DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

CENWS-PM-PL-ER

Chief Joseph Dam Dissolved Gas Abatement Project
Douglas and Okanogan Counties, Washington

Final Supplemental Finding of No Significant Impact

Background.
As a result of spill over the dams, operation of the Federal Columbia River Power System can generate high levels of total dissolved gas (TDG), usually resulting in supersaturated conditions. Supersaturated water can cause gas bubble disease in aquatic organisms, which is harmful or fatal.

Current state and federal water quality standards for TDG concentrations are a maximum 110 percent saturation except when stream flow exceeds a 7-day average, 10-year flood event. The TDG levels downstream of Chief Joseph Dam (CJD) frequently exceed this standard, and high levels of TDG persist throughout the Mid-Columbia River. In an effort to reduce TDG in the Mid-Columbia River and its harmful effects on listed species, the National Marine Fisheries Service (NMFS) 2000 Biological Opinion (BiOp) regarding the effects of operation of the Federal Columbia River Power System (FCRPS) required that the U.S. Army Corps of Engineers (Corps) install flow deflectors on the spillway of CJD. That BiOp has been superseded as of November 30, 2004, by a new FCRPS BiOp from NMFS. The continuation of this action is documented in Section 5.3.1 of Appendix A of the Updated Proposed Action, which was prepared by the Corps, Bonneville Power Administration, and US Bureau of Reclamation, and incorporated in the 2004 BiOp.

Purpose and Need.
The purpose of the proposed project is to provide a mechanism to minimize the harmful effects of spilling water at CJD (Douglas and Okanogan Counties, Washington) on the Columbia River. The preferred alternative should result in TDG levels that meet a regional maximum objective of 120%. The purpose of the proposed actions evaluated in the supplemental National Environmental Policy Act (NEPA) document is to support the overall project purpose, and to mitigate structural effects of operation of the flow deflectors.

The proposed actions documented in the referenced Environmental Assessment (EA) are needed to provide erosion protection for the right bank[1], create staging areas for contractor and Corps use, and enable the establishment of a concrete batch plant at CJD. These site preparation

[1] Right and left bank designations refer to viewing the river in a downstream direction.

actions are necessary to support the installation of the flow deflectors at CJD. Information regarding the purpose and need for the installation of the flow deflectors can be found in the Chief Joseph Dam Dissolved Gas Abatement Project Final EA dated June 2000 (Corps, 2000).

Proposed Action (Preferred Alternative)
The preferred alternative consists of the following elements:

1. Replacing the bank armor riprap in a small, eroded embayment at the end of the right bank training wall immediately below the spillway to fill in the embayment and to reduce the slope angle of the over-steepened existing bank armoring;
2. Establishment of a temporary barge staging and loading area on the left bank near the existing warehouse;
3. Establishment of a small upland staging area for placement of construction trailers on the left bank immediately below the dam in the area of the warehouse and commons buildings;
4. Establishment of a large upland staging area above the right bank near the dam, in an area previously used for staging during the original construction of CJD and during the pool raising structural modifications contract. A concrete batch plant to support the flow deflector construction will probably be established on the right bank staging area.
5. Paving of a portion of the right bank just below the dam, and installation of a fence and guardrail to mitigate the effects of additional spray resulting from the presence of the flow deflectors.

Summary of Impacts.
Pursuant to the National Environmental Policy Act, an EA has been prepared for the proposed work. This document describes the environmental consequences of the proposed work, which are briefly summarized below.

Establishment of the on-site batch plant and associated truck trips may result in elevated levels of dust and other particulate matter. However, the increase in dust and particulate matter is not expected to significantly impact air quality in the project vicinity because numerous best management practices (BMPs) will be implemented to mitigate dust generation.

Placement of the armor rock on the right bank, driving pilings for the temporary pier or placing fill to create a temporary boat ramp, and barge operations in the near-shore area may cause short term, temporary increases in turbidity and associated decreases in water quality. The magnitude and duration of the turbidity is expected to be minor. Turbidity levels are expected to rapidly return to baseline conditions upon completion of the activities.

In general, as stated in the 2000 EA, the gas abatement project will improve dissolved gas conditions in the river at times when CJD must spill, and the supporting actions outlined herein will help ensure that occurs.

If treated wood is used to build a temporary pier and over water structures, there may be a minor increase in sediment contaminant levels near the installation site.

There will be some disruptions to the Colville Confederated Tribes (CCT) fishery as a result of the project implementation. However, the impacts are expected to be minor and temporary in duration, and the Corps is working closely with the CCT to maintain fishing access to the greatest extent possible while maintaining a safe environment. The CCT is supportive of the dissolved gas abatement project and associated actions.

Finally, there will be minor and temporary disruptions to recreation opportunities in the project vicinity as a result of construction activities.

No significant adverse impacts to water quality, fish and wildlife habitat, air quality, noise, aesthetics, historical resources, cultural resources, or the social or economic environment are anticipated as a result of the project.

Finding.
Based on the analysis detailed in the Environmental Assessment (attached), this project is not considered a major Federal action significantly affecting the quality of the human environment and does not require preparation of an environmental impact statement.

6 Jan 05
Date

Debra M. Lewis
Colonel, Corps of Engineers
District Engineer

CHIEF JOSEPH DAM

DISSOLVED GAS ABATEMENT PROJECT

FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

January 2005

US Army Corps of Engineers®
Seattle District

Chief Joseph Dam Dissolved Gas Abatement Project
Final Supplemental Environmental Assessment and Finding of No Significant Impact

January 2005

Responsible Agencies: The responsible agency for this project is the Seattle District, U.S. Army Corps of Engineers.

