separate radioactive strontium and cesium from high-level waste. The strontium and cesium were then concentrated into a solid salt material, melted, and encapsulated at the adjacent encapsulation facility. The Plutonium Finishing Plant was used to convert the plutonium nitrate into plutonium metal blanks (buttons) that were shipped off the Site for manufacture into nuclear components.

In addition to research and development activities in the 300 Area, the Hanford Site has supported several test facilities. The largest is the Fast Flux Test Facility, located ~8 kilometers (5 miles) northwest of the 300 Area. This special nuclear reactor was designed to test various types of nuclear fuel. The facility operated for ~13 years and was shut down in 1993. The reactor was a unique design that used liquid sodium metal as the primary coolant. The heated liquid sodium was cooled with atmospheric air in heat exchangers.

3.3 KNOWN CULTURAL RESOURCES

The following section presents a summary of cultural, archaeological, and historical resources that are known to be located on the Hanford Site. The inventory is based on a summary of archaeological, historical, and ethnographic data collected from archival records, archaeological survey, and ethnographic interviews. It does not reflect a complete inventory as only 22% of the Hanford Site has been surveyed for archaeological resources.

Approximately 1,171 cultural resources sites and isolated finds and 531 buildings and structures have been documented since 1926 on the Hanford Site. Early archaeological reconnaissance projects dating from 1926 to 1968 (Drucker 1948; Krieger 1928; Rice 1968a, 1968b) and the more recent National Historic Preservation Act, Section 110 and 106, archaeological surveys conducted between 1987 and 2001 have resulted in formal recordation of these resources on archaeological site and isolate forms and Washington State Historic Property Inventory Forms.

Of the 124 sites that have been evaluated for listing in the National Register, 49 have been listed. Except for B Reactor, which is associated with the Manhattan Project, the other listed sites are associated with the Native American landscape. Most of these are part of six Archaeological Districts and with the exception of the Rattlesnake Springs Sites and the Snively Canyon Archaeological District, are situated on the shores and islands of the Columbia River (Table 3).

Eleven individual archaeological sites and 3 historic districts comprising 58 archaeological sites and 530 buildings/structures have also been determined to be eligible for listing in the National Register (Table 4). These sites are dispersed throughout the Hanford Site and represent the three cultural landscapes found on the Hanford Site. In addition to the National Register sites and districts described above, 47 of Hanford's cultural resource sites (46 in 3 districts and 1 site) are listed in the Washington Heritage Register (Table 5). These are associated with the Native American cultural landscape and are located predominantly along the Columbia River.

TABLE 3 Historic Buildings, Archaeological Sites, and Districts Listed in the National Register

Property Name	General Location	Landscape Association
Districts		
Hanford North Archaeological District	Vicinity of 100 F	Native American
Locke Island Archaeological District	Vicinity of 100 H	Native American
Ryegrass Archaeological District	Vicinity of 100 K	Native American
Savage Island Archaeological District	North of Energy Northwest	Native American
Snively Canyon Archaeological District	Rattlesnake Hills	Native American
Wooded Island Archaeological District	North of 300 Area	Native American
Sites		
Hanford Island Archaeological Site (45BN121)	Vicinity of Hanford townsite	Native American
Paris Archaeological Site (45GR317)	Vicinity of Vernita Bridge	Native American
Rattlesnake Springs Sites (2) (45BN170, 45BN171)	Base of Rattlesnake Mountain	Native American
Building		
105-B Reactor	100B/C Area	Manhattan Project

TABLE 4 Archaeological Sites and Historic Districts Determined Eligible for Listing in the National Register

Property Name	General Location
Native American	
Gable Mountain Cultural District (TCP)	600 Area, North of 200 East
45BN423 45BN434 45BN446 45BN606 (HT-95-186) 45-BN-888 (HT-2001-007)	100-K Area 100-K Area 100-B/C Area 100-F Area 100-D Area
Early Settlers	
McGee Ranch/Cold Creek Valley District	600 Area (Along HW24)
HT-95-050 (Fry and Conforth Farm) H3-121 (White Bluffs Road)	600 Area, East of 100-B/C Area 600 Area, 200 West Area
HT-95-231 (White Bluffs Bank) HT-98-039 (Bruggemann's Warehouse) Hanford Electrical Substation-Switching Station Hanford High School Coyote Rapids Hydroelectric Pumping Plant	Town of White Bluffs 600 Area, West of 100-B/C 600 Area 600 Area 600 Area
Manhattan Project/Cold War	
Hanford Site Manhattan Project and Cold War Era Historic District	100, 200 E and W, 300, 400, 600, and 700 Areas
HT-94-028 (Anti-Aircraft Artillery Site)	600 Area, Vicinity of 200 E/W
HT-94-029 (Anti-Aircraft Artillery Site)	600 Area, Vicinity of 200 E/W
HT-94-030 (Anti-Aircraft Artillery Site)	600 Area, Vicinity of 200 E/W
HT-94-031 (Anti-Aircraft Artillery Site)	600 Area, Vicinity of 200 E/W
HT-94-032 (Anti-Aircraft Artillery Site) HT-99-007 (Hanford Atmospheric Dispersion Test Facility)	600 Area, Vicinity of 200 E/W 600 Area, Vicinity of 200 W

TABLE 5 Archaeological Sites and Districts Listed in the Washington Heritage Register

Property Name	General Location
Districts	
Coyote Rapids Archaeological District	Vicinity of 100-K Area
Hanford South Archaeological District	Vicinity of Energy Northwest, 300 Area, and North Richland.
Wahluke Archaeological District	Vicinity of 100-D Area
Site	
Gable Mountain Archaeological Site	600 Area, North of 200 East

The DOE identified a National Register-eligible Hanford Site Manhattan Project and Cold War Era Historic District that serves to organize and delineate the evaluation and mitigation of Hanford's plutonium production built environment (see Table 4). Standards for evaluating and mitigating the built environment were established in accordance with National Register criteria as well as historic contexts and themes associated with nuclear technology for national defense and non-military purposes, energy production, and human health and environmental protection. A programmatic agreement that addresses management of the built environment (buildings and structures) constructed during the Manhattan Project and Cold War periods was completed by DOE. The Advisory Council on Historic Preservation and Washington State Historic Preservation Officer accepted this programmatic agreement in 1996 (DOE 1996a).

Establishment of the Hanford Site Manhattan Project and Cold War Era Historic District resulted in the selection of 190 buildings, structures, and complexes as contributing properties within the historic district recommended for individual documentation and mitigation. Certain property types, such as mobile trailers, modular buildings, storage tanks, towers, wells, and structures with minimal or no visible surface manifestations, were exempt from the identification and evaluation requirements.

Approximately 900 buildings and structures were identified as either contributing properties with no individual documentation requirement (not selected for mitigation) or as non-contributing exempt properties and are documented in a DOE-maintained database (Marceau 1998). The role the Hanford Site played in Manhattan Project and Cold War history has been chronicled in *The History of the Plutonium Production Failures at the Hanford Site Historic District 1943-1990* (DOE 2002).

3.3.1 Native American Cultural Landscape

Native Americans have lived in and around the present-day Hanford Site for thousands of years (Relander 1956; Spier 1936). When Euro-Americans arrived in the 1800s, peoples presently referred to as the Wanapum inhabited villages and fishing camps. Neighboring groups known today as the Yakama, Umatilla, Cayuse, Walla Walla, Palus, Nez Perce, and Middle Columbia Salish frequented the area to trade, gather resources, and conduct other activities. Many descendants of these tribes and bands are affiliated with the Wanapum, Yakama Nation, Confederated Tribes of the Umatilla Reservation, Nez Perce Tribe, or the Confederated Tribes of the Colville Reservation, and they retain traditional, cultural,

and religious ties to Hanford's places and resources. This record of Native American use and history is reflected in the archaeological sites and TCPs that are located across the Hanford Site.

3.3.1.1 Archaeological Resources

More than 8,000 years of prehistoric human activity in this largely arid environment of the Middle Columbia River region have left extensive archaeological deposits along the river shores (Chatters 1989; Greengo 1982; Leonhardy and Rice 1970). Well-watered areas inland from the river also show evidence of concentrated human activity (Chatters 1982, 1989; Daugherty 1952; Green 1976; Leonhardy and Rice 1970; Rice 1980a), and recent surveys have indicated extensive, although dispersed, use of arid lowlands for hunting. Throughout most of the region, hydroelectric development, agricultural activities, and domestic and industrial construction have destroyed or covered the majority of these deposits. Amateur artifact collectors have had an immeasurable impact on what remains at numerous sites. However, by virtue of their inclusion in the Hanford Site from which the public is restricted, archaeological deposits found in the Hanford Reach of the Columbia River and on adjacent plateaus and mountains have witnessed less destruction than many other areas.

Four hundred and fifty-nine archaeological sites and isolated finds associated with the prehistoric period have been recorded on Hanford; of these, approximately 70 contain historic components as well. Prehistoric period sites common to the Hanford Site include remains of numerous pithouse villages, various types of open campsites, spirit quest monuments (rock cairns), hunting camps, game drive complexes, and quarries in nearby mountains and rocky bluffs (Rice 1968a, 1968b, 1980a); hunting/kill sites in lowland stabilized dunes; and small temporary camps near perennial sources of water located away from the river (Rice 1968b).

A historic context for the Prehistoric Period of the Hanford Site has been prepared as part of a National Register Multiple Property Documentation form to assist with the evaluation of the National Register eligibility of prehistoric archaeological resources.

3.3.1.2 Traditional Cultural Places

In 1990, the National Park Service developed the concept of traditional cultural property or traditional cultural place (TCP) as a means to identify and protect cultural landscapes, places, and objects that have special cultural significance to Native Americans and other ethnic groups (Parker and King 1990). A significant TCP is associated with "cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community" (Parker and King 1990).

The Hanford Reach and the greater Hanford Site, a geographic center for regional Native American religious belief, is central to the practice of Native American religion of the region, and many believe the Creator made the first people here. Native American religious leaders such as *Smoholla*, a prophet of Priest Rapids who brought the Washani religion to the Wanapum and others during the late nineteenth century, began their teachings here. Native plant and animal foods, some of which can be found on the Hanford Site, are used in the ceremonies performed by tribal members. Certain landforms, especially

Rattlesnake Mountain, Gable Mountain, Gable Butte, and various sites along and including the Columbia River, remain sacred to them.

Native American TCPs within the Hanford Site include, but are not limited to, a wide variety of places and landscapes: archaeological sites, cemeteries, trails and pathways, campsites and villages, fisheries, hunting grounds, plant gathering areas, holy lands, landmarks, important places in Native American history and culture, places of persistence and resistance, and landscapes of the heart (DOE 1997c). Because of their sacred nature, many TCPs remain unidentified. The DOE and HCRL continue to consult with Hanford tribes for input on these important locations, as their importance is determined through methods that are mutually agreed upon by DOE and the Native American community.

3.3.1.3 Identified Resources Within the Native American Cultural Landscape

Various parts of the Hanford Site have been surveyed over the years, resulting in the identification of hundreds of sites. Intensive field surveys were completed in the 100 and 300 Areas from 1991 to 1995 (Andrefsky et al. 1996; Chatters et al. 1992; Wright 1993). In the 200 Areas, surveys were largely completed in 1987 and 1988 (Chatters and Cadoret 1990). Much of the surface area within the developed areas of Hanford have been disturbed by the industrial activities that have taken place during the past 50 years. Despite this development, many of these areas, particularly those located near the Columbia River, remain rich in significant cultural resources. Disturbance maps and reports have been prepared for the 100-B/C, 100-D/DR, and 100-F Areas. Contact the DOE-RL Hanford Cultural and Historic Resources Program Manager for further information.

100-B/C Area

Archaeological Resources. There is a high density of archaeological resources associated with the Native American and Early Settlers cultural landscape in the 100 B/C Area; three of which are located partially within the 100-B/C Area (Rice 1968a, 1980a, 1980b). Thirty-five have been recorded within the immediate vicinity of the B/C Area during archaeological surveys competed in 1995.

Historic archaeological resources include the remains of Haven Station, a small stop on the former Chicago, Milwaukee, St. Paul, and Pacific Railroad, located to the west of the reactor compound. One archaeological site and the remains of the small community of Haven lie on the opposite bank of the Columbia River. The Hanford Irrigation Ditch, which carried water from the pumping plant to the Hanford and White Bluffs townsites, is located adjacent and south of the plant.

Two archaeological sites located near the 100-B/C Area have been investigated. Test excavations conducted in 1991 at one hunting site revealed large quantities of deer and mountain sheep bone and projectile points dating from 500 to 1,500 years. The second archaeological site is considered to be eligible for listing in the National Register, in part, because it may contain new information about the Frenchman Springs and Cayuse Phases of prehistory.

Traditional Cultural Places. Many sites related to hunting and religious activities are located at the west-end of Gable Butte, due south of the 100-B/C Area. These sites are part of the proposed Gable Mountain/Gable Butte Cultural District nomination.

100-D/DR Area

Archaeological Resources. One hundred and seven known archaeological sites lie within 2 kilometers (1.2 miles) of the 100-D/DR Reactor compound, three on the northern bank and the remainder on the southern bank of the Columbia River. The Wahluke Archaeological District is located north of the reactor compound area. Most remaining sites represent early Euro-American settlement activities. The former community of Wahluke, which was at the landing of a ferry of the same name, is situated on the river's north bank. In 2001, an unanticipated discovery was made when a significant archaeological site associated with the Native American cultural landscape was uncovered during the monitoring of the 100-D Area environmental restoration activities (Sharpe and Marceau 2002a).

Traditional Cultural Places. Twenty-seven sites located south of the reactor compound may potentially be eligible for the National Register because of their association with a TCP.

100-F Area

Archaeological Resources. The 100-F Area is situated on a segment of the Columbia River that contains many cultural sites associated with the Native American cultural landscape. According to Relander (1956), camps and villages of the Wanapum extended from the Hanford Townsite upstream to the White Bluffs Townsite. Eighty-one archaeological sites have been recorded near the 100-F Area. Sites of particular importance include a site recently determined eligible to the National Register, a cemetery, a National Register site, and a site that appears to contain artifact deposits dating to at least 4,000 years ago (Sharpe and Marceau 2002a).

Traditional Cultural Places. Cemeteries associated with the Native American landscape are known to be in the vicinity of the 100-F Area.

100-H Area

Archaeological Resources. As of 2001, there have been 40 archaeological sites recorded within 2 kilometers (1.2 miles) of the 100-H Area. Included in this group are two historic Wanapum cemeteries, six camps (one with an associated cemetery), and three housepit villages. The largest village contains approximately 100 housepits and numerous storage caches. It appears to have been occupied from 2,500 years ago to historic times (Rice 1968a). The cemeteries, camps, and villages are included in the Locke Island Archaeological District.

Traditional Cultural Places. As noted above, Wanapum cemeteries are known to be in the vicinity of the 100-H Area.

100-K Area

Archaeological Resources. An archaeological survey of the 100-K Area in 1991 revealed five previously unrecorded archaeological sites. Archaeological surveys conducted during 1995 of areas not

surveyed in 1991 resulted in documentation of 31 additional prehistoric and historic sites. Two of these sites are believed to date to the Cascade Phase (9,000 to 4,500 years ago). Two National Register Districts are located near the 100-K Area: the Coyote Rapids Archaeological District and the Ryegrass Archaeological District. Two individual archaeological sites near the 100-K Area have been determined to be eligible for listing in the National Register.

Traditional Cultural Places. Events took place at this locality in the mid-nineteenth century that were of great significance to Native American people in the interior Northwest (Relander 1956). The origin of the Washani religion (also known as Seven Drums or Dreamer religion) began in this area, spreading to many neighboring tribes. A group of pithouses with an associated long house and sweat lodge have been identified that may have been the site of Smohalla's first *Washat* dance. Coyote Rapids, which is a short distance upstream, was called *Moon*, or Water Swirl Place. Water Swirl Place is also recognized as a TCP because its significance lies in its association with Wanapum history and traditional cultural beliefs.

100-N Area

Archaeological Resources. Thirty-one archaeological sites associated with the Native American cultural landscape have been recorded within 2 kilometers (1.2 miles) of the 100-N Area perimeter. Four of these sites are either listed, or considered eligible for listing, in the National Register. Three sites (two housepit villages and one cemetery) comprise the Ryegrass Archaeological District. Site 45BN179, once considered for a National Register nomination as the Hanford Generating Plant Site, has been found to be part of 45BN149, which is already listed in the National Register. Extant knowledge about the archaeology of the 100-N Area is based largely on reconnaissance-level archaeological surveys conducted during the late 1960s to late 1970s (Rice 1968b; see also Rice 1980a, 1980b), which do not purport to produce complete inventories of the areas covered.

Traditional Cultural Places. Three areas near the 100-N Area are known to have been of importance to the Wanapum. The knobs and kettles surrounding the area are called *Mooli Mooli*, which means Little Stacked Hills. Gable Mountain (called *Nookshai* or Otter) and Gable Butte, which lie to the south of the river, are sacred mountains where youths would go on overnight vigils seeking guardian spirits (Relander 1956). Sites of religious importance may also exist near the 100-N compound.

200 Areas

Much of the 200 Areas are disturbed. The program conducted a comprehensive archaeological resources survey for the fenced portions of the 200 Areas in 1987 and 1988 (Chatters and Cadoret 1990). The results from that report indicate that evidence of cultural resources associated with the Native American cultural landscape and the Early Settlers cultural landscape is minimal.

Archaeological Resources. The most significant archaeological resource located in the 200 Areas is an extensive linear feature known as the White Bluffs Road, a portion of which passes diagonally southwest to northeast through the 200-West Area. This road, in its entirety, was determined eligible for listing in the National Register. However, segments of the White Bluffs Road that are located in the 200-West Area have been determined to be non-contributing. Such non-contributing segments of the White Bluffs

Road are those that do not add to the historic significance of the road, but retain evidence of its contiguous bearing. Originally used as a Native American trail, it played a role in Euro-American immigration, development, agriculture, and Hanford Site operations. The 2000 White Bluffs Road survey recorded an additional 54 historic isolated finds and 2 prehistoric isolated finds, as well as 6 can dump features.

Traditional Cultural Places. Many sites related to hunting and religious activities are located on Gable Butte and Gable Mountain north of the 200-West and 200-East Areas. These sites are part of the proposed Gable Mountain/Gable Butte Cultural District nomination.

300 Area

Much of the 300 Area has been highly disturbed by industrial activities associated with the Manhattan Project and Cold War cultural landscape. Before the Manhattan Project in 1943, the 300 Area was used by Native Americans as a camp location and by early settlers who developed a farming community known as Fruitvale. Because of its proximity to the Columbia River, many archaeological resources associated with these landscapes are located along the rivershore outside of the 300 Area fence. Subsurface archaeological deposits are likely to be located underneath existing 300 Area facilities in pockets of undisturbed ground. Disturbance maps and reports have been prepared for the 300 Area.

Archaeological Resources. Five recorded archaeological sites, including campsites, housepits, and a historic trash scatter are located at least partially within the 300 Area; many more may be located in subsurface deposits. Twenty-seven archaeological sites and 13 isolated artifacts have been recorded within 2 kilometers (1.2 miles) of the 300 Area fence. One archaeological site has been tested and is recognized as eligible for listing in the National Register. Several archaeological sites in this area are in the Hanford South Archaeological District, which is listed in the Washington Heritage Register. Other areas near the 300 Area have been found to be of great importance to the Native Americans and are fenced.

Traditional Cultural Places. One documented locality with great importance to the historic Wanapum is located near the 300 Area.

600 Area

Project-driven surveys have been conducted throughout the area, but much of the 600 Area remains unsurveyed. All 33 archaeological sites and TCPs recorded in 2001 were located in the 600 Area and are associated with the Native American and Early Settlers landscapes. Based on what is known, the 600 Area contains a diverse wealth of cultural resources associated with all three cultural landscapes. Representing a full range of human activity across the Hanford Site, the activities are best characterized for the Native American cultural landscape by their seasonal round, gathering inland (quarry sites, hunting sites, religious use sites, plant gathering sites) and riverine (fishing sites, open camp sites, root gathering) resources. The Early Settlers cultural landscape is present in the 600 Area as farmsteads, ranches, and transportation routes.

Archaeological Resources. Numerous National Register Districts associated with the Native American landscape are located within the 600 Area, including the Hanford Archaeological Site, the Hanford North Archaeological District, the Paris Archaeological Site, Rattlesnake Springs Sites, Savage Island Archaeological District, Snively Basin Archaeological District, and the Wooded Island Archaeological District.

Traditional Cultural Places. Areas of traditional cultural importance include Rattlesnake Mountain and foothills, the Columbia River, and Gable Mountain and Butte. In 2001, additional resources related to religious and hunting activities were added to the Gable Mountain Cultural District. Cemeteries associated with the Native American cultural landscape are also dispersed throughout the 600 Area.

3.3.2 Early Settler/Farming Cultural Landscape

The Early Settler/Farming cultural landscape comprises those areas on the Hanford Site where people, mainly of European descent, settled in the Columbia River Plateau before the start of the Manhattan Project in 1943. Non-Native American presence in the Mid-Columbia began in 1805 with the arrival of the Lewis and Clark Expedition. It was not until the late nineteenth and early twentieth centuries, however, that non-Native American peoples began intensive settlement on the Hanford Site. A record of their activities and use is present in the archaeological sites, TCPs, and buildings and structures that are located throughout the Hanford Site.

3.3.2.1 Buildings and Structures

Although most of the structures were razed by the U.S. government to build infrastructure for the Hanford Engineer Works in 1943, a small number of buildings associated with the Early Settlers cultural landscape remain standing today. They include the Hanford Irrigation and Power Company's pumping plant at Coyote Rapids, the Hanford townsite high school, the electrical substation at the Hanford townsite, White Bluffs Bank, Bruggemann's fruit warehouse, and the blacksmith cabin at the East White Bluffs ferry landing. These structures are located near the Columbia River and throughout the 600 Area of the Hanford Site.

The Hanford Irrigation Ditch and the former Chicago, Milwaukee, and St. Paul Railroad are two important linear features associated with the Early Settlers cultural landscape.

3.3.2.2 Traditional Cultural Places

Traditional cultural places associated with the Early Settler/Farming cultural landscape that are located on the Hanford Site include structures and places that are important to descendents of pre-1943 settlers in the former White Bluffs, Hanford, Allard, Fruitvale, Vernita, and Cold Springs areas. These places are deeply rooted in the memories of local residents and include, but are not limited to, a former cemetery, numerous former homesites and townsites, orchards, fields, former swimming holes, and places of former community activities (e.g., Hanford Grange Hall, town parks, churches, and schools). Former residents visit these areas annually with friends and family.

3.3.2.3 Archaeological Resources

The first Euro-Americans to pass near the Hanford Site were part of the Lewis and Clark expedition, which traveled along the Columbia and Snake rivers during the 1803 to 1806 exploration of the Louisiana Territory. The first European explorer to cross the Hanford Site was David Thompson, who traveled along the Columbia River from Canada during his 1811 exploration of the Columbia River. Other visitors included fur trappers, military units, traders, and miners who traveled through the Hanford Site on their way to lands up and down the Columbia River and across the Columbia Basin. It was not until the 1860s that merchants set up stores, a freight depot, and the White Bluffs Ferry on the Hanford Reach. Chinese miners soon began to work the gravel bars for gold. Cattle ranches were established in the 1880s, and farmers soon followed. Agricultural development, irrigation districts, and roads soon dotted the landscape, particularly in the eastern portion of the central Hanford Site. Several small thriving towns, including Hanford, White Bluffs, Richland, and Ringold, grew up along the riverbanks in the early twentieth century. The communities' accessibility to outside markets expanded with the arrival in 1913 of the Chicago, Milwaukee, and St. Paul Railroad branch line (Priest Rapids-Hanford Line) from Beverly, Washington. Ferries were established at Richland, Hanford, Wahluke, and Vernita. The towns and nearly all other structures were razed in the years after the U.S. government acquired the land for the Hanford Engineer Works in 1943 (Chatters 1989; ERTEC 1981; Rice 1980a).

Approximately 650 historic archaeological sites associated with the Early Settler/Farming cultural landscape including an assortment of towns, farmsteads, irrigation features corrals, and dumps have been recorded by the HCRL since 1987. Approximately 60 of these sites contain prehistoric components as well. Properties from this period include the Hanford Irrigation Ditch; former Hanford Townsite; Wahluke Ferry; White Bluffs Townsite; Richmond Ferry; Arrowsmith Townsite; White Bluffs Road; and Chicago, Milwaukee, and St. Paul Railroad (Priest Rapids-Hanford Line) and associated stops.

3.3.3 Resources of Ethnic Importance

Sites have been recorded that may be associated with Asians and Asian Americans (Sharpe 2000). African Americans also worked at Hanford in the twentieth century, but no sites have been identified that may be associated with them.

3.3.4 Properties of Recent Scientific Significance

Historic-built resources documented from the Manhattan Project and Cold War eras include buildings and structures found in the 100, 200, 300, 400, 600, and 700 Areas. The most important of these are the plutonium production and test reactors, chemical separation and plutonium finishing buildings, and fuel fabrication/manufacturing facilities. The first reactors, 105-B, 105-D, and 105-F, were constructed during the Manhattan Project. Plutonium for the first atomic explosion and the bomb that destroyed Nagasaki to end World War II were produced at the Hanford Site. Additional reactors and processing facilities were constructed after World War II during the Cold War period. All reactor containment buildings still stand, although many ancillary structures have been removed, and the 100-C, 100-DR, and 100-F reactors have been considerably modified.

Historic contexts were completed for the Manhattan Project and Cold War eras as part of a National Register Multiple Property Documentation Form prepared for the Hanford Site to assist with the evaluation of National Register eligibility of buildings and structures Site-wide (DOE 1997b).

Five hundred and twenty-eight Manhattan Project and Cold War era buildings/structures and complexes have been determined eligible for the National Register as contributing properties within the Historic District. Of that number, 190 were recommended for individual documentation. Historical narratives and individual building documentations have been completed for the *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990* (DOE-RL 2002). DOE-RL will consider the retention of National Register-eligible buildings and structures that may qualify for adaptive reuse as interpretive centers, museums, industrial, or manufacturing facilities, as identified in Chapter 4 of this document (DOE-RL 2002). Also, DOE-RL is in the process of undertaking an assessment of the contents of the contributing buildings and structures to locate and identify any Manhattan and Cold War era artifacts that may have interpretive or educational value for museum exhibit purposes.

3.3.4.1 Districts, Sites, Buildings, Structures, and Other Facilities

100 Areas

Nine plutonium production reactors and their ancillary and support facilities were located in the 100 Areas. The production reactors functioned to irradiate uranium fuel elements, the essential second step in the plutonium production process. A complete inventory of 100 Area buildings and structures was completed during FY 1995, and a National Register evaluation for each was finalized during 1996. To date, 146 buildings/structures have been inventoried in the 100 Areas. Of that number, 55 have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation and mitigation (Marceau 1998).

100-B/C Area. The 105-B Reactor was the world's first full-scale plutonium production reactor and is designated as a National Historic Mechanical Engineering Landmark. It is also listed in the National Register, was named a National Civil Engineering Landmark, and was given the Nuclear Historic Landmark Award. Historic American Engineering Record documentation of B Reactor was completed in 1999. A total of 14 buildings and structures within the 100-B/C Area have been recorded on historic property inventory forms. Of that number, 10 properties have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. These include 105-B Reactor, 181-B River Pumphouse, 104-B-1 Tritium Vault, 104-B-2 Tritium Laboratory, 105-B-Rod Tip Cave, 116-B Reactor Exhaust Stack, 117-B Exhaust Air Filter Building, 118-B-1 Solid Waste Burial Trench, and 182-B Reservoir and Pumphouse (Marceau 1998).

An assessment of the contents of 105-B Reactor was conducted to locate and identify Manhattan Project and Cold War era artifacts that may have interpretive or educational value in potential exhibits. Thirty-nine industrial artifacts were identified and tagged, located mainly in the fuel basin, exhaust fan room, and supply room. For the time being, these artifacts will be retained in place.

100-D/DR Area. All the buildings and structures in the 100-D/DR Area were built during the Manhattan Project and Cold War eras. Twenty buildings/structures have been inventoried, including the 105-D and

105-DR Reactor buildings. Both reactors were determined eligible for the National Register as contributing properties within the historic district, but were not recommended for individual documentation. An assessment of the contents of the 105-D Reactor building was conducted to locate and identify Manhattan Project and Cold War era artifacts that may have interpretive or educational value in potential exhibits. Twenty-four industrial artifacts were identified and tagged, from control panels and a reactor curtain to lunch tables, benches, tools, and signs. An assessment of the contents of the 105-DR Reactor building was conducted to locate and identify any Cold War era artifacts that may have interpretive or educational value in potential museum exhibits. Ten industrial artifacts were identified and tagged, which included a radiological worker procedures poster, instrument ladder, three metal signs, a lead sampling chamber "pig," control panel, vintage ceiling lights and graphite blocks. The 185/189-D buildings and adjoining facilities, all part of the 190-D complex, have been determined eligible for the National Register and were documented to Historic American Engineering Record standards (Marceau 1998). However, the 190-D Complex has been demolished.

100-F Area. Three Manhattan Project/Cold War era buildings/structures have been inventoried in this area, including the 105-F Reactor building. An assessment of the contents of the 105-F Reactor building was conducted to identify any artifacts that may have value as potential museum exhibits. Eleven industrial artifacts were identified and tagged, which included a fuel scale, elevator control panel, two shop signs, four safety signs, hardhat, graphite blocks, and vintage ceiling lights.

100-H Area. Four Cold War era buildings/structures were inventoried in the 100-H Area. Of that number, only the 105-H Reactor was determined eligible for the National Register as a contributing property within the historic district. The reactor, however, was not recommended for individual documentation (Marceau 1998). An assessment of the contents of the 105-H Reactor was conducted to locate and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. No artifacts of interpretive or educational value were identified.

100-K Area. Thirty-eight buildings/structures have been inventoried in the 100-K Reactor Area, including the 105-KE and 105-KW Reactor buildings. Of that number, 13 have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. These include the 105-KW Reactor, 190-KW Main Pumphouse, 107-KW Retention Basin, 183-KW Filter Plant, and 181-KW River Pumphouse (Marceau 1998).

An assessment of the contents of the 105-KE and 105-KW Reactor buildings was conducted to identify any artifacts that may have educational or interpretive value as potential museum exhibits. Fourteen industrial artifacts were identified and tagged in 105-KE Reactor, including tools, signage, radiation monitor equipment, furniture, and a gas mask. Seven artifacts were identified and tagged from 105-KW Reactor, including furniture, a measurement scale, tools, and a floodlight. An assessment of the 190-KW Pumphouse was also conducted, and two artifacts were tagged: a phone booth with phone set and a wooden safety bulletin board.

100-N Area. Sixty-six Cold War era buildings and structures have been inventoried in the 100-N Area (Marceau 1998). The 100-N Reactor, completed in 1963, was the last of the plutonium production, graphite-moderated reactors. The design of N Reactor differed from the previous eight reactors in several ways to afford greater safety and to enable co-generation of electricity. Thirty 100-N Area buildings/ structures have been determined eligible for the National Register as contributing properties within the

historic district recommended for individual documentation. These include the 105-N Reactor, 109-N Heat Exchanger Building, 181-N River Water Pumphouse, 183-N Water Filter Plant, 184-N Plant Service Powerhouse, 185-N Export Powerhouse, and the 1112-N Guard Station (DOE 1997d).

An assessment of the contents of the 185-N Export Powerhouse was conducted to locate and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. Six artifacts were identified and tagged, including control room panels, phone booths, a "hear-here" phone, metal cart, and a safety sign.

200 Areas

The 200 Areas contain many significant buildings and structures associated with the Manhattan Project and Cold War cultural landscape. They were the locations of the chemical separations (processing) plants and their ancillary and support facilities. The plants functioned to dissolve the irradiated fuel elements to separate out the plutonium, the essential third step in plutonium production. Historic property inventory forms have been completed for 72 buildings/structures in the 200 Area. Of that number, 58 have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. These include the 202-A Purex Plant, 212-N Lag Storage Facility, 221-T Plant, 222-S Redox Plant, 225-B Encapsulation Building, 231-Z Plutonium Metallurgical Laboratory, 234-5Z Plutonium Finishing Plant, 236-Z Plutonium Reclamation Facility, 242-Z Water Treatment Facility, 282-E Pumphouse and Reservoir Building, 283-E Water Filtration Plant, and the 284-W Powerhouse and Steam Plant (Marceau 1998). The 221-T Plant, 232-Z Waste Incinerator Facility and the 233-S Plutonium Concentration Building, determined eligible for the National Register, have been documented to Historic American Engineering Record standards.

An assessment of the contents of six facilities in the Plutonium Finishing Plant complex was conducted during FY 1998. These buildings/structures included the 234-5Z/234-5ZA Plutonium Finishing Plant, 291-Z Exhaust Stack, 2704-Z Safeguards and Security Building, and the 2736-Z, ZA, and ZB Plutonium Storage Facilities. Because of security/radiological exposure concerns and/or inaccessibility, a number of identified artifacts were not tagged. These included a radiation detection device, plutonium storage vaults, and a dry air glove box. In the 234-5Z Plutonium Finishing Plant, the entire Remote Mechanical C line (gloveboxes) and control room, and the Remote Mechanical A line (gloveboxes) and control room, were identified and tagged. Ten additional Cold War era artifacts were identified and tagged as a result of a walk-through of the Analytical Laboratories in the 234-5Z Plutonium Finishing Plant. An assessment was also conducted of the 2704-Z Building and three artifacts were identified but not tagged: the classified documents vault, typology of "cans" poster, and vintage fluorescent light fixtures.

Thirty-two industrial artifacts were identified and tagged in chemical separations buildings located in 200-East and 200-West Areas. The following buildings were inspected for artifacts during the walkthroughs: 202-A, 202-S, 221-T, 221-U, 224-U, 224-B, and 271-U. Types of artifacts selected included electrical equipment, control panels, tools, vintage lights, health and safety items, signage, and communications equipment.

300 Area

The 300 Area, the location of the uranium fuel fabrication plants that manufactured fuel rods to be irradiated in the Hanford Site reactors, provided the first essential step in the plutonium production process. The 300 Area was also the location of most of the research and development laboratories. One hundred and fifty-nine buildings/structures in the 300 Area have been documented on historic property inventory forms. Of that number, 47 buildings/structures have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. This total includes the 305 Test Pile, 313 Fuels Fabrication Facility, 314 Metal Press/Extrusion Building, 318 High Temperature Lattice Test Reactor, 321 Separation Building, 325 Radiochemistry Laboratory, 333 Fuel Cladding Facility, 3706 Radiochemistry Laboratory, and the 3760 (former) Hanford Technical Library (Marceau 1998).

Assessments of the contents of former fuel manufacturing and reactor operations facilities in the 300 Area have been conducted including the 303-A Magazine Product Storage Building, 305 Test Pile, 305-B Engineers Development Lab Annex, 306-W Materials Development Laboratory, 306-E Fabrication Test Lab, 308 Plutonium Fabrication Pilot Plant, 309 Plutonium Recycle Test Reactor, 313 Fuels Fabrication Facility/Metal Fabrication Building, 314 Press Building, and 333 Fuel Cladding Facility. The 27 Manhattan Project/Cold War era artifacts that were identified and tagged are mainly industrial in nature associated with the fuel manufacturing processes and reactor operations. A second walkthrough of Building 333 resulted in an additional 12 artifacts being identified that included a selection of safety signs/posters, a control panel, a safety shower, protective worker clothes, and a sample uranium fuel element.

Other 300 Area buildings assessed include the 303-K Fresh Metal Storage Building, 304 Uranium Scrap Concentration Storage Facility, 324 Chemical Engineering Laboratory, 327 Post Irradiation Test Laboratory, 329 Biophysics Laboratory, 334 Chemical Handling Facility, 334-A Acid Pumphouse, 3701-D (former) Hanford Patrol Building, 3707-G Change House, 3716 Fuels Manufacturing Storage/ Automotive Repair Shop, 3727 Classified Storage Facility, 3746 Radiological Physics Building, 3762 Technical Safety Building, 340 Waste Neutralization Complex, 3745-B Positive Ion Accelerator Building, 3708 Radiochemical Lab, 3706 Radiochemistry Lab, 326 Physics Lab, 3707-D Patrol Headquarters, 384 Power House, 328 Engineering Services Building, 3745-A Electron Accelerator Building, 3722 Area Shop, and the 3713 Storeroom. Twenty-one Manhattan Project/Cold War era artifacts were identified and tagged in these buildings.

400 Area

The 400 Area consists of the Fast Flux Test Facility complex. The 405 Reactor Containment Building includes a 400 megawatt, sodium-cooled test reactor designed primarily to test fuels and materials for advanced nuclear power plants. All the buildings and structures in the 400 Area were constructed during the Cold War era. Twenty-one building/structures have been recorded on historic property inventory forms. Of that number, six have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. These include the 405 Reactor Containment Building, 436 Training Facility, 4621-W Auxiliary Equipment Facility, 4703 Fast Flux Test Facility Control Building, 4710 Operation Support Building, and the 4790 Patrol Headquarters (Marceau 1998). An assessment of the contents of Building 427 was conducted to locate

and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. Four artifacts were identified and tagged, including fuel assembly components.

600 Area

Fifteen Cold War era buildings/structures, including the underground missile storage facility, have been inventoried at the former 6652 Nike launch and control center in the Fitzner/Eberhardt Arid Lands Ecology Reserve. The 622 Meteorological Complex, located near 200 West, includes seven inventoried properties. Both complexes have been determined eligible for the National Register as contributing properties within the historic district recommended for mitigation. An assessment of the contents of 622-F and the 6652 Nike site were conducted. No artifacts of interpretive or educational value were identified.

Historic archaeological military sites associated with the Manhattan Project and Cold War landscape are scattered throughout the Hanford Site's 600 Area. These archaeological resources are mainly located within the former Camp Hanford forward positions, the 16 anti-aircraft artillery sites that encircled the 100 and 200 Areas, and the three Nike missile installations on the Wahluke Slope. (A fourth Nike position, in relatively intact condition, is located at the base of Rattlesnake Mountain on the Arid Lands Ecology Reserve.) The Nike position on the Arid Lands Ecology Reserve has been determined eligible for inclusion in the National Register as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District. Five of the 16 anti-aircraft artillery sites have also been determined eligible for the National Register.

The anti-aircraft artillery and Nike sites were strategic components in Camp Hanford's military defense of the Site's plutonium production facilities during the 1950s and early 1960s. Potential archeological resources at these sites include former gun emplacements, launch and radar sites, concrete foundations and pads, pathways/sidewalks, and associated dumpsites, small arms firing ranges, and ammunition caches.

The Atmospheric Dispersion Test Facility Grid located in the 600 Area of the Hanford Site in the vicinity of the 200-West Area was used for monitoring airborne waste dispersion experiments during the 1960s and 1970s.

Five other 600 Area properties, 604 Yakima Patrol Checking Station, 604-A Sentry House, 607 Batch Plant, 618-10 Solid Waste Burial Trench, and the Hanford Site Railroad, have been determined eligible for the National Register as contributing properties within the historic district recommended for individual documentation. A number of the 25 railcars located at the 212-N rail spur were designated Register-eligible as contributing features of the Hanford Site Railroad and the Manhattan Project/Cold War Historic District and recommended for mitigation. Documentation of the 25 railcars and mitigation of the Register-eligible cars were completed as an addendum to the Hanford Site Plant Railroad Expanded Historic Property Inventory Form (ExHPIF).

Buildings 623 (Gable Mountain Relay Station) and 213 (Magazine/Waste Storage Vault) were originally designated as contributing properties within the historic district with no individual documentation required. They were reevaluated and designated as contributing properties recommended for individual documentation.

Cold War era archaeological resources that are located in the 600 Area include five anti-aircraft artillery sites that are associated with Camp Hanford's defense of the Hanford Site during the 1950s have been determined eligible for the National Register. The Hanford Atmospheric Dispersion Test Facility was evaluated and determined a contributing property within the historic district, recommended for individual documentation. Mitigation required the completion of an ExHPIF for the Test Facility. Numerous artifacts were identified as having interpretive or educational value in potential exhibits. A selected, representative number of artifacts were removed and curated into the Hanford collection.

700 Area

The 700 Area was the location of the administrative functions of the early Hanford Site period. Most of the 700 Area has been highly disturbed by industrial activities. Of the seven Manhattan Project and Cold War era buildings/structures identified in this area, the 703 Administrative Building, 712 Records/ Printing/Mail Office Facility, and 748 Radiosurgery/Emergency Decontamination Facility have been determined eligible for listing in the National Register as contributing properties within the historic district recommended for individual documentation (Marceau 1998).

1100 Area

Land ownership of the former 1100 Area was transferred from the DOE to the Port of Benton in 1998. As a result of this land transfer, archaeologists and historians investigated lands and buildings/structures within the former 1100 Area to ensure that all historic cultural resources were identified and are evaluated for listing in the National Register. Archival research and field surveys revealed the presence of eighteen historic archaeological sites and one isolated find. The archaeological sites fall into two categories: concentrations of historic debris and farmstead complexes. Most of these historic archaeological sites pre-date federal acquisition of the Hanford Site in 1943 and represent an important era in Euro-American settlement with regard to early irrigation and agricultural techniques. All of the historic archaeological sites were evaluated in 1998. Sites found to be eligible for listing in the National Register will be managed by the Port of Benton according to NHPA requirements following the land ownership transfer.

In addition to historic archaeological sites, the 1100 Area contains transportation maintenance buildings/structures from the Cold War period. Of the nineteen Cold War era buildings/structures identified in this area, the 1170 Bus Terminal/Dispatcher Facility, 1171 Transportation Maintenance Shops, 1167 Warehouse, 1167-A Excess Salvage Office, X-1 Railroad Scale House, and the X-4 Railroad Maintenance Shed have been determined eligible for listing in the National Register as contributing properties within the Historic District recommended for individual documentation. Mitigation has been completed for these facilities.

North Richland Area

During World War II, the North Richland Area was the locale for a camp that housed Hanford Site construction personnel. No historic archaeological sites have been recorded for this area, but homesteads and remnants of the former North Richland Townsite, Manhattan Project/Cold War construction camp, and industrial facilities associated with the 1950s Camp Hanford are found there. Seventeen former Camp Hanford industrial buildings/structures located in the former 3000 Area adjacent to the North Richland Area have been inventoried and determined not eligible for the National Register.

3.3.4.2 Objects

Please see Section 3.3.4.1.

3.3.4.3 Other Properties

This section is not applicable.

3.4 CRM ACCOMPLISHMENTS

In this section, accomplishments made by the Hanford Cultural and Historic Resources Program in the areas of records management, cultural resource site inventory, archaeological excavations, buildings documentation, laboratory analysis, curation, preservation, research, and outreach are discussed.

3.4.1 Cultural Resource Records and Reports

The Hanford Cultural and Historic Resources Program generates large volumes of data in performing its cultural resource management activities at Hanford. These data are contained in an assortment of records stored by the program. Table 6 lists the databases available to facilitate searches and retrieval of data contained in some of these records.

Beginning in 1999, DOE initiated development of an electronic database system called STEWARD,[3] adapted from an earlier system known as the Cultural and Environmental Compliance Database. STEWARD (Version 1.0) currently has two components: a set of electronic files, referred to as the database, and an analytical tool, referred to as the geographic information system (Figure 3).

The STEWARD database component can be described as three Microsoft® Access forms: the Hanford Cultural Resource Compliance Tracking form, the Hanford Cultural Resource Survey form, and the Hanford Cultural Site and Isolate form. The initial design decisions made in FY 1999 were to use Microsoft® Access for the database portion. Microsoft® Access was chosen because it was the market standard, was easy to use, could export data, and could be linked to a geographic information system. Research was then conducted to select the appropriate geographic information system software for the project. ArcView/ArcInfo was chosen as the geographic information system software for its capabilities in mapping and modeling and because it was personal computer-based software. Each component, its design, and its use, is described in detail in the following sections.

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[3] STEWARD is described in the *Stewardship Information System Long-Term Database Project Plan* prepared by the Hanford Cultural Resources Laboratory in FY 2001.

TABLE 6 Hanford Cultural and Historic Resource Program Records and Databases

Hanford Cultural Resource and Historic Program Records	STEWARD Database				Other Electronic System	Hard Copy Files
	HCRC	Site/Isolate	Survey	GIS		
Archaeological/TCP-Related Records						
Site Forms		X		X	CECOM	
Isolate Forms		X		X	CECOM	
Historic Property Inventory Forms						X
Site Maps						X
Collection Inventories					Excel	
Site Photographs/Slides/Videos						X
Administrative Records						
HCRC Files						
106 Reviews	X				CECOM	
Surveys	X		X	1999+		
Monitoring						X
Special Projects	X					
HCRC Distribution Maps				2000+		
Site Distribution Maps				X		
Photos/Slides/Videos						X
Field Notebooks						X
Research Records						
Human Subjects						X
Aerial Photographs						X
Historic Maps						X
Library					Excel	
Project Records (RIDS)					CRIS	

CECOM = Cultural and Environmental Compliance Management database.
ERC = Environmental Restoration Contractor.
GIS = Geographic Information System.
HCRC = Hanford Cultural Resource Compliance.
RIDS = Record Inventory Disposition Schedule.
TCP = Traditional Cultural Place.

3.4.1.1 Cultural Resource Site Records

The program holds records for approximately 1,009 cultural resource sites and isolated finds as well as 531 buildings and structures that have been recorded on Washington State Historic Property Inventory forms. Of the 1,009 recorded cultural resource sites, 118 have been evaluated for listing in the National Register. The remaining sites have not been evaluated.

