Treatment Plan for Protection of Cultural Resources for the 100-KR-4 Pump-and-Treat Project

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Richland, Washington

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1.0 INTRODUCTION

The 100-K Reactor Area is located on the southern shore of the Columbia River at the northern edge of the Hanford Site. The K-East and K-West reactors operated from 1955 to 1971 as part of the United States efforts to produce weapons grade nuclear materials. Reactor operations required the use of water from the Columbia River to cool the reactors. Occasionally, reactor equipment would malfunction causing radioactive contamination in the cooling water. On these occasions, rather than being discharged to the Columbia River, the water was discharged to a trench, approximately 1.61 km (1 mi) long, located to the east of the reactor area. This discharged cooling water, in addition to being radioactively contaminated, also contained significant quantities of chromium that had been used to prevent corrosion within the reactors. After the cooling water had been discharged into the trench, it percolated into the ground and traveled toward the Columbia River via the groundwater flow.

Current interim remediation activities planned for this part of the 100-K Area are focused on protecting the Columbia River by pumping the chromium contaminated groundwater to a treatment system. The treated water will then be pumped back into the ground upstream of the trench. This document describes how the planned construction activities have been modified to protect the extremely sensitive cultural resources in the area.

1.1 PROJECT BACKGROUND

The 100-KR-4 Pump-And-Treat System supports an interim remedial action (IRM) record of decision (ROD) to prevent chromium from discharging into the Columbia River at concentrations that exceed those considered protective of aquatic life in the river and river-bed sediments. The project consists of several tasks including installing injection, extraction, and monitoring wells, and overhead power lines, constructing a treatment facility and access roads, and laying conduit and pipe lines. The project will be located in an area of extremely high cultural resource sensitivity, as described in Section 2.0.

The purposes of this treatment plan follow:

1. Describe measures to be taken to avoid or minimize impacts to known cultural resources before, during, and after construction and operation both by project design and cultural resource protection actions.
2. Outline the procedures that will be followed if cultural resources are unexpectedly discovered during construction.
3. Incorporate Native American Graves Protection and Repatriation Act (NAGPRA) regulations into project activities.

4. Document the agreed-upon actions and measures.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulation (36 CFR 800), a cultural resources review of the project location and design plan was conducted. This review identified significant cultural resource concerns. A cultural survey was also conducted by the Environmental Restoration Contractor's (ERC) Cultural Resources Staff, in which representatives from the affected Native American Tribes participated.

Recommendations that would avoid or minimize impacts to cultural resources were then made for the project. Consultations with the tribes are ongoing to finalize these recommendations.

Data collected during the field survey and existing information were used to prepare a map of cultural resources sensitivities. Using this map for guidance, recommendations were made to the design team for adjustments in road construction, drilling technique, well-pad preparation, and well locations to reduce or avoid impacts to cultural resources during the pump-and-treat project. The map is not available for public distribution based on the Archeological Resource Protection Act of 1979 (16 USC 470hh.a).

1.2 NATIVE AMERICAN CONSULTATION

A summary is provided below of the Native American Tribal Staff's consultation that focused on technical level communications to avoid or minimize impacts to cultural resources in the project area. The submission of this treatment plan will finalize the consultation process.

The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Wanapum People, and the Confederated Tribes and Bands of the Yakama Nation have been informed about the project and the potential for impacts to cultural resources. Information was provided through documents for review, telephone discussions, field tours, and project information meetings that began in September of 1995 once the *Proposed Plan for Interim Remedial Measures at the 100-KR-4 Operable Unit* (DOE, 1994a) and the *100-KR-4 Operable Unit Focused Feasibility Study* (DOE, 1994b) had been transmitted. Tribal representatives participated in the field survey of the project area with ERC Cultural Resources Staff, and have communicated with ERC on a technical level regarding the tribes' recommendations for the project.

The Department of Energy/Richland Office (DOE/RL) and the ERC presented the goals and requirements of the 100-KR-4 Pump-and-Treat System Project at the April 3, 1996, cultural issues' meeting. Subsequent field meetings took place to involve the interested tribes as part of the design team/reviewers, to discuss their concerns, and to solicit their recommendations for alternative designs.