Summary:
In 2000, the United States (U.S.) Army Corps of Engineers (Corps) completed an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA) for installation of flow deflectors at Chief Joseph Dam on the Columbia River in Washington. This EA is prepared as a supplement to document further available and necessary information.

The Corps proposes to perform the following actions in support of the installation of flow deflectors at Chief Joseph Dam (CJD): re-armor the right (north)[1] bank below Chief Joseph Dam to provide erosion protection for the right bank, create staging areas for contractor and Corps use, enable the establishment of a concrete batch plant at CJD, and pave a portion of the right bank just below the dam to mitigate the effects of additional spray resulting from the presence of the flow deflectors, as well as install a fence and guardrail.

The Corps proposes to replace the bank armor riprap in a small, eroded embayment at the end of the right bank training wall immediately below the spillway to fill in the embayment and to reduce the slope angle of the over-steepened existing bank armoring. Material would consist of approximately 3,000 CY of class V riprap and 5,000 CY of 6-ton derrick stone, to be placed on a 2.5:1 slope along approximately 220 lineal feet of shoreline starting behind the end of the training wall. The toe of the slope would extend minimally, if at all, beyond the alignment of the training wall, and will lie in the original design footprint.

In addition, the Corps proposes to set up an upland construction staging area above the right bank near the dam, in an area previously used for staging during the original construction of CJD and during the pool raising structural modifications contract. A concrete batch plant to support the flow deflector construction will probably be established on the right bank staging area. There will also be a small upland staging area established on the left bank immediately below the dam in the area of the warehouse and commons buildings for construction trailers.

Finally, the Corps has identified a temporary barge staging and loading area on the left bank near the existing warehouse. A temporary pier or a boat ramp will be necessary to load personnel, equipment, and materials on workboats and barges. If a temporary pier is built, Corps engineers estimate that it will be approximately 12 to 15 feet wide and 60 feet long. The length of the pier or the width and depth of the boat ramp will depend on the tailwater depth and the draft of the barge used.

[1] Right and left bank designations refer to viewing the river in a downstream direction.

In addition to these actions, it is possible that the Corps will choose a different flow deflector construction method as an alternative to the cast-in-place method described in the 2000 EA. Those methods are described herein.

There is also water quality information added concerning spill during the overall construction time frame, in relation to the addition and availability of flow deflectors over time.

The official comment period for the Supplemental EA was September 20, 2004 to October 20, 2004.

Please send comments, questions, and requests for additional information to:
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1.0 INTRODUCTION

In 2000, an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) (Corps, 2000a) were written by the U.S. Army Corps of Engineers, Seattle District (Corps) for construction and operation of proposed flow deflectors at Chief Joseph Dam (CJD) on the Columbia River in Douglas and Okanogan Counties, Washington. This supplement is being prepared pursuant to the National Environmental Policy Act (NEPA) Sec. 102(2)(c), to address details of necessary work pursuant to the flow deflector construction that were not fully known at the time of the earlier EA/FONSI. It incorporates by reference all applicable information contained in the 2000 EA.

This document is intended to meet procedural and documentation requirements of NEPA, the Council on Environmental Quality (CEQ) rules (40 CFR 1500-1508), and US Army Corps of Engineers implementing regulations (ER 200-2-2).

The spillway deflectors and their construction are described in the 2000 EA; some effects of that work are discussed in this document where appropriate. In the 2000 EA, the term "cofferdam" was used to describe the structure to be used to dewater the deflector construction sites on the face of the dam spillway. For accuracy, the "cofferdam" will hereinafter be referred to as the dewatering caisson.

2.0 PURPOSE AND NEED

The purpose of the proposed gas abatement project is to provide a mechanism to minimize the harmful effects of spilling water at Chief Joseph Dam (Douglas and Okanogan Counties, Washington) and Grand Coulee Dam (Grant County) on the Columbia River to the extent economically, technically, and biologically feasible. The preferred alternative should result in total dissolved gas (TDG) levels that meet a regional maximum objective of 120%.

The purpose of the proposed actions evaluated in this supplemental NEPA document is to support the overall gas abatement project, and to mitigate structural effects of operation of the flow deflectors.

The proposed actions documented in this EA are needed to provide erosion protection for the right bank, create staging areas for contractor and Corps use, provide specialty concrete for the flow deflectors, and ensure public safety. These site preparation actions are necessary to support the installation of the flow deflectors at CJD. Information regarding the purpose and need for the installation of the flow deflectors can be found in the Chief Joseph Dam Dissolved Gas Abatement Project Final EA dated June 2000 (Corps, 2000a).

The right (north) bank armor has eroded over the years, probably as a result of uneven spillway operation and/or a standard project flood. The right bank must be protected against high velocities, turbulence, waves, and spray that can cause erosion in order to prevent material from being entrained into the flow and pulled into the stilling basin as well as to prevent further

undermining of the bank. If more of the right bank protective riprap is eroded, the fine glacial till materials will be exposed and will erode, undermining the stability of the bank. If there is sufficient erosion, the potential exists for the right bank to unravel, threatening the integrity of the dam. The proposed armoring lies within the original design footprint from the construction of the dam.

In addition, a vertical circulation cell that will be set up by the presence of skimming flow from the flow deflectors has the potential to pull large material into the stilling basin from a great distance away. It is likely that if the right bank is not armored with larger rock to prevent further erosion, material will be pulled from it over the end sill into the stilling basin where it can cause intense erosion of the apron. At Lower Monumental Dam on the Snake River in Washington, material greater than 24-inch diameter was pulled into the stilling basin from greater than 200 ft. downstream. It resulted in damage to the stilling basin that required placing 3,000 cubic yards (CY) of concrete to repair it. Therefore, it is essential to re-establish a stable slope and to reduce the chance of smaller stones being dislodged and becoming a source for material to be pulled up onto the stilling basin apron.