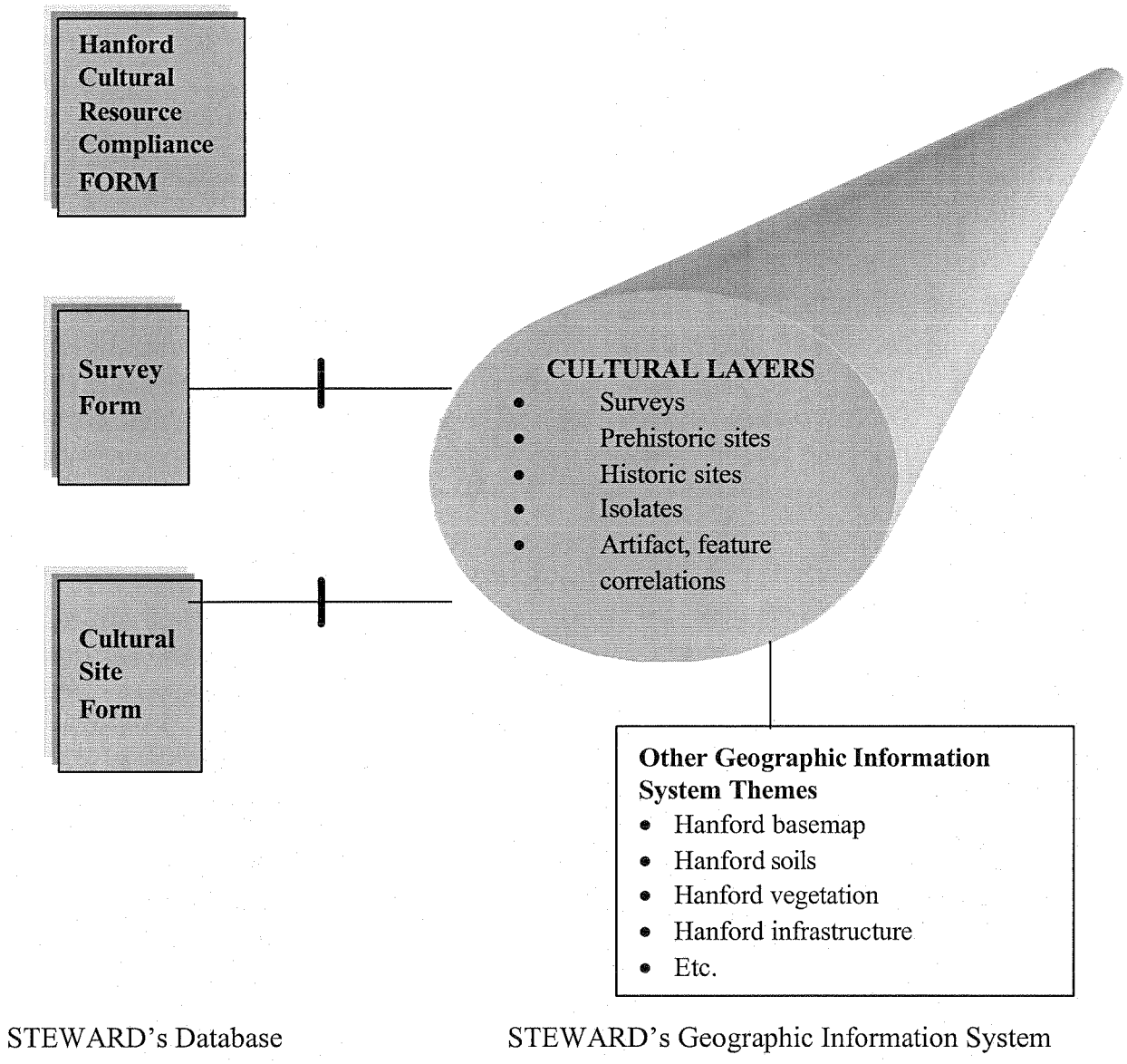


FIGURE 3 Hanford Cultural and Historic Resource Laboratory Stewardship Information System (STEWARD)

Hanford Cultural Site and Isolate Forms. These forms (see Appendix B) are used to input data collected when an archaeological site, TCP, or isolated find is recorded at Hanford. The site form includes administrative data, cultural data, and environmental data. If the record to be input is an isolated find, once that box is checked, the form immediately converts to an abbreviated "Isolate" form (see Appendix B).

The numbering system for the form follows the archaeological site numbering system in Washington State, which follows the traditional Smithsonian numbering system for prehistoric archaeological sites. Site numbers take the form of "45BN10," where 45 refers to Washington (the 45th state in alphabetical

order when the system was developed), BN refers to Benton County (Hanford sites also exist in Grant County [GR] and Franklin County [FR]), and 10 refers to the 10th site recorded in the County. Historic sites use a different numbering system, where "H-38" refers to the 38th historic site assigned in Washington State. Isolated finds are assigned "HI" numbers such as "HI-95-73," where HI refers to Hanford Isolate, 95 is the year, and 73 as the 73rd isolate to be recorded at Hanford. When new sites are located at Hanford, they are typically given a temporary number until the site form is filed with the Washington State Office of Archaeology and Historic Preservation. These numbers take the form of "HT-95-288," where HT refers to Temporary, 95 refers to the year, and 288 refers to the 288th temporary site at Hanford to be recorded.

In FY 2001, STEWARD developers added a Site/Isolate Index to provide the user with a quick glance at forms in the system. With site or isolate number in hand, a user can quickly retrieve a form by going to this numerically ordered index and double clicking on the desired form.

3.4.1.2 Hanford Cultural and Historic Resources Program Records

The first module designed and made functional for STEWARD (Version 1.0) was the Hanford Cultural Resource Compliance (HCRC) tracking form. The foundation for this form is the HCRC numbering system. The number is based on the year that the review is done, the area for which the review is done, and the order in which the review was assigned. Thus, HCRC# 2000-100-034 refers to the 34th review number assigned to a project in the 100 Area in the year 2000. Projects are conducted in the 100, 200, 300, 400, and 600 Areas. Other compliance projects conducted outside of Section 106, for example, Section 110 surveys, Archaeological Resources Protection Act (ARPA) investigations, or site protection feasibility studies also use this numbering system, using the 800 designation in place of a Hanford Site area designation.

The survey component was added next in FY 2000 when it was learned that no locational information was available for surveys in the existing electronic database. This made it impossible to graphically display areas that were surveyed, a key piece of information for conducting cultural resource reviews using a computer (such information was available on U.S. Geological Survey maps on which surveys had been plotted). Programmers created a survey form to facilitate data input. Also in FY 2000, the Hanford Cultural Resource Site and Isolate forms were redesigned and a Microsoft® Access form created to facilitate data entry. The form was designed so that a typed form meeting Washington State Historic Preservation Officer (SHPO) standards could be printed and data would be in a format accessible to the geographic information system. Efforts were made to extract data from the cultural and economic compliance into the new stewardship database; however, this proved to be a costly endeavor. To get the cultural site component operational, the decision was made to input all new sites using the new system and to input a subset of the data fields for all sites recorded before FY 2000.

HCRC Tracking Form. This form (see Appendix B) is used to keep track of National Historic Preservation Act Section 106 compliance reviews conducted for all types of Hanford construction and cleanup projects (referred to as undertakings). The tracking system is also used to track activities such as Section 110 surveys, inadvertent discoveries, and other special efforts.

Hanford Survey Form. This form (see Appendix B) is used to input data related to cultural resource surveys conducted at Hanford. It includes basic administrative information about the survey (e.g.,

surveyors, dates, location) and the results (i.e., site found). There is an occasional need to pull up this form for information, but primarily the survey data are used in the geographic information system component.

Geographic Information System Component

The geographic information system component of STEWARD makes it possible to conduct a variety of analyses in ways that were never possible before and to display the results graphically on maps. Initial uses include conducting preliminary cultural resource reviews and conducting simple spatial analysis to look for correlations among various data.

Security

Security for STEWARD is of utmost importance because of the confidential/sensitive nature of cultural site locations. Issues surrounding security are routinely considered. The system currently exists on a protected project share where only selected staff have access to the database. Different levels of users can be established such as read-only and read-and-write (full) access. All data stored on the project share is backed up daily.

3.4.1.3 Other Cultural Resource Records

Other records include administrative project records. These records are evaluated according to RIDS retention schedules and sent to Records Storage as specified in DOE requirements. Thus, this process provides systemized storage of records and easy location and retrievability of all documents.

3.4.1.4 Cultural Resource Reports

Standardized Report Outlines

The only standardized report outline pertains to survey reports and follows those guidelines established by the Washington State Office of Archaeology and Historic Preservation. Other formats follow basic cultural resource professional formats.

Report Library

The Hanford Cultural and Historic Resources Program library houses documents for the Hanford Cultural and Historic Resources Program. All the documents are assigned a specific number, making them unique. The number and document information is maintained in the library database. This Access database is housed in the Records Management Share (RIM 1) and maintained by Records Management. Access control allows the manager to control who is able to view the database.

As stated, the database provides a unique number to all library documents as well as maintaining the following information: document location, media type (e.g., newspaper article, book), document number, volume number, revision number, document title, document author/s, published in (e.g., magazine title), document date, and comments. These fields allow the user to search for documents by keywords, document numbers, and all other listed fields. Thus, this process provides systemized storage of records and easy location and retrievability of all documents.

A list of published and unpublished reports generated by the DOE-RL Hanford Cultural and Historic Resources Program is provided in Appendix E.

3.4.2 Inventory

Efforts to systematically inventory and understand the distribution of cultural resources began in 1987 when the DOE-RL Hanford Cultural and Historic Resources Program began. A review of efforts to date are provided below.

3.4.2.1 Archival Searches

Record and literature reviews are often carried out on a project-by-project basis, with few large-scale archival research projects taking place. An archival search of both local and national archives for general information about the Hanford area located some primary documentation and early photographs of the area. Materials from early archaeological reconnaissance work at the Hanford Site curated by the Smithsonian Institution were also investigated. The archives and repositories visited for this project included:

- Yakima Valley Regional Library, Yakima, WA
- East Benton County Historical Museum, Kennewick, WA
- Franklin County Historical Museum, Pasco, WA
- U.S. Department of Energy, Richland Operations Files, Richland, WA
- Bureau of Indian Affairs, Portland, OR
- McWhorter Collection, Manuscripts, Archives, and Special Collections, Holland Library, Washington State University, Pullman, WA
- National Archives, Pacific Northwest Region, Seattle, WA
- H. Dean Guie Collection, Manuscripts and Archives Department, Oregon Historical Society, Portland, OR
- North Central Washington Museum, Wenatchee, WA
- Rocky Reach Dam Visitor Center and Museum, Chelan County Public Utility District, Wenatchee, WA
- Wanapum Dam Visitor Center, Grant County Public Utility District, Beverly, WA
- Columbia Gorge Discovery Center/Wasco County Museum, The Dalles, OR
- Mid-Columbia Archaeological Society Collection, Benton City, WA
- Francis Riddell Collection, Phoebe Apperson Hearst Museum of Anthropology, University of California-Berkeley, CA

- Herbert Krieger Collection, Department of Anthropology, National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Additional local/regional museums and archives that may curate materials relevant to the history and prehistory of the Hanford Site include:

- Benton County Historical Museum, Prosser, WA
- Washington State Railroads Historical Society and Museum, Pasco, WA
- Grant County Historical Museum and Village, Othello, WA
- Central Washington Agricultural Museum, Ellensburg, WA
- Columbia River Exhibition of History, Science and Technology, Richland, WA
- Washington State Genealogical Resource Guide - Benton County, Richland, WA
- National Archives and Records Administration - Pacific Alaska Region, Seattle, WA
- Washington State Archives - Central Regional Branch, Ellensburg, WA.

3.4.2.2 Ethnographic Fieldwork

Along with archaeological surveys and historic building walkthroughs, ethnographic and oral history interviewing is one of the many ways that DOE complies with federal historic preservation requirements. The oral history and ethnography effort began in FY 2000 when an ethnographer was hired to formalize the program and ensure DOE's compliance with recent human subjects regulations and existing historic preservation requirements. To document and record the rich cultural landscapes that comprise the Hanford Site, oral history research projects have focused on the collection of interview data from people who have contributed to each of the Hanford Site's three cultural landscapes (Native American, Early Settlers, and Manhattan Project/Cold War). The information provided by oral history and ethnographic interviews has contributed greatly to the understanding of cultural resources located on the Hanford Site. As a method, oral history can guarantee that everyone's past is included and preserved as part of the Hanford story. The DOE uses the information to protect cultural resources and educate the public about the history of the Hanford Site.

The program has three types of interview data situations:

1. Past interviews conducted by the program between 1987-1999 without consent and/or release forms.

2. Interviews conducted by the program since FY 2000 with informed consent forms that were conducted for the purposes of historical documentation. These most likely do not contain sensitive information, and interviewees would probably like to release them to the program archives for researcher access.

3. Interviews conducted since FY 2000 containing sensitive information. These have informed consent forms that authorize specific uses of the information. The interviewees do not want these tapes to be released.

Most oral history interviews conducted before 2000 were completed without signed informed consent forms. The program currently maintains an inventory of 13 of those interviews.

Since FY 2000, the program has initiated four research projects for oral history collection, all of which have been reviewed by PNNL's Institutional Review Board. Eighteen interviews have been completed, and informed consent forms have been obtained and signed for each interview.

Concentrated efforts have been made to interview former residents of the Priest Rapids Valley to document their memories and experiences of living on farmsteads and the towns of White Bluffs and Hanford between 1920 and 1943. Since most of these individuals are over the age of 70, they represent a finite resource, their contributions make up 75 percent of the oral history inventory. Some of this information, in a limited form, has been made available to the public, as it was used in an exhibit at the East Benton County Historical Museum for Washington State's Archaeology Month in October 2001. The program is currently obtaining release forms from these individuals so that more information collected by these interviews can made available to researchers and the interested public. Appropriate storage and access procedures have been developed to make this information available. The program will continue to conduct interviews with descendents of the Priest Rapids Valley to document cultural resources that contribute to the Early Settlers cultural landscape.

Preliminary efforts were made in FY 2001 to begin documenting the untold story of African Americans' contributions to making and operating Hanford's reactors and associated facilities. To date, one interview has been completed. This information was used in a DOE-sponsored exhibit for Black History Month. The program is currently obtaining release forms from these individuals so more of the information collected by these interviews can made available to researchers and the interested public. For those who worked at the Hanford Site before 1950, because of their age, their knowledge remains a diminishing resource. The program will continue to conduct interviews with individuals associated with the making of the Hanford Site to document cultural resources that contribute to the Manhattan Project/Cold War landscape.

Three ethnographic interviews have been conducted to document TCPs importance to the Wanapum people. As these resources and the knowledge associated with them are very sensitive, interviewees have requested that the information collected by these interviews be kept confidential. With the interviewees' permission, however, some information is being used to nominate an ethnographic fishing site to the National Register. As a public document, the information contained in the nomination report will not be kept confidential. The program will continue to conduct ethnographic interviews with the tribes associated with the history of the Hanford Site to document cultural resources that contribute to the Native American cultural landscape. Procedures are in place so the interviews of a sensitive nature can be kept confidential.

3.4.2.3 Structure and Facility Surveys

DOE identified a National Register-eligible Hanford Site Manhattan Project and Cold War Era Historic District in 1996 that serves to organize and delineate the evaluation and mitigation of Hanford's plutonium production built environment. Standards for evaluating and mitigating the built environment were established in accordance with National Register criteria, as well as historic contexts and themes associated with nuclear technology for national defense and non-military purposes, energy production, and human health and environmental protection. A programmatic agreement that addresses management of the built environment (buildings and structures) constructed during the Manhattan Project and Cold

War periods was completed by DOE, the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Officer in 1996 (DOE 1996a).

Establishment of the Hanford Site Manhattan Project and Cold War Era Historic District resulted in the selection of 190 buildings, structures, and complexes eligible for listing in the National Register as contributing properties within the historic district recommended for individual documentation. Certain property types, such as mobile trailers, modular buildings, storage tanks, towers, wells and structures with minimal or no visible surface manifestations, were exempt from the identification and evaluation requirements. Approximately 900 buildings and structures were identified as either contributing properties with no individual documentation requirement (not selected for mitigation) or as non-contributing and exempt properties, and will be documented in a DOE-maintained database (Marceau 1998; Neitzel et al. 2002). The role the Hanford Site played in Manhattan Project and Cold War history has been chronicled in *The History of the Plutonium Production Failures at the Hanford Site Historic District 1943-1990* (DOE 2002).

All these historic properties recommended for individual documentation have been documented according to standards identified in the Site-wide treatment plan. Six historic properties, including B Reactor, have been documented at the Historic American Engineering Record level, 46 have been documented with ExHPIFs, while standard Historic Property Inventory Forms have been prepared for the remaining 138 buildings and structures (Neitzel et al. 2002).

Walkthroughs to identify Manhattan Project/Cold War era artifacts that may have interpretive or educational value have already taken place in a large number of the contributing properties. Those artifacts that had to be removed from the historic properties were transferred into the custody of the Columbia River Exhibition of History, Science and Technology museum for curation (Poston et al. 2002).

Other ongoing recording and preservation projects include the stabilization of the East White Bluffs log cabin, planned rehabilitation of the White Bluffs Bank building, and preservation of B Reactor and associated artifacts. Stabilization of the high school at the Hanford townsite, Bruggemann's Warehouse, and the Coyote Rapids Pumping Plant is also being considered. The structural condition of these buildings was assessed in 2000-2001, and existing conditions, interim actions, conservation needs, and immediate stabilization requirements are detailed in the *Hanford Site Environmental Report for Calendar Year 2001* (Poston et al. 2002).

3.4.2.4 Structure and Facility Survey Status

While these surveys were effective in identifying which structures and buildings were eligible or contributing to the Manhattan Project/Cold War Era Historic District, additional work is needed to complete the walkthroughs and assessments of the contents of the Sites historic properties. In addition to preservation of the industrial artifacts, further collection of documents, photos, drawings, maps, and objects related to the Manhattan Project/Cold War era landscape needs to take place (Marceau 1998). This type of information is important for research and other public interpretation efforts. Collection of oral histories from Hanford workers will also enrich the information that has already been collected about Hanford's history (DOE-RL 2002).

Recommendations for further work include retention in place of selected buildings and adaptive use of others. Specific buildings and structures representative of fuel manufacturing, reactor operations, chemical separation, and plutonium finishing activities at Hanford during the Manhattan Project/Cold War are identified for preservation in place and for use as heritage facilities.

3.4.2.5 Archaeological Surveys

The first archaeological surveys in the Hanford areas occurred in the 1920s (Krieger 1928) and 1940s (Drucker 1948). The first large-scale reconnaissance on Hanford was conducted in 1968 in response to proposed construction of the Ben Franklin Dam. During reconnaissance, 105 prehistoric sites were documented within the proposed pool reservoir (to the 122-meter [400-foot] contour line) along the Columbia River from Wooded Island to Priest Rapids Dam (Rice 1968a). The first reconnaissance survey to document historical and ethnohistorical archaeological sites in addition to prehistoric sites was also undertaken in 1968 (Rice 1968b). During this reconnaissance, Rice inspected portions of Gable Mountain, Gable Butte, Snively Canyon, Rattlesnake Mountain, and Rattlesnake Springs (Rice 1968b). Although only selected portions of the Hanford Site (outside of fenced security areas) were investigated during these projects, the latter effectively confirmed the presence of archaeological sites well away from the Columbia River. Much of this early archaeological survey and reconnaissance activity concentrated on islands and on a strip of land ~400 meters (1,312 feet) wide on either side of the river (Rice 1980a).

From 1970 through 1979, various agencies commissioned archaeological assessments on the Hanford Site; most involved field survey and a few included minor test excavations. Small-scale surveys (Jackson and Hartmann 1977; Smith et al. 1977), reconnaissances (Rice 1972; Rice et al. 1978), and test excavations (Rice 1973, 1976) were conducted during this period (Rice 1980c; Rice and Chavez 1980; Rice 1987a). These efforts resulted in the documentation of new archaeological sites (Rice 1972; Jackson and Hartmann 1977; Smith et al. 1977) and provided evidence of continuous prehistoric use along the banks of the Columbia River (Rice 1973). Two overviews produced in the 1980s, a document produced for the Washington Public Power Supply System (Rice 1983), and a compendium map of cultural resource surveys conducted through 1987 (Rice 1987b) provided comprehensive synopses of known archaeological sites, excavations, and surveyed areas completed during the 1980s (Rice 1980c; Rice and Chavez 1980; Rice 1983).

Numerous archaeological surveys were conducted during the early 1980s as DOE's major contractors and other companies and agencies commissioned their own archaeological investigations in response to an expanding pace of construction. Rice inspected additional portions of Gable Mountain and part of Gable Butte in the late 1980s (Rice 1987a). Other examples are reconnaissance of the Basalt Waste Isolation Project Reference Repository Location (Rice 1984), a proposed land exchange in T. 22 N., R. 27 E., Section 33 (Rice 1981), three narrow transportation and utility corridors (ERTEC 1981, 1982; Smith et al. 1977), and miscellaneous others (Rice 1983, 1985, 1987a, 1987b; Thoms et al. 1983). In spite of these efforts, many construction activity areas were not surveyed for cultural resources, and most construction excavation went unmonitored during this time period (Rice 1987b).

DOE established a cultural resource compliance program in 1987 to consolidate and standardize cultural resource management for all Hanford activities (Rice 1987b). With the formation of the HCRL in 1987, cultural resource compliance reviews of Hanford undertakings became a standard procedure (Chatters

1989; Chatters et al. 1990; Chatters et al. 1991; Chatters and Gard 1992; Chatters et al. 1993; Last et al. 1994). These reviews, conducted to ensure compliance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act, and other cultural resource-related legislation, resulted in many archaeological surveys. Hanford also initiated a random survey strategy that resulted in small plots being surveyed across the Site (Chatters 1989). The random survey concept was abandoned in 1992.

Large-scale survey areas have been completed in recent years, including in the 100 Areas from 1991 through 1993 (Chatters et al. 1992; Wright 1993), McGee Ranch (Gard and Poet 1992), the Laser Interferometer Gravitational Wave Observatory Project (O'Neil and Crist 1993), the Environmental Restoration Disposal Facility (Cadoret 1993), the 1995 Washington State University Archaeological Block Survey of the Hanford 600 Area (Andrefsky et al. 1996), the 100-KR-4 Pump-and-Treat Project Area Survey (Woodruff and Marceau 1996), the archaeological survey of 56 pre-selected parcels on the Arid Lands Ecology Reserve (Sharpe 1999), and the Section 110 Vernita Survey (Hale and McClintock 1998). More recent surveys include the Gable Mountain Block Survey in 2000, the Gable Butte Block Survey in 2001, the FY 2001 Fire Assessment Survey, and the FY 2001 Low-Water Survey (Eschbach et al. 2002). A comprehensive list of completed cultural resources surveys and survey acreage is available in Neitzel et al. (2002).

In recent years, surveys have involved the cultural resource staff from the Confederated Tribes of the Umatilla Indian Reservation, the Wanapum Band, the Yakama Nation, and the Nez Perce Tribe. In some cases, tribal members are participants, while in others, such as the Gable Mountain sacred site survey (Hale 2000), the survey has been designed and staffed primarily by tribal members. In recent years, the Confederated Tribes of the Umatilla Indian Reservation have been conducting archaeological surveys. Information will be provided to DOE-RL for incorporation into the Site databases.

3.4.2.6 Archaeological Survey Status

To date, approximately 22% of the Hanford Site has been surveyed for archaeological resources (Figure 4). However, because much of the surveyed areas have been conducted in areas with high site densities, it is believed that a larger proportion of the existing sites have been located.

Current State of Surveyed Areas on the Hanford Site

Surveyed areas lie within a large tract of land that has been divided into three zones: the USFWS-managed areas of the Wahluke Slope and Arid Lands Ecology Reserve, the Central Plateau, and the Columbia River corridor.

Although these areas of the Hanford Site have been surveyed, standards of site recording have changed since 1987 when the program started. Early on, site forms consisted of one or two pages of brief site and artifact descriptions. Few photographs of the sites were taken. Global positioning system technology was not used to determine accurate site location coordinates before 1995. However, from 1996 to 2000, site recording standards improved with the addition of photo and video points, more detailed site and artifact descriptions, global positioning system technology, and global positioning system mapping technology.

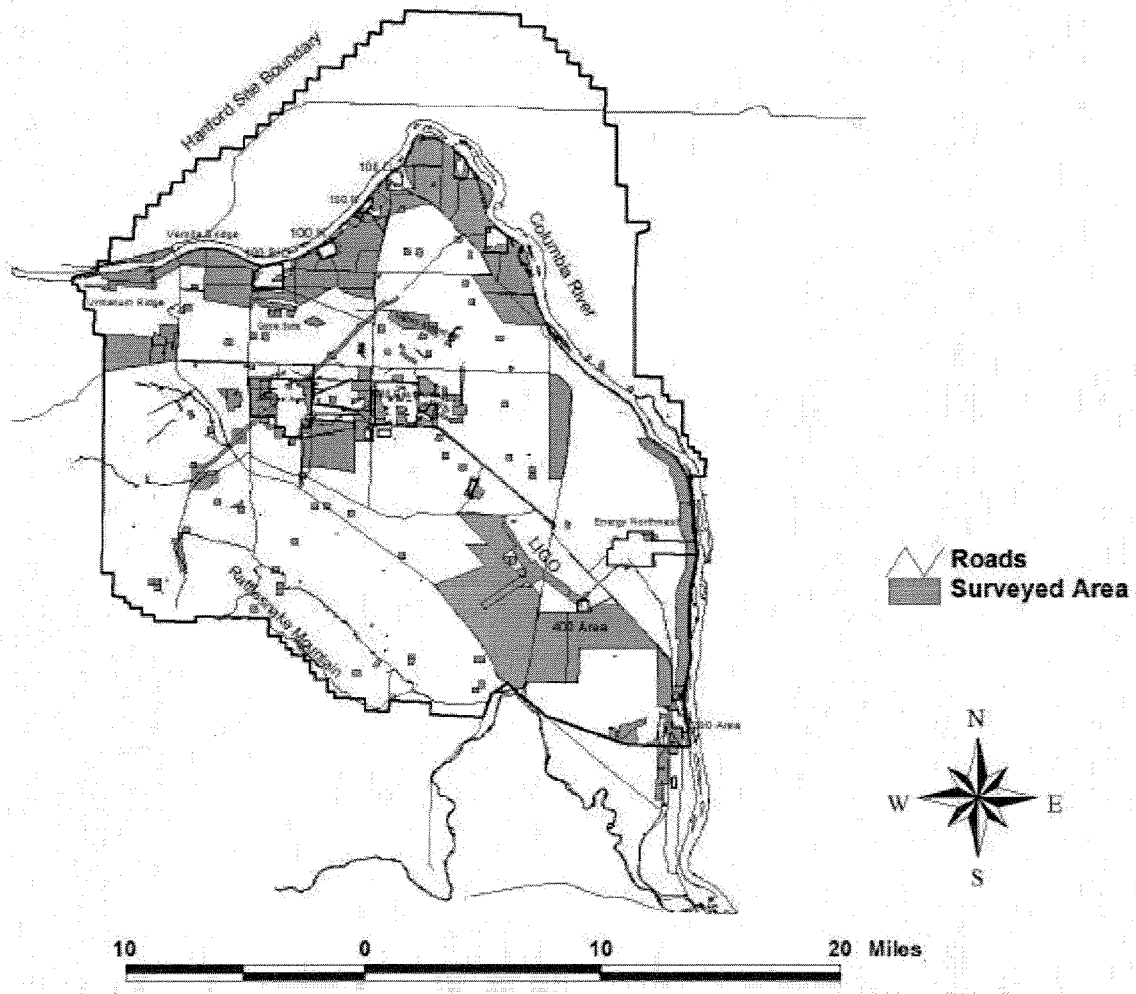


FIGURE 4 Areas Surveyed for Cultural Resources on the Hanford Site as of 2002

Few archaeological sites and no oral histories/ethnographic interviews have been recorded for the Early Prehistoric landscape on the Hanford Site. Bechtel Hanford, Inc. has recently initiated archaeological research into this time period by identifying ancient waterways.[4] The Late Prehistoric/Ethnographic landscape is better known in the number of archaeological sites recorded, but it still lacks adequate oral history/ethnographic documentation.

The pre-1943 Early Settler/Farming landscape has much available historic documentation, but systematic retrieval and organization of that information has not been attempted on a large scale. Many archaeological sites within the landscape have been recorded, but generally not to the standard necessary for doing any analysis of the landscape. Several portions of the farming landscape remain to be inventoried.

[4] Source: Personal communication with Tom Marceau.

The Manhattan Project/Cold War landscape is the best documented of all the landscapes. A Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan was written in 1998 to identify properties that contribute to the historic district and determine which of them require individual documentation or mitigation (Marceau 1998). Currently, all the contributing properties of the Hanford Site Manhattan Project and Cold War Era Historic District have been adequately documented. Oral histories will provide more documentation for the Manhattan Project/Cold War landscape, and many photographs remain to be cataloged.

Strategies for Completing Surveys

Three types of surveys for completing an inventory of cultural resources on the Hanford Site are performed. These include archaeological surveys, surveys for TCPs, and oral history/ethnographic interviews. Surveys may be conducted using one of four suggested methods: project-driven surveys, block surveys of areas with the highest site probability, block surveys of areas with sites at high risk, and random sample surveys.

Because the cultural landscapes mentioned are represented in the archaeological record by differing patterns, the survey strategy employed must be tailored to each landscape. For example, the pre-1943 Early Settler/Farming landscape may be better inventoried by use of a block survey aimed at areas with sites that are at high risk for impacts such as fire damage. Another example may be using a block survey in areas with high potential for archaeological sites as a strategy for inventory of cultural resources in the Native American landscape. In the Central Plateau, continuation of the 1987 random plot survey strategy may be a good way of sampling an already well-surveyed portion of the Hanford Site.

Section 110 requires inventory of cultural resources on federal lands. Cultural resources not only include archaeological remains, but also TCPs and oral histories. TCP surveys are just beginning on the Hanford Site. The Gable Mountain Survey in 2000 began a step in that direction. With tribal and DOE cooperation, an inventory of Hanford Site TCPs remains to be completed.

Proposed 10-Year Survey Plan

The following surveys are proposed over the next 10 years:

- Random plot surveys in the Central Plateau.
- Block surveys in areas with high potential for Late Prehistoric/Ethnographic sites where consideration is given to Special Protection Management Units that have not been fully surveyed (see *FY 2001 Hanford Cultural Resources Project Annual Report* [Eschbach et al. 2002]). Block surveys of known farmstead areas in the river corridor should be conducted.
- Geomorphological research on the ancient waterways and associated early archaeological sites.
- One TCP each year. The DOE-RL should continue to work with the tribal elders to identify other TCPs.

As the Hanford Site undergoes changes in the next 10 years, the cultural resources survey strategy will need to be flexible to be as productive as possible with available funding. The DOE-RL must coordinate cultural resources surveys with its proposed initiatives to 1) restore the Columbia River corridor, 2) complete the transition of the Central Plateau, and 3) prepare for the future. The cultural landscapes that lie on the Hanford Site require different survey strategies to fully inventory each area.

3.4.3 Excavation

Few archaeological excavations have been conducted at Hanford over the years.

3.4.3.1 Test Excavations

The only documented archaeological collection before the 1970s was the Smithsonian Institution's excavations at a cemetery in the Wahluke area. In 1926 and 1927, Krieger had surveyed the middle Columbia River valley from the mouth of the Yakima River to the Canadian border. He tested eight sites, including one at Wahluke (45GR306). Krieger did not identify the location of his test pits at Wahluke, although selected cultural items from his excavation were described and photographed (Krieger 1927, 1928).

Site testing and/or site excavation was initiated during the 1970s to evaluate National Register eligibility and salvage archaeological sites that would be lost during construction. The significance of Rice's (1973) excavations at 45BN179 and 45BN180 is readily apparent. Work at these sites resulted in the first excavation report to connect site stratigraphy, diagnostic tools, and radiocarbon dating with cultural chronologies for the greater Mid-Columbia region. Information taken from oral history, artifacts, and stratigraphy were also combined to establish a pattern of continuous use from approximately 6500 years B.P. to the Wanapum who used the area as a dog-salmon fishing site during the spring and summer seasons of the post-contact period (Relander 1956; Rice 1973). Rice's recognition of ties between prehistoric use and historic use by the Wanapum continued to be a factor in his subsequent work on the Hanford Site (Rice 1973).

During the 1970s, Rice directed Mid-Columbia Archaeological Society excavations (Table 7) and conducted test excavations at a historic log structure (45FR266) on the east bank of the Columbia River at the White Bluffs ferry landing (Rice 1976). Although the bulk of his findings at the latter were historic in nature, his excavation confirmed an earlier prehistoric presence at this important river crossing.

Following creation of the Hanford Cultural and Historic Resources Program in 1987, staff conducted various test excavations at eight archaeological sites, generally to evaluate their eligibility for listing on the National Register. All of these excavations took place between 1987 and 1994. The majority of these excavations were focused on pre-contact Native American sites located adjacent to the Columbia River (45BN163, 45BN432/433, 45GR306, 45BN446, 45BN90, 45BN423); only two pre-contact sites from the interior of the Hanford Site have been subject to subsurface examination (45BN447/362, 45BN412). The following is a brief summary and status of each tested site.

TABLE 7 Test Excavations Conducted on the Hanford Site

Property Name	Excavation Conducted By
45BN090	Western Washington University
45BN143	Hanford Cultural Resources Laboratory
45BN149	Mid-Columbia Archaeological Society
45BN150	Bechtel Hanford, Inc.
45BN157A	Mid Columbia Archaeological Society University of Idaho Columbia Basin College
45BN163	Hanford Cultural Resources Laboratory
45BN179	University of Idaho
45BN180	University of Idaho
45BN157A	Mid Columbia Archaeological Society
45BN307	ERTEC, Northwest Inc.
45BN423	Hanford Cultural Resources Laboratory
45BN412	Hanford Cultural Resources Laboratory Western Washington University
45BN431/432	Bechtel Hanford, Inc.
45BN432	Hanford Cultural Resources Laboratory
45BN433	Hanford Cultural Resources Laboratory
45BN446	Hanford Cultural Resources Laboratory
45BN447/362	Hanford Cultural Resources Laboratory
45BN606	Bechtel Hanford, Inc.
45BN888	Bechtel Hanford, Inc.
45FR266h	University of Idaho
45GR302A	Mid-Columbia Archaeological Society
45GR306	Smithsonian Institute Central Washington University Hanford Cultural Resources Laboratory
45GR306B	Mid-Columbia Archaeological Society
45GR317	Mid-Columbia Archaeological Society
45GR318	Mid-Columbia Archaeological Society

- 45BN90 – This is an open campsite, located on the south bank of the Columbia River near Vernita Bridge. Subsurface testing was conducted June through July 1990 in a collaborative effort between Western Washington University and the program. A total of 6,645 artifacts were recovered, of which 93 percent is lithic debris. To date, these excavations have not been formally reported, and National Register status of the site remains unevaluated.

- 45BN163 – This is a possible housepit site, located on the west bank of the Columbia River near the northern end of the 300 Area. Subsurface testing was conducted by the program in 1988, 1992, and 1993. A total of 619 artifacts were recovered, including both historic and pre-contact materials. A formal report on the subsurface testing has not been completed. The site is included in the Hanford South Archaeological District, and on the Washington State Register as of August 26, 1983.

- 45BN423 – This is an open campsite located on the south bank of the Columbia River immediately north of the K Reactor complex. Subsurface testing was conducted by the program in July-September 1992, in conjunction with the 100 Area Operable Unit CERCLA characterization study. A total of 6,273 artifacts were recovered, the majority of which were bone fragments and lithic debris. Based on diagnostic artifacts (projectile points), the site dates to at least 1500 B.P., and possibly as old as 4500 B.P. The site has been determined eligible for the National Register by SHPO on May 17, 1994.

- 45BN412 (Tsulim Bison Kill Site) – This site is located in an active sand dune on the east side of Route 2 South, approximately 2 kilometers (1.2 miles) west of the Columbia River. Subsurface testing was conducted in 1990 in a collaborative effort by the program and a Western Washington University archaeological field school. Approximately 7,516 artifacts were recovered, the majority of which were fragments of bison tooth enamel. Radiocarbon dating places the age of this site at 2100 ± 90 B.P. A full report of the site, and a possible scenario of the events which took place there, was compiled by Chatters et al. (1995). The National Register status of the site remains unevaluated.

- 45BN432/433 – This is an open campsite located on a Columbia River terrace overlooking the Columbia River in the 100F Area. Subsurface testing was conducted by the program in July-September 1992, in conjunction with the 100 Area Operable Unit CERCLA characterization study. A total of 892 artifacts were recovered, the majority of which were bone fragments and lithic debris. A formal analysis of the tool and lithic debris was conducted by Gard; however, the test excavations were never documented. The National Register status of the site(s) remains unevaluated.

- 45BN446 – This is an open campsite located on a sloping Columbia River terrace near B Reactor. Subsurface testing was conducted by the program in 1993 and 1994 in conjunction with the 100 Area Operable Unit CERCLA characterization study. A total of 644 artifacts were recovered, the majority of which were bone fragments and lithic debris. Stratagraphic profiles and descriptions of sediment columns have been completed, although a formal analysis of the test excavation and artifact analysis has not been completed. The site has been determined eligible for the National Register by SHPO on May 17, 1994.

- 45BN447/362 – This site is located within an interior valley in the central portion of Gable Butte. Because of their close proximity, sites 45BN447 and 45BN362 were joined into a continuous unit in 2001. The site is recorded as an historic Wanapum and Yakama vision quest area, and the area considered a TCP. Subsurface testing was conducted by the program in 1993 at 45BN447. A total of 1,350 artifacts were recovered, the majority of which were bone fragments. Charcoal samples yielded radiocarbon dates of 330 ± 30 B.P. and 270 ± 40 B.P. Site 45BN362 has been determined eligible for the National Register by SHPO on February 12, 1990, is included in the Gable Mountain Cultural District, and is listed on the State Register as of November 15, 1974. There has been no formal analysis of 45BN447 excavations thus far, aside from the aforementioned radiocarbon analysis.

- 45GR306 – This is a large campsite located on the north bank of the Columbia River between Wahluke and the White Bluffs. Subsurface testing was conducted in 1989 as a collaborative

effort between the program and Central Washington University, the findings of which were reported by Chatters and Hackenberger (1989). Approximately 5,059 total artifacts were recovered. Chatters notes that although extensive looting has taken place at this site, intact cultural deposits are still present, extending ~1 meter (3 feet) below surface. Artifact analysis (projectile points) indicates the site dates to the Cayuse Phase (2500-250 B.P.) of Columbia Plateau pre-contact history. Subsurface testing was also conducted at this site by Krieger (1927, 1928), and as noted by Chatters (1989), possibly by Rice and the Mid-Columbia Archaeological Society. This site is included as a part of the National Register Wahluke Archaeological District, and is listed on the Washington State Register as of May 23, 1975.

Recently, ongoing environmental restoration actions necessitated measures (in the form of data recovery) at four archaeological sites located within the Area of Potential Effect for cleanup projects on the Hanford Site. The sites and associated projects were: 45-BN-150, Construction of the 100-KR-4 Pump and Treat Well Field (Sharpe and Marceau 2001); 45-BN-606, Remediation of liquid waste site 116-F-1, the Lewis Canal; 45-BN-888, Expansion of the 100-D In Situ REDOX Manipulation Well Field; and 45-BN-432/431, Remediation of Liquid Waste Site UPR-100-F-2. The purpose of each excavation was to preserve the information content of the effected site areas. These are explained in greater detail below:

45BN150 – This is an open camp located on a moderate terrace on the south bank of the Columbia River northeast of the 100-K Area. Test excavations were conducted by the ERC in July 1996. Materials noted during excavation included lithic debitage, mussel shell fragments, seeds, fragmented subsistence bone, rodent bone, fire-cracked rock. A single, small Columbia Side-Notched point was the only diagnostic tool observed, indicating at least one occupation during the Cayuse Phase from 2,500 to 250 B.P. No collections were made. All items were identified and described as excavation proceeded. While some charcoal was observed, none was of sufficient size or concentration to collect for radiocarbon dating (DOE 1997a). This site is a contributing property within the Ryegrass Archaeological District.

- 45BN606 – This is an open campsite located on the upper of two terraces that descend gradually to the Columbia River west of the 100-F Area. Data recovery excavations were conducted by the ERC in February-May 2001. Ten radiocarbon dates documented occupation extending from 2860 ± 40 B.P. (GX-28307-AMS) to 140 ± 40 B.P. (GX-28315-AMS). However, seven of these dates fell between 2860 ± 40 B.P. and 1990 ± 40 B.P. (GX-28309-AMS) suggesting that the site was used primarily during the late Frenchman Springs and Early Cayuse phases. Similarity in chipped stone tools, rough stone tools, and primary production materials was repeatedly demonstrated throughout six cultural components. Complete or identifiable projectile points included Nespelam Bar, Rabbit Island, and Columbia Corner-Notched. Representative tools included bifaces, formed scrapers, drills, bifacial- and unifacial-edged knives, unifacial-edged scrapers, burin/gravers, choppers, hammer stones, rough stone scrapers, and spall scrapers. Subsistence remains included freshwater mussel shell (*Margaritifera falcata*), deer, elk, antelope, and rabbit (which dominated the faunal assemblage). Hearths, refuse pits, and remnant living floors (composed of rocks, cobbles, and/or small boulders) were present, although no pit houses or other habitation structures were evident. This site was interpreted as a series of short-term, seasonal (i.e., spring through early summer) camps primarily devoted to small game and mussel shell procurement (Sharpe and Marceau 2002a). This site was determined eligible for listing in the National Register on December 4, 2002.

- 45BN888 – This is an open campsite situated on a high, steep-angled terrace on the south bank of the Columbia River south of the 100-D Area. Data recovery excavations were conducted by the ERC in April-May 2001. Seven radiocarbon dates extending from 5880 ± 70 B.P. (GX-28428) to 1450 ± 40 B.P. (GX-28425-AMS) documented intermittent occupation during the Cascade/Vantage, Frenchman Springs, and Early Cayuse phases. Similarity in chipped stone tools, rough stone tools, and primary production materials carried over across three cultural components. A complete post-Cascade Leaf-Shaped projectile point was noted within the lithic assemblage. Representative tools included bifaces, unifacial-edged knives, unifacial-edged scrapers, choppers, a hammer stone, rough stone scrapers, and spall scrapers. Subsistence remains included freshwater mussel shell (*Margaritifera falcata*), medium to large mammals such as deer and elk (which dominated the faunal assemblage), and rabbits. A large shell midden was the most prominent feature together with a remnant living floor (composed of rocks and cobbles). No pit houses or other habitation structures were evident. Occupations at this site were interpreted as short-term, seasonal (i.e., spring through early summer) encampments primarily devoted to medium to large game and mussel shell procurement (Sharpe and Marceau 2002a). As a post-review discovery, this site was determined eligible for listing in the National Register on January 31, 2001.

- 45BN432/431 – This is an open campsite situated on a steeply-sloped terrace on the south bank of the Columbia River northeast of the 100-F Area. Test excavations were conducted by the ERC in October-November 2001. Four radiocarbon dates provided a range of occupation extending from 8860 ± 80 B.P. (GX-29272) to 270 ± 50 B.P. (GX-29273), however, three of the four dates clustered within the Late Cayuse Phase between 660 and 220 B.P. indicating a relatively recent occupation. The assemblage was composed primarily of freshwater mussel shell (*Margaritifera falcata*), highly fragmented mammal bones, chipped stone and cobble tools, and debitage dominated by chert. Representative tools included fractured projectile points (not classifiable), bifaces, uniface-edged knives, uniface-edged scrapers, choppers, rough stone scrapers, and spall scrapers. Medium to large game animals, including bighorn sheep, accounted for the majority of the faunal remains recovered within the tested area. Small mammals, particularly rabbits, accounted for nearly another quarter of the total recovered, with fish providing an additional ten percent. Distributional analyses of these materials indicated that the site area sampled was multicomponent, with at least four occupations. The site area lacked habitation features (i.e., house pits) and appeared to be an open-air, seasonal camp devoted primarily to shellfish, fish, mammal, and plant procurement and processing (Sharpe and Marceau 2002b). As a post-review discovery, this site was determined eligible for listing the National Register on April 27, 2001.

In addition to excavations, subsurface deposits have been observed during long-term protection monitoring and construction monitoring. Numerous features, for example, have been identified in the Locke Island Archaeological District (Nickens 1998).

3.4.3.2 Large-Scale Excavations

Excavation has been limited to test excavations (see Section 3.4.3.1).

3.4.3.3 Excavation Status

There are no plans to conduct additional excavations at Hanford.

3.4.4 Structure and Facility Management

The designation of the Manhattan Project and Cold War era facilities at the Hanford Site as a historic district came about through a programmatic agreement between DOE and SHPO. In the early 1990s, it became apparent that the plutonium production complex at Hanford would be deactivated, decommissioned, and demolished in the coming decades. Management of the Manhattan Project and Cold War buildings as cultural resources began around 1990, and various mitigation efforts had taken place in response to specific building demolition. Based on these experiences, the cost and potential delays became a grave concern to DOE-RL. Following a review of existing management practices, DOE-RL initiated a new strategy that moved from project-by-project, building-by-building considerations to the development of a streamlined framework to direct the management of all Manhattan Project and Cold War era properties at Hanford and expedite preservation efforts while ensuring cleanup activities would not be delayed.

To formalize this framework, DOE-RL, SHPO, and the Advisory Council on Historic Preservation signed a programmatic agreement in 1996 that modified compliance with Sections 106 and 110 of the National Historic Preservation Act with respect to historic buildings on the Hanford Site (DOE 1996a). In deliberations leading to the programmatic agreement, DOE and SHPO first determined that the Hanford Site was a designed industrial landscape, whose buildings, grouped by function within designated geographic complexes, were united historically and thematically by the production of plutonium for national defense. Given this finding, DOE and SHPO agreed that the Hanford Site met the requirements for a historic district, as defined by the National Park Service, because it possessed a "significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically… by plan or physical development" (NPS 1991). By identifying the Hanford Site Manhattan Project and Cold War Era Historic District in the programmatic agreement, DOE and SHPO were able to replace documenting and mitigating each building at the Hanford Site with a systematic treatment of representative structures at the Hanford Site.

Key to this strategy was the development of property types and the identification of those buildings that best represented each type. The DOE selected the primary functions of fuel manufacturing, reactor operations, chemical separations, and plutonium finishing as well as the support functions of waste management, research and development, site security, military operations, health and safety, and infrastructure as categories in which the buildings would be classified. Using this classification matrix, DOE assigned 1,100 buildings to specific property types and evaluated each building for its eligibility for listing in the National Register as a contributing or non-contributing property within the historic district. Of the 527 buildings determined to be contributing properties, DOE and SHPO ultimately selected 190 (initially 187) properties for individual documentation using Historic American Engineering Records, ExHPIFs, or standard Historic Property Inventory Forms. These key properties collectively represented the events and activities that took place on the Hanford Site from 1943 to 1990. The *Hanford Site*

Manhattan Project and Cold War Era Historic District Treatment Plan (Marceau 1998) illustrates the original classification matrix of 1,100 buildings and the properties recommended for individual documentation and mitigation.

The DOE's current mission of environmental restoration, which includes the demolition of surplus properties, will have an adverse effect on the historic properties that the Hanford Site Manhattan Project and Cold War Era Historic District comprises. However, SHPO agreed that recording key events that occurred at the Hanford Site from 1943 to 1990 in an historic narrative and documenting each of the 190 representative properties would address the effects of decommissioning and environmental restoration. DOE agreed to write a "synthetic, integrated Hanford Site historic narrative" that would include:

- Contextual information about the different property types and processes associated with them
- Numbers and locations of buildings within property types – see Table A.5 in the *Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan* (Marceau 1998)
- Descriptions of changes in technology, design, and use of property types over time
- Photographs, plans, and cross-sections of representative examples of the different property types.

The narrative was further defined in the treatment plan (Marceau 1998), which was written in compliance with Stipulation IV of the programmatic agreement. In scope, the historic narrative would be a "report which will chronicle the history of the Hanford Site, its technology, and the people who worked here" (Marceau 1998).

The *History of the Plutonium Production Facilities at the Hanford Historic District, 1943-1990* (DOE-RL 2002) provides a description of the facilities at the Hanford Site organized by the processes that define their reason for existence, mainly fuel manufacturing, reactor operations, chemical separations, plutonium finishing, and related activities. It complies with the requirements of the National Historic Preservation Act to document those facets of the properties that qualify them for listing in the National Register, and their role in the Manhattan Project and subsequent Cold War. It also corresponds with the intent of the National Register program to recognize physical properties and document their appearance and importance.