2.0 CULTURAL SENSITIVITY SUMMARY

The 100-KR-4 Pump-and-Treat System project is located in a culturally sensitive location of historic and prehistoric Native American use. The 100-K Area is reported in Click Relander's book, *Drummers and Dreamers*, as the area where a 19th century Wanapum prophet, Smowhala, may have held the first Washat (or Dreamer Dance) (Relander 1986:306). This ceremony became a central feature of the Dreamer (Seven Drums) religion, which spread throughout the interior Northwest and continues to be practiced today. Because of its association with Smowhala and the origins of the Dreamer religion, the area has special significance to the Indian peoples of the Pacific Northwest.

Coyote Rapids, located along the upstream portion of 100-K, was reported as being occupied by the Wanapum in winter because of the abundance of driftwood (Relander 307). Coyote Rapids continued to be an important Wanapum site into the Twentieth Century, and is ethnographically reported as being a village location. In the 1950s, Wanapum elders identified an area on the river terrace as the location of one of several Wanapum cemeteries located within the Hanford Reservation.

The 100-KR-4 Pump-and-Treat System project lies within the Ryegrass Archeological District that is listed on the National Register of Historic Places. During previous surveys by Hanford archaeologists, several concentrations of cultural material in the project area were noted; additional concentrations were recorded during the 1996 inventory. It is evident that there is high potential to adversely impact extremely sensitive cultural resources in the area; therefore, the DOE, under the Section 106 process, proposes to take additional actions and plan protective measures as outlined in this document.

3.0 PROTECTING CULTURAL RESOURCES AND MINIMIZING IMPACTS

Literature reviews and field surveys conducted by the ERC Cultural Resources Staff and technical consultation with tribal representatives formed the bases for the pump-and-treat project team's modification of their design to account for sensitive cultural resources (See Figure 1). This redesign will protect cultural resources through avoidance and minimize impacts when avoidance is not possible.

3.1 PROJECT DESIGN

Following are the key elements of this redesign along with the associated resource protection methods.

3.1.1 Native American Cemetery

At an earlier phase of the project, several activities were planned within the Wanapum cemetery boundary. After conferring with the tribes, the pump-and-treat design was changed to accommodate the requests of tribal members that no new facilities will be constructed within the cemetery or within an area 50 m (164.10 ft) around the marked boundary. The changes to the original design are summarized below:

- Well K-20, which is presently used as a monitoring well, is located inside the boundaries of the ethnographic cemetery. This well was originally identified for use as an extraction well. Accessing the well would have required intensive road traffic. In light of cultural sensitivities, this well is now planned to be used only as a compliance monitoring well. Access to collect groundwater samples will be by foot. A planned extraction well, K119A, was relocated outside the cemetery and buffer zone.
- Compliance monitoring well, C2, was to be originally located within the cemetery boundary. This well has been relocated outside the cemetery boundary and buffer zone; however, construction of this well may not be necessary.
- An abandoned stand pipe, if found suitable, may substitute for monitoring Well C2. This stand pipe is situated on a cobbled shoreline within the cemetery buffer zone. Because of its location at the edge of the buffer zone, access to Well C2 for testing and refurbishment would not impact the cemetery.
- Two locking gates or barricades will be placed 50 m (164.1 ft) beyond the known cemetery boundary so vehicular traffic through the cemetery will be eliminated.

3.1.2 Access Control

The culturally sensitive area of the river terrace is currently open to all Hanford employees. As part of this project the following measures will be taken to improve access control.

- Locking gates will be placed along the four major access routes to the lower terrace of the project area so road traffic through that area can be controlled.
- "Keep Out" or similarly worded signs will be placed along the shoreline.

3.1.3 Upgrade Existing Road and Well-Pad Preparation

Because cultural deposits are anticipated below ground surface, it is imperative that construction and operation activities minimize surface disturbance.

- Well pads and roads will not be grubbed, scraped, or leveled.