Staging areas are required to support the construction.

Moreover, a local source of specialty concrete is needed. Concrete for the flow deflectors will need to be a controlled-heat-of-hydration concrete to reduce the potential for cracking and separation. For the lower portion of the deflector, a standard concrete mix with a lower compressive strength will be utilized. However, the upper portion of the deflector requires a specialty higher strength concrete mix that is fiber-reinforced and contains flyash.

After the installation of the flow deflectors, there will be additional spray on the bank that may contribute to bank instability as well as pose a public safety hazard. Paving the right bank will allow water to sheet flow down to the larger riprap on the lower bank where it can drain back to the river. As described earlier, the native material of the right bank beneath the existing riprap is fine glacial till that is subject to erosion if exposed to an excessive amount of water. At the time of the dam construction, the riprap on the bank was sufficient protection. However, irrigation activities on the plateau above the right bank have increased the water flow through the hillside, contributing to potential instability. With increased spray on the right bank as a result of the flow deflector installation, it is necessary to minimize the additional flow of water through the hillside to protect the bank. Finally, it is necessary to ensure public safety. In spill events, there will be a significant amount of water spraying on the bank, reducing visibility and creating slippery conditions.

The proposed project was undertaken in support of the National Marine Fisheries Service (NMFS, now also called NOAA Fisheries) Federal Columbia River Power System (FCRPS) December 2000 Biological Opinion (BiOp), reasonable and prudent alternative (RPA) Action number 136. That BiOp has been superseded as of November 30, 2004, by a new FCRPS BiOp from NMFS. The continuation of this action is documented in Section 5.3.1 of Appendix A of the Updated Proposed Action, which was prepared by the Corps, Bonneville Power Administration, and US Bureau of Reclamation, and incorporated in the 2004 BiOp.

3.0 PROJECT AREA DESCRIPTION

The project area is the Columbia River from Lake Roosevelt (Grand Coulee reservoir) through Grand Coulee Dam, Lake Rufus Woods (Chief Joseph Dam reservoir), Chief Joseph Dam, Lake Pateros (Wells Dam reservoir), and downstream to Priest Rapids Dam, because, as was discussed in the 2000 EA, effects are not expected below Priest Rapids (river mile 397). This document will refer to the river below Chief Joseph Dam as the mid-Columbia by generally accepted usage, although reference to stocks of steelhead and Chinook salmon below the dam in this part of the river includes use of the term Upper Columbia Evolutionarily Significant Unit (ESU).

Figures 1 and 2 show the area in the local vicinity of the dam, with locations of the work discussed in this Environmental Assessment, and areas potentially impacted.

4.0 ALTERNATIVES

4.1. No Action

NEPA requires each EA include an analysis of the "no-action" alternative, against which the effects of "action" alternative(s) can be compared and evaluated. Under the no-action alternative, site preparation actions would not occur.

The no-action alternative does not meet the project purpose and need. Without conducting the site preparation actions, it will not be possible to successfully conduct the installation of the flow deflectors as required by NOAA Fisheries' 2004 FCRPS BiOp.

4.2. Preferred Alternative

4.2.1. Right Bank Armoring

The Corps proposes to replace the bank armor riprap in a small, eroded embayment at the end of the right (north) bank training wall immediately below the spillway to fill in the embayment and to reduce the slope angle of the over-steepened existing bank armoring (Figures 3 and 4). Material would consist of approximately 3,000 CY of class V riprap and 5,000 CY of 6-ton derrick stone, to be placed on a 2.5 horizontal (H) to 1 vertical (V) slope along approximately 220 lineal feet of shoreline starting behind the end of the training wall (Figure 5). The toe of the slope would extend minimally, if at all, beyond the alignment of the training wall. The riprap placement will lie in the original design footprint. Rock would be placed individually in the water, probably using an excavator or crane on the right bank.

As-built drawings indicate that the original riprap was capped with 5-ton derrick stone (Figures 6 and 7). Photos from the 1950's following dam construction confirm the embayment did not exist

in the early years after the dam construction. Riprap size and gradations for replacement of the existing riprap were determined using USACE hydraulic design guidance for riprap downstream of stilling basins (HDC 712-1). Riprap was sized to withstand the projected standard project flood of 500,000 cubic feet per second (cfs) requiring 6-ton derrick stone.

In order to access the riverbank, it will be necessary to ramp down to the water's edge. The ramp will be constructed on the existing slope starting from the lower, gravel paved access road approximately 250 linear feet downstream of the downstream end of the erosion. The ramp will be approximately 12 feet wide, and will have a 1.5H:1V slope (Figure 5). The ramp will be constructed out of class V riprap (approximately 27" minus rock) and surfaced with an approximate six-inch lift of three-inch minus crushed gravel for driveability. The ramp will terminate at the water's edge where a construction work pad will be placed around the edge of the erosion upstream to the training wall. The work pad will be about 15 feet wide and will have a slope of approximately 1.75H:1V (Figure 5). The replacement armoring (6-ton derrick stone) will be placed on the existing over steepened slope from the work pad. The work pad will be regraded as the construction progresses downstream so as to leave a uniform thickness of armor rock.

The right bank repair should occur before the flow deflector installation begins. The Corps plans to begin this work in February 2005. The right bank armoring will take a total of 4 to 6 weeks. The duration of the in-water work will be approximately 1 to 4 weeks.

4.2.2. Left Bank Temporary Barge Staging and Loading Area

The Corps has identified a temporary barge staging and loading area on the left bank near the existing warehouse approximately 600 feet downstream from the confluence of Foster Creek (Figures 8, 9, and 10). The right bank is generally too high and steep for a suitable location for water access. The left bank in the vicinity of the warehouse is low, and the approach to the river relatively flat.