While the eventual removal of plutonium production facilities has been mitigated, there is still a desire by many to preserve elements of the complex for onsite interpretation, as mentioned in Chapter 4 of the mitigation document (DOE 2002). Contamination concerns and availability of funds restrict DOE-RL's ability to meet this goal. For example, after many years of planning on making B Reactor, the hallmark of Hanford history, a museum, DOE-RL has recently announced it will no longer pursue that option. It will consider that option if an organization with funding steps forward, however. Despite the decision concerning B Reactor, DOE-RL is evaluating other options concerning onsite interpretation of Hanford's plutonium production history.

3.4.5 Laboratory Treatment

The status of excavations conducted at Hanford was recently summarized by Noonan (2002). In reviewing the collections and associated records and reports, a grading scale was developed to indicate the urgency in conducting further research into specific archaeological collections; each site or isolates' grade was indicated in the last portion of the data sheet, "Recommendation & Grade." The scale is ordinal, from 1 – indicating a high research priority, to 5 – no further research needed. The grade for each collection was based on the following criteria:

1. Size of collection (over 100 artifacts is considered a priority for further research)
2. Types of artifacts contained within the collection (i.e., diagnostic, rare, etc.)
3. Lack of published data (internal or external) on excavation or surface collection
4. National or State Register status of the archaeological site (eligible, not eligible, not evaluated).

The number of collections (47,897 artifacts representing 75 sites) assigned to each grade is shown below

- Grade 1 = 16 sites (46,459 artifacts)
- Grade 2 = 5 sites (279 artifacts)
- Grade 3 = 11 sites (310 artifacts)
- Grade 4 = 14 sites (105 artifacts)
- Grade 5 = 29 sites (744 artifacts).

One byproduct of the excavations and monitoring efforts has been the collection of radiocarbon samples. Dates collected by the program staff are identified in Table 8; more recent dates from other contractors will be published in the near future. All dates are graphically depicted in Figure 5. The dates are currently being analyzed and the results will be published separately.

3.4.6 Curation

The Hanford Cultural and Historic Resources Program manages two broad classes of artifacts: archaeological collections recovered from archaeological sites through excavation or surface collections and historical collections related to the plutonium production complex and recovered from historic facilities.

Archaeological Collections

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

TABLE 8 Radiocarbon Dates from Hanford Archaeological Sites

Measured ^{14}C Age in Yr BP	Convention ^{14}C Age in Yr BP	Laboratory No.	Calibration to Calendar Years	Material	Stratigraphic Position	Site Number	Comments
50 ± 50	30 ± 50	Beta-107583	AD 1695 to 1725 and AD 1815 to 1920	Charred Material		Locke Island	801.1.
110 + 50	110 + 50	Beta-107580	AD 1670 to 1950	Charred Material		Locke Island	2/26/97 (radiometric-standard process).
130 ± 40	130 ± 40	Beta-95868	AD 1670 to 1950	Charred Material	26 cm below surface.	N/A	Charcoal sample taken from near surface on Island 3. Not a cultural feature (radiometric-standard process).
230 ± 40	230 ± 40	Beta-92477	AD 1640 to 1685 and AD 1740 to 1810 and AD 1930 to 1950	Charcoal	1.65 m below surface.	Locke Island	Sample 5 - Boat Launch taken 0.8 m above cultural layer - did not come from a cultural feature.
230 ± 60	230 ± 60	Beta-92906	AD 1515 to 1585 and AD 1625 to 1825 and AD 1835 to 1880 and AD 1915 to 1950	Charred Material	1.02 m below surface.	Locke Island	Sample #831.2 from Locke Island. Small sample size given extended counting time. Taken from hearth feature.
280 ± 50	240 ± 50	Beta-107589	AD 1520 to 1570 and AD 1630 to 1690 and AD 1735 to 1815 and AD 1925 to 1950	Charred Material		Cutbank	CB10 F1 (AMS process).
290 ± 80		Beta-33039		Charcoal	80-100 cm below unit datum or approximately 90-110 cm below surface; Test Unit 6, Level 8/9.	45GR306B	Charcoal sample, house floor big chunks conifer wood.
310 ± 40		Tx-No. 3331		Charcoal From Hearth	1.3-1.5 m below surface.	45BN257	On surface, Chinese ricebowl fragment; below surface, hearth w/dense concentration of 205 fire blackened/cracked rocks 2.5 x 0.75-0.90 m. Shell, sm mammal bone, 3 flakes & 3 cobble tools. Charcoal sample probably from sagebrush limb sections.
340 ± 50	310 ± 50	Beta-92478	AD 1460 to 1670	Charred Material	0.75 m below surface.	Locke Island	Sample #807 from hearth feature. Two samples taken from this feature one from north end, one from south end.
350 ± 50	310 ± 50	Beta-107582	AD 1460 to 1670	Charred Material		Locke Island	6/26/97 F1 (AMS Process).

Table 8 (Cont.)

Measured ^{14}C Age in Yr BP	Convention ^{14}C Age in Yr BP	Laboratory No.	Calibration to Calendar Years	Material	Stratigraphic Position	Site Number	Comments
370 ± 50	330 ± 50	Beta-107588	BC 1135 to 890	Charred Material		Cutbank	CB8F3 (AMS Process).
460 ± 50	460 ± 50	Beta-112430	AD 1410 to 1505 and AD 1595 to 1620	Charred Material		Cutbank	CB8F1.
440 ± 50	340 ± 40	Beta-112432	AD 1455 to 1655	Charred Material		Cutbank	CB10F2.
510 + 50	470 + 50	Beta-107590	AD 1405 to 1495	Organic Sediment		Cutbank	F2 Hearth (AMS Process).
540 ± 50	530 ± 50	Beta-112431	AD 1310 to 1355 and AD 1385 to 1450	Charred Material		Cutbank	CB8F4.
640 ± 70	640 ± 70	Beta-92905	AD 1265 to 1425	Charred Material	0.75 m below surface.	Locke Island	Sample #907 from Locke Island. Small sample given extended counting time. Sample taken from hearth feature. Two samples taken from this feature, one from north end, one from south end.
770 + 50	720 + 50	Beta-107591	AD 1235 to 1315 and AD 1345 to 1390	Charred Material		Locke Island	T800 Floor (AMS Process).
990 ± 90		Beta-33036		Charcoal	130-140 cm below unit datum or approximately 135-145 cm below surface; Test Unit 4, Level 14.	45GR306B	Charcoal sample twig/branch, hardwood.
1070 ± 60	1070 ± 60	Beta-107584	AD 875 to 1040	Charred Material		Locke Island	804.3 (AMS Process).
1150 ± 110		Beta-33038		Charcoal	200-210 cm below unit datum or approximately 205-215 cm below surface; Test Unit 4, Level 21.	45GR306B	Charcoal sample, shrubwood, sagebrush.
1370 ± 160		Beta-33035		Charcoal	110-120 cm below unit datum or approximately 115-125 cm below surface; Test Unit 4, Level 12.	45GR306B	Charcoal sample conifer wood.
1570 ± 40	1550 ± 40	Beta-92473	AD 425 to 615	Charcoal	~1.8 m below surface.	Locke Island	Sample 1-806-1 was a composite sample taken from cultural strata IX.

Table 8 (Cont.)

Measured ^{14}C Age in Yr BP	Convention ^{14}C Age in Yr BP	Laboratory No.	Calibration to Calendar Years	Material	Stratigraphic Position	Site Number	Comments
1590 ± 50	1570 ± 50	Beta-92475	AD 405 to 615	Charcoal	~1.6 m below surface.	Locke Island	Sample 3-806-1 was not taken from a cultural feature.
1690 ± 60	1670 ± 60	Beta-92904	AD 245 to 540	Charcoal	3 m north of 806A line. Located ~95 cm below feature 806.1.	Locke Island	Sample 906A-1 taken from a "feature" 23 cm wide [long] and 10 cm [in] height (AMS Process).
1830 ± 90	1820 ± 90	Beta-21091		Charcoal	Grave fill.	45BN157	Charcoal sample.
1830 ± 90		Beta-44112		Tooth Enamel Carbonate Fraction	Surface.	45BN412	Tooth enamel selected from wind-blown surface deposits in "dune blowout." Beta Analytic provided 2 dates: 1830±90 BP for ^{14}C and 2100 ± 90BP for ^{13}C.
1870 ± 50[1]	1840 ± 50	WSU-1421; dendrocorrected (Rice 1980c:84).		Shell	160-200 cm below surface (estimated from stratigraphic profile); at the base of Cayuse Component [Stratum 3b] (Rice 1973).	45BN179	Exact sample location not specified in field notes or other correspondence currently available for inspection. Approximately 10-20% of outer shell removed by WSU Radiocarbon Dating Laboratory before sample was processed.
1870 ± 50	1840 ± 50	Beta-92474	AD 75 to 330	Charcoal	~1.8 m below surface.	Locke Island	Sample 2-806-1 taken from cultural strata IX.
1900 ± 50	1910 ± 50	Beta-107581	AD 5 to 235	Charred Material		Locke Island	4/29/97 Feature-A.
1940 ± 40	1940 ± 40	Beta-92476	BC 5 to AD 145	Charcoal	2.45 m below surface.	Locke Island	Sample 4-806-1. Sample not taken from a cultural feature.
1960 ± 50	1950 ± 50	Beta 107585	BC 40 to AD 160	Charred Material	4.35 m below surface.	Locke Island	810.1 (AMS Process).
2110 ± 60	2130 ± 60	Beta-92903	BC 365 to AD 5	Charred Material	Toe of cutbank near broken projectile point and long bones encountered 4/4/96? Distance from surface not recorded.	Locke Island	Sample 804.1. Sample not taken from cultural feature (AMS Process).
2350 + 50	2340 + 50	Beta-107586	BC 505 to 360 and BC 280 to 250	Charred Material		Locke Island	Sample from White Bluffs burial pit.

Table 8 (Cont.)

Measured ^{14}C Age in Yr BP	Convention ^{14}C Age in Yr BP	Laboratory No.	Calibration to Calendar Years	Material	Stratigraphic Position	Site Number	Comments
2540 ± 70	2540 ± 70	Beta-93433		Organic Sediment	Hearth ~1.15 m below surface.	45BN162	Bulk soil sample from intact hearth inadvertently impacted during hand digging for a trench in the NE section of the 300 Area (AMS process).
2850 ± 50	2850 + 50	Beta-107587	BC 1135 to 890	Charred Material		Cutbank	CB1f1.
3850 ± 130		Beta-33041		Bulk Soil	98-117 cm below unit datum or approximately 118-127 cm below surface; Test Unit 7.	45GR306B	Two samples taken from Test Unit 7 shell and "carbon in earth."
4300 ± 110		WSU-1509; dendrocorrected (Rice 1980c:72).	2903 ± 117	Bone	175-218 cm (69-86 in.) below surface.	45BN157a	Exact sample location not specified in published accounts; sample taken from Vantage Component: Stratums 4, 5, and 6, 43 cm (17 in) thick (Rice 1980c:69, 72). WSU report of ^{14}C analysis not available for date.
7880 ± 110		Beta-33040		Shell	98-117 cm below unit datum or approximately 118-127 cm below surface; Test Unit 7.	45GR306B	Two samples taken from Test Unit 7 shell and "carbon in earth."

WSU = Washington State University.

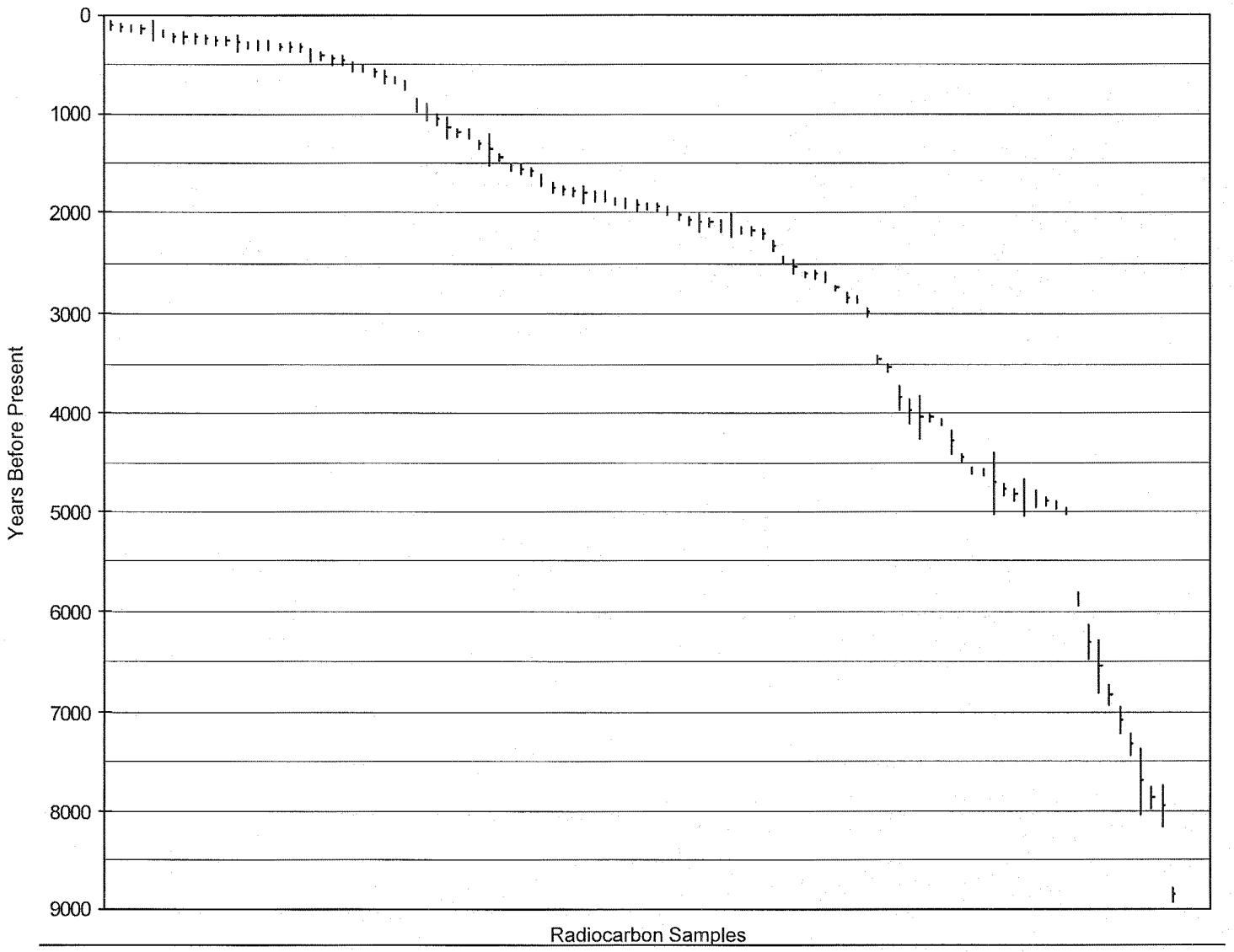


FIGURE 5 Radiocarbon Dates Collected at Hanford Arranged Chronologically

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, Hanford cultural resources were considered on a project-by-project basis by several different archaeologists and universities. In 1987, DOE-RL created a Hanford Cultural and Historic Resources Program 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.

Although most of DOE's archaeological collections were curated at PNNL, several of Hanford's archaeological collections were stored offsite by members of the Mid-Columbia Archaeological Society. In 1992, DOE-RL's Cultural and Historic Resources Program Manager initiated efforts to consolidate Hanford's archaeological collections. By 1993, nearly all DOE-RL's archaeological collections had been identified and returned to the Hanford Site.

DOE-RL's archaeological collections are currently curated by PNNL in Room 2209 of the Sigma V building, also called the Repository. Archaeological collections and isolated artifacts curated in the Repository include archaeological collections from 147 archaeological sites, four collections turned-in or confiscated from onsite workers, seven 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. Noonan (2002) recently described and assessed the condition of collections related to excavations at Hanford.

The DOE-RL Hanford Cultural and Historic Resources Program also maintains a collections storage area for archaeological collections at the Consolidated Information Center, Washington State University–Tri-Cities. The storage facility is located in a laboratory where facilities are available for cleaning and analyzing Hanford collections. The DOE-RL shares this facility with the university.

Manhattan Project/Cold War Collections

The Hanford curation strategy was developed by DOE to resolve outstanding issues surrounding the collection of Manhattan Project and Cold War era artifacts and records (DOE 1997d). Near- and long-term actions have been identified for successful application of the curation strategy and to convey the history of the Hanford Site. Near-term actions include provisions for identifying and protecting artifacts, and making them available for interpretive and educational purposes. DOE has sought partnerships with local heritage organizations, such as the Columbia River Exhibition of History, Science and Technology, B Reactor Museum Association, Washington State Historic Railroad Association, and local historical societies.

The Columbia River Exhibition of History, Science and Technology, the local museum, is under contract by DOE to manage Hanford's Manhattan Project and Cold War era collection. Unfortunately, the museum's temporary storage facilities are reaching full capacity. Artifacts and records under the care of the Columbia River Exhibition of History, Science and Technology must be transported considerable

distance between storage facilities and the museum. This situation puts a considerable amount of stress on fragile historic pieces, records as well as time and expense. The museum is working with DOE to secure long-term curation facilities on the Hanford Site.

A stipulation of the Programmatic Agreement for the built environment (DOE 1996a) requires DOE to assess the contents of Hanford's historic Manhattan Project and Cold War buildings and structures before commencement of deactivation, decontamination, decommissioning activities, major modifications to the building fabric, and/or removal of historic engineering/technological features and records. The purpose of these assessments is to locate and identify historic artifacts (e.g., equipment, control panels, signs, models) or records (e.g., memos, reports, photographs, videos) that may have research, interpretive, or educational value as exhibits within local, state, or national museums. A team of people with relevant expertise accomplishes the assessments by conducting walkthroughs of the contributing properties within the historic district. Teams comprise cultural resource specialists, historians, archivists/curators, and facility experts. The teams employ a screening criterion to select significant Manhattan Project/Cold War era artifacts for inclusion in the collection.

Recognizing that Site artifacts have great educational and public interpretive potential and are significant resources to scholars and researchers, DOE developed a Site-wide curation strategy for the management of Manhattan Project and Cold War era artifacts that established selection criteria for the identification and preservation of Manhattan Project/Cold War artifacts (DOE 1997d). The criteria developed included artifacts 1) associated with historically significant figures, 2) associated with historically important events, 3) that represent a significant leap in technology (innovations and spin-offs), and 4) that reflect social historical impact on twentieth-century American life. At least one of the above criteria must be met if an item is to be identified as a historic Manhattan Project/Cold War artifact. Finally, items made at the Site are considered a high priority for collection since Hanford is probably the only place they exist. They are one-of-a-kind technological items and are irreplaceable.

If an item meets the screening criteria, then the artifact is designated with a Hanford Artifact tag and assigned a number. The artifacts are photographed in their original setting before their removal for curation and storage. Sometimes artifacts are retained in-place if they are not threatened with modification. At the time of identification, the team attempts to collect documentation regarding the function, origins, operation, and general history of the selected artifact or artifacts.

Additionally, important objects that reflect the printed record of operations at Hanford, including photographs, maps, manuals, and drawings, are part of the historic archival record and are being assessed, collected, and preserved.

A considerable majority of the items in the collection are more representative of Hanford's secondary themes than the primary production processes. There are several reasons for this: artifacts representative of plutonium production are, in many cases, either too large and/or contaminated for exhibit purposes. Furthermore, because of major technological changes over the years, much of the production process equipment has been retrofitted or significantly modified, or no longer exists because of the changing mission of the Site from production to environmental restoration. Buildings have been decommissioned, deactivated, and/or demolished with their contents often removed and destroyed prior to the initiation of the curation strategy. Artifacts representative of the secondary themes have not been as readily discarded, or modified as frequently to accommodate technological changes.

A large percentage of the collection consists of archival items, such as publications, unpublished documents, photographs, drawings, models, museum/exhibit props, and panels. Three-dimensional artifacts, such as equipment, tools, vintage signs and posters, early office furniture, and workers safety items make up the balance of the collection. This collection offers numerous opportunities for creative, educational, and science-oriented exhibits.

3.4.7 Preservation

Preservation of cultural resources at Hanford requires knowledge about the condition of the resources (i.e., what damages the resources have sustained and the threat of further damage in the future). Measures of damage and threat to the resources will help Site managers and decision makers decide where limited cultural resources funds should be best spent to protect and preserve Hanford's cultural resources. The following is an assessment of cultural resources at Hanford completed by the program. Each year, these assessments are updated with the current year's data gathered from site monitoring, construction monitoring, and Section 110 survey projects. As these assessments are adjusted, they should become further representative of the state of cultural resources on the Hanford Site.

To reflect the variety of cultural resources found in areas of the Hanford Site, the land was divided up into focus areas called Special Protection and Mitigation Units (SPMU). These units were based on existing National Register archaeological districts, landforms, or logical areas of similar cultural resources. Only those portions of Hanford where cultural resources have been damaged or threatened have been divided up into SPMUs. Some units are land-based (i.e., refer to geographic areas of the Site); others are activity based (i.e., refer to common types of resources).

After the Hanford Site was divided into SPMUs, each unit was analyzed by program staff to produce a final score that would be compared to other unit scores to determine relative damage and threats to cultural resources. In this way, protective actions needing to be taken could more easily be prioritized.

Each SPMU was analyzed by researching erosion, looting/ARPA violations, and recreational use. Researchers looked at each archaeological site within an SPMU to count the number of incidents of erosion, looting/ARPA violations, and recreational impacts to sites through time. Thus, if a particular site was monitored six times within the past 30 years, of which three monitoring visits reported recreational impacts, then three counts of recreational impacts would be ascribed to the SPMU in which the site lay. After all sites within a SPMU were counted, the totals of each category were listed on a SPMU form.

In addition to reporting the location of each SPMU, the unit form lists all sites within the SPMU area, impacts reported in the area, and management recommendations for the unit. Also, rivershore erosion monitoring data, historic photographs, and previous reports on area projects were consulted for data. A ranking order was assigned from 1 to four to describe the level of previous damage to cultural resources within the SPMU. Another rank was assigned to describe the level of perceived threat to cultural resources within the SPMU. These two ranks are incorporated on a summary table of all SPMUs to compare damage and future threat levels.

Twenty-seven SPMUs have been identified at the Hanford Site. Although most of these are geographical areas encompassing all similar archaeological sites, a few SPMUs comprise other cultural resources such

as Manhattan Project era worker interviews and farming era artifact collections. These SPMUs were ranked along with the archaeological SPMUs. Copies of all SPMU forms are on file with the program.

Land-based SPMUs are as follows:

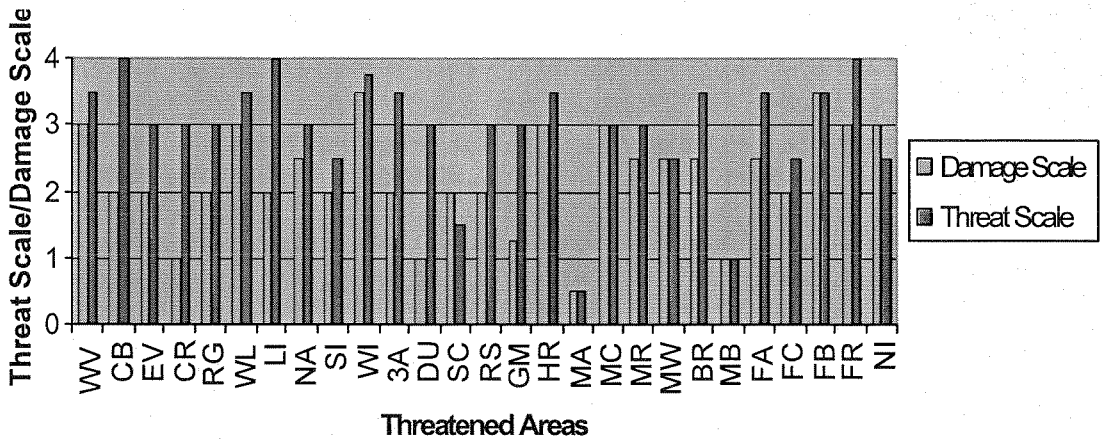
- China Bar
- Coyote Rapids
- The Dunes
- East Vernita Bridge
- Gable Mountain/Gable Butte
- Hanford North
- Horn Rapids
- Locke Island
- Rattlesnake Springs
- Ryegrass
- Savage Island
- Snively Canyon
- Wahluke
- West Vernita Bridge
- Wooded Island
- 300 Area.

Activity-based SPMUs are as follows:

- B Reactor
- Farming Archaeology
- Farming Buildings
- Farming Collections
- Farming-Related Interviews
- Nike/Anti-Aircraft Artillery Sites
- Manhattan Buildings
- Manhattan Cold War Archaeology
- Manhattan Collections
- Manhattan Records
- Manhattan Worker Interviews.

The rankings of all SPMUs are shown in Figure 6. Summaries of the SPMUs are on file with the program. Summaries of the findings are provided below.

Many SPMUs face similar destructive forces. The impacts common to many SPMUs are quantified in Figure 7 and summarized below.



Legend

WV – West Vernita
CB – China Bar
EV – East Vernita
CR – Coyote Rapids
RG – Ryegrass
WL – Wahluke
LI – Locke Island
NA – Hanford North Archaeology
FB – Farming Buildings
SI – Savage Island
WI – Wooded Island
3A – 300 Area
DU – Dunes
SC – Snively Canyon
RS – Rattlesnake Springs
GM – Gable Mountain/Butte
HR – Horn Rapids
NI – Nike/Anti-Aircraft Artillery Sites
MA – Manhattan/Cold War Arch.
MC – Manhattan Collections
MR – Manhattan Records
M – Manhattan Worker Interviews
BR – B Reactor
MB – Manhattan Buildings
FA – Farming Archaeology
FC – Farming Collections
FR – Farming-Related Interviews

FIGURE 6 FY 2001 Land-Based Special Protection and Mitigation Unit (SPMU) Rankings

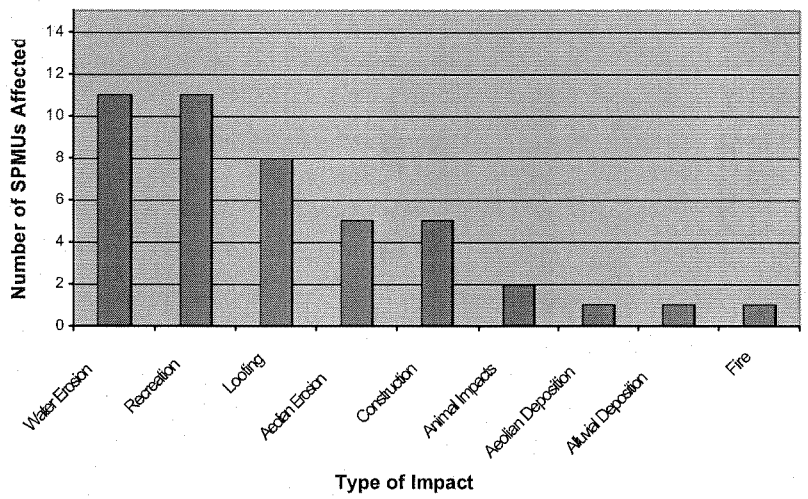


FIGURE 7 Summary of Impacts to Special Protection and Mitigation Units

A review of completed summaries for the land-based SPMUs showed that water erosion, recreational damage, and looting were the three most commonly reported impacts to SPMUs. Increased access to SPMU areas in recent years is evidently causing considerable damage to cultural resources. Water erosion and recreational damage were reported as impacts to 11 out of 15 total SPMUs. Looting was

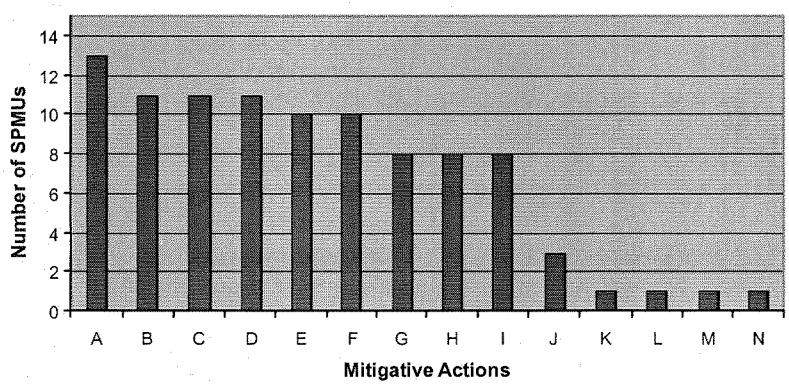
reported at eight SPMUs, while the impact of aeolian erosion and construction activity was recorded at 5 out of 15 total SPMUs. Animal impacts were noted at two SPMUs. Aeolian deposition, alluvial deposition, and the impact of fire were each noted at one SPMU.

Actions to mitigate these impacts were also made in the SPMU forms. The results are summarized in Figure 8 and discussed below.

The following tasks/actions are the first step towards reducing impacts to SPMUs and can be implemented according to the threat level at each SPMU.

The identified actions are the following:

- Take steps to limit access to SPMUs. Steps include increasing security patrols in the vicinity of SPMUs and improving DOE trespassing signage in SPMU areas, particularly where river access to SPMUs is possible. Existing fences in SPMU areas should be repaired as well.



Key to Mitigative Actions:

A Limit access to the SPMU

B Survey the remainder of the SPMU

C Record the remainder of sites within the SPMU

D Evaluate all sites within the SPMU for eligibility to the National Register

E Increase security patrols

F Collect oral histories about the SPMU

G Improve DOE trespassing signage

H Post educational signage in public areas around Hanford and Richland

I Decrease water fluctuations caused by dams on the Columbia River

J Increase monitoring of SPMUs

K Stabilize structures located in SPMUs

L Repair existing fences

M Set up erosion grids to monitor the impact of wind erosion

N Conduct geographic positioning system mapping of SPMU as a form of data recovery

FIGURE 8 Summary of Mitigative Actions Identified for Special Protection and Mitigation Units (SPMUs)

- Post educational signage in public areas of Hanford and Richland, informing the public about the consequences of disturbing or destroying cultural resources (ARPA violations, Washington Administrative Codes, etc.). Increase monitoring of vulnerable sites within SPMUs to ascertain the rate of human impacts in site areas.

- Survey the remainder of unsurveyed land within the SPMUs, and record all sites that have not been recently or fully recorded. Include an evaluation of all sites within the SPMUs for eligibility to the National Register. Continue to collect oral histories about SPMUs as a part of the inventory process.

- If possible, decrease water fluctuations caused by dams on the Columbia River. These fluctuations are the main cause of water erosion in many SPMUs.

- Although aeolian erosion was only reported for 5 out of 15 total SPMUs, the number of archaeological resources impacted by this type of erosion is high. Erosion grids could be set up at selected sites where wind erosion was reported as an impact to measure the rate of erosion. Such information would aid in developing a wind erosion mitigation plan.

Survey and site recording activities should be carried out in cooperation with tribal cultural resource staff, particularly in more sensitive areas of cultural importance.

3.4.8 Research

Research being conducted at Hanford by DOE-RL's Cultural and Historic Resources Program is applied in nature, meaning it is being conducted to improve DOE-RL's ability to manage and protect resources. Research may be conducted by outside researchers, but DOE-RL is unaware of any.

Native American-Related Landscape Research

A comprehensive research design has yet to be prepared for the Hanford Native American landscape. A series of broad research questions is presented in the prehistoric period (DOE 1997b), which generally guide the thoughts of cultural resource management professionals at Hanford.

Currently, the HCRL is in the process of developing a research strategy for evaluating the Pre-Contact Cultural Resource landscape using desktop geographic information system software in conjunction with a Microsoft® Access-founded site database. The thesis of this joined approach is that it allows the creation of an infinite number of archaeological data combinations derived from the Access database that can then be imported and represented graphically within the geographic information system. This archaeological data can then be viewed in the context of any environmental or geographic data set(s) the individual researcher requires. The strength of this design is that it does not have a single question focus. Rather, it makes concession for a wide range of research questions aimed at evaluating the multi-faceted relationship between pre-contact people and the environment. The result will be a better understanding of site distribution, both temporally and spatially.

Bechtel Hanford, Inc. is pursuing additional research in the area of ancestral waterways. Evidence indicates that the Columbia River followed different channels in the past. The research being conducted now is to identify channels where the river may have flowed within the last 12,000 years to identify areas where humans may have lived.

Ethnographic Research

As discussed, ethnographic research is being conducted with Native Americans, primarily in the area of Native American TCPs, African American Hanford workers, and farming settlement.

Farming-Related Landscape Research

The program has produced a research design to guide work on farming-related landscape research and to facilitate consultation (Stapp 2001). Long-term objectives are identified first. Then a research design for a pilot project is described that will assist in meeting the long-term objectives.

There is a sense of urgency in conducting this work. Previous efforts directed at the landscape have been irregular and haphazard. Projects are done when they need to be. There has been no overarching research agenda, design or approach to guide the work. Two primary reasons for doing this now are:

1. The descendant community is slowly passing on, and, within a decade, there will be few former residents around from whom to obtain information; information needs to be collected before it is gone forever.

2. The majority of farming resources are located in an area highly susceptible to fire; information needs to be collected before it is gone forever.

3.4.9 Outreach

The program conducts public outreach activities that range from Hanford Site-related cultural issues meetings with tribal cultural resources technicians and the interested public to presentations and community involvement efforts to educate the public on cultural resources issues on and off the Hanford Site.

3.4.9.1 Activities on the DOE Site

Tribal Involvement

Federal legislation and policies require programs such as DOE's Hanford program to solicit outside involvement, primarily as a way to ensure the program is successful. The purpose of this section is to review the major cultural resource-specific requirements for involvement.

The 1992 amendments of the National Historic Preservation Act strengthened the concept of places that have traditional religious and cultural importance to cultural groups such as Native Americans (Parker 1993). Commonly referred to as TCPs, these places often have no physical manifestations to those outside the culture to facilitate identification (in comparison, to say, archaeological sites, which have clear evidence of past human activity). Thus, to identify TCPs, an agency must involve groups with historical ties to lands currently being managed by an agency.

The National Historic Preservation Act requires involvement of Native Americans and other groups during the Section 106 process. If a resource eligible for listing on the National Register is to be adversely impacted by an agency action, consultation with interested tribes and others must occur. The agency must solicit and understand the impact of its decisions before it takes action.

Other legislative measure requiring tribal involvement include the ARPA and the Native American Graves and Repatriation Act (NAGPRA) of 1990. The ARPA requires tribal involvement before an agency issues a permit for archaeologic al excavation by an outside party. The NAGPRA clearly defines the processes that DOE will follow if there is an inadvertent discovery of human remains. It also requires DOE to work with the appropriate tribes to repatriate human remains and to examine existing collections for burial-related items or objects of cultural patrimony.

History of Tribal Involvement in Cultural Resources

Tribal involvement at Hanford has increased dramatically over the last two decades, primarily in response to the increasing legislation calling for such involvement. The history of tribal involvement is divided into the following phases to facilitate discussion:

1943 – 1987: Access, Protection, and Identification Phase—When the government established Hanford in 1943, Colonel Matthias worked with the Wanapum Tribe to regulate their access. Agreements were made for site visits to fish and acquire firewood during the early years, but this access ended soon thereafter. Beginning in the 1950s, Atomic Energy Commission staff worked with Wanapum representatives to inspect and protect Wanapum cemeteries. Beginning in the 1960s, Dr. David Rice, working for various agencies, began meeting with the Wanapum as part of his archaeological and ethnohistoric surveys, thus beginning a relationship that lasts to this day. In the 1980s, in response to requests from the Yakama Nation and others, the DOE began facilitating access to sacred sites located on the Hanford Site for ceremonies.

1987 – 1994: Review and Comment Phase—The creation of the HCRL in 1987 marked the beginning of tribal involvement in the cultural resources program. Some of the funding for tribal participation came through annual grants from DOE to the three tribes with affected status, which established Environmental Restoration/Waste Management programs to coordinate tribal Hanford activities. Since 1987 (with occasional interruption), some funding has gone to support cultural resource efforts. An example of one major effort was the review of the draft Hanford Cultural Resources Management Plan. Tribes provided numerous comments on this draft. Also during this time, various cultural resource documents and cultural resource reviews were provided to tribal staffs for information and comment. Occasional visits to sacred sites continued during this phase. Most significant was the employment of a Confederated Tribes of the Umatilla Indian Reservation tribal member between 1989 and 1992. Miscellaneous efforts were

made to obtain information about Hanford from tribal members during this period. Toward the end of this phase, a few cultural resource surveys involved tribal members, especially from the Confederated Tribes of the Umatilla Indian Reservation.

1994 – Present: Involvement Phase—The start of this phase was marked by a series of tribal meetings held to discuss the revision of the Hanford Cultural Resources Management Plan (Chatters 1989). Meetings were held first with tribes individually, then collectively. A summary of these meetings indicates that discussions related more to the overall program and role of tribes than to the management plan (Stapp and Jones 1995). An outgrowth of these meetings was the concept of cooperative management. Although undefined, the concept implied that DOE and the tribes would work closer together to protect and manage Hanford cultural resources than they had in the past. A first attempt at cooperative management was the co-development of a 30-year plan for managing the cultural resources. Activities identified and scheduled included actions such as large-scale block surveys and management plans for areas such as Gable Mountain and Rattlesnake Mountain. During one of the first meetings to refine this plan in April 1994, the group was faced with an inadvertent discovery of human remains at the construction site for the Environmental and Molecular Sciences Laboratory. Over the next year, the concept of cooperative management was applied to resolve numerous issues concerning the Environmental and Molecular Sciences Laboratory discovery and related revegetation project. As the Environmental and Molecular Sciences Laboratory case was being resolved, tribes and DOE began meeting monthly using a forum referred to as the "issues meeting." Agreements were made to provide earlier notification of upcoming projects and to find ways to involve tribal staff in the work. Beginning in 1995, subcontracts were issued to the Wanapum and the Nez Perce for cultural resource services. In 1997, tribal members were again hired as staff members after a 5-year hiatus. By the close of 1997, the basic components of an active tribal involvement plan were in place.

Tribal issues meetings are held regularly. Meetings include DOE-RL's Hanford Cultural and Historic Resources Program Manager, DOE-RL's cultural resources contractors, and tribal cultural resource representatives. The USFWS is invited and other agencies can attend as necessary. These meetings serve as the initial forum for resolving tribal cultural resource issues in a face-to-face setting. The tribal issues meetings function as an information exchange where impending projects are presented for consideration and alternatives are formulated. On average since 1995, the DOE-RL Hanford Cultural and Historic Resources Program has had six to eight tribal issues meetings a fiscal year.

Public Involvement

Federal legislation and policies require programs such as DOE-RL's Hanford Cultural and Historic Resources Program to solicit outside participation, primarily as a way to ensure that the program is successful. The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation identify several places where public involvement is required (48 FR 44716) in developing and maintaining a cultural resource management program. For example, public participation is a major component of the preservation planning process, calling for participation from local historical societies and professional historians and archaeologists. Peer review of draft reports is cited as another means for ensuring that state-of the-art technical reports are produced (48 FR 44716). A final example from the Standards and Guidelines is the requirement that archaeological research designs should be "responsive to the concerns of local groups" (48 FR 44716).

History of Public Involvement

Professional cultural resource management work for DOE's predecessor agency, the Atomic Energy Commission, began in the 1970s under the direction of Dr. David Rice, University of Idaho. Dr. Rice, who had previously worked along the Hanford Reach for the National Park Service, and others, worked extensively with the Mid-Columbia Archaeological Society. During the 1980s, the Mid-Columbia Archaeological Society became relatively inactive, thus curtailing this avenue for public involvement. Recently, the Mid-Columbia Archaeological Society has attempted to become active again and may begin to get involved in Hanford cultural resource management activities.

When DOE-RL created the program in 1987 to manage cultural resources at Hanford, an informal public involvement program commenced. For the general public, the program consisted of presentations to local schools and civic groups, preparation of a brochure, and production of a video explaining the program. Efforts were also taken to engage the professional archaeological community. For example, teaming arrangements were made with regional universities to conduct work at Hanford, and fellowships were provided to undergraduate and graduate students to work at Hanford or conduct research on Hanford materials. Papers have been published in professional journals such as *American Antiquity*, *Federal Archaeology*, and *Cultural Resource Management*, as well as professional society proceedings such as the George Wright Society. Staff have regularly made presentations at regional and national professional society conferences (Appendix E).

In 1995, the DOE-RL Hanford Cultural and Historic Resources Program began sending cultural resource reviews, programmatic documents, annual reports, and other materials generated by the program to the DOE reading rooms, located throughout the region. Access to these materials enables the public to become informed about DOE's cultural resources program.

In 1997, DOE-RL began a concerted public involvement program for cultural resources. At that time, DOE-RL commenced with a series of public workshops for special interest groups and the general public. Initially, early groups such as the B Reactor Museum Association, Washington State Historical Society, and the East Benton County Historical Society focused on the historic industrial landscape. There are many organizations who are interested in all of Hanford's historic landscapes. DOE-RL's Cultural and Historic Resources Program Manager meets regularly with interested parties to consult about site preservation issues and foster public participation in cultural resource management. Interested parties provide important guidance to DOE-RL on many preservation issues such as Locke Island erosion, re-use of historic structures, and the preparation of mitigative documents.

Also in 1997, DOE-RL established its Hanford Cultural and Historic Resources web site as a state-of-the-art way to inform its public constituencies about the resources and management activities. Provided on the web site are key historical and management documents. The web site is also used to facilitate the review of documents currently issued in draft form. The web site can be found at http://www.hanford.gov/doe/culres/index.htm.

Worker Education

The DOE-RL Hanford Cultural and Historic Resources Program contractors promote project worker awareness of the presence of cultural materials in project areas by providing worker training. This training provides information on the cultural history of the Hanford Site and training in artifact and feature recognition. It is conducted to alert field workers to the potential resources that may be discovered during project activities and the actions that need to be taken should a discovery be made.

3.4.9.2 Activities Not on the DOE Site

The program provides information about Hanford's cultural and historic resources to outside audiences. Examples include Washington State Archaeology month, classroom lectures, presentations to civic groups, and presentations at professional audiences.

3.4.9.3 Outreach Status

Outreach activities are planned to continue as they have in the past.

3.5 LEGAL COMPLIANCE ACCOMPLISHMENTS

The purpose of this section is to assess the current status of legal compliance with cultural resource legal authorities.

3.5.1 NHPA, Executive Order 11593, and 36 CFR Part 800

For ease of discussion, this section is divided into two parts. The first part discusses the DOE-RL Hanford Cultural and Historic Resources Program accomplishments in developing procedures for taking into account the effects of projects on National Register-eligible properties. The second part describes the accomplishments in protecting and nominating National Register-eligible properties.

3.5.1.1 NHPA, Sections 106 and 110 (f), and 36 CFR Part 800

The DOE-RL Hanford Cultural and Historic Resources Program has procedures in place to ensure that undertakings at Hanford are not conducted without taking into consideration the potential effects on historic properties. These procedures are outlined more completely in Section 5. A programmatic agreement for the built environment is in place. Alternative procedures to streamline all Section 106 reviews at Hanford are under development.

3.5.1.2 NHPA, Sections 110(a)-(e) and (g)-(j), and Executive Order 11593, Section 2

DOE-RL established the Hanford Cultural and Historic Resources Program in 1987. The program is also guided by the methods and procedures identified in Sections 4 and 5, respectively.

The DOE-RL Hanford Cultural and Historic Resources Program has performed site inventories annually since the program's inception. The accomplishments and approach are discussed in Section 3.4.2. National Register status is shown in Tables 3 and 4.

In general, National Register evaluations are not conducted at Hanford unless a site is to be impacted by a project. National Register evaluations typically require archaeological testing, and testing is expensive and destructive. Program staff are working with tribes to evaluate and nominate traditional cultural properties that the tribes would like nominated.

3.5.2 American Indian Religious Freedom Act and Executive Order 13007

The American Indian Religious Freedom Act of 1978 established the United States policy to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise their traditional religions. This includes access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. President Clinton further strengthened this policy in 1996 by issuing Executive Order 13007 – Indian Sacred Sites, which called on agencies to 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and 2) avoid adversely affecting the physical integrity of such sacred sites.

The Hanford Historic and Cultural Resources Program assists DOE-RL in complying with the Act and the Order through its cultural resource review consultation process. Every undertaking performed at Hanford that has potential to effect cultural resources is subjected to a cultural resource review, a key part of which is notification to tribes with historical ties to Hanford. Any concerns relative to these undertakings can be provided to DOR-RL through this process and are considered prior to granting the undertaking a cultural resource review clearance under the National Environmental Policy Act and the National Historic Preservation Act. Concerning the issue of access, both the Cultural and Historic Resources Program and the DOE-RL Indian Nations Program have accommodated numerous requests for onsite visits to places of interest by tribal elders, tribal officials, tribal staff and tribal youth.

3.5.3 ARPA

For ease of discussion, compliance with ARPA is divided into two parts. In the first part, activities related to increasing public awareness is discussed. In the second section, steps being taken to prioritize surveys of facility lands and document violations is discussed.

3.5.3.1 ARPA, Section 10(c)

The DOE-RL Hanford Cultural and Historic Resources Program has a public education program, as documented in Section 3.4.9. In addition, the program also works with the Confederated Tribes of the Umatilla Indian Reservation to offer ARPA training for law enforcement at the Hanford Hazardous Materials Management of Emergency Resources training center.

3.5.3.2 ARPA, Section 14

The DOE-RL Hanford Cultural and Historic Resources Program has a regular inventory program, as documented in Sections 3.4.2. Procedures are also in place for documenting ARPA violations as discussed in Section 5.2.

3.5.4 NAGPRA

3.5.4.1 NAGPRA, Section 5

By 1994, most archaeological collections resulting from past work on the Hanford Site had been coalesced into a curation facility, part of the HCRL. To provide DOE-RL with information needed to comply with the provisions of NAGPRA that call for notification, consultation, and possible repatriation of human remains and associated funerary objects, a summary of the collection was prepared in November 1993, followed by an inventory of human remains in November 1995. Additional human remains from the Hanford Site curated by the University of Idaho and in a private collection were discovered during the inventory process. These remains were included in the 1995 summary. Finally, an itemized inventory of the curated human skeletal remains and associated funerary objects was undertaken in April 1998 and reported to DOE-RL in December of the same year.

Excavations at the Wahluke archaeological site in 1926 by Smithsonian archaeologist Herbert Krieger resulted in sizable collection of human skeletal materials and burial offerings. Housed at the Smithsonian's National Museum of Natural History since that time, this inventory and repatriation of this collection of items that would normally fall under NAGPRA is instead handled via provisions in the National Museum of the American Indian Act (as amended in 1996). Thus, while NAGPRA applies to museums, universities, and federal agencies, the Smithsonian is specifically excluded from NAGPRA, meaning that repatriation of human remains and associated grave objects from the Wahluke Site must be coordinated directly between the Indian tribes and the Smithsonian Institution.

