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Nez Perce

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June 14, 1996

Mr. John Wagoner
Hanford Site Manager
U.S. Department of Energy, Mail Stop A7-50
P.O. Box 550
Richland Washington 99352



Subject: Stabilization of White Bluffs Area for Protection of Locke Island Cultural Resource Sites

Dear Mr. Wagoner,

Since 1855 reserved Nez Perce treaty rights in the Mid-Columbia have been recognized and affirmed through a series of Federal and State actions. These actions protect Nez Perce interests to utilize their usual and accustomed resources in the Columbia River Hanford Reach and elsewhere. The Nez Perce are very interested in any relevant activity that affects these rights.

The Nez Perce Tribe Department of Environmental Restoration and Waste Management (ERWM) participates in Hanford Site Cultural Resource activities. At a meeting on March 28, 1996 lead by Dee Lloyd, we heard presentations indicating an excessive amount of Locke Island is washing away exposing and destroying cultural resource sites. Hanford and Tribal cultural resource people are actively working at the Island to catalog sites before they are destroyed.

Degradation of Locke Island was evident when Nez Perce ERWM staff visited White Bluffs during the week of March 26, 1996 and continued through the most recent visit to the Island on June 12, 1996. Groundwater induced mass movement was taking place on White Bluffs adjacent to Locke Island and this mass movement was encroaching on the Columbia River. The document entitled, *Hanford Reach of the Columbia River, Comprehensive River Conservation Study and Environmental Impact Statement, FINAL - June 1994, Volume I*, recognizes the slope stability problems of White Bluffs on page 70. Channel narrowing due to this condition has caused erosion on the east bank of Locke Island at a rate of up to 10 meters per two week period. These problems are exacerbated by high runoff in the Columbia River this season. At this rate it won't take long to lose the entire east side of the Island and the cultural resources there. It is also a major

concern that destruction is occurring by siltation of Salmon spawning areas in the River caused by this erosion.

We realize slope stability problems adjacent to Locke Island are not caused by DOE activity and to achieve a solution to this problem within your agency is beyond our expectation. We request, however, DOE help negotiating with other agencies with responsibility for water control adjacent to the Hanford site. This help may allow NEPA process activity and the eventual mitigation of slope stability problems at White Bluffs.

In this letter, the slope stability problem is outlined with some possible mitigation remedies. Evidence of mass movement can be found along the River below White Bluffs. Along the northeast shore of the River, opposite the Island, broken, partly saturated blocks of soil constituting the toe area of a mass movement from White Bluffs encroaches the River. This movement is forcing channel narrowing between the shore of the River and Locke Island eroding both. As the River shore erodes, weight is removed from the toe of the soil mass, encouraging further mass movement.

The movement is caused by excess water percolating into the soil on top of the plateau north or east of White Bluffs. The soil moisture decreases formation strength, at the same time increasing formation weight, causing a prime environment for slope instability.

Our recommendation is that steps be taken to assess and mitigate the slope instability to protect the remaining cultural resource sites on Locke Island and the Salmon spawning beds. A summary of possible remedial actions are provided with this letter. Even if action is taken immediately it may take years for mitigation to reduce moisture in White Bluffs arresting further movement into the River. Some possible options for protecting Locke Island are:

Option A: Curtailing water infiltration on the Plateau above White Bluffs.

This remediation plan will involve strictly controlling water infiltration above White Bluffs slope. A study of water infiltration on the plateau will be necessary. Any water draining from agricultural areas to above White Bluffs will have to be controlled. Water transport should be confined to pipelines or cement ditches to minimize soil infiltration. This action is considered a positive alternative by ERWM.

Option B: Installing drainage wells above White Bluffs.

Drainage wells could be installed starting several 100 meters east from the top of White Bluffs. Perched groundwater pumped from these wells could be directed by pipeline into the Columbia River. This action, if properly installed, would intercept perched groundwater before causing further slope destabilization. Wells would need to be close together for this alternative to be practical. Power would also be needed at well locations.

Option C: Installing a drain below White Bluffs.

This alternative would involve draining water from saturated loose soil at the base of White Bluffs before soil liquefaction causes further movement into the River. This action is feasible except the soil is unstable and equipment access would be difficult. This alternative would not protect the bluffs, just the River and Island.

Option D: Riprap the east side of Locke Island.

Riprap placed along the east edge of Locke Island would immediately provide protection of Locke Island cultural resources. This activity may not be considered due to possible equipment damage and lack of ability to access Locke Island.

Option E: Water Barrier installations

Water barriers could be placed upstream of Locke Island directing water normally in the channel east of Locke Island to the channel west of Locke Island. A water barrier could also be placed upstream of the Island to direct water away from the east bank of the Island toward the east bank of the River. These are probably not acceptable alternatives because of potential damage also.

Our alternatives for handling these situations involves a two fold approach. Excavating drains on top of the White Bluffs plateau and piping perched water out of the area and into the River (Option A). And, Option C, including draining water from below the face of White Bluffs.

The Nez Tribe ERWM asks for cooperation from DOE on this issue. You will be contacted by the Nez Perce ERWM to discuss alternatives for initiating the NEPA process to stabilize White Bluffs and protect Locke Island. We request you direct appropriate DOE personnel to help us implement these actions. The moratorium on

construction in the Hanford Reach is coming to a close making it time to consider these activities. We will also be soliciting assistance from the other Tribes on this subject.

Please contact Mr. Paul Danielson or Mr. Joseph Fitch at the Nez Perce Tribe ERWM office at (208) 843-7375, if you have questions, or if we can be of any assistance.

Respectfully submitted,

Stanley M. Polakoff for D.L.A.

Donna L. Powauke

Manager Nez Perce Tribe ERWM

cc: Mr. J.R. Wilkinson, CTUIR
Mr. Russell Jim, YIN
Mr. Kevin Clarke, DOE Indian Programs Manager

**RL COMMITMENT
CONTROL**

JUN 17 1996

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