To create the barge landing and loading area, it will be necessary to ramp down to the water's edge with a road and install a temporary pier/floating dock or boat ramp. Construction of an access road to the bank and a temporary pier/floating dock or boat ramp will be necessary to load personnel, equipment, and materials on workboats and barges. If a pier is built, Corps' engineers estimate that the pier will be approximately 12 to 15 feet wide and 60 feet long. The length of the pier will depend on the tailwater depth and the draft of the barge used. The contractor may elect to build the pier from treated wood, untreated wood, plastic, concrete, steel or other metal, or a combination of these materials. The pier will likely attach to a concrete abutment on the land that transitions to the access road. The access road will probably be comprised of gravel and other fill material. If the channel bottom in this area is bedrock, it may not be possible to sink pilings for the installation of a pier. In this case, the contractor may instead create a temporary barge access by placing large riprap below the ordinary high water mark as a continuance of the access ramp. The riprap would be removed at the completion of the construction project, returning the channel and bank to its pre-project condition.

4.2.3. Establishment of Staging Areas on Right Bank and Left Banks

The Corps proposes to set up an upland construction staging area above the right bank near the dam, in an area previously used for staging during the original construction of CJD and during the pool raising structural modifications contract (Figures 1, 2, 11, and 12). The proposed staging area is relatively flat. There will also be a small upland staging area established on the left bank in the area of the warehouse/commons for a Corps construction trailer and possibly that of the contractor. This staging area is shared space for the Chief Joseph Dam Project and other contractors. Space is limited.

The primary staging area will most likely be the high ground on the right bank just to the north of the CJD axis. This site is large, perhaps 40 to 50 acres, and was also used as a staging area during the original construction of CJD. This site is the closest to the gas abatement deflector construction site at the CJD spillway. Concrete trucks from a batch plant that may be located at this site could run directly from the staging area to the CJD spillway along the right abutment access road without encountering public traffic on Half Sun Way. Trucks bringing materials to this staging area would have to use Half Sun Way for access to the site.

The contractor will need to run power, water, and phone lines to the site. This will entail laying water lines and either underground or aerial power lines. The contractor may choose to truck in potable water. The Corps is coordinating with the Washington Department of Ecology and the Colville Confederated Tribes for obtaining a temporary water use permit for the operation of the batch plant.

The left bank staging area is small and is located near the commons (Figure 13). Power and water are available at the site. The site is too small for use as a construction staging area, but it is a good location for the contractor's and the Corps' administrative offices. The contractor would share the limited space with CJD project personnel and other contractors.

Finally, an area that extends approximately 370 feet from the face of the dam on the right bank will be fenced off for contractor use during the flow deflector construction (Figure 14). The space is needed for a truck turnaround and for the settling basins for the dewatering system. Fishing access along the training wall will be maintained by installing a permanent metal stairway down the right bank that enables members of the public to traverse the riprap down to the training wall. However, fishing may be periodically restricted within 75 feet of the dam along the training walls on both the right and left banks for safety reasons while the contractor loads and unloads materials for the flow deflector construction.

Other potential staging area improvements include work on the access roads, bollard protection for existing piezometers, grading, drainage, and widened turning areas.

4.2.4. Construct a Concrete Batch Plant On-Site

The contractor will most likely construct a concrete batch plant above the right bank in one of the proposed staging areas. Raw materials would be transported in from the closest practicable

sources, and mixed concrete would be transported from the batch plant to the top of the spillway for deflector construction. The batch plant will cover several acres (3+).

Temporary batch plant facilities typically consist of silos containing fly ash, lime, and cement; heated tanks of liquid asphalt; sand and gravel material storage areas; mixing equipment; above ground storage tanks containing concrete additives and water; and designated areas for sand and gravel truck unloading, concrete truck loading, and concrete truck washout.

4.2.5. Right Bank Spray Mitigation

The Corps proposes to pave a small area on the right bank just below the dam and behind the training wall (Figure 15). In addition, a seven-foot chain link fence and guardrail (or permanent jersey barriers) may be installed at the top of bank at the edge of the parking/picnic area. The fence and guard rail would extend from where the guardrail ends now along the top of the bank to where the ground surface is level with the stairs on the training wall, which is about 50 feet short of the training wall. As described earlier, a permanent metal stairway will be installed to maintain fishing access along the right bank training wall.

4.2.6. Concrete Cast-In-Place Flow Deflectors

The Corps proposes to construct the flow deflectors from concrete that will be cast in place. Each spillbay will be isolated using dewatering caissons as described in the 2000 EA. To form the deflector and to ensure that it is flush with the face of the dam, some concrete will need to be chipped from the sloping face of the dam to create a smooth, vertical surface.

4.3. Pre-Cast Concrete Deflectors or Stainless Steel Deflectors

As an alternative to casting deflectors in place, the Corps is also considering the use of pre-cast concrete flow deflectors or the use of stainless steel flow deflectors. Using pre-cast concrete deflectors would necessitate reshaping the dam ogee to accommodate the sloped face of the dam, requiring additional, extensive hydraulic modeling to ensure dam safety. The use of stainless steel to create the flow deflectors is a novel and innovative idea which might save considerable cost, but would require extensive research and development to pursue. If either of these alternatives is pursued, the environmental impacts of the project will be similar or less than those described herein or in the 2000 EA. At this time, the Corps is continuing with the flow deflector design using cast-in-place concrete.

4.4. Alternatives Considered But Eliminated From Further Analysis

Several alternatives were considered and eliminated because they failed to meet one or more of the project needs. These alternatives, and the reasons they were rejected, are described briefly

below. Because they were rejected early in the design process, these alternatives are not evaluated in detail in subsequent sections of this document.