3.5.4.2 NAGPRA, Section 6

A summary of the HCRL collection was prepared in November 1993 and an inventory of human remains in November of 1995. An additional written summary of the human remains in the HCRL collection was completed in 1998 (Nickens 1998). Following repatriation activities in 2000 and 2001, a summary of the HCRL collection was again prepared and the resulting report provided to tribes (Noonan 2002).

3.5.4.3 NAGPRA, Section 7

A notification of HCRL holdings was sent to tribes in November 1993 after a summary of the collection was prepared. In 1995, a letter followed this notification reporting on the repatriation activities at the Hanford Site. Tribes were asked to assist in determining the cultural affiliation of human remains held in the HCRL collection. Human remains from 45BN477 were repatriated to the Wanapum in May 2000, and additional remains were transferred to the tribes in April 2001.

3.5.5 36 CFR Part 79

Curation of artifacts is handled as reviewed in Sections 3 and 5. Existing collections are in good condition, although artifacts from the Manhattan Project/Cold War are still housed in operating facilities.

4.0 CRM METHODS

This section describes the methods that will be used by the U.S. Department of Energy (DOE) Richland Operations Office (DOE-RL) Hanford Cultural and Historic Resources Program.

4.1 RECORDS AND REPORTS

The DOE-RL Hanford Cultural and Historic Resources Program generates a variety of records and reports. Many records pertain to cultural resource sites and site conditions. Other records pertain to the administration of the cultural resource work conducted at Hanford. Occasionally work is substantive enough or important enough to warrant preparation of a formal presentation or report.

4.1.1 Cultural Resource Site Records

Each find of one or more features (non-portable, non-discrete artifacts) or of three or more artifacts within 50 meters (165 feet) of each other, depending on field observations, can be designated as an archaeological site and recorded in the files of the Washington State Office of Archaeology and Historic Preservation. All other objects will be designated as isolated finds (isolates). The Hanford Cultural and Historic Resources Program site forms will be filled out for sites following Washington State guidelines. Information to be recorded includes the following:

- Location of the site by legal description, universal transverse mercator coordinates, and verbal description
- Description of the site, its dimensions, and condition, including notation of modern anthropogenic disturbance and an estimate of how long ago the disturbance occurred
- Estimated depth of deposits
- Topographic, hydrologic, and ecologic context
- Number and density of artifacts and features
- Description and enumeration of artifacts, with special reference to temporally diagnostic specimens (temporally diagnostic items will be drawn)
- A scaled sketch map of the site and the location of important features or artifacts within it, the area of artifact distribution, and any modern anthropogenic disturbance. Maps also will show the location of the site with respect to surveyed grid markers, landforms, roads, and any other features that will aid in relocating the site.

A temporary number will be assigned to each site in the field, with the number indicating the resource type (i.e., "HT" = Hanford Temporary), the year, and a sequential number (e.g., HT-98-001). Generally,

no artifacts will be collected from sites during the survey process, except when auger testing or backhoe trenching is used or in instances when items are considered to be susceptible to unauthorized collection or the item is needed for interpretive purposes. Photographs documenting the site's extant condition will be taken to aid with future relocation and the site monitoring program. Photographs will include a setting overview, features, and temporally diagnostic artifacts. Copies of archaeological site forms will be submitted to the Washington State Office of Archaeology and Historic Preservation for final numbering, while forms will also be available to the tribes for their records. Site records will be maintained in database and hard copy. The database should be linked to geographic information system via universal transverse mercator coordinates for a site location map and reference to physical conditions in the project area.

4.1.2 Hanford Cultural and Historic Resources Program Records

The DOE-RL Hanford Cultural and Historic Resources Program records currently are maintained in two databases. The first details National Historic Preservation Act Section 106 reviews, the second tracks archaeological and historical projects. The structure for the former includes project number, client, contacts, date received, project description, and comments, among other entries. The latter documents the project number, contractor, principal investigator, description, location, research issues, methods, results, and recommendations. In both cases, these data should be linked to the geographic information system via universal transverse mercator coordinates for reference to a project map and physical conditions of the project area.

4.1.3 Other Cultural Resource Records

Two additional types of cultural resource records will be maintained. Recordation of isolated finds entails assigning a number in the form HI-year-sequence number (e.g., HI-98-001). The location of each isolate should be marked on a 1:24,000 scale topographic map with eventual entry of this information into the geographic information system database. Each isolate should be described on an Isolate Form, which will be maintained in hard copy with the project file and Isolate Record Log. In addition, isolate information should be entered into the cultural resources database with universal transverse mercator coordinates providing linkage to the geographic information system.

Isolates will be collected only when found in areas scheduled for surface modification or if they are in an area considered to be susceptible to unauthorized collection or the item is needed for interpretive purposes. Sufficient documentation, including photographs of the area surrounding the find, should be made at the time of the discovery to permit analysis. If isolates are temporally diagnostic, they should be photographed and drawn to scale.

Photograph logs are currently maintained in a database format that includes project number, roll and exposure number, description, and locational status. Photographs are numbered, as taken, by roll and frame on Photo Log forms. Roll numbers are sequential beginning in 1987. Hard copies of the forms are stored in a continuously maintained photographic log notebook. Computerized photograph data is linked to site and/or project databases, as appropriate, to facilitate retrieval of photo documentation of cultural resource management work for technical and summary reports.

Video logs are maintained in a video log notebook. The video log sheets itemize project number, date of recording, site number or interview title, video number, description, and locational status. Hard copies of the videotapes are cataloged in numerical order and stored with cultural resource records.

4.1.4 Cultural Resource Reports

As noted above, a variety of cultural resource reports are produced for studies at the Hanford Site, ranging from letter reports and memoranda to more substantial technical volumes of survey and excavation. For this discussion, only the latter will be considered here with respect to content and format.

4.1.4.1 Standardized Report Outline

The Washington State Office of Archaeology and Historic Preservation provides guidelines detailing the compliance-driven survey process and lists the organizational components and information necessary for the production of a professional archaeological report. The process of identification includes a number of activities that should be included, at appropriate levels, in a standard professional report (i.e., development of a research design, archival research, field survey, analysis, and reportage). Archaeological reports should contain, at a minimum, the following:

- Description of the study area
- Relevant historical documentation, paleoenvironmental and environmental data, and background research
- Research design
- Field operations, as actually implemented, including any changes or alterations from the research design and the reason for those changes
- All field observations
- Analyses and results, illustrated as appropriate with tables, charts, and graphs
- Evaluation of the investigation in terms of the goals and objectives of the study
- Sources, references, agencies, tribes, and informants contacted
- Information on the location of the original data in the form of field notes, photographs, and other materials.

4.1.4.2 Report Library

The DOE-RL holds a variety of published sources relating to the Hanford Site. Copies and originals of sources focusing on early archaeological work, Native Americans, Euro-American resettlement, and industrial development are shelved in the report library. In addition, a variety of technical reports, environmental analysis reports, and journal articles specific to Hanford history and prehistory are held in vertical files. Each source is assigned a unique number, is shelved or filed, and the reference citation is entered in a searchable electronic database to facilitate retrieval and creation of bibliographical listings.

4.2 INVENTORY

4.2.1 Archival Searches

Archival searches differ depending on the nature of the research being conducted and the resources likely to be encountered.

Archaeological and Traditional Cultural Site Records Search

Record searches for archaeological sites and traditional cultural places (TCPs) begin by determining whether an area in question has ever been surveyed for cultural resources; the survey met the minimum requirements of precision (as described below); cultural resources have been found; and those resources have been evaluated for and/or listed in the National Register. This is the first step in the identification process for National Historic Preservation Act Section 106 reviews.

Additional records and literature that may be reviewed include, but are not limited to, the cultural resource management project files, the archaeological site records file, published and unpublished reports on previous cultural resource surveys and excavations in the vicinity of the project site, quadrangle maps, historic maps, and county land-ownership records. In addition, other sources of information may be consulted. Complete copies of up-to-date archaeological site records and all survey and excavation reports for the Site are sent to HCRL and maintained in the repository. When a construction project is planned for an area known to have been settled by Euro-Americans during the pre-Hanford Site years, previous residents and/or local historians also may be consulted for information. The results of a literature and records search will be documented in the project file. The entry will be signed and dated by the author.

Information about TCPs or areas of concern to the tribes can only be obtained by direct communication with tribal representatives. For this reason, in cases of projects in known culturally sensitive areas, a copy of the Request for Cultural and/or Ecological Resources Review is to be faxed by the cultural resource specialist to each of the tribes upon receipt from the project manager or designee.

The results of the literature and records search will be documented in the project file by the cultural resource specialist.

Historic Archaeological Sites Records Search

Methods and techniques for identifying historic archaeological resources differ from those used to identify prehistoric archaeological resources. Methodological requirements established for the Hanford Site have been adapted from those recommended by the Association of Historical Archaeologists of the Pacific Northwest (http://www.spiretech.com/~lester/ahapn/index/index.htm). The approach for identifying historical archaeological resources is initiated with a historical methodology to establish the existence of known and potential historical resources within a given project area before fieldwork. This involves a more exhaustive review of historical documents than can be done for pre-contact sites. Previous experience indicates that a well-prepared historical background can identify potential site locations for upwards of 90 percent of the historical archaeological sites and historical structures within a project area (depending upon the amount of ground cover in the area) for approximately 10 percent of the cost for a full field survey. Hanford is no exception.

Initial documentary examination for a Hanford project area shall consist of a review of a variety of documents, including the following:

- DOE records of government property purchases from the 1940s
- Federal property records, available from the Bureau of Land Management state and regional offices indicating ownership transactions for federal lands converted to state or private ownership, patent, or lease
- U.S. Geological Survey quads and county maps
- Early aerial photographs older than 50 years
- General Land Office maps and surveyor notes.

When a project is planned for an area known to have been settled by Euro-Americans before establishment of the Hanford Site, previous residents and/or local historians also may be consulted for information.

To assist in identification of historical archaeological sites in the field, locations of historical structures obtained from historical sources are transferred to overlays of modern U.S. Geological Survey 7.5-minute quads or orthoquads, or to larger scale project maps, aerial photographs, or a computerized geographic information system compatible with ArcInfo. These locations consist of points, linear alignments, and areas that represent the potential locations of historical archaeological sites and historical structures. Attempts should also be made to obtain contour maps at the lowest increment possible, such as 1 meter (3 feet) or finer intervals; these are generally available for most areas at Hanford from one of the Site contractors. Other information sources such as soils or vegetation maps should also be incorporated to the extent possible. For reference purposes, these initial maps are referenced as potential historical resources overlays.

The results of the literature and records search will be documented in the project file. The entry will be signed and dated by the author.

If the project is found to have potential to effect historic properties, a notice is sent to the SHPO, Tribes, and if appropriate, interested parties identifying the project and the area of potential effect.

4.2.2 Ethnographic Fieldwork

Theory and Purpose

In 2000, HCRL initiated its oral history effort as part of a larger ongoing process for DOE to document the cultural landscapes represented at the Hanford Site. The Hanford Site comprises three cultural landscapes reflected by the groups that have contributed to its history. These are Native American, Early Settlers, and Manhattan Project/Cold War era landscapes. Within the context of a cultural landscape, HCRL's goal in conducting an oral history interview is to obtain insight on the intangible values associated with the elements that contribute to each landscape through time. For these reasons, interview questions are open-ended and cover topics that include the meaning of a place to that individual as well as descriptions of family history, lifeways, and historical events. Interviewees not only include individuals associated with these landscapes but also contemporary users of the Hanford Site. Sometimes interviews are completed to supplement archaeological and archival data on a specific resource threatened by natural and/or human forces. Together, this information is used to help make determinations of National Register eligibility, document TCPs, and for use in interpretive exhibits.

These kinds of interviews allow DOE to broaden the context of historical significance to include how a community associated with that resource values it. This approach provides a framework that assists DOE in fulfilling their federal historic preservation requirements and stewardship responsibilities. It is also useful as a framework for the development of a Hanford Site interpretive plan that is educational and meaningful to the public.

Methods

The HCRL oral history effort relies on a variety of ethnographic methods to get at the emic perspective (from the individual or community's point of view) on the meaning of a cultural resource, how the resource has been used through time, its place within the community's world view, as well as its historical value. For many cultural resources such as TCPs or areas of concern to tribes, information can only be obtained by direct communication with tribal representatives. The oral history effort applies this assumption to all of its cultural resources.

Treatment of Human Subjects. All oral history projects and informed consent forms are reviewed by the Human Subjects Institutional Review Board. As each group has different cultural concerns regarding the protection and release of information that they share in oral history interviews, informed consent and forms are developed for each interview so they can be tailored to meet the needs of the research project and protect the interests of individuals being interviewed. Generally, the consent form informs the interviewee of the purpose of the research, how the program intends to use the information collected during the interview, and explains that the interviewee has the right to not share information or request

that certain information remain confidential. Interviewees are also given the option to release the interview to the program archives so that the information can be made available to the public for research and educational purposes.

Tape-Recorded Interviews. The program conducts tape-recorded interviews with individuals where open-ended questions are asked. The open-ended questions are structured in a way that allows the individual to explain things from their perspective. The interview usually lasts from 45 to 90 minutes, and takes place at a location chosen by the individual. Two copies are made of the original tape recording, one copy is given to the interviewee and the other is used to write a transcript. The original tape is reformatted onto a compact disk for permanent storage. Both are then stored in the program archives, which has restricted access. Interviewees are given the chance to review the transcript and make changes before the final transcripts are completed. A qualitative software program is used to analyze the interview data to look for common themes and disparities. These themes are coded and sorted.

Community Transect Walks. Visits to cultural resources locations can assist an interviewee's memory about events associated with that cultural resource. It also allows the interviewer to gain an understanding of how an individual perceives the resource spatially and cognitively. To accomplish this, the program takes non-Native American and Native American descendents as well as Hanford workers to visit onsite locations. As the group walks through the area, the interviewer has the interviewee provide a description of the place and events that come to mind. The activity is either video or audio taped, or the interviewer will take notes. Site visits are coordinated with the archaeologist and historian.

4.2.3 Structure and Facility Surveys

The programmatic agreement for the built environment on the Hanford Site includes stipulations and mitigation measures for buildings or structures selected to represent each property type in the Manhattan Project and Cold War Era Historic District (DOE 1996a). Exterior surveys of these buildings and structures were undertaken as the programmatic agreement was being developed. However, Stipulation V(C) of the programmatic agreement requires an assessment of the interior contents of historic buildings and structures to identify artifacts or objects that may have educational or interpretive value as exhibits within local, state, or national museums. Therefore, assessment walkthroughs may be required. The cultural resource specialist will need to coordinate this activity with the appropriate facility manager(s).

4.2.4 Archaeological Surveys

Archaeological survey methods differ depending on the nature of resources suspected to be located in the proposed survey area.

Pre-Contact Archaeological Surveys

Archaeological surveys conducted within the Hanford Site before 1987 varied considerably in the methods used. Most surveys were reconnaissance studies. When centralization of cultural resource

management activities began in 1987, however, a more consistent technical approach was adopted. Current surveys follow methods established in 1987 by the program and guidelines published by the Washington State Office of Archaeology and Historic Preservation. Still, there is flexibility to tailor methods to the scale and nature of the project, as well as the perceived sensitivity of cultural resources.

Although no systematic assessments have been conducted of the information recovered or lost as a result of differing survey strategies within various environmental zones, decades of experience and knowledge have established a standard that appears sufficient to identify most archaeological sites. As the archaeological site database grows, information on site size, location, contents, and deposition can be used to support or refine current survey methods for the environmental zones encountered on the Hanford Site.

Surveys conducted for long-term planning in compliance with Section 110 of the National Historic Preservation Act use parallel transect intervals of 20 meters (65.6 feet). An intensive survey entails pedestrian search of the entire area that may be impacted either directly or indirectly by a project, i.e., the area of potential effect. For most project work, parallel transect intervals of no more than 10 meters (32.8 feet) maintained by compass bearing are appropriate, with surveyors visually scanning the area 5 meters (16.4 feet) to either side of the transect line. For smaller linear project areas, 10- or 20-meter (32.8- or 65.6-feet) transects parallel to the area of potential effect may be used. Likewise, zigzag transects resulting in similar spacing may be suitable for some narrow, linear project areas.

Survey information and data encountered by surveyors are recorded on Hanford Cultural Resources Survey forms and/or in fieldbooks provided for this purpose.

In areas of poor ground visibility and/or apparent significant deposition, minimal shovel probing and/or auguring may be appropriate to identify potential subsurface cultural deposits. The spacing of these exposures should be based on the conditions prompting their use (i.e., vegetation or deposition), the sensitivity for cultural resources, and the nature of the proposed undertaking. In general, where ground surface exposure is less than 20 percent, such as in old fields colonized by non-native plant species, plant cover may be scraped from an area approximately 30 centimeters (1 foot) in diameter to expose mineral soil at intervals of approximately 5 meters (16.4 feet) along transect lines.

In areas where geomorphology indicates high potential for buried artifact deposits, subsurface tests should be conducted a maximum of 25 meters (82 feet) apart, excavating up to 2 meters (6.6 feet) deep using a 10-centimeter- (4-inch-) diameter bucket auger. Excavated sediment should be screened through 3-millimeter (1/8-inch) or 6-millimeter (1/4-inch) wire mesh, as soil conditions warrant. All shells, bones, and stone artifacts should be saved, while all fire-modified rocks should be counted, weighed, and discarded after recording. In areas of modern fill, backhoe trenches should be excavated as part of the reconnaissance effort if Holocene sediment deposits are suspected beneath the ground surface and the setting indicates a high potential for archaeological deposits. Subsurface test results should be recorded on the appropriate form.

Field survey methods selected for a specific project will vary depending on the nature of the project and area to be surveyed. In general, Hanford surveys of pre-contact archaeological resources should proceed in a two-step fashion, with an identification phase followed by a site recording phase. The advantage of this two-phased approach is that field surveyors can proceed through the survey area at a fixed rate,

briefly noting locations of resources on aerial photos and maps. Then, before returning to the field to record the resources, the project personnel can review the data and determine where site boundaries shall be drawn. In some cases, it may be more prudent to record the site when it is first encountered.

The DOE's philosophy towards defining site boundaries is to assign as many resources as possible to a site as long as there is reasonable justification to do so. For example, if there are several scatters of prehistoric materials identified within the same geomorphological unit, the scatters should be considered features or loci of one site. This is especially true if prehistoric materials are observable because the area has been disturbed (e.g., by wind erosion, animal burrowing, or vehicle disturbance).

Archaeological sites, associated features, and isolated finds shall be recorded using Hanford Site forms.

Historic Archaeological Surveys

The archaeological methodology used for inventorying historic archaeological sites consists of verification and documentation of potential historic resources identified during the historic background phase, and the identification of sites previously unknown from historical documents. Field survey methods will vary depending on the nature of the project and area to be surveyed. Contractors are referred to the guidelines developed by the Association of Historical Archaeologists of the Pacific Northwest (http://www.spiretech.com/~lester/ahapn/index/index.htm) for approaches that can be productive. As with prehistoric archaeological surveys, Hanford surveys of historic archaeological resources should also proceed in a two-step fashion, as described above.

During the identification phase, surveyors shall walk transects no more than 20 meters (65.6 feet) apart. One or two surveyors on a four- to five-person team should concentrate their efforts examining the landscape for cultural structures and above-ground cultural features, landforms, and disturbed ground. The remaining surveyors should concentrate their efforts on locating relatively small cultural sites and features at ground level (e.g., refuse scatters).

The DOE's philosophy towards defining site boundaries is to assign as many resources as possible to a site as long as there is reasonable justification to do so. For example, if there is a known farmstead in a location, all historic scatters in and around the farmstead that are consistent with the date and function of the farmstead would be included within the boundaries of that site, even though such association cannot be proven. A second example would be an isolated historic scatter adjacent to a road or trail; in this case, the scatter would not be a separate site but rather a feature of the road or trail.

Historic archaeological sites, associated features, and isolated finds will be recorded using Hanford Site forms. Site, feature, and artifact recording should conform to the guidelines provided by the Association of Historical Archaeologists of the Pacific Northwest. As explained in these guidelines, surface and often subsurface information must be collected during the site recording phase for the next step, evaluation, to be possible.

4.3 EXCAVATION

4.3.1 Test Excavations

Although minimal subsurface probes and/or augering may be conducted as part of reconnaissance efforts, this section focuses on recommended methods for more substantial testing and data recovery excavations. All proposed testing and data recovery excavations will address Archaeological Resources Protection Act and Native American Graves Protection and Repatriation Act requirements; the latter of which define necessary consultation and agreement with Native American tribes, should data recovery result in the intentional removal or inadvertent discovery of Native American cultural items.

Test excavations are impact-driven studies aimed at providing data necessary to evaluate sites for National Register eligibility. Such studies should, at a minimum, entail site mapping, surface collection within grids and/or point provenience for specific diagnostic artifact types, and excavations of one or more 1-by-1 meter (3.3-by-3.3 feet) to 1-by-2 meter (3.3-by-6.6 feet) excavation units. The scale of the work should be structured within the context of the proposed undertaking, anticipated materials present, and Native American consultation. Site-specific methods and research issues to be addressed should be presented in a research design.

Site mapping may vary from a simple sketch map to more detailed instrument mapping with contours and elevations. A permanent datum should be set into the site for this purpose and to establish a grid for subsequent phases of field work. The size of surface collection units should be based on the amount of material present on the surface and the types of research issues to be addressed.

For example, smaller units may be appropriate if deposits appear relatively undisturbed and intra-site patterning is to be explored. Likewise, the size of excavation units should be based on the proposed undertaking and the anticipated types of materials and/or features present. Larger exposures may be preferable when datable features are sought, while smaller units may be suitable where more dispersed areal sampling is desired. The number and placement of units should be based on the proposed undertaking and the nature of the site.

Excavation should be completed following cultural and/or natural strata, if discernible. Otherwise, excavation in 10-centimeter (4-inch) arbitrary levels is sufficient. All excavated sediment should be screened through 3-millimeter (1/8 inch) or 6-millimeter (1/4-inch) wire mesh, as soil conditions warrant, with all shell, bones, stone artifacts, and charcoal suitable for radiocarbon dating collected. Conversely, fire-modified rock should be counted and weighed, then discarded. Excavation unit level data should be recorded on Unit Level Records that include a scale map of the unit floor and summary descriptive observations on constituents and sediments. At the termination of excavation, at least one excavation unit sidewall should be drawn to scale to document the sediment profile and any feature exposed.

4.3.2 Large-Scale Excavations

Methods and procedures for conducting large-scale excavations generally correspond to those outlined for test excavation. In this case, however, excavation may be prompted by data recovery rather than

evaluation, and previous subsurface information may be available to tailor field methods and research issues to the site-specific characteristics. In these cases, larger subsurface exposures may be preferable, either in the form of larger individual unit size and/or from concentration of units within particular site areas. Likewise, previous excavation results and prevailing research issues may warrant more or less detailed recovery methods such as a change in screen mesh size, use of backhoe exposures for geomorphological investigations, or the collection of sediment samples for flotation analysis.

4.4 STRUCTURE AND FACILITY MANAGEMENT

4.4.1 Structure and Facility Documentation

Structures at Hanford are documented using the Historic Property Inventory Form (HPIF) provided by the Washington State Office of Archaeology and Historic Preservation. The DOE-RL has completed requirements for all Historic Property Inventory Forms at Hanford.

4.4.2 Structure and Facility Maintenance

The Manhattan Project/Cold War buildings that are still standing are maintained by the responsible program. Undertakings involving these buildings are subjected to cultural resource reviews, unless they are exempted under the terms of the programmatic agreement. The five pre-government buildings still standing are not maintained. The DOE-RL Hanford Cultural and Historic Resources Program has conducted condition assessments of them all and monitors their condition on a regular basis.

4.4.3 Structure and Facility Mitigation

The mitigation of the Manhattan Project/Cold War buildings has occurred, as described in Section 3. Five pre-government buildings have been evaluated and decisions need to be made regarding stabilization.

4.5 LABORATORY TREATMENT

The preferred practice is to record, analyze, and leave cultural materials in the field. However, if there is scientific value to the collections, protocol requires that materials be removed and studied under laboratory conditions. Following analysis and reporting, consultation with tribal representatives, interested parties, and the State Historic Preservation Office will occur to explore the appropriateness of reburial.

Three primary classes of materials will be collected when required: subsistence remains, lithic artifacts, and organic remains. Subsistence remains consist of fresh water mussel shell and bone. These materials provide information on diet, food preparation, and food disposal. Lithic artifacts include chipped stone tools and rough stone tools, which provide information on the types of materials selected for tools, tool use, tool kits, and tasks performed, and lithic reduction pieces and debitage, which provide information on

source materials, potential quarry locations, conservation of lithic materials, lithic reduction stages, percussion/pressure flaking, and how and where tools were produced. Organic remains include charcoal, organic-stained soils, and bulk soils. These materials provide information on age, environment, and site formation.

4.5.1 Processing

Preliminary artifact analyses typically will be conducted at the DOE-RL laboratory facilities at the Washington State University–Tri-Cities campus, unless the archaeological contractor has made acceptable arrangements elsewhere. Information will be recorded on a Summary Form. Diagnostic items should be drawn on a 1:1 scale on the form and photographed using a metric scale. Materials should be sorted, wet or dry washed (depending upon material), sized, weighed, and bagged by type for further analysis.

Sorting

Sorting is the initial step in processing. The contents of a collection unit (i.e., surface grid or excavation level) should be sorted by materials (i.e., lithic artifacts, soils, carbon, shell, bone) and set aside for further processing. All items should be placed in labeled plastic bags that clearly identify the provenience of the contents. If samples are to be sent for offsite analysis, for example, radiocarbon dating, faunal analysis, or soil grain analysis, labels should be firmly attached so they do not separate during transfer.

Washing

Wet washing will be conducted using cold water and a soft toothbrush. The purpose of washing is to clean the material to allow for unobstructed examination of surfaces and edges. Wet washing is suitable for all lithic artifacts, unless residue studies are anticipated. These items should be set aside for analysis. Wet washing for shell or bone is contingent upon the condition of these materials. If the materials are highly friable, wet washing could cause them to disintegrate and diminish their research potential. In these instances, dry washing using a soft toothbrush and light pressure, is preferable.

Sizing

Size classification will be conducted using preset templates marked on 10 by 10 to the inch graph paper (Dietzen Corporation, No. 341-10) delimited as follows:

Square Blocks (Lithic Flakes)

- <Size 1 – any piece too small for the Size 1 template
- Size 1 – 3 blocks by 3 blocks (~ 8 mm by 8 mm)
- Size 2 – 5 blocks by 5 blocks (~ 12 mm by 12 mm)
- Size 3 – 8 blocks by 8 blocks (~ 20 mm by 20 mm)

- Size 4 – 10 blocks by 10 blocks (~ 24 mm by 24 mm)
- Size 5 – 15 blocks by 15 blocks (~ 38 mm by 38 mm)
- >Size 5 – any piece too large to fit within the Size 5 template

Rectangular Blocks (Lithic Blades and Bone)

- <Size 1 – any piece too small for the Size 1 template
- Size 1 – 3 blocks by 6 blocks (~ 8 mm by 16 mm)
- Size 2 – 5 blocks by 10 blocks (~ 12 mm by 24 mm)
- Size 3 – 8 blocks by 16 blocks (~ 20 mm by 40 mm)
- Size 4 – 10 blocks by 20 blocks (~ 24 mm by 50 mm)
- Size 5 – 15 blocks by 30 blocks (~ 38 mm by 76 mm)
- >Size 5 – any piece too large to fit within the Size 5 template

Weighing

Weight will be recorded in grams using a professional laboratory-quality scale. The scale will be calibrated before each use to provide accurate measurements.

Bagging

All items should be placed in labeled plastic bags that clearly identify the provenience of the contents. At a minimum, this will include: site number, site name (if any), and surface collection grid coordinates or excavation level coordinates as appropriate.

4.5.2 Analysis

Shell Material

Wherever possible, nearly complete freshwater mussel shell halves (i.e., valves) or hinge pieces should be examined and the following variable states assessed: 1) side (dorsal, ventral); 2) location of broken edge (left lateral, right lateral, distal, proximal); 3) edge abrasion (present; absent, not recordable); 4) genus (*Margaritifera*, *Gonidea*); and 5) size (small, medium, large). To ensure replication, each valve should be oriented with the beak proximal (i.e., nearest the observer) and facing up so that proximal, left lateral, distal, and right lateral edges are established around the circumference of the valve. To keep inter-observer interpretation to a minimum, one analyst should examine all valves from a collection or series of collections.

Bone Material

Faunal remains should be examined and identified to the most specific taxonomic level possible (e.g., genus and species). However, when this is not possible and identification is only possible to class level (i.e., mammal, fish, bird, and reptile), mammal remains, in particular, should be categorized by size to maximize the identified portion of the remains. Generalized mammalian size classes are based on the weight and corresponding body sizes of living animals. There is some overlap in the weight ranges which delineate the size classes, as the weight ranges in the definitions are purposefully broad and contain recorded extremes rather than averages. These mammalian size classes only apply to land mammals. Four classes of mammal are employed for most analyses. These size classes are defined as the following (Olson 1983):

- Large: large ungulates that range in weight from 900 kilograms (1,984 pounds) (a large male bison) to 225 kilograms (496 pounds) (a small elk); taxa represented include bison, horse, cattle, moose, and elk.

- Medium: small ungulates and large carnivores that range in weight from 270 kilograms (595 pounds) (a large caribou) to 22.5 kilograms (50 pounds) (a small white-tailed deer); taxa represented include caribou, deer, mountain sheep, mountain goat, domestic sheep and goats, bear, wolf, and mountain lion.

- Small: most carnivores, large rodents, and rabbits that range in weight from 27 kilograms (60 pounds) (a large beaver) to 0.7 kilogram (1.5 pounds) (a small cottontail or marten); taxa represented include coyote or dog, bobcat, river otter, raccoon, marten, beaver, porcupine, marmot, muskrat, rabbit, and hare.

The fourth category, medium/large, is used for analysis when bone fragments that cannot be assigned with assurance to either the medium or large size categories.

The actual size of each bone examined should be recorded using the preset templates discussed in Section 4.5.1.

Information on both burning, and natural and cultural modifications to the specimen should be recorded. Four degrees or intensity of burning are recognized and recorded: 1) unburned, 2) partially burned, 3) burned, and 4) calcined. Partially burned is that bone which has sustained some exposure to heat which produces a color change (usually to red) or some partial charring. Burned bone specimens are completely charred. Calcined bone is that bone which has been burned to such a degree that the organic portion has been destroyed leaving only the inorganic, or mineral, fraction. Calcined bone is white to gray in color, blocky in appearance, and fairly regular in size. Calcined bone preserves better than unburned bone in certain environments, such as forests with acidic soil. Either cultural or natural forces can cause all of the three burned categories (Olson 1983).

Modifications that should be noted in analysis include both natural or non-human modifications (e.g., weathering and gnawing by carnivores or rodents) and cultural modifications caused by humans (i.e., impact fractures, cut marks, tools, and sawing).

Lithic Material

All chipped stone tools should be examined in a uniform manner. To ensure replication, each tool should be oriented with the bulb or percussion proximal and ventral (i.e., towards the analyst and down). This orientation establishes a dorsal and ventral face whenever possible. It also establishes proximal, left lateral, distal, and right lateral edges around the circumference of the tool. Where bifacial flaking had removed all evidence of the bulb, the less convex surface should be taken to be the ventral face. Each tool should be measured in centimeters to two decimal places (i.e., 2.37 centimeters) for maximum length, width, and thickness using a metric caliper. Cross-section information should describe the lateral cross-section of the tool from proximal to distal end, giving first the shape of the dorsal surface then the ventral. For example, a convex-plano cross-section indicates a tool with an excurvate dorsal surface and a flat ventral surface as viewed from the right lateral edge. Each utilized edge should be recorded separately so the number of tools may exceed the number of lithic pieces. To keep inter-observer interpretation to a minimum, one analyst should examine all tools from a collection or series of collections.

Debitage should be sorted by material type, classified, sized, and assigned to a reduction stage. Debitage is classified shatter, flakes, or blades. Blades are lithic reduction pieces that are fairly regular in shape and generally twice as long as they are wide. Flakes are usually amorphous or irregular in shape, and can assume any dimensions with respect to length and width. Shatter defines angular pieces of debitage generally lacking identifiable landmarks such as a striking platform or bulb of percussion. Debitage is sorted by size based on measurement using the pre-set templates discussed in Section 4.5.1. Flakes and blades should also be subclassified within their respective size categories as primary, secondary, or tertiary. Definitions are as follows:

- Primary – a flake or blade exhibiting cortex across all of its dorsal surface
- Secondary – a flake or blade exhibiting less than 100 percent cortex across its dorsal surface
- Tertiary – a flake or blade exhibiting no cortex across its dorsal surface

Rough stone tools should be measured in centimeters for maximum length, width, and thickness.

4.6 CURATION

With the exception of items that are in danger of looting or are of high interpretive or educational value, artifacts, objects, and materials encountered during field surveys or excavations will not be collected. Archaeological and historic-archaeological items are to be recorded, photographed, and analyzed in the field to the fullest extent possible. In those instances when collection is required, all items are to be fully point provenienced by mapping and recording their location in the field and protected during transport so damage does not occur. Cleaning, cataloging, and analyzing these items will follow established archaeological laboratory procedures. Items collected for retention will be delivered to the program for temporary or long-term curation (see the appendices for additional information).

For all buildings and structures relating to the operations of the Hanford Site through 1990, Stipulation V(C) of the Historic Buildings Programmatic Agreement requires an assessment of the interior contents of those properties listed for individual documentation within the Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan before any deactivation,

decontamination, or decommissioning activities (Marceau 1998). The purpose of the assessment is to locate and identify any artifacts (e.g., equipment, control panels, signs, models) that may have interpretive or educational value as exhibits within local, state, or national museums. Interior assessments of buildings determined to be contributing properties within the historic district, but not selected, as representatives of a building type or period of construction, will be conducted as funding allows. Procedures for the identification and disposition of items retained for curation are contained in Appendix C.

4.6.1 Preservation

Preservation at Hanford focuses on archaeological collections and Manhattan Project/Cold War artifacts found in buildings. All archaeological excavation materials recovered will be managed through both proper curation and appropriate conservation treatments.

The DOE-RL Hanford Cultural and Historic Resources Program has not faced substantive conservation issues to date. Archaeological materials are primarily stone, requiring no conservation. Bone, botanical, shell, and textiles appear stable and are not subjected to any special treatment. For new collections, conservation treatments are determined depending on the artifact's material and its condition; the best current standards in methodology and materials will be used. Documentation of all treatments used will become part of the permanent archive.

Artifacts associated with the Manhattan Project/Cold War have not to date required special conservation. Assessments of the collections are conducted regularly and as with the archaeological collections, conservation treatments will be determined depending on the artifact's material and its condition; the best current standards in methodology and materials will be used.

4.6.2 Inventory, Accession, Labeling, and Cataloging

Upon transfer of archaeological remains from the field to the laboratory, artifacts are inventoried, labeled, and cataloged. Cleaning is typically the first step to remove dirt and prepare the artifact for identification and analysis. All artifacts are cleaned unless this will harm the object or result in the loss of potential data (i.e., blood-residue analysis). Appropriate cleaning procedures depend upon the type and condition of the material. Due care is exercised during the cleaning process to ensure that the integrity and information value of the object is maintained.

Artifacts are labeled as soon as possible so that the site and intrasite provenience data are not lost. Labeling is done in a permanent and archivally stable manner, using commonly accepted methods. Where direct labeling on the object is not feasible, other archivally stable methods of permanently maintaining the relationship between an artifact and its provenience are used (e.g., archival quality resealable plastic bags).

When certain less-diagnostic artifact types occur in large quantities within a specific provenience, all specimens are typically not individually labeled. Examples include, but are not limited to, shell, fire-cracked rocks, flakes, window glass, brick, mortar, and ceramic and glass shards (exceptions include

unusual specimens or those of particular research potential). These artifacts may be grouped by material type and placed in a resealable plastic bag with the exterior permanently labeled. In the bag with less diagnostic artifacts, a Mylar or an acid-free paper slip labeled with the provenience information must be included. Other material classes not appropriate for individual labeling (i.e., floral remains, soil samples) are stored in suitable labeled containers with a labeled Mylar strip placed inside.

All faunal material is labeled, where practical. Bones too small for individual marking are placed in a labeled, resealable plastic bag. Bones within a provenience unit should be bagged separately by zoological class to prevent or reduce the crushing of fragile remains.

An explanation of the label information, including locational data about the excavation units, is submitted with the collection. One copy is stored with the site artifacts and one with the collection documentation. Once the collection has been inventoried, it is added to the catalogue of the permanent DOE-RL collections. In this manner, it is accessioned into the collection.

When new Manhattan Project/Cold War artifacts are located, typically during building walkthroughs, they are tagged with a label identifying them as an historic artifact (DOE 1997d). The artifact is then added to the catalogue of Manhattan Project/Cold War artifacts, noting the location and function and any special requirements. When the artifact is physically moved to a DOE-RL Hanford Cultural and Historic Resources storage facility, it is accessioned into the collection.

4.6.3 Identification, Evaluation, and Documentation

The identification, evaluation, and documentation of collections is accomplished according to commonly recognized archaeological and museum standards.

4.6.4 Storage and Maintenance

Archaeological collections are placed in archival-quality cardboard boxes in a locked cabinet. Temperature and humidity is recorded several times per day. Pest strips are places around the storage area and checked quarterly.

4.6.5 Periodic Inspection and Remedial Preservation

An inventory of boxes housed in the collections repository is conducted annually. Box contents are spot-checked. The Manhattan Project/Cold War artifacts that have been identified by the program and still housed in operating facilities are inventoried every 2 years.

4.6.6 Study

Individuals or organizations interested in conducting studies on Hanford collections should contact the DOE-RL Cultural and Historic Resources Program Manager, who will consider the request in consultation with tribes and interested parties.

4.7 PRESERVATION

This section describes the DOE-RL Hanford Cultural and Historic Resources Program's approach to preserving in situ cultural resources. The program manage and maintain cultural resources located on the Hanford Sites in a way that considers the preservation of their historic, archaeological, architectural, and cultural values. To understand these values, DOE-RL consults with tribes and interested parties.

The general approach to ensure preservation of important cultural resources at Hanford is two fold. First, institute administrative procedures to ensure that program staff are aware of and review planned actions, or in the case of an emergency, are notified as soon as an emergency has occurred, which might have affected cultural resources (e.g., a fire). Second, the program maintains a long-term monitoring program that incorporates field visits to cultural resources and detailed recording of site conditions. Site information is analyzed to identify areas where action may need to be taken to mitigate impacts from natural and human forces.

4.7.1 Natural Forces

Erosion and fire are the primary natural force that impacts important cultural resources at Hanford. For erosion, the long-term monitoring task regularly checks places where sensitive cultural resources are located and where natural forces such as erosion have been observed. Erosion data are collected and analyzed on an annual basis. Information is collected on monitoring forms using procedures identified in Section 5. Analytical results identify those places where erosion is escalating, and based on these results and the density of cultural resources located in these areas, the problems are prioritized. The DOE-RL then consults with tribes and interested parties to determine if actions are needed, and if so, which action is preferable.

Also within the long-term monitoring task is a quantitative monitoring element. Two archaeological sites have been selected to collect data about river and wind erosion. Monitoring stations have been established to enable collection of quantified data concerning changes occurring at these sites from natural forces. Analyses of these data will occur in fiscal year (FY) 2004.

To address the threat of fire, the Hanford Fire Department has been instructed to notify program staff as soon as possible once a fire has been reported. A list of cultural staff with office and home phone numbers is maintained by the dispatcher and used when a fire occurs. Upon being notified, cultural staff check the cultural resource database and determine if resources are known or likely to be located in or adjacent to the fire location. If so, guidance is provided to the fire response team about areas to avoid in fire mitigation efforts, if possible. If necessary, cultural staff will travel to the fire command center and work directly with the fire command team.

A final effort undertaken to address the threat of fire is the acceleration of work associated with historic sites located at Hanford. These sites contain many artifacts and features that would be destroyed if a fire occurred in these areas. The Program is accelerating efforts to document those sites in the areas with the highest threat of fire.

4.7.2 Human Forces

Human forces have the potential to effect important cultural resources at Hanford both through authorized and unauthorized actions.

4.7.2.1 Authorized Actions

The DOE-RL Hanford Cultural and Historic Resources Program requires that all Hanford projects submit cultural resource review requests to the program so that compliance reviews can be performed. The DOE-RL reviews the proposed project, consults with tribes and interested parties, and identifies any actions needed to ensure protection of important cultural resources. The long-term monitoring program also monitors places where sensitive cultural resources are located and where authorized actions routinely occur.

4.7.2.2 Illegal Acts

Law enforcement at Hanford is handled by the Hanford Patrol and the Benton County Sheriff's Office. The Sheriff's Office patrols the Columbia River by boat. In addition, a law enforcement officer from U.S. Fish and Wildlife Service patrols portions of the Hanford Reach National Monument but reports violations on the DOE side of the river. The long-term monitoring program notes areas where looting or recreational activities have caused impacts. Where significant impacts are observed, they are referred to the Program Manager for action.

4.8 OUTREACH

Outreach for the DOE-RL Hanford Cultural and Historic Resources Program involves an assortment of efforts, ranging from phone calls to transmittal of reports to technical discussions among technical staff to government-to-government discussions. This section identifies the various consultation-related activities coordinated by DOE-RL's Hanford Cultural and Historic Resources Program.

4.8.1 Activities on the DOE Site

Tribal Issues Meetings

The DOE-RL Hanford Cultural and Historic Resources Program meets with tribal cultural resource staff on a regular basis. The purpose is to provide an informal intertribal/DOE consultation forum for discussing technical issues concerning cultural resource compliance. The forum represents a building block for consultation. Certain topics discussed may need to be followed up with official documentation to the appropriate tribal official to initiate or continue formal consultation.

Issues Exchange Meetings

The DOE-RL Hanford Cultural and Historic Resources Program intends to meet with non-tribal parties with interests in cultural and historic resources on a regular basis. The purpose is to provide an informal consultation forum for discussing technical issues concerning cultural resource compliance. The forum represents a building block for consultation with interested parties. Certain topics discussed may need to be followed up with official documentation to the appropriate representative to initiate or continue formal consultation.

4.8.2 Activities Not on the DOE Site

The Columbia River Exhibition of History, Science and Technology provides educational programs designed to encourage students in the pursuit of science and technology and to highlight the role of science and technology in shaping the history of the pre-Hanford era, Manhattan Project, and Cold War era. Programs are also initiated and offered for the community relating to the Hanford Site and the immediate area of the Columbia Basin. All educational or outreach programs are intended to expand the scope of exhibits found in the museum.

4.9 INTRAGENCY INFORMATION EXCHANGE

A U.S. Department of the Interior questionnaire is completed each year that details the accomplishments of the DOE-RL Hanford Cultural and Historic Resources Program.

5.0 CRM PROCEDURES AND ADMINISTRATION

The U.S. Department of Energy (DOE) Richland Operations Office (DOE-RL) Cultural and Historic Resources Program at Hanford has established procedures to ensure compliance with all relevant and appropriate cultural resource legislation. The DOE-RL program staff currently performing work for the program are identified in Section 5.8. Procedures are provided in Appendix C.

5.1 COMPLIANCE PROCEDURES—NHPA, EXECUTIVE ORDER 11593, 36 CFR PARTS 60, 63, 65, 79, AND 800

Procedural requirements concerning cultural resources are placed on federal agencies and federally licensed or assisted activities by the National Historic Preservation Act; Executive Order 11593; 36 Code of Federal Regulations (CFR) Part 60 (National Register of Historic Places); 36 CFR Part 63 (Determinations of Eligibility for Inclusion in the National Register of Historic Places); 36 CFR Part 79 (Curation of Federally-Owned and Administered Archeological Collections); and 36 CFR Part 800 (Protection of Historic and Cultural Properties). These authorities establish requirements pertaining to 1) projects, activities, and programs that may affect cultural resources; 2) National Register of Historic Places nominations; 3) future archeological surveys.

The following procedure is used by the Hanford Cultural and Historic Resources Program to ensure that DOE-RL considers the degree to which an action may adversely effect districts, sites, structures, and objects eligible for the National Register of Historic Places or may cause loss or destruction of significant scientific cultural, or historic resources.

5.1.1 Initiation of Compliance Procedures for Undertakings

The DOE-RL procedure for Cultural Resource Reviews applies to all federal undertakings that occur on the Hanford Site. As defined by 36 CFR 800, a federal undertaking is:

> A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

To start the process, any project that can be established to be an undertaking is required to submit a Cultural Resource Review Request to the Cultural and Historic Resources Program Manager via the appropriate contact. The form currently used is provided in Figure 9.

Upon receiving a Cultural Resource Review Request, the reviewer verifies that the review request is complete and provides enough information so the review can be completed. If the project is complex or

RL-655 **REQUEST FOR CULTURAL AND/OR ECOLOGICAL RESOURCES REVIEW FOR THE HANFORD SITE**	Review Tracking Number

ERC Projects (BHI, CH2M HILL)	**All Other Hanford Projects** (PHMC, PNNL, Other)
Direct Form and Cultural Resource Questions To: Tom Marceau Phone **372-9289** Fax **372-9654** MSIN **H0-23**	Direct All Forms and Cultural Resource Questions To: Ellen Prendergast Phone **376-4626** Fax **373-2958** MSIN **K6-75**
Direct Form and Ecological Resource Questions To: Ken Gano Phone **372-9316** Fax **372-9654** MSIN **H0-23**	Direct Ecological Resource Questions To: Mike Sackschewsky **Phone 376-2554** Fax **372-3515** MSIN **K6-85**
Date Sent:	**Date Findings Requested By:**

Primary Contact:	Company/Organization:
E:mail:	
Telephone: MSIN	Fax:

Secondary Contact:	Company/Organization
Telephone: MSIN:	Fax:

Project Name:

Project Number/COA:

RL Project Manager:

REQUESTOR SHOULD SUBMIT A COPY OF THIS REQUEST TO THE RL PROJECT MANAGER UNDER WHOM THEIR PROJECT FALLS WITHIN 5 DAYS.

Project Description, including Time Period over which proposed action will occur:	
Project Dimensions:	
Depth of Excavation(s):	
Project Location: ❑ 100 Area ❑ 200 West Area ❑ 400 Area ❑ 700 Area ❑ Other: ❑ 200 East Area ❑ 300 Area ❑ 600 Area Township _____ N Range _____ E UTM: Easting _____ Northing: _____	
Please also provide the following: 1. Overview map showing project location (or other suitable map to assist in finding the project site) 2. Map or scale drawing showing all exc avation areas (including water, sewer, and power lines, etc.), parking, topsoil storage areas, equipment staging areas, access roads, and utility corridors.	
Submitted By:	Telephone:

FIGURE 9 Jetform RL-665

requires a new facility, the reviewer shall ask if any new access roads, railroads, lay-down areas, or new utilities will be necessary; often requesters overlook these smaller, but potentially very significant, activities.