- Gravel will be placed directly on the existing ground surface to create/improve road surfaces and well-pad surfaces.
- Areas will be walked prior to construction and surface artifacts mapped in place

3.1.4 Size of Well Pads

Prepared well pads are necessary for a safe working environment both during well drilling and operations. To minimize surface impacts, well pads will be constructed by placing gravel on top of the existing ground surface.

- Injection well pads (located in a non-sensitive area off the river terrace) will remain 30 m by 30 m (100 ft by 100 ft). Extraction and compliance wells pads (located on the river terrace) have been reduced in size to approximately 22.9 m by 22.9 m (75 ft by 75 ft).
- Road width will be minimized as much as possible.
- Archeological test excavations will be conducted in areas designated for drilling. (See Section 3.2.1).

3.1.5 Use of Disturbed Areas

- The treatment facility and two pump stations will be placed in previously disturbed areas.
- Pipe runs will be placed, where possible, along previously disturbed areas. These runs will be placed above ground.

3.1.6 Cultural Sensitivity Briefings

- On-site personnel will be briefed about the requirements for cultural resource protection. They will be informed not to drive off established roads, not to exceed the project boundaries, not to wander unnecessarily within the project area, and to notify the field support lead if any cultural materials are found.

3.2 ACTIONS REQUIRED PRIOR TO CONSTRUCTION

3.2.1 Preconstruction Testing

With the assistance of tribal representatives, test pits (1 by 1 m [3.3 by 3.3 ft]) will be hand excavated by cultural resource specialists to determine the presence or absence of subsurface cultural deposits at locations selected for well drilling. Excavation will be confined to fine sediments; excavations will terminate when cobble strata are encountered. If Register-eligible

artifacts or museum-quality items are found (e.g., temporal diagnostics, Euro-American trade water), consultations with the affected Tribes will be held to determine the appropriate disposition of these items. If no cultural materials are discovered, or if the contents of the pits consist only of isolated artifacts (e.g., lithic flakes, shell fragments, fragmented animal bone, fire-cracked rock) found in unconsolidated sands, these materials will be recorded through limited field analysis (e.g., quantity, lithic type, size, reduction sequence) and returned to the pit in a location that will not be impacted by drilling. The pit will then be backfilled, and an above ground marker will be placed to show the pit location. Well-pad preparation and drilling, at the location of the marker, may begin. The entire process is shown in Figure 3-2.

If cultural features (e.g., house pits, fire hearths, living floors) are encountered in the test pits, excavation will terminate and these features will be left in place. Limited field analysis and documentation of the finds will be conducted. This will include photography, written descriptions, and mapping. The pit will then be backfilled and no further activities will take place in this test pit. A new location within the area selected for well drilling will be tested. Discoveries made after three consecutive attempts to find a suitable location will require that DOE and project engineers make a decision. Alternatives may include, but are not limited to the following: continue testing within the designated area, accept the impact to the cultural resource (excavate and record), or relocate the well pad.

If human remains or funerary objects are discovered in the test pit, the area will be stabilized (i.e., covered and secured) and will not be used for well drilling. Tribal representatives will be notified in accordance with NAGPRA procedures and they will determine the appropriate disposition of these remains.

3.2.2 Road and Well-Pad Preparation

Areas to be used for access roads and well pads will be staked before graveling begins. To the extent possible, areas selected for access roads and well pads will be free of surface cultural materials. A cultural resources specialist shall accompany the field support and design personnel when this staking operation is performed. The specialist will document the presence or absence of cultural material in the existing road bed, proposed access roads, and well pads. Isolated artifacts will be mapped; no collection of artifacts will be conducted. Concentrations of cultural materials, visible on the surface, will be avoided.

3.3 ACTIONS REQUIRED DURING CONSTRUCTION

The entire project area is considered to have some potential for subsurface cultural deposits. Therefore, monitoring has been planned for ground disturbing activities. Monitoring shall be conducted by ERC Cultural Resources Specialists and/or tribal representatives. Four degrees of monitoring will be conducted: continuous – monitoring at all times; occasional – monitoring several times a day; minor – monitoring once a day; and no monitoring. The type of monitoring required will depend on the location and details of the activity being conducted. Anticipated

monitoring requirements for construction activities, based on current project design, are indicated in the Table 3-1.