4.4.1. Extend The Right Bank Training Wall

Extending the right bank training wall would be an effective way to armor the right bank slope, but it would be much more expensive than flattening the riprap toe slope and replacing the eroded riprap. Excavating to rock and dewatering for the foundations for the extended wall would impact a much larger area in the river during construction, but its footprint in the river after construction would be similar to flattening the riprap toe or replacing the eroded riprap. There would be water quality issues not associated with the preferred alternative (armoring with derrick stone) because of the need to do extensive in-water work to place a cofferdam in which to construct the wall. There are also uncertainties regarding foundation requirements and construction methods at this time.

This alternative was discarded because it is not a cost effective way to protect the right bank, and the environmental impacts associated with the extension would be much greater than those associated with the rock armoring.

4.4.2. Extend The Toe Of The Existing Riprap Armor Beyond Original Footprint

The existing slope is steeper than designed and potentially unstable. Heavier spills at CJD expected after the spill tradeoff with Grand Coulee Dam may increase the potential for additional steepening of the toe of the riprap armoring, accelerating the slope failure. Erosion of the right bank riprap must be prevented to ensure that loose material is not available to be entrained into the stilling basin by deflector-induced re-circulating flows. Flattening the slope of the toe with additional riprap beyond the original footprint is unnecessary, and would result in regulatory issues by going beyond repair of an existing structure, as well as additional, unnecessary impacts.

4.4.3. Routine Use of the City of Bridgeport Boat Ramp For Project Construction in Lieu Of Establishing a Temporary Pier at CJD

A public boat ramp is located in the City of Bridgeport park on the south side of the Columbia River approximately 3 miles downstream from the construction site at CJD. This ramp will probably be utilized for the initial and seasonal launching and removal of workboats and barges. The dewatering caissons required to provide a dry work area around the flow deflectors may also be launched from this site. However, this boat ramp is too far away for the frequent water access to the construction site that will be required to transport personnel, equipment, and materials. In addition, utilizing the boat ramp for frequent access would require constructing a temporary floating dock and result in unacceptable construction traffic though the park and the City of Bridgeport.

4.4.4. Establish A Staging Area Above the Right Bank South of Half Sun Way

This site is larger than the site by Highway 17, but smaller than the site just north of the CJD spillway. It was also previously used as a staging area during the original construction of CJD. Water and power may be available at the site. Concrete trucks from a batch plant located at the site would have to use Half Sun Way to reach the CJD spillway. Current uses of the site include a system of nature trails, wildlife mitigation areas, and a visitor's center. It is also the location for a proposed Colville Confederated Tribes fish hatchery. This location was rejected as a potential staging area in light of the negative impacts that it would have on the recreational activities in the area and the wildlife mitigation areas.

4.4.5. Use of Off-Site Concrete Batch Plants

The nearest concrete plant is located in Brewster, WA, about 15 minutes from the dam. It is unlikely that it will be able to produce the specialty concrete that is necessary for the top of the flow deflectors. The desired concrete for the flow deflectors will need to be a controlled-heat-of-hydration concrete to reduce the potential for cracking and separation. For the lower portion of the deflector, a standard concrete mix with a lower compressive strength will be utilized. However, the upper portion of the deflector will be constructed of specialty fiber-reinforced concrete using a higher strength concrete that contains flyash. Approximately 4,500 cubic yards of concrete will be necessary for the flow deflectors. The nearest concrete plants that could produce the specialty concrete are in Omak, Okanogan, or Chelan. Travel time from these locations is excessive. Coming from these distances, the concrete would be too old, compromising its quality and integrity.

5.0 AFFECTED ENVIRONMENT

Generally, the affected environment was described in the earlier EA, and that documentation is hereby incorporated by reference. Additional pertinent details are provided in the following sections.

5.1. Physical and Geologic Environment

Flow along the right bank during spillway use creates an eddy that has gradually eroded the armor rock from behind the end of the concrete training wall that extends downstream from the spillway (Figures 3 and 4). Aerial photographs document this phenomenon, which dates back to the 1950s. Use of the first spillway bay along the right bank has generally been avoided, possibly contributing to the eddying condition.

Some rock debris has been observed in underwater surveys of the concrete stilling apron below and adjacent to the spillway. Some of the rock may have originated from the erosion of smaller rock from the right bank armoring as a result of the localized eddying described in the previous

paragraph. Some of the debris may be a result of back currents along the bottom, created during spill, carrying small rocks from downstream of the apron.

5.2. Water Quality

The Washington Department of Ecology (Ecology) and the Colville Confederated Tribes (CCT) determine water quality criteria for the Columbia River at Chief Joseph Dam. In general, the water quality in the Columbia river above and below the project is good with periodic exceedances of Ecology and CCT criteria occurring for temperature and total dissolved gas (Corps 2004). Based on these periodic violations, Ecology placed the Columbia River above and below Chief Joseph Dam in 2002/2004 Category 5 (polluted waters that require a TMDL) TMDL list for temperature and TDG.

Ecology has classified the Columbia River above and below Chief Joseph Dam as a salmon and trout spawning non-core rearing and migration aquatic life use water body, while the CCT has classified the Columbia River as a Class I water body above Chief Joseph Dam and a Class II water body below the dam. Water quality standards for TDG and temperature for Chief Joseph Dam are presented in Table 1. At Chief Joseph Dam, the State of Washington and the CCT have a similar TDG maximum standard of 110%. However, Washington allows exceedance of the 110% TDG criterion to facilitate fish passage spills as shown in Table 1. For example, Chief Joseph Dam was granted a TDG water quality criteria waiver by Ecology for the 2003 spill season for the purpose of managing system spill for improved fish conditions. In addition, the TDG criterion established by Washington State and the Colville Tribe does not apply to flows above the seven-day, ten-year frequency (7Q10) flood flow of 222 kcfs.