The reviewer then assigns a Hanford Cultural Resource Compliance Number (HCRC#) and enters the information provided on the form into the compliance database and starts a file for the project. The reviewer conducts a preliminary review of the project activity and project location by doing a literature and records search so that the undertaking can be assigned to one of the following eight classifications:

Class I:	Maintenance in a Disturbed, Low-Sensitivity Area
Class II:	Maintenance in a Disturbed, High-Sensitivity Area
Class III:	New Construction in a Disturbed Low-Sensitivity Area
Class IV:	New Construction in a Disturbed High-Sensitivity Area
Class V:	Projects Involving Undisturbed Ground
Class VI:	Projects Involving Demolition or Remodeling of Existing Structures
Class VII:	Projects Involving Lease or Transfer of DOE Buildings/and or Land
Class VIII:	Projects Involving the Type of Activity With No Potential to Cause Effects to Historic Properties.
PA	Exempted by *The Programmatic Agreement for the Maintenance, Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site (PA)* Section III.B.

A review may designate more than one class.

Literature and Records Review

The cultural resource reviewer will determine the following during the literature and records review:

- Cultural Sensitivity – This is determined by use of the Site Location topographic maps and/or the geographic information system database, to identify the project proximity to cultural resources (historic buildings, traditional cultural places, and previously recorded archaeological sites). Proximity to these resources is an indicator of cultural sensitivity. All projects located adjacent to or on Hanford's prominent land forms (Gable Mountain, Gable Butte, Rattlesnake Mountain, Umtanum Ridge, etc.) and within 400 meters (1,312 feet) of the Columbia River are considered to be located in culturally sensitive areas.

- Previous Cultural Surveys – The Site Location topographic maps and/or the geographic information system database is used to determine whether the area has been surveyed previously. If so, the project file is checked for more information about the survey and findings. If all or part of the project area has never been surveyed, a survey may be required.

- Previously Recorded Archaeological Sites and Traditional Cultural Properties – The Site Location topographic maps and/or the geographic information system database are checked to determine whether sites have been recorded in or near the project area from. If so, the site files are examined for more information about the site.

- Previous Disturbance – Aerial photographs, construction plans, and any other resources at hand, are used to determine the amount of previous disturbance may have impacted the project area, especially if located in one of the major Hanford operations areas (100, 200, 300, 400, and 600 Areas) or near roads, railways, and utility lines.

CLASS VIII Projects Involving the Type of Activity with no Potential to Cause Effects to Historic Properties

Project activities assigned to this classification include small excavations, such as routine maintenance activities, in areas away from cultural sensitivity zones and known to be previously disturbed by existing infrastructure, such as repair of waterlines or construction activities. A HCRC# for all DOE projects will be assigned for tracking purposes and the project will be assigned to the Class VIII "No potential to effect Historic Properties" primary class in the tracking database. An e-mail is prepared identifying the project description, the preliminary review, and a finding of "No potential to affect Historic Properties" and sent to the DOE-RL Hanford Cultural and Historic Resources Program Manager for review and concurrence. Upon concurrence, an e-mail notice is sent to the Cultural Resource Review requester providing cultural resources clearance.

PA Exemptions for the Built Environment Procedures

The programmatic agreement for the maintenance, deactivation, alteration, and demolition of the built environment on the Hanford Site (DOE 1996a) exempts certain activities from a Cultural Resource Review for activities that take place inside or effect any of the facilities identified in Tables A.5-A.7 of the *Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan* (DOE/RL-97-56) (Marceau 1998). These activities are listed in Stipulation III.

Emergency Review Procedures

Emergency situations in which there is an immediate risk to employee or environmental safety do not require a cultural review until the emergency is over. In emergency situations, responsible parties need to contact the DOE-RL Hanford Cultural and Historic Resources Program Manager as soon as possible to determine if sensitive resources are located in the area being impacted and explore any actions that can be taken to minimize damage. For emergency situations such as broken water lines that supply water to fire hydrants and gas/fuel line leaks provide a verbal clearance or "per telecom" over the phone and request that a Cultural Resource Review request form be filled out. A retroactive review will then be done. This is the only instance that a verbal clearance may be granted.

Where possible, emergency projects will follow the full review procedure and, per 36 CFR Section 800.12 (b), will only require **7-day review** by the State Historic Preservation Office and tribes.

Notifications

The DOE-RL Hanford Cultural and Historic Resources Program Manager will notify Native American tribes and the State Historic Preservation Officer about the proposed undertaking within 3 days of receiving the review. The notification shall contain a description of the project, the Area of Potential Effect and a summary of the records and literature search. The original review request along with location maps will also be provided. For all projects the U.S. Fish and Wildlife Service (USFWS) will be notified for projects located with the Hanford Reach National Monument. Dates of the notifications are then added to the Compliance Database.

Perform the Cultural Resources Review

Refer to Appendix C for the procedure.

5.2 ARPA COMPLIANCE PROCEDURES

The Archaeological Resources Protection Act (ARPA) places certain procedural requirements on federal agencies. These requirements pertain to increasing public awareness, planning and scheduling archeological surveys, and reporting suspected violations.

5.2.1 Increasing Public Awareness

The DOE-RL Hanford Cultural and Historic Resources Program provides site protection/education to comply with regulations and increase public awareness of the significance of cultural resources. Site protection education consists primarily of education/training for Hanford Site workers about cultural resources and their significance. Other education activities are intended to inform citizens of all ages about Hanford cultural resources, the laws and regulations protecting and preserving those resources, the cultural resources management program at the Hanford Site, and the need for a site stewardship program.

Some examples of activities performed by the program include:

- Washington State Archaeology month participation
- *Cultural Resource Review* (DOE newsletter issued 3 to 4 times a year)
- Lectures and classroom presentations by staff to school classes and civic organizations as requested
- Provide input by staff to relevant web sites, newspapers, and newsletters.

5.2.2 Planning and Scheduling Archaeological Surveys

The program inventories areas that have not been surveyed before.. This task involves the inventory of unsurveyed parcels and the recording of resources on previously unsurveyed lands at the Hanford Site.

At completion of this task, the inventory results will be incorporated into the DOE-RL Hanford Cultural and Historic Resources Program database. Areas to be surveyed are identified at Tribal Issues Meetings. Also included are oral history interviews with former residents.

5.2.3 Reporting Suspected Violations

This procedure provides program staff with the steps to follow to report ARPA violations when encountered. This procedure applies when an archaeological site is encountered that has been or is being looted. For example, this procedure may be applied while out monitoring archaeological sites along the river, if one encounters people digging along the bank and using screens, or while conducting an archaeological survey, if one encounters an existing site with holes scattered across an area. The procedure is identified in Appendix C.

The staff position assigned responsibility for implementing ARPA procedures is Annabelle Rodriguez, DOE-RL Cultural and Historic Resources Program Manager.

5.3 AIRFA AND EXECUTIVE ORDER 13007 COMPLIANCE

The Hanford Historic and Cultural Resources Program assists DOE-RL in complying with the Act and the Order through its cultural resource review consultation process. Every undertaking performed at Hanford that has potential to effect cultural resources is subjected to a cultural resource review, a key part of which is notification to tribes with historical ties to Hanford. Any concerns relative to these undertakings can be provided to DOR-RL through this process and are considered prior to granting the undertaking a cultural resource review clearance under the National Environmental Policy Act and the National Historic Preservation Act. Refer to Section 5.1 for additional details.

Concerning the issue of access, both the Cultural and Historic Resources Program and the DOE-RL Indian Nations Program have accommodated numerous requests for onsite visits to places of interest by tribal elders, tribal officials, tribal staff and tribal youth. Individuals requiring religious access to places at Hanford can contact either of these offices to make arrangements

5.4 NAGPRA COMPLIANCE PROCEDURES

The Native American Graves Protection and Repatriation Act (NAGPRA) requires protection and repatriation of Native American cultural items found on or taken from federal tribal lands. The intention of the DOE-RL Hanford Cultural and Historic Resource Program is that priority will be given to preservation of all Native American human remains and associated funerary objects in place. No human burial materials should be removed unless it is necessary for their survival. There may be circumstances where it is necessary to intentionally excavate human remains to protect them from destruction by construction activities or natural erosion. If removal of human remains is necessary, during excavation and recording, the burial materials will be treated with dignity and respect and will not be placed on display or within public view.

Because of historical operations in support of national defense missions conducted at the Hanford Site over the past 50 years, there is potential that radiological contamination of Native American human remains and other cultural items has occurred. Although the discovery and recovery of such remains falls under NAGPRA, other regulations pertaining to public health and safety issues may have to be considered during the consultation efforts and in the ultimate disposition of specific cases. Following guidance by DOE's Headquarters, in the event of discovery of radiologically contaminated human remains and associated funerary objects at the Hanford Site, DOE-RL will consult with the affected Indian tribes to achieve compliance with all relevant statutes and regulations while ensuring appropriate respect for the human remains and cultural objects while, at the same time, ensuring protection of the public's health. Additional details are provided below and in the NAGPRA Treatment Plan provided in Appendix F.

5.4.1 Intentional Excavation and Removal of Native American Cultural Items

Intentional excavation of human remains and objects is permitted under the provisions of NAGPRA in conjunction with requirements of ARPA and its implementing regulations. However, the DOE-RL does not support the excavation of human remains unless the remains are at imminent risk, and then only after full consultation with the appropriate Native American groups. Any proposal to remove remains by Hanford contractors will not be approved until DOE-RL has considered the input from Native American groups. No ARPA permit application relating to intentional or possible removal of human remains will be approved until DOE-RL has considered the input from Native American groups (Note that Hanford cultural resource contractors' contracts suffice for an ARPA Permit and therefore only cultural resource contractors working for other agencies, or researchers will require an ARPA permit).

5.4.1.1 Consultation

Consultation between DOE and affected Indian tribes at the Hanford Site occurs on a regular basis and is coordinated with the Indian Nations Program at DOE-RL. The DOE-RL's involvement with American Indian tribes is guided by the DOE American Indian Policy and Alaska Native Tribal Government Policy, in conjunction with various historic preservation statutes, regulations, and presidential executive orders. Under this program, DOE-RL interacts and consults on a direct basis with four federally recognized tribes affected by operations at the site: the Nez Perce Tribe, the Confederated Tribes of the Umatilla Reservation, the Yakama Nation, and the Confederated Tribes of the Colville Reservation. In addition, the Wanapum, a non-federally recognized tribe that lives adjacent to the site and who maintain strong cultural ties to the Hanford landscape are also consulted on cultural resource issues in accordance with DOE-RL policy and relevant legislation.

Within this general Hanford consultation framework, the NAGPRA statute requires interaction between a Federal agency and Indian tribes or individuals under a number of actions concerning human remains and associated materials. These conditions are summarized in Table 9.

Implementing regulations contained in 43 CFR 10, Subparts B and C, further delineate federal agencies' responsibilities for consultation. Specifically, 43 CFR 10.5 requires consultation as part of either the intentional excavation or inadvertent discovery of human remains, funerary objects, sacred objects, or

TABLE 9 Required Interactions Between DOE and Indian Tribes under NAGPRA

Type of Communication	When?	Who?	Required By
Notification	After completing NAGPRA-required inventories of Native American human remains and associated funerary objects.	Affected Indian tribes.	NAGPRA, 25 U.S.C. 3003 (d)
Notification	Summarizing unassociated funerary objects, sacred objects, and objects of cultural patrimony.	Affected Indian tribes.	NAGPRA, 25 U.S.C. 3004 (a)
Consultation	Prior to removing Native American human remains or cultural items from federal lands.	Appropriate Indian tribes.	NAGPRA, 25 U.S.C. 3002 (c) (2)
Consultation	Prior to completing inventories of human remains and associated funerary objects in an agency's possession.	Tribal government or traditional religious leaders.	NAGPRA, 25 U.S.C. 3003 (b) (1) (A)
Consultation	Determining the cultural affiliation of unassociated funerary objects, sacred objects, and objects of cultural patrimony.	Tribal government or traditional religious leaders.	NAGPRA, 25 U.S.C. 3004 (b) (1) (B)
Consultation	Determining where and in what manner to return cultural items or human remains.	Lineal descendent or Indian tribe.	NAGPRA, 25 U.S.C. 3005 (a) (3)

objects of cultural patrimony on federal lands and lists the requirements that must by followed. Similarly, consultation requirements for federal agencies and museums that possess or manage human remains and objects included under the provisions of NAGPRA are spelled out in 43 CFR 10.8 (d) and 9 (b). It should be noted that consultation between federal agencies and Indian tribes is also called for in other historic preservation statutes and regulations, notably the National Historic Preservation Act and ARPA, and consultation requirements may overlap between these statutes and NAGPRA, depending on the specific circumstances of individual cultural resource undertakings.

The DOE-RL Hanford Cultural and Historic Resources Program Manager is responsible for implementing the consultation procedures. All consultation will be documented and kept on file.

5.4.1.2 Ownership and Right to Control

The DOE-RL will establish cultural affiliation according to geographical, kinship, biological archaeological, anthropological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion, following procedures outlined in NAGPRA. Where there are multiple requests for repatriation of any cultural item and, after complying with the requirements of NAGPRA, if DOE-RL cannot clearly determine which requesting party is the most appropriate claimant, DOE-RL will

retain such item until the requesting parties agree upon its disposition or the dispute is otherwise resolved pursuant to the provisions of NAGPRA or by a court of competent jurisdiction.

The DOE-RL Hanford Cultural and Historic Resources Program Manager is responsible for implementing the ownership and right of control procedures.

5.4.2 Inadvertent Discovery of Native American Cultural Items

If possible human remains are inadvertently discovered in the field during routine cultural resource monitoring, during construction or under any other circumstance, the following instructions are to be used:

1. Cultural Resource staff should determine, if possible, whether the discovery is human using available texts or other information (e.g., use a comparative skeleton in field vehicle when available).

2. If remains are human, notify the DOE-RL Cultural and Historic Resources Program Manager (or delegate) of the discovery immediately so that the County Coroner can be contacted. If the remains cannot be identified as human, the DOE-RL Program Manager shall take the necessary steps to ensure proper identification of the remains.

3. If the discovery is human, complete the appropriate sections of Hanford Inadvertent Discovery Report Form (Appendix B). Upon return from the field, the form shall be submitted to the DOE-RL Program Manager, who will complete the form.

When an inadvertent discovery is encountered, staff will take measures to avoid further disturbance of the area. Cultural materials shall not be moved from the location of discovery. Photographs shall not be taken of the bones unless photographs are needed to assist in the determination of the remains to be human or animal.

5.4.2.1 Discovery

All inadvertent discoveries of recognized or potential human skeletal remains will be immediately reported to the responsible manager or supervisor. Depending on the circumstances of the discovery, an inadvertent discovery could be made through any one of several situations—during cultural resources monitoring of construction activities; chance discoveries by workers during non-monitored construction; or a report of possible human skeletal materials from any non-construction area within the site.

Until a final evaluation can be made, all reports of potential NAGPRA discoveries will be taken seriously and dealt with expeditiously by all personnel involved in the discovery.

If applicable, e.g., the inadvertent discovery occurs in connection with an ongoing activity, responsible personnel will take measures to cease activity in the area where the discovery is made. Work will not

proceed until proper notifications have been made, and a full professional evaluation of the nature of the discovery has been completed.
Securing and providing protection to the discovered remains is initially the responsibility of the discoverers, if during an on-going activity. In addition to stopping the activity in the area of the inadvertent discovery, on-site workers will provide initial security by both avoiding the discovery site proper, and by ensuring that other personnel do not intrude on to the discovery site. All cultural items are to be left in place, without further disturbance, and a temporary perimeter (flagging tape, stakes, etc.) may be established, if appropriate, until notifications have been made and a cultural resources professional has appeared. Covering the exposed remains with some type of natural material may be appropriate.

Depending on the outcome of the professional evaluation and the sensitivity of the discovery, longer-term protection may be required in the form of onsite guards and/or periodic patrols. It may also be necessary to establish additional security perimeters and access control to the area.

Depending on the circumstances of the discovery, notification may take several avenues. For example, if made during monitoring of construction, either by an archaeologist or a site worker, the initial notification will be to the appropriate contractor cultural resource manager, who will then notify the DOE-RL Hanford Cultural and Historic Resources Program Manager. Other feasible avenues of notification include a site worker notifying their supervisor or site security or a member of the public notifying the sheriff's department or the county coroner.

The key notification is to the responsible manager at DOE-RL, the DOE-RL Hanford Cultural and Historic Resources Program Manager, who will coordinate subsequent notifications, as necessary, following the professional evaluation of the discovery.

As soon as possible following the discovery and initial notification, the discovery will be evaluated to verify that the remains are human and that they are not a crime scene. Following this, determination will be made on whether the remains are Native American. This will be accomplished by technical staff from the DOE-RL Hanford Cultural and Historic Resources Program in consultation with Native American representatives. If a clear determination can not be made, additional expertise will be obtained. If the skeletal remains are not determined to be Native American, disposition will be determined by the DOE-RL Hanford Cultural and Historic Resources Program Manager in consultation with interested parties.
If the discovery is determined to be Native American, and therefore subject to NAGPRA, the DOE-RL Hanford Cultural and Historic Resources Program Manager will initiate consultation and additional notifications as per requirements in 43 CFR 10, Section 10.4. Notifications include the DOE Federal Preservation Officer and the State Historic Preservation Officer. Within 24 hours, the DOE-RL Cultural and Historic Resources Program Manager will telephonically notify tribal technical contacts and within 3 working days will provide written notification, which may be provided by fax or certified mail, to the designated tribal NAGPRA points of contact. As soon as practicable, an emergency meeting with designated tribal personnel will be held to continue NAGPRA formal consultation, and to develop a coordinated plan of action for disposition of the inadvertent discovery.

If the inadvertent discovery occurred as a result of an ongoing activity such as construction, resumption of the activity will depend on the consultation process and the overall significance of the discovery. NAGPRA and 43 CFR 43 provide for resumption of the activity 30 days after the certified notification of

the discovery. However, resumption may occur at an earlier date if a written, binding agreement is executed between DOE-RL and the affected Indian tribes for the mitigation of the impacts to the remains.

5.4.2.2 Disposition and Control

The DOE-RL will establish cultural affiliation according to geographical, kinship, biological archaeological, anthropological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion, following procedures outlined in NAGPRA. Where there are multiple requests for repatriation of any cultural item and, after complying with the requirements of NAGPRA, if DOE-RL cannot clearly determine which requesting party is the most appropriate claimant, DOE-RL will retain such item until the requesting parties agree upon its disposition or the dispute is otherwise resolved pursuant to the provisions of NAGPRA or by a court of competent jurisdiction.

The DOE-RL Hanford Cultural and Historic Resources Program Manager is responsible for implementing the disposition and control procedures.

5.4.3 Inventory for Native American Human Remains and Associated Funerary Objects

The NAGPRA requires that collections inventories and identifications be completed in consultation with tribal government and traditional religious leaders. The inventory shall be available both during the time it is being conducted and afterward. Additional information will be supplied to any tribe upon request, including summaries of existing records, relevant studies or other pertinent data for determining the geographical origin, cultural affiliation and basic facts surrounding the acquisition and accession of Native American human remains and associated funerary objects. If the cultural affiliation of any particular Native American human remains or associated funerary objects is determined affected Indian tribes will be notified.

Inventory of the human remains held in the Hanford collections has already been completed according to the guidelines set forth by Section 5 of the NAGPRA (see Section 3.5.4.1).

5.4.4 Summary of Native American Unassociated Funerary Objects, Sacred Objects, and Cultural Patrimony

The summary of Native American unassociated funerary objects, sacred objects, and cultural patrimony has been completed according to the guidelines set forth by Section 6 of the NAGPRA (see Section 3.5.4.2). If tribes believe there may be sacred objects or items of cultural patrimony in the archaeological collections, they can contact he DOE-RL Hanford Cultural and Historic Resources Program Manager and request access to the collections. If any objects or items are discovered, a claim can be submitted to DOE-RL for action. No procedures are currently in place as they have not been needed up to now.

5.4.5 Repatriation of Native American Cultural Items

All known cultural items have been repatriated, as explained in Section 3.5.4.3. Any new items discovered inadvertently will follow NAGPRA procedures.

5.5 36 CFR PART 79 COMPLIANCE PROCEDURES

The DOE Hanford Cultural and Historic Resources Program has two major collections: the collection of artifacts collected from archaeological sites at Hanford and the collection of artifacts collected from buildings and structures at Hanford and associated with the Manhattan Project/Cold War era at Hanford.

The archaeological collection is housed at Pacific Northwest National Laboratory (PNNL). Management and preservation of the archaeological collection is explained in the archaeological collection management plan provided in Appendix G. These procedures ensure that the collection is secure, maintained in temperate conditions, and maintained in good condition.

The Manhattan Project/Cold War era collection is housed at the Columbia River Exhibition of History, Science and Technology. Management of the collections is explained in the draft Hanford Curation Plan provided in Appendix H. These procedures ensure that the collection is secure, maintained in temperate conditions, and maintained in good condition.

5.5.1 Management and Preservation of Collections

With the exception of items that are in danger of looting or are of high interpretive or educational value, artifacts, objects, and materials encountered during field surveys or excavations will not be collected. Archaeological and historic-archaeological items are to be recorded, photographed, and analyzed in the field to the fullest extent possible. In those instances when collection is required, all items are to be fully point provenienced by mapping and recording their location in the field and protected during transport so that damage does not occur. Cleaning, cataloging, and analyzing these items will follow established archaeological laboratory procedures. Items collected for retention will be delivered to HCRL for temporary or long-term curation.

For all buildings and structures relating to the operations of the Hanford Site through 1990, Stipulation V(C) of the historic buildings programmatic agreement requires an assessment of the interior contents of those properties listed for individual documentation within the Hanford Site Manhattan Project and Cold War Era Historic District Treatment Plan (Marceau 1998) before any deactivation, decontamination, or decommissioning activities. The purpose of the assessment is to locate and identify any artifacts (e.g., equipment, control panels, signs, models) that may have interpretive or educational value as exhibits within local, state, or national museums. Interior assessments of buildings determined to be contributing properties within the historic district, but not selected as representatives of a building type or period of construction, will be conducted as funding allows.

5.6 PROTECTION PROCEDURES

The foundation for the DOE Hanford Cultural and Historic Resources Protection Program is a long-term monitoring of site conditions task, an analysis task, and a solution task. The protection procedures covers all three cultural and historic resource landscapes, in addition to current Native American traditional use

areas that are in common use today (such as location of educational and religious significance). This protection plan covers Hanford's prehistoric and historic archaeological properties. The Plan also covers a small number of surviving pre-1943 architectural remnants of historic Euro-American presence, and historic resources that came into being after 1943 because of the U.S. government's establishment of Hanford. The Plan covers all resources (as defined above) within the DOE-managed portions of the Hanford Site.

Program Goals

DOE's goals for Hanford's cultural and historic resources are as follows:

- Protect these resources from avoidable degradation
- Mitigate avoidable threats
- Ensure compliance with all applicable and historic resource laws and implementing regulations
- Provide important documents and records to Project Records Operations
- Annually report the activities, findings, and achievement of the above goals in a publicly available format.

Selection of Sites for Monitoring

The following criteria are used in establishing the locations to be monitored each year:

- Archaeological sites that are eligible for listing or are listed in the National Register will be considered for inclusion in the quantitative monitoring program.

- Archaeological sites that are known to be losing archaeological features or deposits will be high-priority candidates for inclusion in the quantitative monitoring program.

- Archaeological sites that have a high potential for increased exposure and visibility because of fluctuating river levels will be high priority candidates for inclusion in the quantitative monitoring program.

- Sites representing specific tribal concerns will be kept high priority candidates for the monitoring program or could be monitored by the tribe itself as part of a Tribal Monitoring Program.

- Archaeological sites located in areas of potential erosion shall be monitored to prepare for site stabilization when loss is anticipated–before loss is observed.

- Known Native American cemeteries and burials shall not be included in the quantitative monitoring program unless concurrence is received from the Wanapum and all other tribal points of contact have been consulted.

Existing Documentation

Program staff shall prepare a folder containing all known, available information about locations to be monitored. Such information may include, but not be limited to historic maps, photographs, worksheets, and graphs. Copies of this information should be taken into the field for use during the monitoring activity.

Scheduling

Qualified staff will schedule quantitative monitoring trips as determined by annual work plans with Native American points of contact.

Methodological Approach

1. All archaeological sites in the quantitative monitoring program will be mapped or otherwise recorded from a permanent datum. Baseline conditions may be established using high-resolution topographic mapping with a total station. Subsequent maps shall be created of the archaeological site according to selected mapping intervals not to exceed a 5-year interval for comparative purposes.

   Note: Priorities for total station mapping shall be established for all archaeological sites in the quantitative monitoring program. All archaeological sites selected for data recovery activities (driven by loss due to erosion or other adverse impacts) will be high priority for total station mapping whether or not they are included in the quantitative monitoring program.

2. Archaeological site monitoring forms (see Appendix B) shall be completed to establish a historic record of qualitative and quantitative change at site included in the monitoring program. Site locations, features, or artifacts shall be recorded using a geographic positioning system.

Note: All program staff shall complete all fields on monitoring forms to ensure quantitative consistency in data collection through time.

3. Photographs (minimally 3 by 5-inch black and white photographs) shall be taken to create an objective basis for documenting change at the site. A semi-permanent datum (plotted on the site map) shall be used for photograph positions during each monitoring visit. Photograph orientations are to be recorded on the monitoring form.

   Note: At a minimum, all program staff shall take black and white photographs at each photo point indicated on the site map. Other technologies may also be used as necessary to document the visual record of each site.

4. Other monitoring methodologies such as video cameras may be used as appropriate or as they are available.

Monitoring Logistics

Monitoring trips are best suited to the spring (less vegetation and longer daylight hours) and the fall (lower river levels, good natural lighting, and potentially less vegetation coverage). Field crews shall be led by a qualified cultural resource professional. Tribal monitoring crews will be selected by the tribe(s) conducting the monitoring trip.

Trip Reports

Trip reports shall be prepared following each monitoring trip. Each report shall summarize the archaeological sites visited, names of trip participants, changes that may have been encountered at each archaeological site monitored, and any unexpected actions that were taken during the monitoring trip. A copy of the trip report shall be placed in monitoring files. A brief summary shall be e-mailed to the DOE-RL Hanford Cultural and Historic Resources Program Manager. A summary monitoring report shall be completed annually.

Quantification

Once aware of a problem, program staff quantify the extent of the damage and/or the expected future threats. This step is central to understanding the importance of the finding in the context of time and all other Hanford resource holdings. The quantification step makes it possible to prioritize multiple impacts and to communicate the extent of the impact to diverse audiences. It is the responsibility of staff performing an Impact Mitigation operation to complete the following:

- Document the pattern of damage and/or threat
- Create a conceptual model that explains the damage or threat
- Identify the importance of the cultural and historic resources damaged or threatened
- Quantify the extent of existing damage
- Quantitatively predict the extent of potential future threats
- File work products in the records.

Management of cultural resources on Hanford requires knowledge about the condition of the resources (i.e., what damages the resources have sustained and the threat of further damage in the future). Measures of damage and threat to the resources will help site managers and decision makers decide where limited cultural resources funds would be best spent to protect and preserve Hanford's cultural resources. Following is an assessment of cultural resources at Hanford completed by the HCRL. Each year, these assessments will be updated with the current year's data gathered from site monitoring, construction monitoring, and Section 110 survey projects. As these assessments are adjusted, they should become further representative of the state of cultural resources on the Hanford Site.

Special Protection Management Units

To reflect the variety of cultural resources found in areas of the Hanford Site, the land was divided up into focus areas called Special Protection Management Units (SPMUs). These units are based on existing National Register archaeological districts, landforms, or logical areas of similar cultural resources. Each SPMU is analyzed by program staff to produce a final score that would be compared to other SPMU scores to determine relative damage and threats to cultural resources.

Each SPMU is analyzed by researching erosion, looting/ARPA violations, and recreational use. Researchers looked at each archaeological site within an SPMU to count the number of incidents of erosion, looting/ARPA violations, and recreational impacts to sites through time. Thus, if a particular site was monitored six times within the past 30 years, of which three monitoring visits reported recreational impacts, then three counts of recreational impacts would be ascribed to the SPMU in which the site lay. After all sites within a SPMU are counted, the totals of each category are listed on a SPMU form.

In addition to reporting the location of each SPMU, the SPMU form lists all sites within the SPMU area, impacts reported in the area, and management recommendations for the SPMU. Also, rivershore erosion monitoring data, historic photographs, and previous reports on area projects were consulted for data. Based on the data, researchers assigned a rank from 1 to 4 to describe the level of previous damage to cultural resources within the SPMU. Another rank was assigned to describe the level of perceived threat to cultural resources within the SPMU. These two ranks are incorporated on a summary table of all SPMUs to compare damage and future threat levels.

See Section 3.4.7 for descriptions of accomplishments to date in this area.

Mitigation Options

After quantifying the damage or threat, it is possible for program staff to determine the options available for mitigation. Mitigation techniques may be highly focused, such as fencing a threatened site, or they may be more diffuse, such as a general education program. In addition, mitigation options can also involve tribes and interested stakeholders. Other organizations (e.g., the Benton County Sheriff) may be contracted to patrol for looters to prevent them from gaining access to Hanford via the river. The "Impact Mitigation" operational phase has the responsibility to do the following:

- Using the quantification report, find options for mitigating the damage
- Using the quantification report, find options for eliminating the threats
- File reports containing finding with the "Project Records" Operations.

All SPMU forms contain a section that lists "Actions Desired to Mitigate Current Impacts."

Decisions

The DOE-RL Hanford Cultural and Historic Resources Program Manager has the responsibility to form consensus and issue decisions on those impacts and/or threats selected for mitigation.

Implementation

Continued funding is central to the execution of a resource mitigation plan. Further, for the mitigation plan to be performed, a specific organization must be held responsible for implementation of the mitigation plan. The organization assigned the task of implementing the mitigation plan may be a DOE division, a DOE contractor, or a non-DOE entity—such as a Native American organization. As the Natural Resource Trustee of Hanford, the primary responsibility for funding a mitigation operation lies with DOE. However, the program may also request funds from other sources.

The program manager may decide to assign the implementation of the mitigation plan to DOE's infrastructure organizations with its funding derived from normal infrastructure budgets. Mitigation may also be reassigned to the project, in which case the project will need additional funding to cover costs of mitigation. Independent organizations (e.g., tribes, universities, other federal agencies, state agencies) may also perform the mitigation, in which case, the funding may derive from its own budget, from DOE, from special sources, or any combination thereof.

5.7 TREATY RIGHTS

The DOE American Indian and Alaska Native Tribal Government Policy states among other things that, "The Department shall: Consult with Tribal governments to assure that Tribal rights and concerns are considered prior to DOE taking actions, making decisions, or implementing programs that may affect Tribes."

In recognition of this government-to-government relationship, DOE-RL interacts and consults directly with three federally recognized tribes affected by Hanford operations. The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribe of the Colville Reservation and the Yakama Nation all have important rights recognized and guaranteed in the Treaties of 1855. In addition, the Wanapum who still live adjacent to the Site, are a non-federally recognized tribe who have strong cultural ties to the Site and are consulted on cultural resource issues in accordance with DOE-RL policy and relevant legislation.

The DOE-RL established the Indian Nations Program in 1991 to help facilitate appropriate government-to-government interactions on the many issues potentially affecting tribal interests at Hanford. The mission and goals of the Indian Nations Program are found below.

The following are goals of the DOE-RL Indian Nations Program:

- Tribal staffs are regularly consulted at the earliest opportunity for recommendations and advice on DOE activities potentially affecting tribal rights and interests.

- The Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, the Confederated Tribes of Colville Reservation, and the Wanapum work with the DOE to manage the cultural resources at the Hanford Site.

- Interactions among DOE, contractor, and tribal staffs occur in a collegial atmosphere.

- Tribal people routinely access portions of the Site for traditional religious practices including the gathering of foods and medicines.

- The DOE and the tribes view the interactions between the DOE-RL and individual tribes as an appropriate government-to-government relationship.

Staff position assigned responsibility for implementing the American Indian Religious Freedom Act (AIRFA) procedures: Kevin Clarke, DOE-RL Indian Nations Program Manager.

In addition to the American Indian Policy, laws such as the AIRFA, ARPA, National Historic Preservation Act, NAGPRA, and Executive Order 13007 (Indian Sacred Sites) require consultation with tribal governments and/or religious leaders. The combination of the Treaties of 1855, federal policy, laws, and regulations provide the basis for tribal participation in Hanford plans and activities.

The DOE-RL established the Indian Nations Program in 1991 to help facilitate appropriate government-to-government interactions on the many issues potentially affecting tribal interests at Hanford.

See Section 5.3 (AIRFA Procedures) for more information on DOE-RL's Indian Nations Program.

Staff position assigned responsibility for coordinating response to issues and implementation of the American Indian and Alaska Native Tribal Government Treaty Rights: Kevin Clarke, DOE-RL Indian Nations Program Manager.

5.8 CRM ADMINISTRATION

Cultural resource management (CRM) at the Hanford Sites is administered by the DOE-RL Hanford Cultural and Historic Resources Program. The program manages the fieldwork, reporting, data interpretation, mitigation and remediation design, curation, and interface of activities for DOE-RL's Hanford Cultural and Historic Resources Program and work covered by this management plan. The program also operates an archaeological laboratory, which includes curated collections, curated records, and specimen preparation facilities.

Staff position assigned responsibility for the Cultural and Historic Resources program is Annabelle Rodriguez.

5.8.1 Staffing and Contracting

The DOE-RL Cultural and Historic Resources Program Manager oversees all staff performing activities related to cultural and historic resources at Hanford. To perform the required activities, staff require expertise in cultural resource regulatory analysis, tribal and stakeholder involvement, archaeology, anthropology, ethnography, history and architectural history. The staff who provide this expertise are identified in Appendix D.

Since 1993, the DOE-RL Cultural and Historic Resources Program has made a concerted effort to increase the direct participation of Native Americans in the Program. A tribal staff member has worked part-time for the program since 1995. In 2002, a Native American was hired to serve as Program Manager. Efforts to coordinate activities with local tribes have also increased over the past few years.

The DOE-RL Cultural and Historic Resources Program has made use of subcontractors in the past when work required exceeded available staffing. Currently, the only subcontracts in place are with Wanapum elders to assist in documenting traditional cultural properties and occasionally tribal technicians to assist in fieldwork.

Resumes of current contractor staff are provided in Appendix D.

5.8.2 Training

The DOE-RL Cultural and Historic Resources Program provides for training staff when significant changes in regulation occur or when staff are assigned responsibilities for which they have limited training or expertise. Most training related to National Historic Preservation Act Section 106 and National Environmental Policy Act assessments.

5.8.3 Permitting

See Section 5.1.1, Initiation of Compliance Procedures for Undertakings.

5.8.4 CRM Facilities

The primary facility supporting the Hanford Cultural and Historic Resources Program is the cultural resources laboratory, where records and archaeological collections are housed. The program also makes use of storage facilities to house artifacts related to the Manhattan Project and Cold War resources at Hanford. Finally, the program shares laboratory space with Washington State University – Tri-Cities to process artifacts from archaeological excavations.

5.8.5 Curation

See Section 5.5 (36 CFR Part 79, Compliance Procedures).

5.8.6 Quality Assurance

Quality assurance is ensured by the development of procedures to guide program activities. Example procedures are provided in Appendix C.

5.8.7 Consultation on Administration

Consultation occurs as necessary either through regular meetings or specially requested meetings.

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APPENDIX A

GLOSSARY

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GLOSSARY

Advisory Council on Historic Preservation (ACHP)
An independent Federal agency responsible for administering the protective provisions of the National Historic Preservation Act (NHPA). The Advisory Council is the agency responsible for reviewing the historic preservation policies and programs of all Federal agencies and recommending methods to improve the effectiveness, coordination, and consistency of those policies and programs with the intent of the National Historic Preservation Act.

Agency Official
The Federal agency head or a designee with authority over a specific undertaking, including any state or local government official who has been delegated legal responsibility for compliance with NHPA Section 106 and Section 110(f) in accordance with the law.

Area of Potential Effects (APE)
The geographic area or areas within which an undertaking may directly or indirectly cause changes, whether beneficial or adverse, to the character or use of historic properties, if any such properties exist. The area of potential effects is not limited to land under Federal jurisdiction or control of land within a Federal construction, right-of-way, or permit area.

Building
A structure created to shelter any form of human activity such as a house, barn, church, hotel, or similar structure. The building may refer to a historically related complex such as a courthouse and jail or a house and barn (36 CFR 60).

Consultation
The process of seeking, discussing, and considering the views of other participants in good faith in arriving at solutions and alternatives.

Cultural Resources
As used in the Hanford Cultural Resources Management Plan (HCRMP), cultural resources is a collective term applicable to: 1) prehistoric- and historic-archaeological sites and artifacts designating past Native American utilization of the Hanford Site; 2) historic-archaeological sites and artifacts indicating post Euro-American activities relating to the pre-Hanford period; 3) Hanford Site Manhattan Project and Cold War era buildings, structures, and artifacts; 4) landscapes, sites, and plants and animals of cultural value to the Native American community; and 5) landscapes, sites, and materials of traditional cultural value to non-Native Americans.

Cultural Resource Review
A review of proposed project locations to consider potential project impacts to cultural resources and historic properties (see HCRMP Sections 5.2 and 6.2).

Determination of Eligibility
A decision by the U.S. Department of Energy (DOE) Hanford Site, concurred with by the State Historic Preservation Officer, that a district, site, building, structure, or object meets the National Register criteria for listing although the property is not formally listed in the National Register (36 CFR 60).

District
A geographically definable area, urban or rural, that possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. A district may also comprise individual elements separated geographically but linked by association or history (36 CFR 60).

Hanford Cultural Resources Laboratory
The Hanford Cultural Resources Laboratory was established by DOE Richland Operations Office (DOE-RL) as part of the Hanford Site Cultural Resources Program in 1987. It is part of Pacific Northwest National Laboratory, which is operated by Battelle for the DOE under contract DE-AC06-76RL01830.

Hanford Reach National Monument
The Hanford Reach National Monument was created on June 9, 2000, by a proclamation signed by President Clinton under the authority of the Antiquities Act of 1906. The monument includes ~195,000 acres of contiguous federally owned land making up a portion of the Hanford Site. The four principal components of the monument are the Fitzner/Eberhardt Arid Lands Ecology (ALE) Reserve, the Saddle Mountain National Wildlife Refuge, land along the Columbia River corridor, and the Hanford Dune Field. The U.S. Fish and Wildlife Service will manage lands under permits with DOE-RL. The remainder of the monument will be managed by the DOE in consultation with the U.S. Department of the Interior (DOI).

Hanford Site
For the purpose of this document, the Hanford Site consists of all lands within the Hanford Site boundaries that are managed by DOE-RL and DOE Office of River Protection (DOE-ORP). These areas include Central Hanford and portions of the river corridor and areas being managed by the U.S. Fish and Wildlife under the Presidential Proclamation establishing the Hanford Reach National Monument (Proclamation 7319; 65 FR 37253).

Historic Context
An organization format that groups historic properties that share similarities of time, theme, and geography. Historic contexts are linked to actual resources and used by public and private agencies and organizations to develop management plans based upon actual resource needs and information (DOE 1989, p. 7).

Historic Preservation
Historic preservation includes identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration, stabilization, maintenance, research, interpretation, conservation, education, and training (NHPA Section 110 1998).

Historic Property
Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria.

Interested Person, Party or Stakeholder
Those organizations and individuals that are concerned with the effects of an undertaking on historic properties.

Keeper of the National Register of Historic Places
The individual who has been delegated the authority by the individual who has been delegated by the Secretary of the Interior to list properties and determine their eligibility for the National Register (36 CFR 60).

Local Government
A city, county, parish, township, municipality, borough, or other general purpose political subdivision of a state.

Memorandum of Agreement (MOA)
The document that records the terms and conditions that have been agreed upon to resolve the adverse effects of an undertaking upon the historic properties (36 CFR 800).

Mitigation
Action to minimize, ameliorate, or compensate for degradation and/or loss of those characteristics of a property that make it eligible for the National Register (DOI 1989:8).

National Register of Historic Places
The National Register of Historic Places is maintained by the Secretary of the Interior. The list includes districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture established under Section 101 of the NHPA (NHPA Section 110 1998).

National Register Criteria
The criteria established by the Secretary of the Interior for use in evaluating the eligibility of properties for the National Register (36 CFR 60).

Object
A material thing of functional, aesthetic, cultural, historical, or scientific value that may be, by nature or design, movable yet related to a specific setting or environment (36 CFR 60).

Preservation
According to the National Historic Preservation Act, preservation "includes identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration,

stabilization, maintenance, research, interpretation, conservation, and education and training regarding the foregoing activities or any combination of the foregoing activities" (NHPA Sec. 301[8]).

Protection
For the purpose of this document, we are using the definition provided by the Secretary of Interior's Standards for the Treatment of Historic Properties for preservation. The Secretary of the Interior defines it as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property."

Site
The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself maintains historical or of archaeological value regardless of the value of any existing structure (36 CFR 60).

Site Preservation Officer (SPO)
The DOE individual, responsible for managing the DOE-RL's historic preservation program and coordinating all preservation activities for DOE.

State Historic Preservation Officer (SHPO)
The official appointed or designated pursuant to section 101(b)(1) of the NHPA to administer the State Historic Preservation Program or a representative designated to act for the State Historic Preservation Officer (36 CFR 800).

Stewardship
The act of making decisions, performing activities, taking actions, fulfilling responsibilities, and/or agreements associated with being a proactive caretaker or custodian. A "stewardship responsibility," implies that duties will be executed in an ethical, socially acceptable, and legal manner.

Structure
Work made by human beings and composed of interdependent and interrelated parts in a definite pattern of organization (36 CFR 60).

Traditional Cultural Place (TCP)
The phrase "traditional cultural place" is used in this document instead of "traditional cultural property" as a reflection of DOE-RL's efforts to cooperatively manage the Hanford Site with the tribes. A TCP is defined as a place that is associated with cultural practices or beliefs of a living community that 1) are rooted in that community's history, and 2) are important in maintaining the continuing cultural identity of that community (NHPA Section 110 1998).

Tribe
An Indian band, nation, or other Native American group or community that attaches religious or cultural importance to the area of the Hanford Site. Tribes that have identified such an attachment include the Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Colville Reservation, the Wanapum, and the Yakama Nation.

Undertaking
A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency; including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under NHPA Section 106 (36 CFR 800).

REFERENCES

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APPENDIX B

FORMS

APPENDIX B

FORMS

Cultural Resources Report Narrative B-4
Cultural Resources Review Tracking Form B-7
Federal Archaeological Resources Protection Act (ARPA) Permit B-8
Hanford Archaeological Isolate Form B-12
Hanford Archaeological Site Form B-15
Hanford Archaeological Site Monitoring Form B-22
Hanford Archaeological Survey Form B-24
Hanford Artifact Transfer of Custody Form B-26
Hanford Auger/Shovel Test Summary Form B-27
Hanford Construction Monitoring Form B-29
Hanford Inadvertent Discovery Report Form B-31
Hanford Isolate Log B-34
Hanford Locking Shelves Access Log Sheet B-35
Hanford Photo Log B-36
Hanford Photograph Release Form B-37
Hanford Readiness Review Checklist B-39
Hanford Request for Cultural and/or Ecological Resources Review for the Hanford Site B-40
Hanford Site Log B-41
Hanford Unit Feature Level Form B-42
HCRL Informed Consent Form B-44
Historic Property Inventory Form B-47
National Register of Historic Places (NRHP) Registration Form B-49

B-4

CULTURAL RESOURCES REPORT NARRATIVE –
(TITLE)
(HCRC #)

Author

Month and Year

U.S. Department of Energy
Richland Operations Office
Richland, Washington

CULTURAL RESOURCES REPORT NARRATIVE
HANFORD CULTURAL AND HISTORICAL RESOURCES PROGRAM

Project Number:
Project Name:

A. NAME AND FULL DESCRIPTION OF THE PROPOSED UNDERTAKING

B. LOCATION AND GENERAL ENVIRONMENTAL SETTING

C. PRE-FIELD RESEARCH

1. Sources of information checked: [] Survey and Site Location Maps [] Previous Reports
   [] Aerial Photographs [] GLO Plats [] Other

Historic Maps
Aerial Photos
Survey and Site Location Maps/Previous Reports and Studies
Table. Projects and cultural resources previously recorded within the survey area.
Table. Projects and cultural resources previously recorded outside of the survey area but within 1.0 km of the area.
Traditional Cultural Properties (TCP's)

1. Are TCP's present in the project area? [] Yes [ ] No [ ] Unknown
   Description or explanation:

2. Have Native Americans been consulted about the presence of TCP's in the project area?
   [] Yes [ ] No

3. Is additional consultation necessary: [] Yes [ ] No

D. EXPECTED HISTORIC AND PREHISTORIC LAND USE AND SITE SENSITIVITY

1. Were there known sites in the general area? [] Yes [] No

2. Were sites expected? [] Yes [] No

E. FIELD METHODS

1.Areas examined and type of coverage:

2. Areas not examined and reasons why:

3. Personnel conducting and assisting in this survey:

4. Date(s) of survey:

5. Visibility on surface: Estimate: ____%
   Visibility of subsurface: Estimate: ____ %

6. Problems encountered:

F. RESULTS

1.Results

Table. Newly recorded sites and isolated finds identified during the survey.
Table. Previously recorded sites identified during the survey.

2. Cultural resources noted but not formally recorded:

3. Impacts to survey area:
   Repository (for all original survey records, photos, maps, and artifacts):

G. CONCLUSIONS AND RECOMMENDATIONS:

H. REFERENCES

I. ATTACHMENTS

1. Site forms for each site recorded ? []
2. Isolate forms for each isolate recorded? []
3. Overview location map []
4. Quad map of surveyed area? []
5. Other attachments? []

J. CERTIFICATION OF RESULTS

I certify that I conducted the investigation reported here, that my observations and methods are fully documented, and that this report is complete and accurate to the best of my knowledge.

Reporter	Signature	Date
Reviewer	Concurrence (Signature)	Date

CULTURAL RESOURCES REVIEW TRACKING FORM

HCRC #

ProjectName

Requesting Organization

Primary Contact Person

MSIN | Telephone

Secondary (If primary not available) | Telephone

Date Request Received | Date Findings Requested By

Information Checked and Clarified By | Reviewing Organization

Primary Class | Secondary Class | Tertiary Class | NHPA Section

Township | Range | Section 0 | Easting 0 | Northing 0

ReviewAction

ReviewDocumentation

Comments:

☐ FileClosed:

Please use this number
when referring to this permit
No.:

UNITED STATES DEPARTMENT OF ENERGY

FEDERAL ARCHAEOLOGICAL RESOURCES PROTECTION ACT PERMIT

To conduct cultural resource surveys, including shovel testing, on public lands owned or controlled by the U.S. Department of Energy (DOE) pursuant to the provisions of the Archaeological Resources Protection Act (ARPA) (93 Stat. 721, 16 U.S.C. 470aa-mm) and implementing regulations (43 CFR 7).

1. Permit issued to:

2. Under application dated:

3. Name, address and official status of person:
   a. In general charge:
   b. In direct charge:

4. Activity authorized:

5. On lands described as follows:

HCRC No.:

6. For period: to:

7. University, museum or other scientific or educational institution in which the materials collected under this permit will be deposited for permanent preservation: (A copy of a current, valid curation agreement must be kept on file with the land managing agency (ies)). U.S. Department of Energy Richland Operations Office Sigma V Facility.