If inadvertent discoveries are made during construction, the Bechtel Hanford, Inc. (BHI) Field Support Lead will be contacted. Activities in this area will cease until the ERC Cultural Resource Supervisor has been contacted, has assessed the significance of the discovery, has notified the appropriate tribes, and, if necessary, has made arrangements to mitigate the find.

3.3.1 Monitoring Requirements During Operation (10+ years)

Strict access controls will be implemented and maintained during construction and operation. This will limit the amount of vehicle and foot traffic through extremely sensitive cultural resource areas. At least once a month during pump-and-treat operations, a cultural resources specialist will visit the project area. During this visit, the specialist will inspect the roads and well pads to see that protective measures are still in place and will verify that the access control efforts meet expectations and are effective.

Figure 3-2. Preconstruction Testing Process

Table 3-1. Monitoring Plan

RESOURCE AREA CATEGORIES	CONSTRUCTION ACTIVITIES				
	Access Roads	Well Pads	Well Drilling	Pipe Runs & Power Lines	Treatment Facility & Pump Stations
Cemetery	Not Applicable to Project	Not Applicable to Project	Not Applicable to Project	Not Applicable to Project	Not Applicable to Project
Extremely High Potential	Occasional	Continuous - Occasional	Continuous - Occasional	Continuous - Occasional	Not Applicable to Project
High Potential	Occasional	Continuous - Occasional	Continuous - Occasional	Occasional	Occasional
Disturbed	None	Not Applicable to Project	Not Applicable to Project	None	Minor

4.0 RESTORATION AND REVEGETATION

Following the completion of the pump-and-treat system operation, the project area will be restored and revegetated according to the guidelines now being developed in the new vegetation action plan. Key issues specific to this project that will need to be addressed include (1) removing gravel from roads and well pads, and (2) revegetating with native species those areas disturbed by the project's implementation.

5.0 NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 - 3013) and federal regulation 43 CFR 10, require consultation with Native American Tribes when burials and sacred objects are identified during investigative surveys or during construction activities. Prior to permit approvals, the agency (in this case, DOE) must contact the culturally affiliated Indian tribes to inform them of planned activities that may impact burial grounds and to invite them to consult with project personnel and provide recommendations. A plan, describing the agreed upon protective actions, must be prepared and distributed after consultation:

The signed agreement, or the correspondence related to the effort to reach agreements, must constitute proof of consultation as required by these regulations [43 CFR 10.5(f)].

This document, *Treatment Plan For Protection of Cultural Resources for the 100-KR-4 Pump and Treat Project*, serves this purpose for this project. NAGPRA establishes statutory provisions for the treatment of inadvertent discoveries of Native American remains and cultural objects. Specifically, when discoveries are made during ground disturbing activities, the following must take place:

1. All activity in the area of discovery must cease immediately.
2. All reasonable efforts must be made to protect the items discovered.
3. A notice of discovery must be given to the project lead and the appropriate Tribe.
4. A period of 30 days must be set aside following notification for negotiations regarding the appropriate disposition of these items.

6.0 REFERENCES

43 CFR 10, 1995, "Native American Graves Protection and Repatriation Act," *Code of Federal Regulations*, as amended.

DOE-RL, 1994a, *Proposed Plan for Interim Remedial Measures at the 100-KR-4 Operable Unit*, DOE/RL-94-113, Rev. 0, U. S. Department of Energy, Richland Operations Office, Richland Washington.

DOE-RL, 1994b, *100-KR-4 Operable Unit Focused Feasibility Study*, DOE/RL-94-48, Rev. 0, U. S. Department of Energy, Richland Operations Office, Richland Washington.

Relander, Click, 1986, *Drummers and Dreamers*, Pacific Northwest National Forest Association, reprint of the 1956 edition, Seattle, Washington, pp. 306-307.