Table 1. Washington Department of Ecology (Ecology) and Colville Confederated Tribes (CCT) water quality standards for Total Dissolved Gas and Temperature.

Parameter/Project	Regulator	Standard
Total Dissolved Gas		
Chief Joseph Dam	Ecology	Shall not exceed 110% of saturation at any point of sample collection, except during spill season for fish passage in which total dissolved gas shall be measured as follows: (1) Must not exceed an average of 115% as measured in the forebay of the next downstream dam. (2) Must not exceed an average of 120% as measured in the tailrace of each dam; TDG is measured as an average of the 12 highest consecutive hourly readings in any one day, relative to atmospheric pressure. (3) A maximum TDG one-hour average of 125% as measured in the tailrace must not be exceeded during spillage for fish passage.

	CCT	Shall not exceed 110% of saturation at any point of sample collection.
Temperature		
Chief Joseph Dam	Ecology	Measured by the 7-day average of the daily maximum temperatures. Shall not exceed 17.5°C. When temperature exceeds the criteria or is within 0.3°C of the criteria, and the condition is due to natural conditions, then human actions may not cause an increase of more than 0.3°C.
	CCT	Class I: Shall not exceed 16.0°C due to human activities. When natural conditions exceed 16.0°C, no temperature increase will be allowed which will raise the receiving water by greater than 0.3°C. Class II: Shall not exceed 18.0°C due to human activities. When natural conditions exceed 16.0°C, no temperature increase will be allowed which will raise the receiving water by greater than 0.3°C.

5.3. Social/Economic

5.3.1. Treaty Fishing Access for Colville Confederated Tribes

Members of the CCT make regular use of access areas immediately below the dam on both sides of the river for hook and line fishing. Please see figures 2, 16, and 17 for fishing access areas on the left (south) (Figures16 and 17) and right (north) (Figure 2) banks. The CCT fishers primarily target summer/fall Chinook[2] salmon for ceremonial and subsistence purposes. Primary fishing time is July through September. The 10-year average harvest is 500 summer Chinook and 130 steelhead (630 total fish) (Pakootas, 2002). The area that would be armored on the right bank is part of the tribal fishing area. Other fishing areas may be affected also during the construction of the spillway deflectors.

5.3.2. Cultural Resources

The Chief Joseph Dam project has over 150 prehistoric archaeological sites, many of them contributing to the significance of the Rufus Woods Lake Archaeological District (RWLD), which was determined eligible for the National Register of Historic Places (NRHP) in 1978. A search of the NRHP, the Washington Office of Archaeology and Historic Preservation (OAHP) electonic historic database, and inspection of other background materials confirmed that the gas abatement project's area of potential effects ("APE") does not include the RWLD or any known prehistoric or historic archaeological sites or other potential historic properties. Corps archaeologists and archaeological contractors have inventoried the APE on several occasions over the past 20 years, but have found no evidence of cultural resources. Field inspection and a sequence of historical aerial photographs show that the proposed contractor staging area above the right bank is disturbed to considerable depth by grading and filling from use of that area by

[2] Note that the word “Chinook” as it refers to salmon has been capitalized since the 2000 EA.

previous activity. The right training wall, barge access mooring area, and alternate proposed contractor staging areas are all in graded and/or filled locations (Figure 18) No historic properties are recorded at the boat ramp in the City of Bridgeport, WA. Although some historic foundations are near the city of Bridgeport boat launch ramp barge deployment site, the proposed barge launching there would not affect them, and they are not listed on either the State or National Register of Historic Properties.

5.4. Recreation and Other Public Use

Public recreational use occurs near the proposed staging area, though it is not developed specifically for that purpose. An alternate area nearby to the west is located such that public road use would be affected.

There are trails in the immediate vicinity of the staging areas above the right bank. These are used by the general public for recreation, and are paved for light use (Figure 2).

6.0 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The effects of the proposed actions are compared against the baseline conditions associated with the no-action alternative. Unless otherwise indicated in the following discussion of environmental effects, the no-action alternative will not affect climate and air quality, physical and geologic environment, water quality, sediment, biological resources, cultural resources, or recreational and public use at the project site.

6.1. Climate and Air Quality

Establishment of the on-site batch plant may result in elevated levels of dust and other particulate matter. Most dust emissions occur during the unloading and conveying of concrete and aggregates and during the loading of concrete mixes. Traffic, including trucks hauling aggregate, concrete, and other supplies may also generate dust as they pass over unpaved or dusty surfaces in and around the plant. Aggregate stockpiles are another potential source of dust.

The significance of impacts to air quality is based on federal, state, and local pollution regulations or standards. Air quality impacts from a proposed activity or action would be significant if they :

- increase ambient air pollution concentrations above any National Amient Air Quality Standards (NAAQS);
- contribute to an existing violation of any NAAQS;
- interfere with or delay timely attainment of NAAQS; or
- impair visibility within any federally mandated Class I area.

The area is in attainment or is unclassified for all air pollutants. According to the U.S. Environmental Protection Agency's General Conformity Rule in Section 40, CFR Chapter 51

(§40 CFR 51), Subpart W, any proposed federal action that has the potential to cause violations, as described above, in a nonattainment or maintenance area must undergo a conformity analysis. Since Chief Joseph Dam is not located within a non-attainment or maintenance area, a conformity applicability analysis is not required for the proposed action.