8. Special conditions: This permit, as checked above, is subject to the provisions of the Archaeological Resources Protection Act of 1979, and its regulations (43 CFR 7), or the Antiquities Act of 1906, its regulations (43 CFR 3), and interdepartmental regulations (25 CFR 261) as to Indian lands. All permits are subject to the provisions of the Native American Graves Protection and Repatriation act of 1990, the regulations for the curation of Federally-owned and administered archaeological collections (36CFR 79), and the special conditions as listed on the reverse side.

9. Preliminary report: Within approximately 6 weeks of the conclusion of field work, a preliminary report of work performed under this permit, illustrated with representative photographs and listing new and significant collected materials, should be furnished to: DOE-RL Cultural and Historic Resources Program Manager

10. Signature and title of approving official:

11. Date:

8. (CONTINUED) Special conditions are checked (X) as appropriate to this permit.

a. ☒ This permit shall not be exclusive in character, and there is hereby reserved unto the landowners the right to use, lease or permit the use of said land or any part thereof for any purpose.

b. ☒ Other institutions may be engaged in archaeological research in the general area covered by this permit. In case there should be conflict with respect to a site not specifically designated in a permit, the parties concerned shall reach agreement between themselves as to which shall work the site.

c. ☒ The DOE shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the use and occupation of the said premises, or for damages to the property of the permittee, or for injuries to the person of the permittee (if an individual), or for damages to the property or injuries to the person of the permittee's officers, agents, or employees, or others who may be on said premises at the invitation of any one of them, arising from governmental activities, and the permittee shall hold the DOE harmless from any and all such claims except for claims arising out of the negligence or willful misconduct of the Government's officers, agents, or employees.

d. ☒ Such guidance and protection as is consistent with duties of the DOE official in charge of the area will be afforded the permit holder and his party.

e. ☒ Transportation in DOE vehicles cannot be furnished, except in cases where no extra expense to the Department is involved.

f. ☒ All costs shall be borne by the permittee.

g. ☒ If any evidence of human skeletal remains is encountered during the course of testing or excavation, permittee shall cease work in the immediate area taking measures to protect the site and immediately notify the Site Preservation Officer (SPO) or authorized representative. Such work shall not resume until the SPO or authorized representative has given permission.

h. ☒ All excavated areas shall be restored by filling in the excavations and otherwise leaving the area in as near to original condition as is practicable. Temporary stakes and/or flagging used to identify sites shall be removed upon completion of the project unless otherwise authorized.

i. ☒ The permittee shall conduct all operations in such a manner as to prevent the erosion of the land, pollution of the water resources, and damage to the watershed, and to do all things necessary to prevent or reduce to the fullest extent the scarring of the lands. Littering or polluting of lands covered under this permit is prohibited.

j. ☒ Any findings of mined or processed metals or other treasure or treasure trove in the area covered by this permit are the exclusive property of the landowners, and shall not be disturbed or removed from the site without specific written permission from DOE.

k. ☒ Two copies of the draft report of findings shall be provided to DOE within 45 days of completion of field work. DOE shall provide comments on the draft report to the permittee within 30 days of receipt of the draft. The permittee shall provide eight copies of the final report to DOE within 30 days of receipt of comments on the draft report.

l. ☒ During the conduct of permitted activities, DOE or its representatives will have access to the study area of this permit, and shall be allowed to inspect all artifacts or other materials collected, as well as field notes, photographs, and other records related to this permit.

m. ☒ Improvements such as fencing shall be left in their original or improved condition.

8. (CONTINUED) Special conditions:

n. ☒ Living trees and shrubs shall not be cut unless authorized by DOE.

o. ☒ Possession of firearms on the permit area is prohibited.

p. ☒ Burning within the permit area is prohibited. The permittee shall be held responsible for fire suppression costs for any fires caused through negligence of the permittee or his authorized representatives.

q. ☒ Permittee shall deposit all artifacts, samples and collections, as applicable, and copies of all records, data, photographs, and other documents, resulting from work under this permit, with the curatorial facility named in the permit.

r. ☒ Before undertaking any work on lands managed by the Fish and Wildlife Service, clearance should be obtained from the Office of the Regional Director and from the Refuge Manager in charge at the appropriate Fish and Wildlife Refuge. Possession or use of firearms in such areas is prohibited.

s. ☒ Other special conditions continued on attached sheet(s).

SPECIAL CONDITIONS

1. Collection of cultural materials exposed on the ground surface shall be limited to temporally diagnostic artifacts useful for interpreting site history or in defining research potential. All cultural materials recovered from shovel test holes will be collected. Archaeological resources collected for purposes of analysis will be curated by AHS until acceptance of a final report of findings, at which time they will be transferred to DOE. Cultural materials removed from public lands under the provisions of this permit remain the property of the United States Government and may be recalled at any time for use by DOE.
2. Should Native American human remains be discovered in the project area, AHS personnel will ensure that the remains are secured *in situ*, and that Dee W Lloyd of DOE is contacted immediately. Work will be discontinued in the immediate area of the remains. Final treatment and disposition of the remains will be determined by DOE in consultation with the relevant tribes. AHS staff should use the attached draft inadvertent discovery report form. Questions about the form can be answered by contacting Dee W Lloyd at (509)372-2299.
3. Any reference to limiting the inadvertent discovery area to 5 meters in the *Archaeological Survey and Limited Testing Plan for a Proposed Sewage Lagoon at the SR 24: Vernita Rest Area, Benton County, Washington* shall be stricken and replaced with stipulations in special condition 2 of this permit.
4. AHS will provide a minimum of 3 day notice to the Nez Perce, Yakama Nation, Umatilla, and Wanapum Tribes prior to initiation of site activities.
5. AHS will consult with the Wanapum and provide opportunity for an on site monitor as requested by the Wanapum.

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL ISOLATE FORM

Permanent #: Date recorded in field:
Temporary # HI-
Plot/Project #: Project Name:

ADMINISTRATIVE DATA

1. Isolate Type: ( ) Historic ( ) Prehistoric ( ) Paleontologic ( ) Other
2. Map Reference:
3. Aerial Photo:
4. Elevation: m (ft)
5. Township and Range: T N,R E, 1/4 of 1/4 of 1/4 of Section
6. UTM Zone 11 _____ m Northing _____ m Easting
7. Specific Location and Current Access to Isolate: Hanford Site, access restricted.
8. Potential Hazards: ( ) Chemical ( ) Radiological ( ) Other:

   Describe:
9. Isolate Description:
   (Include type, cultural affiliation, age of if known, material type, measurements and distinguishing characteristics. Include a sketch map if collected. Draw if diagnostic. Include brief site description.)
10. Disturbance at isolate location:

    ( ) Severely Impacted ( ) Moderately Impacted ( ) Not Impacted ( ) Undetermined
11. Surface Collection/Method: ( ) None ( ) Grab Sample ( ) Designed Sample ( ) Complete Collection

    List artifacts collected:
12. Photos: ( ) Color Print ( ) Color Slide ( ) Black/White Print Roll Number: Frame #:
13. List of Attachments: ( ) Topographic Map ( ) Sketch Map of Isolate Location

    ( ) Artifact Sketch ( ) Photos ( ) Other:

Location of Artifacts and Records: Hanford Cultural Resource Laboratory, Richland, Washington.

Field Recorder: Date:

Assisting Team Members:

Information also recorded in the field in field notebooks #
and on _____ number of loose leaf pages.

Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL ISOLATE FORM

Permanent #: Date recorded in field:

Temporary #: HI-

ENVIRONMENTAL DATA

14. Distance to Permanent Water: 15. Name of Water Source:

16. Type of Water Source: ( ) Spring/Seep ( ) Stream/River ( ) Lake ( ) Other

17. Topography – Describe:

Slope: Aspect:

Topographic Location: Check one under each heading

18. Primary Landform: ( ) Mountain Spine ( ) Tableland/Mesa ( ) Valley ( ) Canyon ( ) Hill ( ) Ridge ( ) Plain ( ) Island

Describe:

19. Secondary Landform:

	( ) Cliff	( ) Cave	( ) Playa	( ) Active Dune
( ) Outcrop	( ) Outcrop	( ) Alcove/Rock Shelter	( ) Bar	( ) Stabilized Dune
( ) Landslide/Slump	( ) Ridge/Knoll	( ) Mesa/Butte	( ) Plain	( ) Floodplain
( ) Riser, Escarpment	( ) Saddle/Pass	( ) Terrace/Bench	( ) Valley	( ) Island
( ) Slope	( ) Ledge	( ) Cutbank	( ) Spring Mound/Bog	( ) Other:

Describe:

20. On-Site Depositional Context:

	( ) Talus	( ) Flood Plain	( ) Eolian	( ) Bergmound
( ) Outcrop	( ) Stream bed	( ) Playa	( ) Dune	( ) Marsh
( ) Landslide/Slump	( ) Stream/Terrace	( ) Fan	( ) Alluvial Plain	( ) Other:
( ) Colluvium		( ) None		

Describe:

21. Surface Sediments:

22. Vegetation: ( ) Shrub-Steppe ( ) Riparian ( ) Bare Ground ( ) Former Agricultural ( ) Other

% ground visibility:

Describe and list species:

List possible known plant resources:

23. Animals Observed/Inferred:

24. Comments:

Field Recorder: Date:

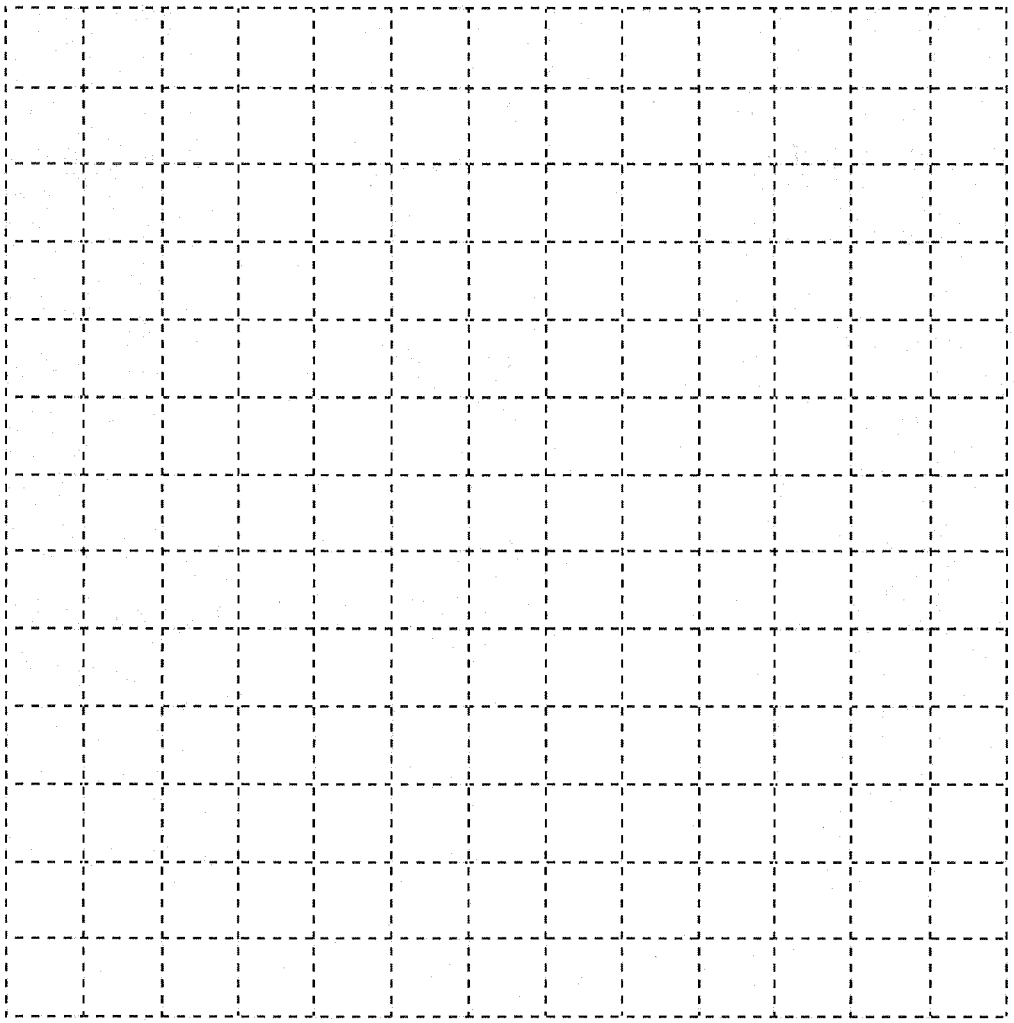
Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL ISOLATE FORM

Permanent #: _____ Date recorded in field _____

Temporary #: HI-_____

4.1 SKETCH MAP



Scale in meters

Field Recorder: _____ Date: _____

Compiled by: _____ Date: _____

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: Date recorded in field:
Temporary #:
Plot/Project #: Project Name:

ADMINISTRATIVE DATA

1. Site Type: ( ) Historic ( ) Prehistoric ( ) Paleontologic ( ) Other
2. Map Reference:
3. Aerial Photo:
4. Elevation: m (ft)
5. Township and Range: T N, R E, 1/4 of 1/4 of Section
6. UTM Zone 11, _____ m Northing _____ m Easting
7. Specific Location and Current Site Access: Hanford Site, access restricted.
8. Potential Hazards: ( ) Chemical ( ) Radiological ( ) Other:

   Describe:
9. Site Description:
10. Site Condition: ( ) Severely Impacted ( ) Moderately Impacted ( ) Not Impacted ( ) Undetermined

    Agent of Impact, describe:
11. National Register Status: ( ) Potentially Eligible ( ) Not Eligible ( ) Undetermined

    Justify:
12. Surface Collection/Method: ( ) None ( ) Grab Sample ( ) Designed Sample ( ) Complete Collection

    List artifacts collected:
13. Photos: ( ) Color Print ( ) Color Slide ( ) Black/White Print Roll Number: Frame #:
14. List of Attachments: ( ) Historic Form ( ) Prehistoric Form ( ) Paleontologic Form ( ) Other:
    ( ) Photos ( ) Site Sketch Map ( ) Topographic Map ( ) Artifact/Feature Sketch

Location of Artifacts and Records: Hanford Cultural Resource Laboratory, Richland, Washington.

Field Recorder: Date:

Assisting Team Members:

Information also recorded in the field in field notebooks #
and on _____ number of loose leaf pages.

Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: Date recorded in field:
Temporary #: HT-

ENVIRONMENTAL DATA

15. Distance to Permanent Water: 16. Name of Water Source:

17. Type of Water Source: ( ) Spring/Seep ( ) Stream/River ( ) Lake ( ) Other

18. Topography – describe:

Slope: Aspect:

Topographic Location: Check one under each heading

19. Primary Landform: ( ) Mountain Spine ( ) Tableland/mesa ( ) Valley ( ) Canyon ( ) Hill ( ) Ridge ( ) Plain ( ) Island

Describe:

20. Secondary Landform:
( ) Alluvial fan ( ) Cliff ( ) Cave ( ) Playa ( ) Active Dune
( ) Ephemeral Wash ( ) Outcrop ( ) Alcove/Rock Shelter ( ) Bar ( ) Stabilized Dune
( ) Riser, Escarpment ( ) Ridge/knoll ( ) Mesa/butte ( ) Plain ( ) Floodplain
( ) Slope ( ) Saddle/pass ( ) Terrace/bench ( ) Valley ( ) Island
( ) Ledge ( ) Cutbank ( ) Spring Mound/bog ( ) Other:

Describe:

21. On-Site Depositional Context:
( ) Outcrop ( ) Talus ( ) Flood Plain ( ) Eolian ( ) Bergmound
( ) Landslide/slump ( ) Stream bed ( ) Playa ( ) Dune ( ) Marsh
( ) Colluvium ( ) Stream/terrace ( ) Fan ( ) Alluvial Plain ( ) Other:
( ) None

Describe:

22. Surface Sediments:

23. Vegetation: ( ) Shrub-Steppe ( ) Riparian ( ) Bare Ground ( ) Former Agricultural
( ) Other % ground visibility:

Describe and list species:

List possible known plant resources:

24. Animals Observed/Inferred:

25. Site Dimensions: m by m Site Area: sq m

26. Estimated Depth of Fill: ( ) Surface ( ) 0-20 cm ( ) 20-100 cm ( ) 100+ cm
( ) Fill noted but unknown

How estimated and describe:

Field Recorder: Date:

Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: Date recorded in field:
Temporary #: HT-

PREHISTORIC INFORMATION

27. Site Type:

28. Cultural Affiliation:

29. Total number of artifacts: Maximum Density of Cultural Material on surface: per 1 sq m.

30. Summary of Artifacts and Debris:

	( ) Edge ground Cobble	( ) Micro Blade	( ) Modified Flake	( ) Fire Cracked Rock
	( ) Pestle	( ) Biface	( ) Faunal material	( ) Isolated Artifact
( ) Flaked Cobble	( ) Pecked Stone	( ) Blade	( ) Charred Bone	
( ) Cobble chopper	( ) Net Weight	( ) Projectile Point	( ) Shell	( ) Other (list):
( ) Anvil Stone	( ) Modified Spall	( ) Tabular Knife	( ) Organic Remains	
( ) Hammer Stone	( ) Core	( ) Drill	( ) Charcoal	
( ) Milling Stone	( ) Lithic Debitage	( ) Scraper	( ) Bead	

Describe:

31. Lithic Debris on Surface – Estimated Total: ( ) None ( ) 1-9 ( ) 10-25 ( ) 25-100 ( ) 100-500 ( ) 500+

32. Material Type: ( ) Not Present ( ) Rare ( ) Common ( ) Dominant
( ) Cryptocrystalline Silica ( ) Basalt ( ) Petrified wood ( ) Obsidian ( ) Other:

Describe:

33. Flaking Stages: ( ) Not Present ( ) Rare ( ) Common ( ) Dominant
( ) Decortication ( ) Secondary ( ) Tertiary ( ) Scatter ( ) Core

Describe:

34. Describe Features (locate on site map):

( ) Hunting Blind	( ) Midden	( ) Depression	( ) Bergmound
( ) Hearth/Fire Pit	( ) Rock Shelter	( ) Burial	( ) Marsh
( ) FCR Concentration	( ) House Pit	( ) Petroglyph	( ) Other:
( ) Rock Alignment	( ) Talus Pit	( ) Calm	

Describe:

Field Recorder: Date:

Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: Date recorded in field:
Temporary #:

HISTORIC INFORMATION

35. Site Type:

36. Historic theme:

37. Summary of Artifacts and Debris:

( ) Glass(flat)	( ) Butchered Bone	( ) Milled Lumber	( ) Wood	( ) Feature(s)	( ) Others:
( ) Glass(bottle)	( ) Organics	( ) Nails	( ) Ammunition		
( ) Ceramics	( ) Fabric	( ) Metal	( ) Wire		
( ) Cans	( ) Leather	( ) Concrete	( ) Rubber		

Describe:

38. Ceramic Artifacts: Total # (estimated):

#	Type	Paste	Glaze/Slip	Decoration	Pattern	Vessel Form(s)

Describe and/or Sketch Trademarks:

Field Recorder: Date:

Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #:
Temporary #:

Date recorded in field:

39. Glass:

Total # (estimated):

#	Manufacture	Color	Function	Trademarks	Decoration

Describe and/or Sketch Trademarks:

40. Cans:

Total # (estimated):

#	Manufacture	Height	Diameter	End Seam	Side Seam	Opening Style	Condition

Describe and/or sketch trademarks:

Field Recorder:

Date:

Compiled by:

Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: Date recorded in field:
Temporary #

41. Non-architectural features (locate on site map):

( ) Cemetery/Burial ( ) Ditch ( ) Hearth/Campfire ( ) Quarry/borrow pit ( ) Tailings ( ) Other:
( ) Dam, Earthen ( ) Dump ( ) Inscriptions ( ) Railroad grade/bed ( ) Trail/Road
( ) Depression ( ) Fence line ( ) Rock Alignment

Describe:

42. Architectural Features (locate on site map):

( ) Dugout ( ) Wall ( ) Cribbing ( ) Well ( ) Cairn ( ) Other
( ) Foundation ( ) Fence ( ) Outhouse ( ) Cistern ( ) Dam, non-earthen ( ) Flume
( ) Single-room structure ( ) Root cellar ( ) Coral ( ) Railroad tracks ( ) Utility pole
( ) Multiroom structure ( ) Oven ( ) Loading chute ( ) Pipeline ( ) Irrigation canal/facilities

Describe:

43. Comments/Continuations:

Field Recorder: Date:

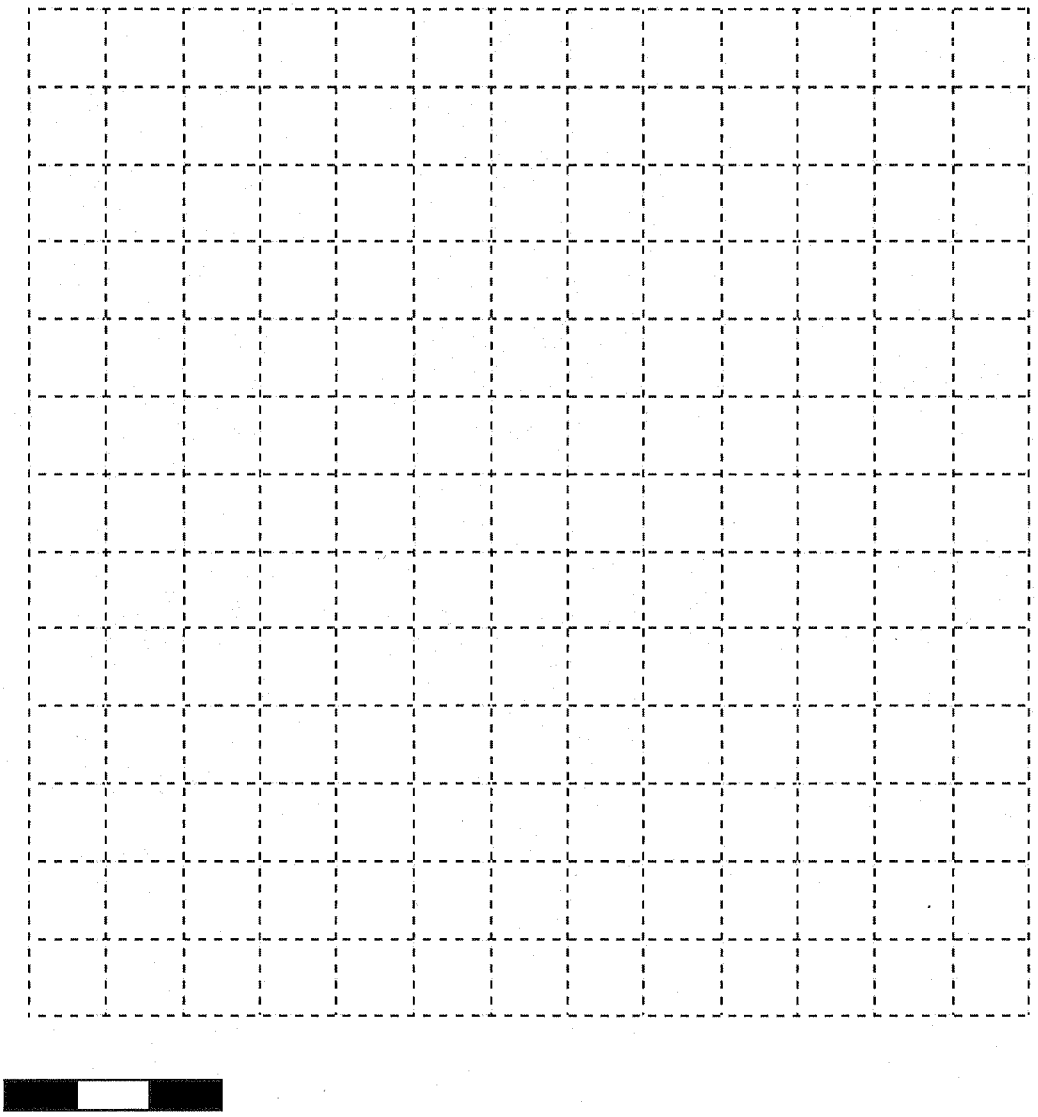
Compiled by: Date:

Hanford Cultural and Historic Resources Program
HANFORD ARCHAEOLOGICAL SITE FORM

Permanent #: _____ Date recorded in field _____

Temporary #: HT-_____

SKETCH MAP



Scale in meters

Field Recorder: _____ Date: _____

Compiled by: _____ Date: _____

HANFORD ARCHAEOLOGICAL SITE MONITORING FORM

MANAGEMENT

1. Site Number WA: _____ 2. Monitor Session: FY01 3. Date: _____

4. River Mile: RM _____ 5. Bank (E/W/N/S): __ 6. Access: _____

7. Site Type/Monitoring Type: _____ / _____

8. Monitor(s): _____ 9. Time to Monitor: Hours / People

10. Participants: _____

11. UTM Points to Monitor:

Feature Name: _____ _____m. Easting _____m. Northing

Feature Name: _____ _____m. Easting _____m. Northing

Feature Name: _____ _____m. Easting _____m. Northing

PHYSICAL IMPACTS:

0 = Absent; 1 = Present; 2 = Increase; 3 = Decrease; 4 = NA (for table items)

Impact Type	Buildings / Structures	Artifacts	Hearths / Ovens	Midden / FCR Layer	House Pit	Other
Surface Erosion (0-10 cm)						
Gullying (10-100 cm)						
Channel Cutting (>1 m)						
Bank Slumpage						
Bank Loss						
Eolian /Alluvial Erosion / Deposition						
Animal - Caused Erosion (trails, burrows)						
Other Natural Impacts						

12. If channels or gullies are present, do they drain to the river? (Note: some drainages die out in dune fields or on terraces before reaching the river.) 0 = no; 1 = yes; 2 = NA: _____

13. Do any of the above impacts appear to have occurred since the last monitoring episode? 0 = no; 1 = yes. If yes, explain in Number 14. _____

14. Comments:

Photos: Roll # _____ Frame #: _____

Roll # _____ Frame #: _____

Roll # _____ Frame #: _____

Digital Photos: _____

Videotape #: _____ Frame #: _____

VISITOR RELATED IMPACTS

Site Number: _____
Monitor Session: FY01

0 = Absent; 1 = Present; 2 = Increase; 3 = Decrease; 4 = NA (for table items)

	Buildings /Structures	Artifacts	Hearths / Ovens	Midden / FCR Layer	House Pit	Other
Visitor Impacts						

15. Collection Piles: If present explain in 21. _____

16. Trails: If present, explain in 21. _____

17. On-site Camping: If present, explain in 21. _____

18. Criminal vandalism / ARPA violations: If present, explain in 21. _____

19. Visitor-related impacts since last monitoring: _____

20. Are any visitor-related impacts directly related to river fluctuations? 0 = no; 1 = yes. If yes, explain in 25 (i.e., development of new trails to avoid high water, availability of new beaches in proximity of site). _____

21. Comments:

MANAGEMENT ASSESSMENT AND RECOMMENDATION

22. Monitor Schedule: 1) discontinue 2) semiannual 3) annual 4) biennial 5) 3 to 5 years 6) inactive 7) seasonal

23. Recommended measures to reduce site impacts: 0 = no; 1 = yes

Plant Vegetation _____ Obliterate Road_____ Other _____

24. Recommended measures to protect the site's integrity: 0 = no; 1 = yes

Surface Collect entire site _____Test for depth of subsurface cultural deposits _____

Map as a form of data recovery ____ Data Recovery _____

25. Comments: (i.e., surface sample unit)

SUMMARY: Check each impact/threat that describes conditions seen in this year's monitoring visit.

ARPA _____ Recreation _____ Erosion _____

HANFORD ARCHAEOLOGICAL SURVEY FORM

Page___of___

HCRC #
Project Name:

Date:
Start time: Finish time:

Map Reference: Weather Conditions:

T___N, R____E ____1/4 of ____1/4
Scale: of ____1/4 of Section:

Aerial Photo #: Elevation:

UTM Zone:

m. Easting: ___ ___ ___ ___ ___ ___ m. Northing: ___ ___ ___ ___ ___ ___ ___
m. Easting: ___ ___ ___ ___ ___ ___ m. Northing: ___ ___ ___ ___ ___ ___ ___
m. Easting: ___ ___ ___ ___ ___ ___ m. Northing: ___ ___ ___ ___ ___ ___ ___
m. Easting: ___ ___ ___ ___ ___ ___ m. Northing: ___ ___ ___ ___ ___ ___ ___

General Location and Access:

Description and Area of Project:

Survey Strategy and Area Surveyed:

Topography and Previous Disturbance:

Surface Sediments:

Ground Cover (%): Plant Type/Communities:

Name /Distance to Permanent Water:

Animals Observed/Inferred:

Archaeological Sites Recorded:

Attachments:

Recorder: Field Book No.: Pg. #s:
Team Members: Field Book No.: Pg. #s:
Field Book No.: Pg. #s:

HANFORD ARCHAEOLOGICAL SURVEY FORM

Page___of___

Sketch map:

Comments:

Hanford Artifact Transfer of Custody Form

The following items have been transferred from U.S. Department of Energy – Richland Operations (DOE-RL) storage to _____

RL Number	Item Description

Signatures:

_____ _____

Representative **Date**

_____

Cultural Resources Program Manager Date

_____ _____

DOE-RL Date

HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM
AUGER/SHOVEL TEST SUMMARY FORM

(Circle excavation method)

Site _____
Date _____
Excavator _____
Screener _____
Recorder _____

Explanation

- sand
- silty sand, sandy silt
- silt
- clay
- pebbles, cobbles
- charcoal
- shell
- f flake
- base of excavation
- b bone

AUGER/SHOVEL TEST PROFILES

Auger/Shovel Test #_____

0 m
1 m
2 m

Description of sediment

Cultural material and artifacts recovered

Level	Description

Comments

# of artifact bags_____

Auger/Shovel Test #_____

0 m
1 m
2 m

Description of sediment

Artifacts recovered

Level	Description

Comments

# of artifact bags_____

HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM
AUGER/SHOVEL TEST SUMMARY FORM
(Circle excavation method)

Site _____
Date _____
Excavator _____
Screener _____
Recorder _____

Explanation

	sand	x x	charcoal
	silty sand,		shell
	sandy silt	f	flake
	silt		base of excavation
	clay	b	bone
	pebbles, cobbles		

AUGER/SHOVEL TEST PROFILES
Auger/Shovel Test #_____

0 m
1 m
2 m

Description of sediment

Cultural material and artifacts recovered

Level	Description

Comments

# of artifact bags_____

Auger/Shovel Test #_____

0 m
1 m
2 m

Description of sediment

Artifacts recovered

Level	Description

Comments

# of artifact bags_____

HANFORD CONSTRUCTION MONITORING FORM

1. Project Number:_____ 2. Project Name:_____ 3. Date:_____

4. Monitor(s) Name:_____

5. Participant(s):_____

6. Job Site Contact:_____ 7. Phone Number:_____

Location & Dimensions (Length x Width x Height) of Excavation:

Project Description:

Excavation Technique (Include types of equipment used):

Sediment Description (If sediment is fill, explain why):

Techniques used to monitor excavations:

Reasoning used to determine level of monitoring effort:

Cultural materials observed:

Additional Notes:

Sketch maps of the excavation and sidewalls:

U.S. Department of Energy, Richland Operations Office
Cultural and Historic Resources Program

Hanford Inadvertent Discovery Report Form Cover Page

___ *Human Remains:* ___ *Recent* ___ *Non-Recent*
___ *Non-Human Remains*

1. *Date, time and place of inadvertent discovery:* _____

2. *Name(s) of field investigators:* _____

_____

3. *Number and type of remains identified (total from Adult Skeleton Recording Form):* _____

_____

4. *Repository of remains:* _____

Contact Person: _____ *Phone#:* _____

Notifications:

5. *Program Officer contacted:* _____
Name *Date* *Comments*

_____

6. *Federal Preservation Officer contacted:* _____
Name *Date* *Comments*

_____

7. *County Coroner contacted:* _____
Name *Date* *Comments*

_____

8. *Law Enforcement contacted:* _____
Name *Date* *Case #*

9. *CTUIR:* _____
Name *Date* *Comments*

10. *Nez Perce Tribe:* _____
Name *Date* *Comments*

11. *Yakama Indian Nation:* _____
Name *Date* *Comments*

12. *Wanapum:* _____
Name *Date* *Comments*

13. *Recommendations:*

14. *Date the recommendations were implemented:* _____

Inadvertent Discovery Report

1. ___*Burial* *Today's Date:*_____

___*Isolated bone(s)* *Observers Name(s):*_____

___*Multicomponent* *Project:*_____

___*Artifacts* *Site Name/#:*_____

*Burial #:*_____

*2. Who reported the remains? Name:*_____*Phone #*_____

*Employer:*_____

*3. What was reported?*_____

*4. When was it reported and to whom?*_____

5. Land on which the discovery was made?

____ *Federal* ____*Private* ____*City* ____*State* ____*County*

Landowner:

6. Describe Access to the site:

7. What protective measures were taken to secure and protect the site? (Note: Protective measures must not disturb evidence if site is a potential crime scene.)

8. Describe the event(s) which resulted in the discovery:

9. What is the current status of the remains?

10. Do you believe there was an ARPA/NAGPRA violation of state law? Explain.

11. Record the burial site (include a description of the feature or associated features and all associated artifacts). If no burial feature is present, record the condition of the bones and the surrounding conditions.

12. Date that the site was fully recorded in the field: _____

13. Date of reinternment: _____ *Place:* _____

Date of restoration: _____

14. Legal Description (if remains are found in the field):

____*1/4 of* ____ *1/4 of* ____*1/4 of, Section* ____, *Township* ____, *Range*____

UTM: Zone _____*m;* _____*m*

GPS Location: _____

*USGS Quad. Name:*_____, *Series: 7.5 Min. Date*_____

HANFORD CULTURAL RESOURCES LABORATORY ISOLATE LOG
for ______________________

Permanent Site Number	Temporary Isolate Number	Date Recorded	Map Reference	T. & R.	Section/ Quarter	Historic	Prehistoric	Isolate Type	Collected?	Plot or Project Number	Date to DOE

Locking Shelves Access Log Sheet

Date/Time of Entry	Responsible HCRL Staff Member (Print Name)	HCRL Staff Witness/Escort (Print Name)	Reason for Access	Time of Closure

Hanford Cultural And Historic Resources Program

Photo Log

Color Slide _____ Color Print _____ B&W _____ ASA _____ Roll # _____

Exposure #	HCRC Project #	Subject (include site, isolate # if appropriate)	Direction of view	Date	Photographer
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

COMMENTS

10/28/99

Exhibit C

Hanford Cultural and Historic Resources Program
Photograph Release Form

Project Title: **Project No.: 11930**

Date(s) of Project:

Principal Investigator: **Phone No.:**

You are being invited to participate in research with the Hanford Cultural Resources Laboratory.

This research may involve the following:

Recordings of you for project files, reports, and databases in the form(s) of:
- Photographs
- Slides
- Video tapes
- Other media currently developed (e.g., electronic photos including internet access) or developed in the future

Photographic media which may be available to the following groups or individuals:
- Hanford Site staff
- Non-Hanford Site staff
- The public
- DOE or other sponsoring agency

Photographic media which may be used for:
- Public programming
- Placement on the Internet
- Publication

All original photographic media will be housed by the program and will be available for your inspection upon request.

By consenting to participate in this research you hereby authorize the Cultural and Historic Resources Program to use any information gathered during this research for the purposes listed above.

Printed Name of Principal Investigator Signature of P.I. Date

Hanford Cultural and Historic Resources Program
Photograph Release Form

Name of Participant	Signature of Participant	Date

Hanford Cultural and Historic Resources Program

Hanford Readiness Review Checklist

1. **Client Notification** (Is client aware of this work?)
2. **Program Staff Notification** (Are Program Staff aware of the work?)
3. **Tribal Notification** (Have tribes been notified/invited)
4. **Regulatory Issues** (Does something need to be done? What has been done? What will be done?)
5. **Chain of command.** (Who's the crew chief, task lead, etc.)
6. **Logistics** (who's going? how are you going? Are you going to send daily emails saying generally where you expect to be?)
7. **Supplies List** (prepare a separate list with things such as cell phone, field notebooks, field equipment, Unanticipated Discovery Forms, ARPA Procedures, Site forms with site maps, Photo release form, background material.
8. **Health and Safety Issues**. When is the safety meeting? What is the fire plan, Water cooler Do not split up in such a way that anyone is left alone. Everyone needs to stick together. Emergency Drill Sirens, shovel and emergency equipment in back?)
9. **Background Research** (what has been done? aerials, GLOs, sites in area, oral history contacts)
10. **Field Methods** – (What are your basic methods to be used? Survey recording forms (Daily) for tracking digitals, field notes and sites recorded that day. Training of students in field)
11. **Variations in Procedures**. (Document in a letter to file)
12. **Funding** (what's the budget? What charge codes are you charging to?
13. **Expectations** (What are you expecting to find?)

RL-655

REQUEST FOR CULTURAL AND/OR ECOLOGICAL RESOURCES REVIEW FOR THE HANFORD SITE

Review Tracking Number

ERC Projects (BHI, CH2M Hill)	**All Other Hanford Projects** (PHMC, PNNL, Other)
Direct Form and Cultural Resource Questions To: Tom Marceau Phone **372-9289** Fax **372-9654** MSIN **H0-23**	Direct All Forms and Cultural Resource Questions To: Ellen Prendergast Phone **376-4626** Fax **373-2958** MSIN **K6-75**
Direct Form and Ecological Resource Questions To: Ken Gano Phone **372-9316** Fax **372-9654** MSIN **H0-23**	Direct Ecological Resource Questions To: Mike Sackschewsky Phone **376-2554** Fax **372-3515** MSIN **K6-85**

Date Sent: **Date Findings Requested By:**

Primary Contact: Company/Organization:

E:mail:

Telephone: Fax: MSIN

Secondary Contact: Company/Organization

Telephone: Fax: MSIN:

Project Name:

Project Number/COA:

RL Project Manager:

REQUESTOR SHOULD SUBMIT A COPY OF THIS REQUEST TO THE RL PROJECT MANAGER UNDER WHOM THEIR PROJECT FALLS WITHIN 5 DAYS.

Project Description, including Time Period over which proposed action will occur:

Project Dimensions:

Depth of Excavation(s):

Project Location:

- ☐ 100 Area
- ☐ 200 West Area
- ☐ 400 Area
- ☐ 700 Area
- ☐ Other:
- ☐ 200 East Area
- ☐ 300 Area
- ☐ 600 Area

Township _____ N Range _____ E UTM: Easting _____ Northing: _____

Please also provide the following:

1. Overview map showing project location (or other suitable map to assist in finding the project site)
1. Map or scale drawing showing all excavation areas (including water, sewer, and power lines, etc.), parking, topsoil storage areas, equipment staging areas, access roads, and utility corridors.

Submitted By: Telephone:

HANFORD CULTURAL RESOURCES AND HISTORIC RESOURCES PROGRAM SITE LOG

for _______________

Permanent Site Number	Temporary Site Number	Date Recorded	Map Reference	T. & R.	Section/ Quarter	Historic	Prehistoric	Site Type	Collection?	Plot or Project Number	Date to DOE

HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM

UNIT/FEATURE LEVEL RECORD

Site: _____ Grid Unit: North _____ West _____ Unit Level Form ____ Feature Level Form ____

Level: Number _____ Type _____ Feature: Number _____ Type _____

Depth: Top _____ Bottom _____ Photographs: Roll # _____ Exposure _____

Unit Datum Location (▲): _____ Unit Datum Elevation (with respect to Site Datum): _____

Screen size: 1/8" _____ Other _____ Screening method: Dry _____ Wet _____

cm below Unit Datum

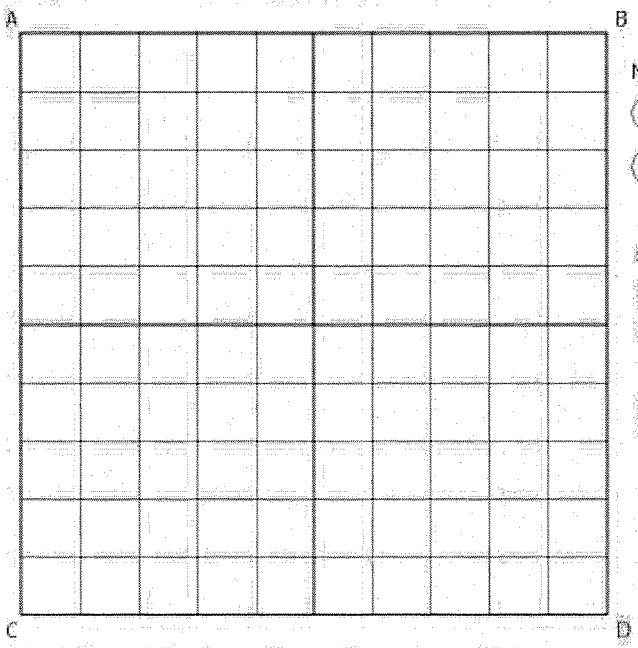
	Top	Bottom
A		
B		
C		
D		

Unit Size

0.5 m _____

1.0 m _____

Other _____



Legend

NE Not Excavated

Cobble/boulder

Fire-cracked rock

b Bone

s Shell

Charcoal, burned wood

Charcoal flecks

Stains

Burnt soil

Volcanic ash

Wood ash

K Krotovina

Sample (specify type)

Dominant Soil Matrix: Gravel Sand Silt Clay Volcanic ash Other

Describe:

Field Catalogue

No.	Elev. below unit datum	Description	No.	Elev. below unit datum	Description
1			7		
2			8		
3			9		
4			10		
5			11		
6			12		

Excavator: _____

Screener: _____

Recorder: _____

Date: _____

HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM

UNIT/FEATURE LEVEL RECORD

Cultural Material Not Collected

FCR	Number	Weight (kg g lb)
Basaltic		
Granitic		
Quartzite		
Other metamorphic		
Other		
Total		
Furniture Stone		

Samples Collected

	Dimensions/amount
Constant Volume	
Charcoal/Carbon	
Flotation	
Other:	
Other:	
Other:	

Cultural Material Collected

	# of Bags	Approximate # of Items	% (when sampled)
Lithic debris			
Lithic tools			
Cobble tools			
Shell			
Bone			
Other:			
Other:			
Other:			
Other:			

Excavation summary and comments: _____

Excavator: _____

Screener: _____

Recorder: _____

Date: _____

Exhibit B

Hanford Cultural and Historic Resources Program
Informed Consent Form

Project Title:	**Project No.: 11930**
PNNL IRB No.: **IRB#99-5**	**Sponsor: U.S. Department of Energy**
Date(s) of Project:	
Principal Investigator:	**Phone No.:**
Organization:	**Location:**
Other Investigators:	**Phone No.:**
Organization:	**Location:**

1. PURPOSE OF THIS RESEARCH STUDY

You are being invited to participate in research with the Hanford Cultural Resources Laboratory. The purpose of this research is to _____. See attached project information sheet(s).

2. PROCEDURES

This research may involve the following:

Recording of personal identifying information about you for project files, reports, and databases in the form(s) of:

- Audio and/or Video tapes
- Written field notes, forms, or reports

Information which may include:

- Family history
- Interpretation of cultural places
- Identifiable private information

Information which may be available to the following groups of individuals:

- HCRL staff
- Non-HCRL Hanford Site staff
- The public
- DOE or other sponsoring agency

Information which may be used for:

- Public programming
- Placement on the Internet
- Publication
- Other related research

Hanford Cultural and Historic Resources Program
Informed Consent Form (continued)

3. POSSIBLE RISKS OR DISCOMFORTS

Potential discomfort from the interview process may include:
- Emotional discomfort
- Physically tired

In the event that you become either physically tired or emotional and wish to discontinue the interview, the researcher will comply until you are able or wish to continue.

4. POSSIBLE BENEFITS

On an individual basis as well as for society, you would be making a contribution to the preservation of cultural resources.

5. COMPENSATION

No payments in cash or in kind are offered to you for your participation.

6. POSSIBLE COSTS TO YOU

None

7. CONFIDENTIALITY

Your identity in this study will be treated as PRIVATE. The results of the study, including data, may be published for scientific purposes but will not include your name or any identifiable references to you.

However, any records or data obtained as a result of your participation in this study may be inspected by the sponsor, by any relevant governmental agency (e.g., U.S. Department of Energy), by the PNNL Institutional Review Board, or by the persons conducting this study (provided that such inspectors are legally obligated to protect any identifiable information from public disclosure, except as otherwise required by law). These records will be kept PRIVATE in so far as permitted by law.

8. TERMINATION OF RESEARCH STUDY

You are free to choose whether or not to participate in this study. You are also free to discontinue your participation in this study at any time.

9. AVAILABLE SOURCES OF INFORMATION

Any questions you may have about this study will be answered by the Principle Investigator (see top of page one).

Any questions you may have about your rights as a research subject will be answered by the PNNL Institutional Review Board Administrator, Phone No. (509) 375-3610.

Hanford Cultural and Historic Resources Program
Informed Consent Form (continued)

10. AUTHORIZATION

I have read and understand this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form. I voluntarily choose to participate, but I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study. I further understand that nothing in this consent form is intended to preempt any applicable federal, state, or local laws regarding informed consent. I also understand that I am free to discontinue my participation at any time.

SUBJECT VOLUNTEER

_____
Name of Subject (Printed or Typed)

_____
Signature of Subject Date Time

PERSON OBTAINING CONSENT:

I, _____ (Print or Type), verify I have discussed this research study, its objectives, methods, associated risks, and benefits with the subject volunteer or their legal representative and have fully answered all questions to their satisfaction.

_____
Signature of Person Obtaining Consent Date Time

HISTORIC PROPERTY INVENTORY FORM

State of Washington, Department of Community Development
Office of Archaeology and Historic Preservation
111 21st Avenue Southwest, Post Office Box 48343
Olympia, Washington 98504-8343 (206)753-4011

INDENTIFICATION SECTION

Field Site No. _____ **OAHP No.** _____ **Date Recorded** _____
Site Name Historic _____
Common _____
Field Recorder _____
Owner's Name _____
Address _____
City/State/Zip Code _____

Status
- ☐ Survey/Inventory
- ☐ National Register
- ☐ State Register
- ☐ Determined Eligible
- ☐ Determined Not Eligible
- ☐ Other (HABS, HAER, NHL)
- ☐ Local Designation

Photography
Photography Neg. No. _____
(Roll No. & Frame No.) _____
View of _____
Date _____

Classification ☐ District ☐ Site ☐ Building ☐ Structure ☐ Object
Distric Status ☐ NR ☐ SR ☐ LR ☐ INV
Contributing ☐ **Non-Contributing**
District/Thematic Nomination Na _____

LOCATION SECTION

Address _____
City/Town/County/Zip Code _____
Twp. **Range** **Section** _____
Acreage _____
Quadrangle or map name _____
UTM References Zone **Easting** **Northing** _____
Plat/Block/Lot _____
Supplemental Map(s _____

Description Section
Materials & Features/Structural Types
Building Type _____
Plan _____
Structural System _____
No. of Stories _____

Roof Type
- ☐ Gable
- ☐ Flat
- ☐ Monitor
- ☐ Gambrel
- ☐ Shed
- ☐ Hip
- ☐ Pyramidal
- ☐ Other (specify) _____

QuickTime™ and a Photo - JPEG decompressor are needed to see this picture.