Section 169A of the Clean Air Act established the Prevention of Significant Deterioration (PSD) regulations to protect air quality in areas that already meet the NAAQS. Certain national parks, monuments, and wilderness areas have been designated PSD Class 1 areas, where appreciable deterioration in air quality is considered significant. The nearest federal Class 1 areas, the North Cascades National Park and the Pasaytan Wilderness, are greater than 60 miles (96 kilometers) to the west and north from the region potentially affected by the proposed actions. The prevailing winds in the region are typically to the east, away from the Class 1 areas. Therefore the proposed actions are unlikely to have an adverse impact on the identified federal PSD Class 1 areas.

Every effort will be made to minimize dust generation, including daily or periodic watering of exposed aggregate stockpiles and roads, and cleaning of equipment. In addition, some dumping and loading areas may be enclosed with fabric filters or bag houses, and aggregate stored on site in stockpiles will most likely be contained within three-sided storage bunkers. Site layout and design will take into account the prevailing winds to minimize fugitive dust and will attempt to minimize travel distances within the site. Vehicle speed limits within the site may also be established. No long-term effects on air quality are expected as a result of the project implementation.

6.2. Physical and Geologic Environment

Reinforcement of the right bank armoring and filling in the small scalloped embayment at the end of the training wall will enable CJD to conduct spill operations evenly across all spillway bays. That embayment is a result of erosion following initial construction. Spilling from all bays will result in more linear flow along the right bank, reducing the eddying and preserving the armoring.

Entrainment of rock debris onto the stilling apron from downstream should be decreased with the placement of the larger armor rock on the bank. The armor rock is of a large enough size that the hydraulics that occur during spillway operations should not be able to dislodge the rock, reducing the potential for damage to the stilling basin.

Paving the right bank below the dam and behind the training wall will reduce the flow of water through the fine glacial till of the hillside, reducing the potential for creating instability in the right bank.

6.3. Water Quality

In the unlikely event that spill is required during the first year of construction of the flow deflectors, TDG levels could be either raised or lowered compared to present configuration and

operation. If spill is required before any deflectors are completed, it is probable that there will be increases in TDG levels over those experienced under current conditions. Fewer spillbays will be available for spill as a result of deflector construction and spillbay maintenance activities. Therefore, increased TDG levels may result because of the uneven spill and an increased volume of water over through fewer bays. However, if spill is required after one or more deflectors are constructed, it is more likely that TDG will be the same or lower, since bays with deflectors will be available for spill, and would offset the concentration of spill on fewer bays that would be expected due to construction and maintenance activities. Neither of these scenarios is likely to occur. Analysis of long-term TDG data shows that spills and associated high TDG levels are most likely to occur in the spring and early summer, and that the risk of high TDG is negligible from October through February downstream of Grand Coulee Dam (Pickett et al., 2004). First-year construction of deflectors is not planned to begin until July, near the end of the spill season, which historically peaks in mid-June (Corps, 2000b).

At the end of the first year of construction, the Corps anticipates completion of six flow deflectors and the ability to spill (if necessary) over four of the completed deflectors. Hydraulic modeling is planned to determine the spill pattern that will optimize reductions in TDG. At low spill levels (less than approximately 30,000 cfs), most of the spill is likely to be directed onto the flow deflectors (dependent upon results of hydraulic modeling to ensure dam safety), resulting in reduced levels of TDG. At higher spill levels, the spill will be spread out over bays with deflectors and bays without deflectors. However, the expectation is that TDG levels will not exceed those generated in the current condition of no flow deflectors, and that the levels are likely to be less. In all subsequent construction years, TDG levels as a result of spill should decrease as the number of completed flow deflectors increases.

Placement of the armor rock on the right bank, driving pilings for the temporary pier and/or placement of fill to build a temporary boat ramp, and barge operations in the near-shore area may cause short term, temporary increases in turbidity and associated decreases in water quality. The magnitude and duration of the turbidity is expected to be minor. Turbidity levels are expected to rapidly return to baseline conditions upon completion of the activities.

There may also be localized leaching of contaminants, specifically metals, if treated wood is used for the pilings and over water structures (e.g. pier decking). However, a study by the Corps (1997, in NOAA 1998) showed that even with the worst case scenario, leaching from Ammoniacal Copper Zinc Arsenate (ACZA) wood, in conjunction with background concentrations of 2 ug/L water column copper, would not exceed NOAA's recommended guideline of 7 ug/L (NOAA, 1998). The study showed that projects using less than 100 piles would not result in water column copper concentrations that exceed 7 ug/L (at water pH between 7 and 8). Background levels of dissolved copper at CJD were 0.6 ug/L in forebay samples taken in the late winter and spring of 2004 (Corps, 2004) and fewer than 100 piles will be used to build the dock. Therefore, it is unlikely that water column copper levels will exceed the levels recommended by NOAA for the use of treated wood in aquatic environments. In addition, field studies indicate that any toxicity associated with the release of metals into the water column is minimized by dilution of the receiving waters, and diminishes with the age of the structure (Poston, 2001). Finally, the risk associated with immersed wood (e.g. pilings) decreases over a short period of time (days to weeks) because the reservoir of metals is depleted and leaching of

metal contaminants drops off (Poston, 2001). The proposed pier will be a small, temporary structure in a dynamic riverine environment with strong currents, thus minimizing the likelihood of a significant increase in pollutant levels. Upon completion of the flow deflector construction project, the pier and associated pilings will be removed. The preferred alternative for construction of the pier is to use steel pilings.

Water quality impacts could occur as a result of the operation of the batch plant. Waste water from batch plant operations is usually generated from truck wash systems, washing of central mixing plant, stormwater runoff from the ready-mix plant yard, waste water generated from water sprayed dust control and conveyor wash down.