Cladding (exterior Wall Surfaces
- ☐ Log
- ☐ Horizontal Wood Siding
  - Rustic/Drop
  - Clapboard
- ☐ Wood Shingle
- ☐ Board and Batten
- ☐ Vertical Board
- ☐ Asbestos/Asphalt
- ☐ Brick
- ☐ Stone
- ☐ Stucco
- ☐ Terra Cotta
- ☐ Concrete/Concrete Block
- ☐ Vinyl/Aluminum Siding
- ☐ Metal (specify)
- ☐ Other (specify)

Roof Material
- ☐ Wood Shingle
- ☐ Wood Shake
- ☐ Composition
- ☐ Slate
- ☐ Tar/Built-up
- ☐ Tile
- ☐ Metal (specify) _____
- ☐ Other (specify) _____
- ☐ Not visible

Foundation
- ☐ Log
- ☐ Post & Pier
- ☐ Stone
- ☐ Brick
- ☐ Not visible
- ☐ Concrete Block
- ☐ Poured
- ☐ Other (specify)

High Styles/Forms (Check one or more of the following)
- ☐ Greek Revival
- ☐ Gothic Revival
- ☐ Italianate
- ☐ Second Empire
- ☐ Romanesque Revival
- ☐ Stick Style
- ☐ Queen Anne
- ☐ Shingle Style
- ☐ Colonial Revival
- ☐ Beaux Arts/Neoclassical
- ☐ Chicago/Commercial Style
- ☐ American Foursquare
- ☐ Mission Revival
- ☐ Spanish Colonial Revival/Mediterranean
- ☐ Tudor Revival
- ☐ Craftsman/Arts & Crafts
- ☐ Bungalow
- ☐ Prairie Style
- ☐ Art Deco/Art Moderne
- ☐ Rustic Style
- ☐ International Style
- ☐ Northwest Style
- ☐ Commercial Vernacular
- ☐ Residential Vernacular (see below)
- ☐ Other (specify) _____

Integrity (Include detailed description in **Description of Physical Appearance**)

	Intact	Slight	Moderate	Extensive
Changes to plan	☐	☐	☐	☐
Changes to windows	☐	☐	☐	☐
Changes to original cladding	☐	☐	☐	☐
Changes to interior	☐	☐	☐	☐
Other (specify) _____	☐	☐	☐	☐

Vernacular House Types
- ☐ Gable Front
- ☐ Gable Front and Wing
- ☐ Side Gable
- ☐ Cross Gable
- ☐ Pyramidal/Hipped
- ☐ Other (specify) _____

NARRATIVE SECTION

Study Unit Themes (check one or more of the following)

- ☐ Agriculture
- ☐ Architecture/Landscape Architecture
- ☐ Arts
- ☐ Commerce
- ☐ Communications
- ☐ Community Planning/Development
- ☐ Conservation
- ☐ Education
- ☐ Entertainment/Recreation
- ☐ Ethnic Heritage (specify) _____
- ☐ Health/Medicine
- ☐ Manufacturing/Industry
- ☐ Military
- ☐ Politics/Government/Law
- ☐ Religion
- ☐ Science & Engineering
- ☐ Social Movements/Organizations
- ☐ Transportation
- ☐ Other (specif _____
- ☐ **Study Unit Sub-Theme** _____

Statement of Significance

Date of Construction _____ Architect/Engineer/Builder _____

- ☐ In the opinion of the surveyor, this property appears to meet the criteria of the National Register of Historic Places.
- ☐ In the opinion of the surveyor, this property is located in a potential historic district (National and/or local).

Description of Physical Appearance

Major Bibliographic References

NPS Form 10-900
OMB No 1024-0018
(Rev. 10/90)

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name
other names/site number

2. Location

street & number _____ __ not for publication
city or town _____ __ vicinity
state Washington code WA county _____ code ___ zip code

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _X_ nomination __request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X_ meets _does not meet the National Register criteria.
I recommend that this property be considered significant_nationally _statewide _locally. (__ See continuation sheet for additional comments.)

Signature of certifying official Date

Allyson Brooks, State Historic Preservation Officer
State or Federal agency and bureau

In my opinion, the property __meets __does not meet the National Register criteria. (__ See continuation sheet for additional comments.)

Signature of commenting or other official Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby, certify that this property is:

_ entered in the National Register.
__ See continuation sheet _____
_ determined eligible for the National Register. __ See continuation sheet _____
_ determined not eligible for the National Register. _____
_ removed from the National Register. _____
_ other, (explain:)
_____ _____

Signature of Keeper Date of Action

Property Name

County and State_____ Page 2

5. Classification

Ownership of Property

_ private
_ public-local
_ public-State
_ public-Federal

Category of Property

_ building(s)
_ district
_ site
_ structure
_ object

No. of Resources within Property

contributing	noncontributing	
	__	__ buildings
	__	__ sites
	__	__ structures
	__	__ objects
	__	__ Total

Name of related multiple property listing:
(Enter "N/A" if property is not part of a multiple property listing.)

No. of contributing resources previously listed in the National Register:

6. Functions or Use

Historic Functions
(Enter categories from instructions.)

Current Functions
(Enter categories from instructions.)

7. Description

Architectural Classification
(Enter categories from instructions.)

Materials
Enter categories from instructions.)

foundation
walls
roof
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

USDI/NPS NRHP Registration Form

Property Name

County and State_____ Page 3

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

__ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

__ B Property is associated with the lives of persons significant in our past.

__ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

__ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

__ A owned by a religious institution or used for religious purposes.

__ B removed from its original location.

__ C a birthplace or a grave.

__ D a cemetery.

__ E a reconstructed building, object, or structure.

__ F a commemorative property.

__ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories frominstructions.)

Period of Significance

Significant Dates

_____ _____
_____ _____
_____ _____

_____
_____
_____
_____

Cultural Affiliation

Significant Person

_____

Architect/Builder

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

USDI/NPS NRHP Registration Form

Property Name

County and State_____ Page 4

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):
_ preliminary determination of individual listing (36 CFR 67) has been requested
_ previously listed in the National Register
_ previously determined eligible by the National Register
_ designated a National Historic Landmark
_ recorded by Historic American Buildings Survey #_____
_ recorded by Historic American Engineering Record #

Primary location of additional data:
_ State Historic Preservation Office
_ Other State agency
_ Federal agency
_ Local government
_ University
_ Other
Specify repository:

10. Geographical Data

Acreage of property

UTM References

1 / ///// ////// Zone Easting Northing

2 / ///// //////

3 / ///// ////// Zone Easting Northing

4 / ///// //////

_ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title
organization _____ date
street & number _____ telephone
city or town _____ state _____ zip code

Additional Documentation

Submit the following items with the completed form:
Continuation Sheets

Maps
A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs
Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

Property Owner (Complete this item at the request of SHPO or FPO.)

name
street & number _____ telephone
city or town _____ state _____ zip code

APPENDIX C

PROCEDURES

APPENDIX C

HANFORD CULTURAL AND HISTORIC RESOURCES PROCEDURES

NHPA Section 106 Procedures C-5

Field Procedures C-8

Monitoring Site Conditions C-16

Establishing Site & Isolate Numbers Procedures C-20

Reporting Archaeological Resources Protection Act (ARPA) Violations C-22

Inadvertent Discovery of Human Remains C-25

Health and Safety C-27

Hanford Cultural and Historic Resources Program
DOE-RL NHPA SECTION 106 REVIEW PROCEDURES

Projects requiring a Section 106 review will be conducted in the following manner (see attached Figure for a schematic representation):

1 Following receipt of a complete *Request for Cultural Resources Review* form by the Contractor, the DOE-RL Cultural and Historic Resources Program Manager (DOE-RL Manager) will determine whether the proposed project is the type with no potential to effect historic properties or (following approval of counterpart regulations) is exempt from Section 106 review.

a. If the project has no potential to effect properties (or is exempt), the Contractor will notify the Project Point of Contact that the project may proceed.

b. If the project may affect historic properties (or is not exempt from Section 106 review), the DOE-RL Manager (through the Contractor) will fax the *Request for Cultural Resources Review* form to the SHPO, Tribes and/or Interested Parties. The fax will contain a map of the proposed project area, a description of the Area of Potential Effect (APE), and a summary of existing information (i.e., literature review) based on data within the HCRL Cultural Resources Data Files.

c. The SHPO, Tribes and/or Interested Parties will have 10 calendar days from receipt of the fax to respond. Response time may be extended to a maximum of 30 calendar days if a request is made to the DOE-RL Manger within the initial 10 day period. Responses shall be sent to the DOE-RL Manager, who will provide copies to the Contractor.

2. Following completion of the 10 day review period, or extended period if one were provided, the Contractor shall prepare a Cultural Resources Review (CRR) of the proposed project. The project will be assigned a tracking number (i.e., HCRC #) by the HCRL Section 106 Coordinator (376-4626).

a. If no comments have been received, the Contractor will write a draft CRR that presents the results of the literature review, field inspection (if any), and recommendations for additional work (if required).

b. If comments have been received, the Contract shall incorporate the comments within the information required in 2 (a) above.

c. The DOE-RL Manager shall review the CRR, provide modification/additions as required, sign the CRR indicating that these are DOE-RL's findings, and send the CRR to the SHPO, Advisory Council on Historic Preservation (if appropriate), Tribes and/or Interested Parties.

d. The SHPO, ACHP, Tribes and/or interested Parties shall have 30 calendar days from receipt of the CRR to respond to the DOE-RL Manger.

e. The DOE-RL Manager shall provide a copy of the letter transmitting the CRR to SHPO, ACHP (if appropriate), Tribes, and Interested Parties, as well as any responses received to the Contractor.

3. Following completion of the 30 day review period:

a. If the APE has been surveyed and no historic properties are present, or historic properties are present but will not be affected by the project, or no additional comments have been received that would alter these findings, the Contractor shall notify the Project Point of Contact that the project may proceed.

b. If comments requiring additional work not already anticipated in the CRR have been received within the comment period, the Contractor shall amend the CRR and notify the Project Point of Contact that additional actions are necessary before the project may proceed.

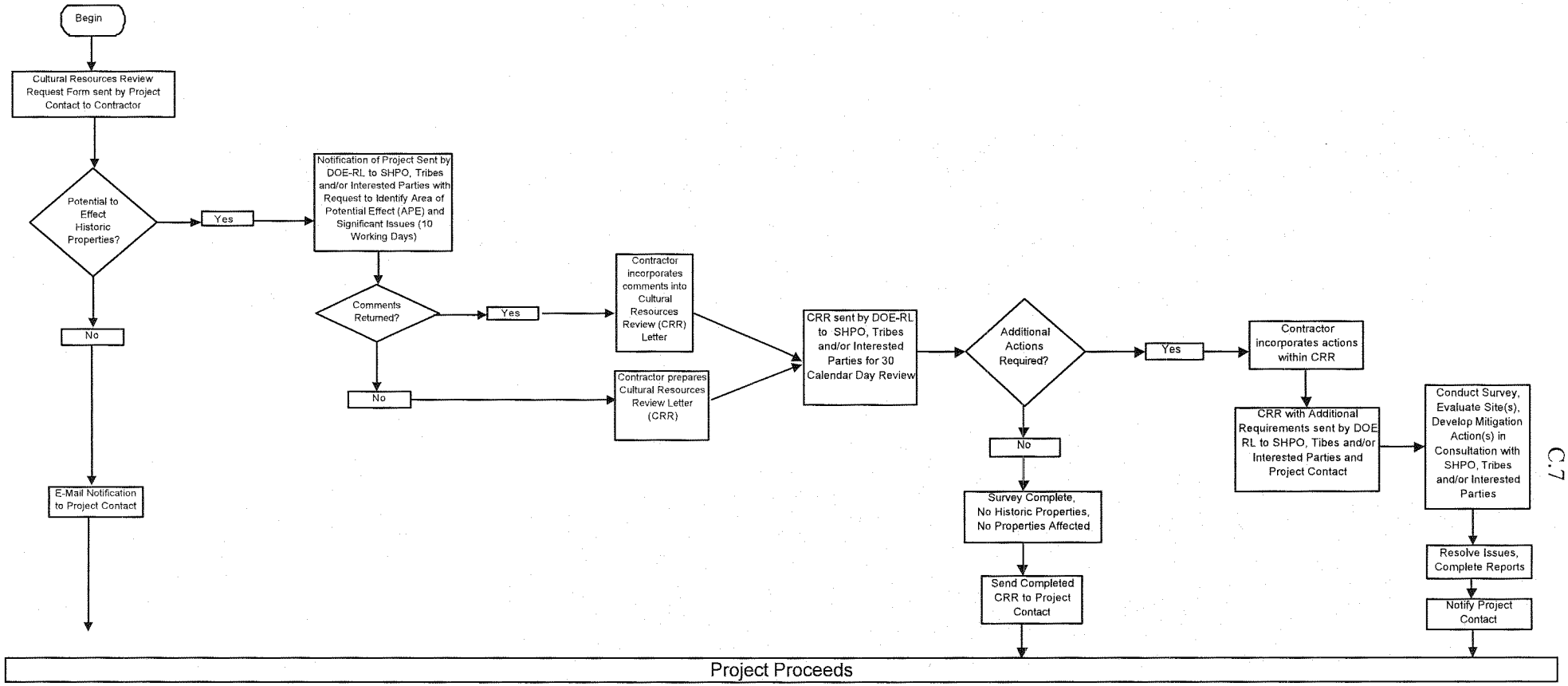
c. Using established procedures, and in consultation with the SHPO, ACHP (if appropriate), Tribes and/or Interested Parties, the DOE-RL Manager (through the Contractor) shall conduct a field survey, evaluate sites for eligibility for listing in the National Register of Historic Places, and/or develop mitigation measures that avoid or minimize impacts to resources within the APE.

d. The Contractor shall carry out the actions determined in 3 (c) above.

e. The DOE-RL Manager shall route all findings, determinations, and reports through the SHPO, ACHP (if appropriate), Tribes and/or Interested Parties for review, and provide a copy of any comments received to the Contractor.

f. Following revision, if any, of all findings, determinations, and reports, the Contractor shall notify the Project Point of Contact that the project may proceed.

DOE-RL NHPA Section 106 Review Procedures



Hanford Cultural and Historic Resources Program
Field Procedures

Purpose/Scope

Conducting field surveys in support of Section 106 and Section 110 of the National Historic Preservation Act are routine operations of the Hanford Cultural and Historic Resources Program (HCHRP). These procedures provide instructions on how to conduct surveys to ensure consistency and quality of data collected.

Applicability

These procedures apply to all cultural resource surveys conducted by HCHRP staff.

Definitions

Artifact – anything with form or position that cannot be attributed to natural processes
Historic manufacture – manufactured 50 or more years ago
Feature – a nonportable, nondiscrete artifact or close association of artifacts
Paleontological faunal remains – animal remains that may or may not be fossilized

Prerequisites

Attendance at pre-project meeting(s) is mandatory; each person must read and sign the Health and Safety Plan.

The Reporting ARPA Violations procedure shall be taken in the field at all times.

Survey Equipment

Field Survey Procedure
Field Book
Pen(s)
Work clothing suited to weather conditions
Substantial footwear (leather boots)
Gloves
Drinking Water
Fire Extinguisher
Compass
Tape Measures/Scales
Sample Bags
Flagging Materials
Survey Vest/Backpack
Project information and maps
Camera, video recorder, and film

Global Positioning System (GPS) and supporting equipment and batteries
Cellular phone and emergency phone numbers

Equipment for Hand-Auger Testing and Excavation

Auger
Shovel
Wire Cutters
Root Cutters
Bucket Auger
Trowel
Screen
Ladder
Backhoe or other trenching equipment (if required)

Work Instructions

Prior to fieldwork, a records and literature review shall be performed. This pre-field research includes the study of site/isolate location maps, previous reports, aerial photographs, and General Land Office (GLO) plats. A summary of previous studies within 1 km is made including sites and isolates found, and whether any historic properties were identified. This information should be shared with team members prior to field survey and shall be incorporated in the Hanford Cultural Resources Survey Report Narrative.

Upon arriving at the work site record the following information in field book:

- Indicate notebook number and page number on each page
- Date/Time of Day
- Project Name
- Names of team members
- Weather conditions
- Route taken to arrive at sites (names of roads, distances and directions as to turns). Use the vehicle odometer to determine the distance.

The Crew Chief shall assign team members one or more of the following duties prior to beginning the survey (responsibilities for these duties are listed in this section of the HCRL Procedures Manual):

- Site Recorder
- Feature Recorder
- Mapper
- Photographer/Videographer

When leaving the site:

- Never leave equipment in the field.
- Read over the day's journal entry, verify that all information is noted in the journal that is required to write a site report (See Survey and Site Recording Procedures below).

Upon arriving back at Sigma 5:

- Help unload the vehicle.
- Turn in any paper work to the Crew Chief.
- Assist Crew Chief with any other tasks.

Survey and Site Recording Procedures

The Crew Chief shall indicate the area to be surveyed and assign each member a position in that area. The survey shall be conducted in parallel transects, spaced no more than 20 meters apart. Surveyors shall visually scan the area at least 5 meters to either side of the center transect line.

The Crew Chief shall complete the Hanford Cultural Resources Survey Form (see Attachment A) during field activity.

If an artifact(s) is located during the survey, notify the Crew Chief. The following procedure shall then be followed:

Recording an Isolated Find

An isolated find is considered a group of two or fewer artifacts found within less than 50 m of each other, and/or greater than 100 m from a site. To record an isolated find:

- Ask the Crew Chief for the isolate number to be used (see Establishing Site & Isolate Numbers Procedure, CR-08).
- Determine the location (using a Global Positioning System [GPS] if available) and plot it on the field map.
- Complete all information contained on the Isolate Form (Attachment B), date, and sign.
- If collection is required, see Collection Procedures Section of this procedure.

Recording a Site

Each find of one or more features (nonportable, nondiscrete artifacts), or of three or more artifacts with 20 meters of each other, can be designated as a site.

As designated prior to beginning the survey, each member of the team was assigned one or more duties. Enter the following information in field book prior to beginning assigned task(s):

- The temporary site number assigned by the Crew Chief. (Example: HT-92-012) This number shall be in the margin of each page that contains information regarding that site.
- Note which person was assigned to each task.
- Clearly note in the field book when site recording has been completed and when subsequent notes not relating to the site are recorded.

Site Recorder

1. Write legibly.
2. Record all field data on the Archaeological site form (see Attachment C). If no information is available write "none" or "N/A."
3. Record any other notes or feelings about the site in the notebook.
4. Make a complete list of all artifacts found while walking around the site. This list must include:
   - A complete description of all artifacts that are diagnostic to aid in dating the site. This includes measurements of historic artifacts in inches/feet and prehistoric artifacts in metric.
   - Note all trademarks by sketching, size, and color of print.
   - Note types of glaze/slip, ceramic, clear/colored glass, and size. Milk cans must be measured accurately to the 16th of an inch. Note seam type and end seal on can.
   - Trace the outline of any prehistoric artifact (example: projectile point) and measure accurately (in metric) the length, width, thickness. Large artifacts (net weight, etc.) should be measured and described. All artifacts must be described as to color and material.
   - If numerous artifacts are found of the same type (example: glass fragments), measure a given area, count number in that area, and estimate total of the entire by multiplying.
   - Note the highest concentration of artifacts, measure 1 meter square and count the artifacts in that square meter, that gives the "maximum density of artifacts" information needed to complete the site form.
   - The Crew Chief shall advise staff if artifact collection shall be done.

Feature Recorder

A site may contain more than one feature, for example: a concrete foundation, an irrigation pipeline, and a stack of milled lumber. The Team Leader shall assign feature numbers.

1. Write legibly.
2. If any one feature consists of more than one component, that feature would be drawn separately and labeled.

3. Carefully measure the feature using metric scale (for prehistoric artifacts) or inches/feet (for historic artifacts) and draw on graph paper.
4. Pace large distances. Estimates are not reliable. Shorter distances and sizes of artifacts, etc. can be measured with a roll-up measuring tape.
5. Include on every sheet of paper:
   - Site number
   - Feature recorder name
   - Date
6. Note in the field book any feelings, thoughts, or observations made regarding the site.

Mapper

The mapper is responsible for creating a detailed sketch map (to scale) that can be refined and duplicated in the lab.

1. Write legibly.
2. Use metric measurements, metric graph paper, a transparent ruler, a transparent protractor, and pencil so corrections can be made at the same time. Know the distance of your pace (i.e., 2 paces equals 1 meter, etc.)
3. Indicate North on the scale map. This shall eliminate confusion. Face the site looking North and begin drawing, this shall keep the map oriented.
4. When including the different objects and places on the map, determine how many degrees from North each is, note it on the map, then pace to the object to determine the distance. Plot it on the map. Return to the original spot. Adjust accordingly for large sites.
5. Symbols can be used to indicate different objects on the map. Include the meanings in a legend.
6. Include the scale used to draw the map.
7. Note in the field book any observations, thoughts, or feelings regarding the site.

Photographer/Videographer

The photographer/videographer is responsible for taking care of the camera and video recorder, film, Photo Log sheets and Video Log sheets (see Attachments D & E) and recording descriptions of all photographs and video clips taken. Prior to beginning a survey, the Crew Chief or designated assistant should verify the presence of the following:

- Several log sheets are in the carrying cases.
- Additional rolls of film and batteries are in the carrying cases.

When photographing or videotaping a site, the following procedures are recommended:

1. Verify that the camera or video numbers and log sheet numbers correspond.
2. Take an overview photo of the site with a person included for scale (Crew Chief is responsible for assuring Informed Consent of any non-HCRL personnel prior to entering the field).
3. Photograph/videotape artifacts that are diagnostic.
4. Photograph/videotape any trademarks if large enough to be read when printed.
5. Photograph/videotape any object that is "unknown" for a possible identification later that might help evaluate and date the site.
6. Limit the number of photographs/video taken of the same type of object.
7. If possible, place an object in the photograph/video for scale (a penny, graph paper, short ruler)
8. Photograph/videotape features using a metric ruler for scale.
9. Note in journal any thoughts, feelings, or observations made regarding the site.
10. Turn in all used film/videotape and camera/video recorder in at day's end.

COLLECTION PROCEDURES

Collecting an Isolated Find

Team members collect isolates only when they are found in areas scheduled for surface modification or if they are in an area considered to be susceptible to unauthorized collection. Sufficient documentation, including photographs of the area surrounding the find, should be made at the time of the discovery to permit analysis at a later date. The Crew Chief shall make the determination if collection shall be done.

The following collection procedures shall be followed:

1. Ask the Crew Chief for the isolate number (Example: HI-93-003).
2. Determine the location (using a GPS if available) and plot it on the field map.
3. Complete all information contained on the Archaeological Isolate Form, date and sign the form.
4. If the isolate is temporally diagnostic, photograph and draw to scale. As photographs are taken, the date, camera number, frame number and all pertinent information is entered on the Photo Log Sheet.
5. Identify the isolate with flagging tape or package in plastic bag with clearly marked isolate number,
6. Date, location found, description of artifact, name of recorder.
7. The clearly labeled artifact should be turned in at the end of the field day, along with the field form and notes created that day.

Collecting a Site

Each find of one or more features (nonportable, nondiscrete artifacts), or of three or more artifacts within 20 meters of each other, can be a site. Sites shall be recorded in the official archaeological/historic site files of our state. As with isolates, all artifacts shall be collected if they are considered to be susceptible to unauthorized collection.

1. Note each artifact's location on the site map making accurate spatial measurements.
2. After the site information has been completely recorded a grid shall be laid out sectioning the site. An in-depth record is kept as to the exact location of each artifact within each quadrant.
3. Photograph all features. Photograph artifacts with any unusual or diagnostic characteristics that shall aid in analysis of site age or function.
4. Label a plastic bag for each artifact with:
   - Site Number (temporary #)
   - Project #
   - Date
   - Location found
   - Type of Artifact
5. Name of Collector
6. If there is more than one artifact of the same kind at the same location (example: flakes/shell) count and put that number on the bag.
7. In the case of large artifacts (bottle/can) label with flagging tape securely tied around it. The same information as listed on plastic bags should be written on the tape.
8. All artifacts and supporting paper work should be turned in at the lab at the end of the workday.

Site Testing

Sites may be tested by augering, shoveling, or excavation of test pits. Augering or shovel testing may be done during a survey if directed by the Crew Chief.

Auger Testing

If augering is required these procedures shall be followed:

1. Augering holes shall be placed a maximum of 25 m apart, excavating up to 2 m deep using a 10-cm-dia, bucket auger.
2. Each auger hole shall be assigned a number and that number shall be entered on the Auger Summary Form (see Attachment F) along with all information required on the form.
   A site map shall be created locating each auger test hole.
3. Screen the excavated soil through ¼-in. (maximum) wire cloth and save all shells, bones, and stone artifacts. Also, save historic artifacts that might be present.
4. Count and weigh all fire-modified rocks. Discard only after a sample has been saved as required by the Crew Chief.
5. Bag in plastic bags clearly labeled with:

- Site number
- Date
- Location
- Identification of Artifact
- Number of Artifacts in Bag
- Team Members
- Recorder

6. Auger Summary Form must be completed on each test unit.
7. Completed form and all artifacts shall be turned into the Lab at the end of the field day.

Shovel Testing

If shovel testing is required these procedures shall be followed:

1. Test holes shall be placed a maximum of 25 m apart, excavating 1 m deep, or until sterile sediments are encountered. Test holes shall be approximately 30cm in diameter.
2. Each test hole shall be assigned a number and that number shall be entered on a shovel test form along with all information required on the form.
3. A site map shall be created locating each shovel test hole.
4. Screen the excavated soil through ¼-in. (maximum) wire cloth and save all shells, bones, and stone artifacts. Also, save historic artifacts that might be present.
5. Count and weigh all fire-modified rocks. Discard only after a sample has been saved as required by the Crew Chief.
6. Bag in plastic bags clearly labeled with:

- Site number
- Date
- Test hole number

- Identification of Artifact
- Number of Artifacts in Bag
- Team Members
- Recorder

7. Completed form and all artifacts shall be turned in at the end of the field day.

Test Excavation

If surface inspection shows that a site may include buried deposits, test excavations are used to collect data for evaluation as directed by the crew chief. All excavations shall follow established OSHA guidelines.

Test excavations shall be conducted following these procedures:

1. Establish a datum point and site grid at a minimum interval of 50 meters.
2. Locate site to be excavated on USGS topographic map.
3. Determine the perimeter of the site by using auger or probe testing, or if feasible, geophysical techniques (e.g., proton magnetometry, ground-penetrating radar). Backhoes or other trenching equipment may be appropriate if site is scheduled for destruction.
4. Excavation shall consist of 1x 1-m square units, dug by natural geologic and cultural units, or in 10-cm arbitrary levels. Other sizes may be used as determined by the Team Leader.
5. All excavated soil matrixes shall be screened through 6-millimeter (1/8 inch) or finer mesh.
6. Save all metal, glass, modified wood, plastic, bone, and chipped or ground stone.
7. Shell hinges must be saved or a sample of no less than 25% if their density exceeds $2000/0.1m^3$.
8. Complete a Unit/Feature Level Record (see Attachment G) for each vertical level per 1 x 1-meter horizontal unit.
9. All features must be drawn and photographed.
10. A profile of at least one wall of each test pit must be completed.
11. All materials found must be bagged and labeled with the following information:

- Date
- Site Number
- Project Number
- Provenience: Unit, Quadrant in Unit, Level
- Content of Bag
- Name of Recorder
- Bag____of_

12. Artifacts and supporting paper work must be turned into the lab at the end of the field day.

Hanford Cultural and Historic Resources Program
Monitoring Site Conditions

Purpose/Scope

The purpose of this Operating Procedure is to provide Hanford Cultural and Historic Resources Program (HCHRP) staff with basic guidelines for completing site condition monitoring activities. This procedure is meant to be flexible enough to allow for professional judgment and experience in all steps - except for those activities involving data collection.

Applicability

This procedure applies to all quantitative monitoring activities undertaken by archaeologists or cultural resource specialists. This procedure applies to all pre-work activities and all field activities associated with quantitative monitoring. Pre-work activities are likely to be conducted in office buildings and field activities will be conducted throughout the Hanford Site - wherever selected archaeological sites are located.

This procedure does not apply to known Native American cemeteries or burials.

Definitions

Permanent datum means a rebar/cyberball datum placed in the ground.

Semi-permanent datum means a datum that is established by UTM point e.g., Global Positioning System (GPS).

Qualified Monitor means those individuals who meet the minimum education and experience as specified in the *Secretary of Interior's Standards and Guidelines* for professional qualifications.

Site Condition Monitoring means monitoring that includes the consistent collection of data using standardized, comprehensive techniques during each consecutive monitoring visit.

Prerequisites

Attendance at pre-project meeting(s) is mandatory; each person must read and sign the HCHRP Health and Safety Plan; the Reporting ARPA Violations procedure shall be taken in the field at all times.

Site Condition Monitoring

After selecting Archaeological sites to be monitored, Tribes (list provided by DOE-RL Cultural and Historic Program Manager) must be notified of the selection process and monitoring schedule.

Selection of Sites for Monitoring

- Archaeological sites that are eligible for listing or are listed in the National Register of Historic Places (National Register) will be considered for inclusion in the quantitative monitoring program.
- Archaeological sites that are known to be losing archaeological features or deposits will be high priority candidates for inclusion in the quantitative monitoring program.
- Archaeological sites that have a high potential for increased exposure and visibility due to fluctuating river levels will be high priority candidates for inclusion in the quantitative monitoring program.
- Sites representing specific tribal concerns shall be monitored at the level specified by individual tribes or will be monitored by the tribe itself as part of a Tribal Monitoring Program.
- Archaeological sites located in areas of potential erosion shall be monitored to prepare for site stabilization when loss is anticipated - before loss is observed.
- Known Native American cemeteries and burials shall not be included in the quantitative monitoring program unless concurrence is received from the Wanapum and all other Tribal points of contact (POCs) have been consulted.

Literature Review

HCHRP staff shall prepare a folder containing all known, available information about archaeological sites to be monitored. Such information may include, but not be limited to historic maps, photographs, worksheets, and graphs.

Note: HCHRP staff should carry this information into the field for use during the monitoring activity.

Scheduling

Qualified staff will schedule quantitative monitoring trips as necessary with a boat driver, additional staff, and Native American Points of Contact.

Methodology

Note: If Archaeological sites have been looted or vandalized follow *Reporting Archaeological Resource Protection Act (ARPA) Violations* procedure.

- All archaeological sites in the quantitative monitoring program will be mapped or otherwise recorded from a permanent datum. Baseline conditions may be established using high resolution topographic mapping with a total station. Subsequent maps shall be created of the archaeological site according to selected mapping intervals not to exceed a 5 year interval for comparative purposes.

  Note: Priorities for total station mapping shall be established for all archaeological sites in the quantitative monitoring program. All archaeological sites selected for data

recovery activities (driven by loss due to erosion or other adverse impacts) will be high priority for total station mapping whether or not they are included in the quantitative monitoring program.

- Archaeological site monitoring forms (see Attachment A) shall be completed to establish a historic record of qualitative and quantitative change at site included in the monitoring program. Site locations, features or artifacts shall be recorded using a GPS.

  Note: All HCHRP staff shall complete all fields on monitoring forms to ensure quantitative consistency in data collection through time.

- Photographs (minimally 3 x 5 inch black and white photographs) shall be taken to create an objective basis for documenting change at the site. A semi-permanent datum (plotted on the site map) shall be used for photograph positions during each monitoring visit. Photograph orientations are to be recorded on the monitoring form.

  Note: At a minimum, all HCHRP staff shall take black and white photographs at each photo point indicated on the site map. Other technologies may also be used as necessary to document the visual record of each site.

- Other monitoring methodologies such as video cameras may be used as appropriate or as they are available.

Monitoring Logistics

- Monitoring trips are best suited to the spring (less vegetation and longer daylight hours) and the fall (lower river levels, good natural lighting, and potentially less vegetation coverage).

- Field crews shall be led by a qualified HCHRP archaeologist. Tribal monitoring crews will be selected by the tribe(s) conducting the monitoring trip.

Trip Reports

- Trip reports shall be prepared following each monitoring trip. Each report shall summarize the archaeological sites visited, names of trip participants, changes that may have been encountered at each archaeological site monitored, and any unexpected actions that were taken during the monitoring trip.

- A copy of the trip report shall be placed in monitoring files.

- A brief summary shall be emailed to the HCHRP Program.

Monitoring Task Closure

- Compile all field data on the appropriate forms.

- Develop all exposed film and label photographs, video film, or other visual documentation taken at each archaeological site.

Monitoring Reports

Monitoring Reports shall be completed annually.

Exhibits/Attachments

HCRL Site Monitoring Form.

Hanford Cultural and Historic Resources Program
Establishing Site & Isolate Numbers Procedures

Purpose/Scope

This procedure provides instructions on how archaeological site and isolate numbers are assigned.

Applicability

This procedure is to be applied by all Hanford Cultural and Historic Resources Program (HCHRP) staff for archaeological sites and isolates discovered on the Hanford Site.

Work Instructions

The Crew Chief shall obtain the next site and isolate number from the master log books (example log sheet see Attachment A and B), which is stored in the archive room. This number is recorded in the Crew Chief's field notebook and used in the field to assign site numbers to sites encountered during fieldwork.

After returning from the field the Crew Chief shall enter in the master site log book the sites and isolates that were recorded in the field.

The following is a description of the numbering system both temporary and permanent. Site Numbers are written as follows: **HT-93-015**

HT Indicates that the site number is a temporary number (H stands for Hanford and T stands for Temporary).

93 Indicates the site was discovered and recorded in the year 1993.

15 Indicates the site was the 15th site discovered and recorded on the Hanford Site in the year 1993.

After a survey report has been written and filed with the State the State may issue a permanent number for a historic site. This number will become the permanent site number and will be placed in the log book, site form and database. The permanent number for a historic site will look similar to this: **3-25**.

3 Indicates that the site is located in Benton County.

25 Indicates the site was the 25th historic site located and recorded in Benton County.

When the Washington State Historic Preservation Office issues a permanent number for a prehistoric site it will be placed in the log book, site form and database and look similar to this: **45 BN 015**.

45 Indicates the site is in the state of Washington

BN Indicates the site is located in Benton County (FR is Franklin County, AD is Adams County).

15 Indicates the site was the 15th site recorded in Benton County.

The following is a description of the numbering system for Isolates. Numbers are written as follows: **HI-94-015**

HI Indicates that the Isolate number is a temporary number (H stands for Hanford and I stands for Isolate).

94 Indicates the Isolate was discovered and recorded in the year 1994.

16 Indicates the Isolate was the 15th Isolate discovered and recorded on the Hanford Site in the year 1994.

Forms:

Hanford Cultural and Historic Resources Program Site Log
Hanford Cultural and Historic Resources Program Isolate Log

Hanford Cultural and Historic Resources Program
Reporting Archaeological Resources Protection Act (ARPA) Violation

Purpose/Scope

The purpose of this procedure is to provide for the protection of archaeological resources in accordance with the Archaeological Resources Protection Act of 1979 on the U.S. Department of Energy's Hanford Site in Eastern Washington.

Applicability

This procedure provides staff with the steps to follow to report ARPA violations when encountered.

This procedure applies when an archaeological site is encountered that has been or is being looted. An example of when this procedure may be applied would be while out monitoring archaeological sites along the river one may encounter people digging along the bank and using screens. Or while conducting an archaeological survey one may encounter an existing site with holes scattered across an area.

This procedure is applicable to within the boundaries of the U.S. Department of Energy's Hanford Site in Eastern Washington.

This procedure is to be used by staff of the Hanford Cultural and Historic Resources Program.

Definitions

Archaeological resources – any material remains of past human life or activities that are of archaeological interest and are at least 100 years old.

Work Instructions

1. Staff are not to approach or communicate with the people that are looting the site. Immediately call by cellular phone to report the incident to one of the following people listed below. Follow up with a phone call or an e-mail message to DOE-RL Program Manager and DOE-RL Hanford Security Manager if they were not notified first.

DOE-RL Hanford Cultural & Historic Program Manager	372-0277
Emergency Services Division	372-3005
Benton County Sheriff's Department	735-6555 or 786-5605 or 376-1022
Hanford Patrol Emergency Officer	373-3800
Hanford Patrol Emergency Listing	911

USFWS – Call when ARPA violation is discovered on USFWS managed lands – contact 371-1801

2. If looting is discovered of archaeological sites immediately report this to the DOE-RL Program Manager and DOE-RL Hanford Security Manager and the Benton County Sheriff's Department even if discovered in another County.

3. Do not walk around the site. There is potential that evidence may be destroyed. There is a saying "you cannot go into a crime scene without leaving something behind as well as taking something with you".

Note: Evidence that may be left by looters can include any equipment/tools they used to dig as well as their vehicle or boat that was used as transportation to the site. Cans, wrappers and cigarettes may also be used as evidence. Fingerprints can sometimes be obtained from these. Casts of boots or shoes can be made and used to assist with prosecution of looters.

Note: If the looting is recent do not continue with 49 until law enforcement has completed their investigation.

4. Map the site location as well as GPS coordinates

5. Take photographs of the site and looting

6. Complete the ARPA Violation Reporting Form

7. Report all sites that have been looted even if the looting looks like it had occurred several months ago. This will help the Sheriff's Department build a case as well as determine the damage done by more recent looters.

8. If more information is needed the Sheriff's Department will contact PNNL.

9. Send copies of the completed report to Benton County Sheriff and DOE/RL Cultural Resource Program Manager. Put copies of the report in the site file and ARPA file.

Exhibits/Attachments

Suspected ARPA Violation Reporting Form

SUSPECTED ARPA VIOLATION REPORTING FORM

Site number:
Date of observation: Observer(s):
Form com pleted by: Date form completed:

Describe suspected violation (include general and specific information including location, length, width, depth, and number of excavations or other violation [e. g. vandalism]):

Describe observed impact to archaeological deposits (e. g., are collection piles evident, impact to features, etc.):

Suspected age of looting activity
Active Recent
Within the year Over one year old
Best guess:

Reasoning (e. g., vegetation growth, presence of physical evidence):

Other physical evidence present (e.g., debris, footprints, utensils):

List of photographs:
Attach location map (USGS or better)
GPS locational points

Age of damaged site 100 years or greater? yes ☐ no ☐

List notifications made to date regarding this suspected violation, including name of individual(s) contacted, organization(s), date of contact, and type of report (e. g., e-mail, telephone, fax, etc):

Comments:

Send copies of completed report to Benton County Sheriff and Hanford Site Preservation Officer. Put copy in site file and ARPA file.

Hanford Cultural and Historic Resources Program
Inadvertent Discovery of Human Remains

Purpose/Scope

Known Native American burial sites exist on the Hanford Site. As construction activities, recreational use, and natural erosion progress, soil that now protects these sites may be gradually or suddenly removed, exposing the remains and artifacts buried with them. The purpose of this procedure is to provide the necessary steps to be followed if human remains are discovered.

Applicability

This procedure applies to all Hanford Cultural and Historic Resources Program staff.

Prerequisites

None.

Definitions

Inadvertent Discover of Human Remains – A discovery of prehistoric or historic human remains that is not expected. Project staff may make the discovery or respond to a discovery made by someone else.

Program Staff – Project staff may include all staff supporting the Hanford Cultural and Historic Resources Program. These staff may include DOE staff, subcontractors, other Hanford contractors and summer support staff (students, interns, etc.).

Responsible Staff

Staff with responsibilities for implementing this procedure are:

Program Manager
Program Staff

Exhibits/Attachments

Inadvertent Discovery Report Form

Work Instructions

When an inadvertent discovery that may be related to prehistoric or historic human remains is encountered in the field, the following instructions are to be used:

1. Determine, if possible, whether the discovery is human using available texts or other information (comparative skeleton in field vehicle when available).

2. If remains are human or the determination cannot be made notify the program manager or delegate of the discovery. If the remains cannot be identified as human, the program manager shall take the necessary steps to ensure proper identification of the remains.

3. If the discovery is human, complete the following sections of Attachment A (Inadvertent Discovery Field Report) pg. 1 numbers 1-4, pg. 2 numbers 1-8, pg. 3 numbers 9-12 and 14 and pages 4-7. The completed form shall be submitted to the program manager upon return from the field.

4. The program manager is responsible for contacting Tribes once the determination has been made that human remains have been discovered. The program manager shall notify DOE-RL within 24 hours of the discovery.

Additional Guidance

When an inadvertent discovery is encountered avoid disturbance of the area. Cultural materials shall not be moved from the location of discovery. Photographs shall not be taken of the bones unless project manager requests the photographs to assist in the determination of the remains to be human or animal.

Hanford Cultural and Historic Resources Program
Health and Safety Plan

I. Purpose

This Plan covers all fieldwork conducted for the Hanford Cultural and Historic Resources Program (HCHRP). It is the express policy of Pacific Northwest National Laboratory (PNNL) that all work by its employees or subcontractors at field survey sites for this project be conducted in a safe and conscientious manner. All personnel and visitors at field survey sites shall adhere to this and other applicable Health and Safety Plans and requirements (e.g., those pertaining to specific hazardous waste sites or surface contamination areas) and follow the directions of the Project Manager or Field Team Leader. All personnel shall agree to abide by the safety issues covered by this plan and shall acknowledge by signing Attachment A on an annual basis. Visitors shall agree to abide by the safety issues covered by this plan and shall acknowledge by signing Attachment A upon each visit.

This Plan sets forth the minimum acceptable standards as required by federal or state regulations and is based on information available as of May 1999. As new information becomes known concerning the extent of possible contamination or of operations planned at the site, the requirements of the Plan may be modified by the Project Manager to accommodate that new information.

II. Background

Field surveys are conducted for the purpose of evaluating the presence of cultural resources in the vicinity of proposed projects. These surveys are necessary to comply with direction from the U.S. Department of Energy, Richland Operations Office to assess the potential cultural resource impacts of all activities with the potential for affecting the environment.

III. Site

The HCHRP surveys will be conducted on the Hanford Site for DOE and its contractors. The Hanford Site consists of 540 square miles of primarily shrub-steppe plant communities and riparian corridors along the Columbia and Yakima Rivers, as well as isolated riparian communities on the Fitzner/Eberhardt Arid Lands Ecology Reserve.

IV. Personnel

A. Responsible Parties

1. Program Manager----------A. L. Rodriguez

B. Job Descriptions

1. Program Manager
   The project manager has overall responsibility for the successful outcome of the program and make the final decisions regarding implementation of the Health and Safety Plan. Included in this responsibility are communicating to all persons on the field team any safety or operating requirements pertaining to a particular site, or any changes to the Health and Safety Plan.

2. Field Team Leaders
   Field team leaders are charged with implementing the Health and Safety Plan in the field. They are responsible for reviewing safety issues, Job Safety Analyses, Radiation Work Permits, and other safety documents that pertain to surveys in a particular area. Field team leaders are located onsite during all work and ensure that all personnel on the site work in a safe manner consistent with the requirements of the Health and Safety Plan. Reports of all safety violations or perceived health/safety concerns are made to appropriate management or Safety & Health Representative. Deviations from the Health and Safety Plan require prior approval of the Project Manager.

3. Field Team Members
   All field team members are responsible for understanding and complying with the Health and Safety Plan and all health and safety instructions given by the Field Team Leader or competent authority. Field team members will promptly report all injuries or illness to direct supervisor who shall inform the Program Manager and ensure they are properly reported.

V. Communications

Field teams will work together as a group within earshot of each other. The smallest team allowed to survey will be two. Where conditions warrant separating a large team into several pairs that will be out of earshot, cellular phones or radios will be carried by each group.

VI. Site Security

Surveys will not be performed around open excavations or unattended open boreholes. Security at hazardous waste sites or radiation zones will be the responsibility of the site owner, and field teams will follow the instruction and security documents pertaining to those sites.

VII. Site Hazards

Survey sites will be assumed to be uncontaminated with hazardous waste materials. It is the responsibility of the survey requester to provide information of the hazards on the survey site and directions for obtaining necessary site training. In general, other hazards on survey sites may include the following physical hazards:

Vehicles and machinery
Heat Stress
Hypothermia
Falls/trips
Noise
Radiological Contamination

Overall, the health risks anticipated at most survey sites are rated as low. The greatest hazards are likely from vehicles and machinery operating in industrial areas, and heat stress or hypothermia in remote areas.

VIII. Discussion of Specific Hazards

A. Physical

1. Vehicles and machinery
   Traffic of vehicles and machinery at industrial or roadway survey sites poses hazards that need to be addressed. Personnel must watch where they are walking so as not to step in front of moving equipment. Vehicles must be assumed to have the right-of-way at all times. Traffic must be kept under observation when surveying near roadways. The use of reflective vests when working near high traffic areas will be worn. The buddy system will be used.

2. Heat Stress
   Heat stress is a potential hazard during heavy exertion in the summer, especially if the workers have not had enough liquids in their diet. Potable water should be carried into the field in appropriate containers when surveying in remote areas. Alcohol, coffee, tea and caffeine-containing soft drinks should be avoided. The Field Team Leader shall determine if heat stress poses a particular risk during the project and shall have the field team members monitor their pulse rate periodically when heat stress potential is high.

   If the worker's pulse exceeds 110 beats per minute, a 15-minute break period in the shade and ingestion of water will be required.

   If the ambient temperature is above 80° F, or if strenuous work in heavy clothing is anticipated, the Field Team Leader shall take special precautions against heat stress. Workers shall force fluids prior to work (such as a good electrolyte replenishment drink) and monitor their vital signs such as pulse to lessen the likelihood of a heat related illness at the site.

3 Hypothermia
   Hypothermia, or severe decrease in body temperature, must be guarded against if work at the site takes place during temperatures below 65° F. Workers may require insulated coveralls, heavy gloves, or pack boots.

4. Slips/trips/falls
   As with all sites, caution must be exercised to prevent slips on rain slick surfaces, or oily spots. Never work on unguarded elevated platforms without fall protection. Team members must stay at least six feet back from new excavations unless those are properly marked and guarded. The buddy system will be used with cellular phones in remote areas to obtain help if someone becomes injured and unable to walk to a vehicle.

5. Noise
   Surveys conducted in the vicinity of heavy machinery may lead to excessive noise exposure. Personnel in the immediate area must use hearing protection (e.g., foam inserts) if exposure to noise levels exceeding 85 dB is anticipated for over 15 minutes.

6. Confined Spaces
   Personnel are forbidden from entering any confined space (such as an excavation) unless the space is properly tested by the relevant site safety officer or his/her designated representative

and all precautions required by that person are followed. A safety watch will always be required whenever a worker is in a confined space. Safety requirements for confined space entry must be obtained and followed.

7. Biological
   Personnel may encounter biological hazards while working on the Hanford Site. Biological hazards may include the following:
   - Spiders
   - Scorpions
   - Insects
   - Snakes
   - Sharp sticks and sharp edges
   - Poisonous plants

   The following guidelines are to be observed concerning biological hazards:
   - Be aware of your surroundings
   - Be able to recognize potential pests
   - Wear leather boots
   - Wear leather gloves (as necessary)
   - Use insect repellant (as necessary)

   Report potentially hazardous bites, stings, or exposures to your supervisor and seek appropriate medical treatment.

8. Remote Areas
   Personnel will carry appropriate survival kits. Cellular phones and/or radios will always be carried and the buddy system will be observed.

   Survival kits must contain:
   - First Aid Kit
   - Aspirin
   - Adequate Water Supplies
   - Adequate Food Supplies
   - Communications Equipment (cellular phones/two-way radio)
   - Appropriate Clothing for Climate
   - Sunscreen
   - Pocket Knife

B. Radiological

The potential for radiological contamination is considered to be minimal outside of surface contamination areas. Staff will enter surface contamination areas only with the proper training, clothing, and under the requirements specified in the Radiation Work Permit for that area. Biological or other samples taken off the Hanford Site will be surveyed by the appropriate radiation protection technologist prior to removal from the Site. The potential for exposure to ionizing radiation is considered possible in many areas of the Hanford Site. Staff will spend as little time as possible surveying in the vicinity of areas with elevated radiation dose rates.

IX. General Work Practices

Survey personnel will work in a safe manner at all times. This includes, but is not limited to, the following points:

1. All personnel shall work in teams of at least two persons (the buddy system), except in areas where moderate to high foot traffic is expected. Team members must always remain in sight of each other.

2. Each field team will carry a two-way radio or cellular phone when conducting surveys in remote areas.

3. All injuries/accidents, including exposure incidents, shall be immediately reported to the Project Manager. A report of the incident needs to be immediately forwarded to ES&H. If directed to be evaluated by a physician, the affected worker shall immediately report for examination and follow all of the doctor's recommendations.

4. All visitors must have prior approval from the Project Manager before being admitted on a survey. Visitors must read and acknowledge understanding of this Plan.

5. Prior to the start of field work and annually thereafter, each worker will be given informal training on how the project will progress. New staff and visitors will be given this training prior to going on a survey. The Project Manager will conduct this training. Topics must include the following:

   - key provisions of the plan
   - safety hazards anticipated
   - job safety analyses pertaining to the project
   - buddy system explained
   - safety equipment operation.

   All personnel will sign a statement attesting to their having read and understood the Plan. Personnel agree in writing to follow the Plan; all questions must be answered to their satisfaction prior to starting work.

6. Daily, prior to starting work, the Field Team Leader will hold a short safety meeting to go over any problems perceived, to review the site survey plan, and to direct how the project will proceed that day with regard to health and safety matters. Where potentially significant safety issues may be expected (e.g., surveys in surface contamination areas), the safety meeting will detail the provisions specific to the site hazards, and a training document will be signed (see Attachment B) by all field staff acknowledging the training.

XI. Personal Protective Equipment

Field surveys will normally not involve contaminated material, and the following personal protective equipment (PPE) will be worn as noted. PPE for surveys in contaminated or hazardous waste sites will conform to the requirements of the site.

- Work clothing
- Hard hat – when surveys are being conducted near construction, in abandoned buildings, or industrial areas
- Goggles/safety glasses (as needed)
- Ear protection (as needed)
- Standard work shoes (steel-toed boots in construction areas, industrial areas, or abandoned buildings)

XII. Emergency Procedures

All field staff shall be trained in the use of two-way radio or cellular telephone.

For fire, police, or ambulance, call **811**, 375-2400, or 376-3301 and give requested information. For medical emergencies, call **811** or one of these numbers:

HEHF First Aid Station	376-6981
Kadlec Hospital	946-4611(emergency room nurse)

The Program Manager must log a complete report of any event requiring use of outside agencies for any emergency action. Also, log any event that requires implementation of the Emergency Procedures section of the Plan.

If a worker must go for medical attention, another worker must accompany the patient. If in any doubt as to the need for a doctor's opinion, it is the policy that medical attention **must** be received. Notify the Program Manager as to the outcome of the medical evaluation as soon as possible. For minor cuts and bruises, a first aid kit will be available in the field vehicle. Ensuring the availability of safety equipment is the responsibility of the Field Team Leader.

Weather

Strong winds or heavy water runoff is likely to move soil and may require the activities at the site to be curtailed.

Hypothermia may be a problem if the work takes place during cool weather. The following guide should be followed during a cold injury:

1. Bring victim into a warm area.
2. Remove all wet/cold garments that remain.
3. Dry victim and cover with blanket.

Work in warm weather may lead to heat related illness [see Section VIII (2)]. Heat stroke victims are recognized by their dry skin (lesser degrees of heat-related illness commonly cause very damp skin). They will be disoriented and probably will not be able to respond to commands or to help themselves.

Heat stroke is life threatening. Prompt treatment of heat stroke must be given at the site for anyone stricken by this illness. Treatment includes cooling the victim with whatever is at hand (e.g., ice water bath). Do not wait for medical services to arrive to begin treatment.

Attachment A

ACKNOWLEDGMENTS

I HAVE READ THE HEALTH AND SAFETY PLAN FOR THE HANFORD CULTURAL RESOURCES PROJECT AND HAVE HAD ALL QUESTIONS PERTAINING TO IT ANSWERED TO MY SATISFACTION. I AGREE TO ABIDE BY THE SAFETY ISSUES COVERED BY THE PLAN AND BY ANY SAFETY DIRECTIVES ISSUED BY THE PROJECT MANAGER WHILE I AM IN THE FIELD.

Name	Signature
	Org.
Code/Agency	Date

Attachment B

Field Safety Meeting/Training Summary

Date: Time Began: Time Ended: Location:

Conducted by:

Signatures of those present:

REFERENCES

10 CFR 600. U.S. Department of Energy. "Financial Assistance Rules." *Code of Federal Regulations.*

36 CFR 800. U.S. Department of Interior. "Protection of Historic and Cultural Properties." *Code of Federal Regulations*.

40 CFR 761. U.S. Environmental Protection Agency. "Polychlorinated Biphenyls (PCBS) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions." *Code of Federal Regulations*.

48 CFR 9. Federal Acquisition Regulations Systems. "Contractor Qualifications." *Code of Federal Regulations*.

American Indian Religious Freedom Act (AIRFA). 1978. Public Law 95-341, as amended, 42 USC 1996, 1996 note.

APPENDIX D

RESUMES

APPENDIX D

RESUMES

ANNABELLE L. RODRIGUEZ, Cultural and Historic Resources Program Manager
U.S. Department of Energy, Richland Operations Office

EDUCATION

B.S. Biology (minor in English), University of Albuquerque

EXPERTISE/SKILLS

Program/Project document reviews, coordination of document reviews between DOE and contractors (sometimes DOE HQ and other DOE field offices), coordination of meetings with local Native American Tribes, laboratory radiological analysis, environmental sample collection, author of quarterly/annual environmental/radiological reports, RCRA audits, organizer of community events

WORK EXPERIENCE

U.S. Department of Energy, Cultural and Historic Resources Program—2001-present
U.S. Department of Energy, National Environmental Policy Act Program—1994-2001
U.S. Department of Energy, Environmental Permitting Program—1991-1994
IT Corporation, Albuquerque, New Mexico—1988-1991
IT Corporation, Waste Isolation Pilot Plant (WIPP), Carlsbad, New Mexico—1984-1988
Eberline Instrument Company (Health Physics Division)—1982-1984

PUBLICATIONS AND PRESENTATIONS

Quarterly/Annual Environmental and Radiological Reports for WIPP
Presentations to civic groups

PROFESSIONAL AFFILIATIONS

American Indian Science and Engineering Society – Columbia River Chapter
Society for Advancement of Chicanos and Native Americans in Science
Toastmasters International

COMMUNITY SERVICE

Member of the Local Indian Child Welfare Advisory Committee

CONNIE ESTEP

EDUCATION

M.A. Anthropology, Museum Studies Track, University of Arizona	1988
B.S. Biology, University of Alaska	1982
B.A. History, Washington State University	1967

PROFESSIONAL EXPERIENCE

Hanford Cultural and Historic Resources Program since 1988

Serves as History Curator for the Hanford Site federal collections. Participates in surveys of Hanford Site buildings for selection of objects for the permanent collection. Researched a historic World War II housing project for the exhibit *ABC Homes: The Houses that Hanford Built*. Other research areas include Social History of World War II to 1950 as documented in the Dupus Boomer cartoon series and the scientific aspects of the Lewis and Clark expedition. Responsible for collections, which include an estimated 3000 historic objects, estimated 8000 image photo archives and approximately 30 linear feet of archival collections.

Adjunct Natural History Instructor for Columbia Basin College since 2000

Registrar for Museum of the Rockies, Bozeman MT 1991-1998
Served as collections manager for estimated 270,000 objects including archaeology, ethnology, fine arts, geology, history, paleontology, and photo archives.

Registrar for National Park Service, Alaska Region 1989-1991
Served as collection management for the 16 Alaska NPS sites and became very familiar with the historic themes of Alaska and Russia America.

History Instructor (part-time) Yakima Valley College; Yakima, Washington; 1972-1973

PROFESSIONAL MEMBERSHIPS

American Association of Museums and AAM Registrar's Committee
Washington Museum Association
Northwest Archivist Association
B Reactor Museum Association
Lewis and Clark Trail Heritage Foundation, Board Member for Washington Chapter

DAVID W. HARVEY

EDUCATION

M.A. Western Washington University, History	1975
B.A. Fairleigh Dickinson University, American History and Government	1970

EXPERTISE

Senior Research Scientist/Historian/Historic Preservation Specialist: Cultural resource management, Pacific Northwest history, project management, architectural history, preservation planning, 30 years in Pacific Northwest

WORK EXPERIENCE

Senior Research Scientist/Architectural Historian/Historic Preservation Specialist: Hanford Site, Cultural and Historic Resources Program, since 1993

Northwest Preservation Resources, Seattle, Washington, Historic Preservation Consultant/Owner, 1982-1993

Laboratory of Archaeology and History, Washington State University, Pullman, project supervisor/historian, 1981

Ochoco National Forest, Crooked River National Grassland, Prineville, Oregon, cultural resource specialist, 1980

Historic Preservation Planner, Whatcom County Parks, Bellingham, Washington, 1979

Historian, Bureau of Land Management, District Office, Anchorage, Alaska, 1977-78

PUBLICATIONS AND PRESENTATIONS

Numerous technical reports, HABS/HAER documents, EIS documents, two booklets, chapters in 10 books/booklets, 10 articles and over 20 regional and national presentations at professional and community conferences

PROFESSIONAL AFFILIATIONS

Washington State Advisory Council on Historic Preservation; Historic Preservation Commission, City of Kennewick; Lewis and Clark Bicentennial Council, Tri-Cities Visitors & Convention Bureau; National Trust for Historic Preservation; Washington Trust for Historic Preservation; Society of Architectural Historians—Northern Pacific Coast Chapter; National Council on Public History; National Alliance of Preservation Commissions.

THOMAS E. MARCEAU, Senior Scientist

EDUCATION

ABD Anthropology/Archaeology, State University of New York at Albany	1980
M.A. Anthropology/Archaeology, State University of New York at Albany	1978
B.A. Anthropology/Archaeology, University of Massachusetts	1972

EXPERTISE

North American Archaeology: Northeastern Archaeology (4 years), High Plains/Rocky Mountain Archaeology (17 years), Northwest Archaeology (9 years); Historic Preservation Law, Cultural Resources Management; Tribal Relations; Lithic Analysis, Statistical Analysis, Computer Modeling; Project Management, Administration

WORK EXPERIENCE

Hanford Cultural and Historic Resources Program, Cultural Resource Supervisor, since 1994

Bechtel Hanford, Inc., Cultural Resources Advisor, Southern New Jersey Light Rail Transit System (2000), Brookhaven National Laboratory BGRR Reactor Decommissioning (1999), Portland (ME) Natural Gas Transmission System (1997-1998)

University of Colorado Health Sciences Center, Research Assistant (Computer Programmer), 1994

Bechtel Corporation, Cultural Resource Specialist, Pacific Gas Transmission Co. & Pacific Gas and Electric Co. Pipeline Expansion Project, 1993

State of Wyoming, State Historic Preservation Office, Deputy SHPO, 1985-1992

State of Wyoming, State Historic Preservation Office, Review and Compliance Section Head, 1980-1985

PUBLICATIONS AND PRESENTATIONS

Chapters in two books, one journal article, numerous technical reports, twenty-two regional and national presentations on Columbia Basin and Hanford Site prehistory and history

PROFESIONAL AFFILIATIONS

Society for American Archaeology, Wyoming Association of Professional Archaeologists

ELLEN L. PRENDERGAST

EDUCATION

M.A. Anthropology, Western Washington University	1998
B.A. Double major in Historic Preservation and Anthropology, Mary Washington College	1993

EXPERTISE

Oral history, ethnography, ethnohistory, cultural resources management, Section 106 compliance, tribal relations, project management, public involvement, human subjects compliance, applied anthropology, archaeology

WORK EXPERIENCE

Hanford Site, Cultural and Historic Resources Program since 1999

Bureau of Archaeological Research Department of State, Division of Historic Resources Coastal Management Project, Tallahassee Florida, 1999

Archaeological Technician in VA, OR, WA, and CA, 1993-1999

PUBLICATIONS AND PRESENTATIONS

Two presentations at the Northwest Anthropology Conference and the Oral History Association Conference

Numerous Cultural Resources Survey Narrative Reports

"Historic Preservation an Unusual Way to Protect Human Subjects". 2001. Protecting Human Subjects Newslettter, U.S. Department of Energy, Office of Biological and Environmental Research.

Master's Thesis entitled "Perceptions of the National Register Nomination Process: A Case Study at Cheltenem, Point Roberts, Washington". 1998. Western Washington University.

MEMBERSHIP/AFFILIATION

American Anthropological Association
Society for Applied Anthropology
Oral History Association

JIM SHARPE

EDUCATION

M.S. Resource Management, Central Washington University	1997
B.S. Anthropology, Central Washington University	1994

EXPERTISE

Columbia Plateau archaeology, cultural resource management, archaeological survey, monitoring, shovel testing, excavation, site evaluation, historical research, and technical report preparation.

WORK EXPERIENCE

Hanford Site, Cultural and Historic Resources Program since 1996.
Archaeological experience in CA, ID, NV, OR, and WA, 1999-2003.

PUBLICATIONS

Fourteen documents issued for public review and numerous technical reports, including:

Sharpe, J.J. 1999. *Pre-Hanford Agricultural History: 1900-1943.* BHI-01326, Bechtel Hanford, Inc., Richland, Washington.

Sharpe, J.J. 2000. *Chinese Gold Miners of the Mid-Columbia Region*. BHI-01316, Bechtel Hanford, Inc., Richland, Washington.

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Sharpe, J.J. 2001. *History of River Transportation on the Hanford Reach*. BHI-01561, Bechtel Hanford, Inc., Richland, Washington.

Sharpe, J.J. 2001. *Phase III of the Pre-Hanford Agricultural Period: 1900-1943.* BHI-01566, Bechtel Hanford, Inc., Richland, Washington.

DARBY C. STAPP

EDUCATION

Ph.D. Historical Archaeology, University of Pennsylvania	1990
M.A. Anthropology, University of Idaho	1985
B.A. Anthropology/Geology, University of Denver	1977

EXPERTISE

Historical archaeology, Plateau ethnohistory, archaeology, cultural resource management, tribal relations, project management, stewardship, public archaeology, applied anthropology, 25 years in Pacific Northwest.

WORK EXPERIENCE

Hanford Site, Cultural and Historic Resources Program since 1994

Hanford Site, Nuclear and Hazardous Waste Management, 1988-1994

University of Idaho, Anthropology Research Associate, 1983-1987

U.S. Forest Service, District Archaeologist, 1980-1981

PUBLICATIONS AND PRESENTATIONS

One book, chapters in six books, five journal articles, numerous technical reports, and over thirty regional and national presentations at professional conferences.

PROFESSIONAL AFFILIATIONS

Registered Professional Archaeologist. Member of American Anthropological Association, National Association for the Practice of Anthropology, Society of American Archaeology, Society for Applied Anthropology (Fellow), Society for High Plains Applied Anthropology, Society for Historical Archaeology.

DAVE WOODY

EDUCATION

B.S. Anthropology, Central Washington University	1994
M.A. Anthropology, Central Washington University	Degree expected 2003

EXPERTISE

Columbia Plateau pre-contact archaeology, hunter-gatherer cultural adaptations, geomorphology, archaeological application of Geographic Information Systems (GIS), archaeological excavation.

WORK EXPERIENCE

Hanford Site, Cultural and Historic Resources Program since 2001

Archaeological and Historical Services, field archaeologist 1998-2001

Colorado State University, field botany assistant, 1995-1998

Grant County Public Utility District (P.U.D.), field archaeologist, 1994

PUBLICATIONS

In Progress. Research and Cultural Resource Management Applications of an Archaeological Database at a Large Federal Facility. Central Washington University M.A. thesis. Natural and Cultural Resource Management Program.

Archaeological Excavation Report for Proposed Wells C4120 and C4117 in Support of the 100-KR-4 Pump-and-Treat Project (with Ellen Prendergast). 2003 PNNL-14196, Pacific Northwest National Laboratory, Richland, Washington.

APPENDIX E

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BIBLIOGRAPHY – HANFORD CULTURAL AND HISTORIC RESOURCES PROGRAM

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Gerber, M.S. and D.W. Harvey. 1996. *Historic American Engineering Record Reduction-Oxidation Complex Plutonium Concentration Facility (Building 233-S)*. HAER No. WA-129-A. Prepared for the U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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Hazelbrook, R.E. September 2000. *Draft Cultural Resources Survey Narrative Report - West Vernita Bridge Cultural Resources Survey and Current Impacts Report*. HCRC #2000-0600-019. Prepared for the U.S. Department of Energy, Richland Operations Office. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

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APPENDIX F

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION TREATMENT PLAN

APPENDIX F

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION TREATMENT PLAN

Draft 09/99

A COMPREHENSIVE PLAN FOR COMPLIANCE WITH THE NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT AND IMPLEMENTING REGULATIONS

AT THE

U.S. DEPARTMENT OF ENERGY HANFORD SITE SOUTH-CENTRAL WASHINGTON

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1.0 INTRODUCTION

A significant part of the U.S. Department of Energy (DOE) overall resource management and stewardship responsibilities on DOE-owned and other lands that are impacted by DOE programs involves protection and preservation of cultural resources. Under this stewardship umbrella, a critical component of a comprehensive and effective cultural resource management (CRM) effort involves compliance with a number of federal historic preservation statutes and regulations. This document includes relevant background information and an action plan for compliance with one of the more recent of these statutes, the ***Native American Graves Protection and Repatriation Act*** (NAGPRA) (Public Law 101-601; 25 USC 3001-3013; 11/16/1990) and the subsequent implementing regulations, ***Native American Graves Protection and Repatriation Regulations*** (43 Code of Federal Regulations Part 10, revised as of 10/1/97) (hereafter cited as 43CFR10) at the DOE Hanford Site in south central Washington.

1.1 Background

The Hanford Site is situated in south central Washington, and occupies an area of approximately 560 square miles. The site is owned by the U.S. Government and administered by the U.S. Department of Energy, Richland Operations Office (DOE-RL). The area lies in the Pasco Basin of the Columbia Plateau, directly north of the confluence of the Columbia River with the Snake, Walla Walla, and Yakima Rivers. Parts of the Hanford Site fall into three counties – Grant, Benton, and Franklin, the boundaries of which are separated by the Columbia River flowing through the site. The origin of the Hanford Site began in 1943 when the area was selected by the U.S. Army Corps of Engineers Manhattan District as the location for the nation's first full-sized plutonium production reactors. Today, after several decades of participation in the defense nuclear materials production programs the Hanford Site has entered an era of remediation and environmental restoration, along with emphasis on nonmilitary applications of nuclear energy.

Prehistoric and historic Native American occupation of the land now included in the Hanford Site was intensive prior to the taking of the area by the U.S. Government in 1943. The Wanapum occupied and used areas of the landscape right up to the seizure. Use of the area by these people over a period several millennia resulted in the existence of numerous archaeological sites, particularly along the banks of the Columbia River. Associated with many of these locations are Native American burials and cemetery locations. As discussed in other Hanford cultural resource documents, identification and protection of known Native American cemetery locations have been a focal point of Native American and U.S. Government interactions since 1943. For more than fifty years, Wanapum leaders have continually pressed for protection of cemeteries they knew to be located on the Hanford Site. Additionally, many other burial and cemetery locations exist along the banks of the Columbia River and on it's islands; many of these have come to light while many others remain to be identified. In short, concern for Native American burials and cemeteries and meeting associated NAGPRA requirements have been and will continue to be a significant cultural resource issue at Hanford.

1.2 Related DOE and DOE-RL Cultural Resource Documents

In addition to NAGPRA and 43CFR10 themselves, there are several other departmental and Hanford Site programmatic documents that provide either relevant background or additional guidance for potential actions under NAGPRA. These include the following:

U.S. Department of Energy, *American Indian & Alaskan Native Tribal Government Policy*

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Nickens, P.R. 1998. *Tribal Cultural Resource Studies at the Hanford Site, South-central Washington,* PNNL-12032. (Specifically "Native American Involvement at the Hanford Site: 1943 to the Present," pp. 1-18).

2.0 NAGRPA AND THE REGULATIONS

Passed by Congress in the Fall of 1990, NAGPRA, along with the later issued implementing regulations, provided for disposition or repatriation of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony in a federal agency's possession or under its control. Further, the act included provisions to ensure that human remains and other objects covered under the statute that might come to light, either via intentional excavations of Native American sites or as chance discoveries receive protection. Central to all processes required under the act is consultation between the federal agency and Indian tribes, Native Hawaiian organizations, lineal descendants, and traditional Native American religious leaders that have an established cultural interest in specific human remains or other

materials. Because NAGPRA and the regulations have spawned their own lexicon within cultural resources management, it is useful to include herein those definitions that apply to this plan. These are detailed below.

2.1 Pertinent definitions from 43CFR10.2 (slightly modified to conform to conditions of aboriginal occupation of the Hanford Site environs).

Indian tribe means any tribe, band, nation, or other organized Indian group or community of Indians, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

Lineal descendant means an individual tracing his or her ancestry directly and without interruption by means of the traditional kinship system of the appropriate Indian tribe or by the common law system of descendance to a known Native American individual whose remains, funerary objects, or sacred objects are being claimed under NAGPRA regulations.

NAGPRA covers four types of Native American objects. The term **Native American** means of, or relating to, a tribe, people, or culture indigenous to the United States.

(1) **Human remains** means the physical remains of the body of a person of Native American ancestry. The term does not include remains or portions of remains that may reasonably be determined to have been freely given or naturally shed by the individual from whose body they were obtained, such as hair made into ropes or nets. For the purposes of determining cultural affiliation, human remains incorporated into a funerary object, sacred object, or object of cultural patrimony, as defined below, must be considered as part of that item.

(2) **Funerary objects** means items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains. Funerary objects must be identified by a preponderance of the evidence as having been removed from a specific burial site of an individual affiliated with a particular Indian tribe or Native Hawaiian organization or as being related to specific individuals or families or to known human remains. The term burial site means any natural or prepared physical location, whether originally below, on, or above the surface of the earth, into which, as part of the death rite or ceremony of a culture, individual human remains were deposited, and includes rock cairns or pyres which do not fall within the ordinary definition of gravesite.

Associated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are also in the possession or control of a museum or Federal agency. Associated funerary objects also mean those funerary objects that were made exclusively for burial purposes or to contain human remains.

Unassociated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are not in the possession or control of a museum or Federal agency. Objects that were displayed with individual human remains as part of a death rite or ceremony of a culture and subsequently returned or distributed according to traditional custom to living descendants or other individuals are not considered unassociated funerary objects.

(3) **Sacred objects** means items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. While many items, from ancient pottery sherds to arrowheads, might be imbued with sacredness in the eyes of an individual, these regulations are specifically limited to objects that were

devoted to a traditional Native American religious ceremony or ritual and which have religious significance or function in the continued observance or renewal of such ceremony.

The term **traditional religious leader** means a person who is recognized by members of an Indian tribe as: (1) Being responsible for performing cultural duties relating to the ceremonial or religious traditions of that Indian tribe, or (2) Exercising a leadership role in an Indian tribe based on the tribe's cultural, ceremonial, or religious practices.

(4) **Objects of cultural patrimony** means items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal member. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by any individual tribal member. Such objects must have been considered inalienable by the culturally affiliated Indian tribe at the time the object was separated from the group. Objects of cultural patrimony include items such as Zuni War Gods, the Confederacy Wampum Belts of the Iroquois, and other objects of similar character and significance to the Indian tribe as a whole.

Cultural affiliation means that there is a relationship of shared group identity which can reasonably be traced historically or prehistorically between members of a present-day Indian tribe and an identifiable earlier group. Cultural affiliation is established when the preponderance of the evidence -- based on geographical, kinship, biological, archeological, linguistic, folklore, oral tradition, historical evidence, or other information or expert opinion -- reasonably leads to such a conclusion.

Federal lands means any land other than tribal lands that are controlled or owned by the United States Government United States. "Control," as used in this definition, refers to those lands not owned by the United States but in which the United States has a legal interest sufficient to permit it to apply these regulations without abrogating the otherwise existing legal rights of a person.

Tribal lands means all lands which: (1) Are within the exterior boundaries of any Indian reservation including, but not limited to, allotments held in trust or subject to a restriction on alienation by the United States; or (2) Comprise dependent Indian communities as recognized pursuant to18 U.S.C. 1151

Summary means the written description of collections that may contain unassociated funerary objects, sacred objects, and objects of cultural patrimony required by Sec. 10.8 of 43CFR10.

Inventory means the item-by-item description of human remains and associated funerary objects.

Intentional excavation means the planned archeological removal of human remains, funerary objects, sacred objects, or objects of cultural patrimony found under or on the surface of Federal or tribal lands pursuant to section 3 (c) of NAGPRA.

Inadvertent discovery means the unanticipated encounter or detection of human remains, funerary objects, sacred objects, or objects of cultural patrimony found under or on the surface of Federal or tribal lands.

2.2 Consultation Requirements

Consultation between DOE and affected Indian tribes at the Hanford Site occurs on a regular basis and is coordinated by the Indian Nations Program at DOE-RL. DOE-RL's involvement with Indian tribes is guided by the DOE American Policy, in conjunction with various historic preservation statutes, regulations, and presidential executive orders. Under this program, DOE-RL interacts and consults on a direct basis with three federally recognized tribes affected by operations at the site, including the Nez

Perce Tribe, Confederated Tribes of the Umatilla Reservation, and the Yakama Nation. In addition, the Wanapum, who still live adjacent to the site, are a non-federally recognized tribe who maintain strong cultural ties to the Hanford landscape and are also consulted on cultural resource issues in accordance with DOE-RL policy and relevant legislation.

Within this general Hanford consultation framework, the 1990 NAGPRA statute requires interaction between a Federal agency and Indian tribes or individuals under a number of actions. These conditions are summarized in Table 1.

Table 1. Required interactions between DOE and Indian tribes under NAGPRA.

Type of Communication	When?	Who?	Required by
Notification	After completing NGPRA-required inventories of Native American human remains and associated funerary objects	Affected Indian tribes	NAGPRA, 25 U.S.C. 3003 (d)
Notification	Summarizing unassociated funerary objects, sacred objects, and objects of cultural patrimony	Affected Indian tribes	NAGPRA, 25 U.S.C. 3004 (a)
Consultation	Prior to removing Native American human remains or cultural items from Federal lands	Appropriate Indian tribe	NAGPRA, 25 U.S.C. 3002 (c) (2)
Consultation	Prior to completing inventories of human remains and associated funerary objects in an agency's possession	Tribal government or traditional religious leaders	NAGPRA, 25 U.S.C. 3003 (b) (1) (A)
Consultation	Determining the cultural affiliation of unassociated funerary objects, sacred objects, and objects of cultural patrimony	Tribal government or traditional religious leaders	NAGPRA, 25 U.S.C. 3004 (b) (1) (B)
Consultation	Determining where and in what manner to return cultural items or human remains	Lineal descendent or Indian tribe	NAGPRA, 25 U.S.C. 3005 (a) (3)

The subsequently issued implementing regulations contained in 43CFR10, Subparts B and C, further delineate Federal agencies' responsibilities for consultation. Specifically, 43CFR10.5 requires consultation as part either the intentional excavation or inadvertent discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony on Federal lands and lists the requirements that must by followed. Similarly, consultation requirements for Federal agencies and museums that posses or have control over human remains and objects included under the provisions of NAGPRA are spelled out in 43CFR10.8 (d) and 9 (b). It should be noted that consultation between federal agencies and Indian tribes is also called for in other historic preservation statutes and regulations, notably the National Historic Preservation Act (NHPA) and the Archaeological Resources Protection Act (ARPA), and consultation requirements may overlap between these statutes and NAGPRA depending on the specific circumstances of individual cultural resource undertakings.

Points of contact for activities requiring consultation under NAGPRA for the four tribes with cultural resource interests at the Hanford Site are listed in Table 2.

Table 2. Indian tribal points-of-contact for Hanford Site NAGPRA consultations and related technical interactions.

Indian Tribe/address	**Tribal NAGPRA POC/ Phone/FAX**	**Tribal Technical POC/ Phone/FAX**	
Confederated Tribes of the Umatilla Indian Reservation P.O. Box 638 Pendleton, OR 97801	Gary Burke Phone: (541) 276-3165	Jeff Van Pelt	Phone: (541) 276-3629 Fax: (541) 276-0540
		Armand Minthorn	Phone: (541) 276-3165 Fax: (541) 276-3095
		Julie Longenecker	Phone: (509) 946-1859 Fax: (509) 946-1954
Nez Perce Tribe Main and Beaver Grade P.O. Box 635 Lapwai, ID 83540	Samuel N. Penney Phone: (208) 843-2253	Vera Sonneck	Phone: (208) 843-7375 Fax: (208) 843-7419
		Rico Cruz	Phone: (208) 843-7375 Fax: (208) 843-7329
Wanapum Grant County Public Utilities District 30 "C" Street P.O. Box 878 Ephrata, WA 98823	Lenora Seelatsee Phone: (509) 754-3541 Ext. 3172 Fax: (509) 766-2522	Rex Buck, Jr.	Phone: (509) 754-5057 Ext. 2797 Fax: (509) 754-5074
Yakama Nation P.O. Box 151 Toppenish, WA 98948	Russell Jim Phone: (509) 452 2502 Fax: (509) 452-2503	Russell Jim	Phone (509) 452-2502 Fax (509) 452-2503
Confederated Tribes of the Colville Reservation P.O. Box 150 Nespelem, WA 99155	Adeline Fredin Phone: (509) 634-2692 Fax: (509) 634-2694	Adeline Fredin Phone: (509) 634-2692 Fax: (509) 634-2694	

3.0 NAGPRA COMPLIANCE AT THE HANFORD SITE

Several actions have occurred at the Hanford site over the past ten years as a result of the passage of NAGPRA and implementation of its requirements. Fortunately, relatively few human remains or funerary objects have resulted from the limited amount past archaeological work at the site since 1943. As is discussed below, one archaeological undertaking within the Hanford Site conducted in 1926 by an archaeologist with the Smithsonian Institution in Washington, D.C. did result in the excavation of several prehistoric graves and associated funerary items.

3.1 Inadvertent Discoveries

To date, two cases of inadvertent discovery have occurred at the Hanford Site that initiated consultation and protection activities. The first of these took place in the spring of 1994 when construction activities at the then proposed location of the Environmental Molecular Sciences Laboratory (EMSL), just south of the 300 Area facilities. Monitoring of the initial construction activity by a Hanford archaeologist encountered several Native American burials, causing the construction work to immediately cease. Following consultation with the affected Indian tribes, DOE-RL relocated the site for the proposed laboratory and undertook restoration of the original construction site. Resiting of the EMSL complex involved selection of a new building site, preparation of an environmental assessment to evaluate potential impacts of resiting, construction and operation of the laboratory at the new location, and many technical studies at the new site.

A second instance occurred in the Fall of 1996 when archaeological monitoring of exposed and eroding cutbanks along the Columbia River revealed an exposed human interment on the left bank of the river, across from the old White Bluffs townsite. NAGPRA consultation ensued; however the following year continued erosion of the bank during springtime runoff caused the remaining *in situ* skeletal elements to fall onto the beach.

3.2 Summaries and Inventories of the Hanford Archaeological Collection

By 1994, most archaeological collections resulting from past work on the Hanford Site had been coalesced into a curation facility, part of the Pacific Northwest National Laboratory's Hanford Cultural Resources Laboratory. To provide DOE-RL with information it needed to comply with the provisions of NAGPRA that call for notification, consultation, and possible repatriation of human remains and associated funerary objects, a summary of the collection was prepared in November 1993, followed by an inventory of human remains in November of 1995. In 1995, a letter followed this notification reporting on the repatriation activities at the Hanford Site. An additional written summary of the human remains in the HCRL collection was completed in 1998 (Nickens 1998). Tribes were asked to assist in determining the cultural affiliation of human remains held in the HCRL collection. Human remains from 45BN477 were repatriated to the Wanapum in May 2000, and additional remains were transferred to the tribes in April 2001, following National Park Service procedures.

3.3 Smithsonian Materials

Excavations at the Wahluke archaeological site in 1926 by Smithsonian archaeologist Herbert Krieger resulted in sizable collection of human skeletal materials and burial offerings. Housed at the Smithsonian's National Museum of Natural History since that time, this inventory and repatriation of this collection of items that would normally fall under NAGPRA is instead handled via provisions in the National Museum of the American Indian Act (as amended in 1996). Thus, while NAGPRA applies to museums, universities, and federal agencies, the Smithsonian is specifically excluded from NAGPRA,

meaning that human remains and associated grave objects from Wahluke Site be coordinated directly between the Indian tribes and the Smithsonian Institution.

4.0 ACTION PLAN FOR HANFORD SITE NAGPRA COMPLIANCE

Compliance with NAGPRA and 43CFR10 at Hanford occurs in concert with DOE-RL's adherence to other cultural resource protection statutes and regulations, specifically the National Historic Preservation Act (NHPA) and its implementing regulation 36CFR800, and the Archaeological Resources Protection Act (ARPA).

4.1 DOE-RL Policy on Human Burial Remains

The intention of the DOE-RL Cultural Resource Program is that priority will be given to preservation of all Native American human remains and associated funerary objects in place. No human burial materials should be removed unless it is necessary for their survival. There may be circumstances where it may be necessary to intentionally excavate human remains to protect them from destruction by construction activities or natural erosion. If removal of human remains is necessary, during excavation and recording, the burial materials will be treated with dignity and respect, and will not be placed on display or within public view.

Because of historical operations in support of national defense missions conducted at the Hanford Site over the past 50 years, there is potential radiological contamination of Native American human remains and other cultural items to have occurred. Although the discovery and recovery of such remains falls partially under NAGPRA, other regulations pertaining to public health and safety issues may have to be considered during the consultation efforts and in the ultimate disposition of specific cases. Following DOE-HQ guidance, in the event of discovery of radiologically contaminated human remains and associated funerary objects at the Hanford Site, DOE-RL will consult with the affected Indian tribes to achieve compliance with all relevant statutes and regulations while ensuring appropriate respect for the human remains and cultural objects while, at the same time, ensuring protection of the public's health.

4.2 Intentional Excavations

Intentional excavation of human remains and objects is permitted under the provisions of NAGPRA, in conjunction with requirements of ARPA and its implementing regulations. Applications for ARPA permits by non-DOE or non-DOE-contracted entities will be carefully reviewed by the Hanford Site Cultural Site Protection Officer, in direct consultation with the affected Indian tribes. All ARPA permit applications must include a written plan that includes discussion of and supported arguments for or against the potential for encountering human remains during any subsurface excavations, and include a detailed plan for handling such discoveries in the event that human remains should encountered. It will be the responsibility of the Site Cultural Protection Officer to ensure that the ARPA permit is properly conditioned to ensure protection and proper disposition of human remains and associated artifacts, and to ensure that conditions of the ARPA permit are followed by the applicant.

4.3 Inadvertent Discoveries

An inadvertent discovery of human remains and/or objects that could potentially fall under the provisions of NAGPRA can occur in a variety of ways at the Hanford Site, from accidental uncovering during construction or site cleanup activities to exposure by natural erosion. Managers should be aware that information pertaining to an inadvertent discovery could be generated from several sources, including cultural resource monitoring of construction projects or other programmatic cultural resource monitoring

efforts to discovery by site workers or members of the general public. The potential for discoveries along the Columbia River by the public has been highlighted in recent years by several similar cases in the Tri-Cities area, and has a higher potential as public use of the Hanford Reach increases.

In accordance with NAGPRA requirements and DOE-RL policies, there are a number of sequential actions that come into play. These are listed as follows in roughly chronological order, although some overlap will occur in the overall process.

- Discovery
- Cessation of activity, if on-going
- Protection of Discovered Items
- Immediate notification of appropriate parties (DOE-HQ, DOE-RL, affected Indian tribes, Benton County Sheriff's Office, appropriate county coroner)
- Professional evaluation of discovery
- Initiation of consultation with affected Indian tribes
- Resumption of activity, if applicable

4.3.1 Discovery

All inadvertent discoveries of recognized or potential human skeletal remains will be immediately reported to the responsible manager or supervisor. Depending on the circumstances of the discovery, an inadvertent discovery could be made through any one of several situations – during cultural resources monitoring of construction activities; chance discoveries by workers during non-monitored construction; or a report of possible human skeletal materials from any non-construction area within the site.

Until a final evaluation can be made, all reports of potential NAGPRA discoveries will be taken seriously and dealt with expeditiously by all personnel involved in the discovery.

4.3.2 Cessation of Activity

If applicable, e.g., the inadvertent discovery occurs in connection with an on-going activity, responsible personnel will take measures to cease activity in the area where the discovery is made. Work will not proceed until proper notifications have been made, and a full professional evaluation of the nature of the discovery has been completed.

4.3.3 Protection of Discovered Items

Providing protection to the discovered remains is initially the responsibility of the discoverers, if during an on-going activity. In addition to cessation of all construction activity, on-site workers will provide initial security by both avoiding the discovery site proper, and by ensuring that other personnel do not intrude on to the discovery site. All cultural items are to be left in place, without further disturbance, and a temporary perimeter (flagging tape, stakes, etc.) may be established, if appropriate, until notifications have been made and a cultural resources professional has appeared. Covering the exposed remains with a tarp or piece of plastic may be appropriate.

Depending on the outcome of the professional evaluation and the sensitivity of the discovery, longer-term protection may be required in the form of on-site guards and/or periodic patrols. It may also be necessary to establish additional security perimeters, and access control to the area.

4.3.4 Notification

Depending on the circumstances of the discovery, notification may take several avenues. For example, if made during monitoring of construction, either by an archaeologist or a site worker, the initial notification will be to the DOE/RL Cultural and Historic Resources Program Manager. Other feasible avenues of notification include a site worker notifying their supervisor or site security or a member of the public notifying the sheriff's department or the county coroner.

Key notification is to the responsible manager at DOE-RL, the SHO, who will coordinate subsequent notifications, as necessary, following the professional evaluation of the discovery.

Tables 3 and 4 list the points of contact at the DOE-RL and county offices.

Table 3. Department of Energy Points of Contact for NAGPRA actions.

Office	Point of Contact	Phone
DOE-HQ Federal Preservation Officer	Skip Gosling	Phone: (202) 586-5241
DOE-RL Cultural Resources Program Manager	Annabelle Rodriguez	Phone: (509) 372-0277 Cell Phone: (509) 539-0714
Hanford Cultural Resources Laboratory Manager	Darby Stapp	Phone: (509) 373-2894
DOE-RL Hanford Emergency Services Division	Ricky Stutheit	Phone: (509) 372-3005

Table 4. County Points of contact for Hanford Site NAGPRA actions.

Office	Point of Contact	Phone
Benton County Sheriff's Department (Hanford Office)	Lieutenant Jerry Hatcher	Phone: (509) 376-1022
Benton County Coroner	Floyd E. Johnson	Phone: (509) 736-2720
Franklin County Coroner	Dan Blasdel	Phone: (509) 546-5885
Grant County Coroner	Jerry Jasman	Phone: (509) 765-7601

4.3.5 Professional Evaluation

As soon as practicable following the discovery and initial notification, the discovery will be evaluated to verify that the skeletal remains are human and that the discovery falls under the provisions of NAGPRA. Generally, a HCRL archaeologist will make the initial determination. Depending on the nature of the find, a forensic expert, with appropriate training in human osteology made be required to evaluate the discovery and its potential age. If the skeletal remains are not Native American, but are historic, a determination will be made as to whether they fall within the jurisdiction of law enforcement. This determination will be collectively reached by the project archaeologist/physical anthropologist, the SPO, and the appropriate county officials.

4.3.6 Consultation with Affected Tribes

If the discovery is evaluated as being Native American, and therefore subject to NAGPRA, the DOE-RL Cultural and Historic Resources Program Manager will initiate consultation and additional notifications as per requirements in 43CFR10, Section 10.4. Notifications include the DOE Federal Preservation Officer and the State Historic Preservation Officer (SHPO). Within 24 hours, the DOE-RL Cultural and Historic Resources Program Manager will telephonically notify tribal technical contacts (Table 2) and within three working days will provide certified written notification to the designated tribal NAGPRA points of contact. As soon as practicable, an emergency meeting with designated tribal personnel will be held to continue NAGPRA formal consultation, and to develop a coordinated plan of action for disposition of the inadvertent discovery.

4.3.7 Resumption of Activity

If the inadvertent discovery occurred as a result of an on-going activity such as construction, resumption of the activity will depend on the consultation process and the overall significance of the discovery. NAGPRA and 43CFR43 provide for resumption of the activity 30 days after the certified notification of the discovery. However, resumption may occur at an earlier date if a written, binding agreement is executed between DOE-RL and the affected Indian tribes for the mitigation of the impacts to the remains.

APPENDIX G

CURATION PLAN FOR HANFORD'S ARCHAEOLOGICAL COLLECTIONS

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CURATION PLAN FOR HANFORD'S ARCHAEOLOGICAL COLLECTIONS

Curation Plan For Hanford's Archaeological Collections

September 2002

United States
Department of Energy

Richland, Washington

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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).

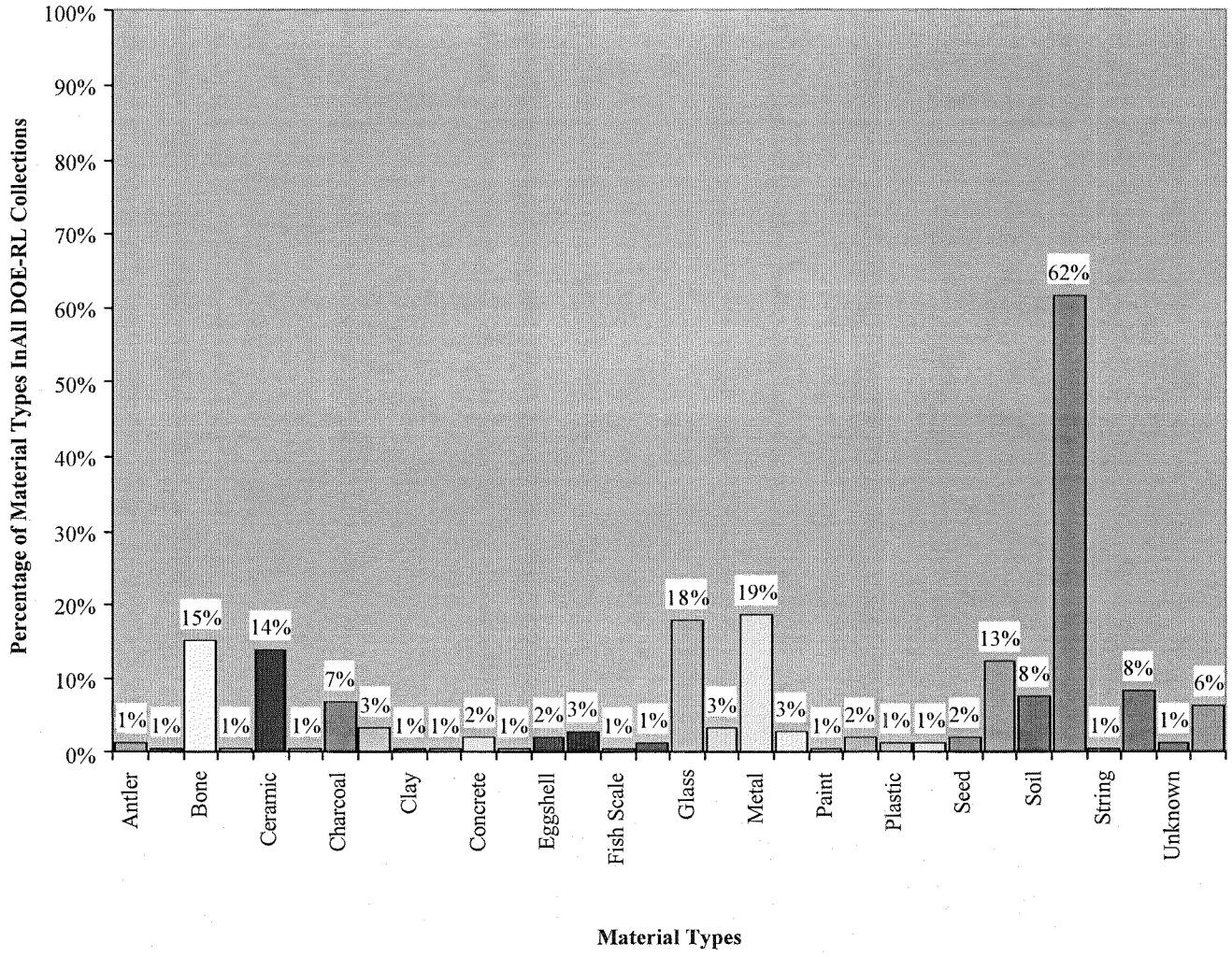
Repository Standards

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[1] 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?

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[1] 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 interventive 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[2].

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.

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[2] 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.

Date/Time of Entry	Print Name	Reason for Access	Time of Closure

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.

Hanford Cultural Resources Laboratory
Chain of Custody/Collection History

Sealed Boxes Form

Box #	Date Disposition	Reason for Access	Site/HCRC#	Names	Condition

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[3]

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.

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[3] These definitions are quoted from 36 CFR Part 79.

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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

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

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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.

Exhibit: The presentation of ideas through the use of objects with the intent of educating the viewer.

Fair Market Value: The current price at which both buyers and sellers are willing to do business.

Field Collection: Objects collected on federal property.

Inventory (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.

Loans: 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.

Museum: A public or nonprofit institution which is organized on a permanent basis for essentially educational or aesthetic purposes and which, using a professional staff:

1. Owns or uses tangible objects, either animate or inanimate;
2. Cares for these objects; and
3. Exhibits them to the general public on a regular basis.

Permanent Collections: 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.

Preservation: The act of keeping an object and safeguarding it from any further changes than those which it has already undergone.

Preventive Conservation: The planned management of a collection to prevent deterioration, exploitation, destruction or neglect.

Provenance: The origin, source and history of an object.

Registration: 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.

Transfer: 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.

- 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

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

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.

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

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.

- 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.

- 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.

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.

- 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.

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.

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.