Wash water from batch plants is usually highly alkaline (up to pH 12) and is highly toxic to fish and other aquatic life. However, the washwater from the batch plant will not be expected to reach the waters above or below CJD for the following reasons: batch plant facilities have developed a variety of operational configurations to control pollution related to waste water. This includes settling ponds, storm water detention/retention facilities and water reuse systems. Wash pits are used for settling and aggregate recovery. Unlined ponds are used for effluent evaporation and percolation to ground water. Some batch plants use completely closed loop systems. The contractor will be required to have the appropriate water discharge permits from the State and to use best management practices (BMPs) in constructing and operating the batch plant.

Every precaution will be taken to prevent the discharge of petroleum products, chemicals, or other material into the water. Fuel spill kits with absorbent pads will be onsite at all times. A spill prevention control and countermeasures (SPCC) plan will be created prior to the commencement of any construction activities that will identify and recognize potential spill sources at the site, outline BMPs, delineate responsive actions in the event of a spill or release, and identify notification and reporting procedures. Implementation of the SPCC will minimize the effect of construction activities on the quality of the adjacent waters. Per standard contract specifications required by the Corps, the contractor will be required to implement the described BMPs. In addition, a SPCC plan is typically a requirement for any action requiring a 401 (Clean Water Act) water quality certification or a National Pollutant Discharge Elimination Permit (NPDES) permit. If necessary, both of these permits will be acquired as part of the proposed project.

BMPs, including silt fencing, stabilized construction entrances, the use of straw bales, the establishment of roadside ditches that contain gravel check dams and straw bales, and dust control methods (e.g. sprinkling the site with water until the surface is wet, clearing only the area necessary, covering bare ground with gravel or grass-seed, etc.) will be used to reduce the likelihood of sediment transport to the waters above and below CJD. Stormwater generated on-site will be controlled.

No significant impacts to water quality are expected as a result of the implementation of this project. Monitoring will be carried out at an appropriate frequency during construction in order to detect problems. In general, as stated in the 2000 EA, the gas abatement measures will improve dissolved gas conditions in the river at times when CJD must spill, and the supporting actions outlined herein will help ensure that occurs.

6.4. Sediment

In the event that treated wood is used to establish the temporary pier, released metal contaminants may be incorporated into the sediment. Metals will not degrade in the long term, but they may become physically sequestered, mineralized, or chemically sequestered, thereby reducing their bioavailability. Numerous studies have found that the impacts of leached metals to sediments are localized in areas immediately adjacent (within 10 feet) to small treated wood structures (Poston, 2001).

Any increase in sediment contamination as a result of using treated wood to build the temporary pier is not expected to result in a significant increase in background contaminant levels.

Additional sediment may reach the waters below CJD as a result of surface water runoff in a storm event or from wind-blown dust. Any increase in turbidity will be short-term and localized.

BMPs, including silt fencing, stabilized construction entrances, dust control methods (e.g. sprinkling the site with water until the surface is wet, clearing only the area necessary, covering bare ground with gravel or grass-seed, etc.) will be used to reduce the likelihood of sediment transport to the waters above and below CJD. In addition, the contractor will be required to control stormwater generated on-site.

No significant impacts to the sediments within the project area are anticipated as a result of this project.

6.5. Biological Resources

6.5.1. Fish

While most of the following references are to salmonids, the information can be extrapolated to all fish populations in the vicinity of the project.

The effects of increased levels of TDG on fish were described in detail in the June 2000 EA.

Construction activities may cause short term, temporary increases in turbidity and associated decreases in water quality. The magnitude and duration of the turbidity is expected to be minor, and turbidity levels are expected to rapidly return to baseline conditions upon completion of the rock placement. Under most scenarios of this type, fish and other motile organisms encounter localized suspended sediment plumes for exposure durations on a temporal scale of minutes to hours (Clarke and Wilber, 1999). If an adult salmonid enters the project area during any portion of the in-water work, it will be mobile and able to avoid any turbidity plumes. The life history stages of salmonids requiring the lowest suspended sediment concentration—spawning, incubation, and fry rearing—do not occur in the project action area.

Numerous physiological effects of increased suspended sediment concentrations on salmonids have been documented. However, these physiological responses appear to be reversible if the exposure has been short-term; recovery occurs when the stressor is removed or the fish escapes the plume (Servizi, 1990).

The proposed pier will be a small and temporary structure that will probably be constructed of treated wood or steel. The allowable copper levels set by NOAA Fisheries are unlikely to be exceeded as a result of the pier installation. Juvenile salmonids, the most sensitive to metals, occur rarely or not at all in the project area. In addition, the construction contractor will be required to follow the *Best Management Practices for the Use of Treated Wood in Aquatic Environments* (WWPI, 1996).

All piles will be driven with a vibratory hammer to reduce potential impacts to salmonids and other fish in the vicinity. If an impact hammer is required to install the piles, the contractor will be required to utilize a sound attenuating system like a bubble curtain. Any effects of noise disturbance associated with construction work are expected to be discountable.

Piers can reduce primary and secondary production through shading effects (Kahler *et al*., 2000, Hass *et al*., 2002), and may reduce the substrate available to benthic organisms, important prey items for many species of fish. Piers may also affect behavior of juvenile salmonids by altering their migratory paths and reducing their ability to avoid predators and to search for prey (Hansen *et al.* 2003; Helfman 1981). Shading effects on primary and secondary production from the pier and reduction in availability of benthic habitat will be temporary. Juvenile salmonid migration is not expected to be significantly impacted, if at all, because of the lack of this life stage in the project area and the temporary nature of the impacts.

No significant impacts to fish are anticipated as a result of the implementation of the proposed actions.

6.5.2. Other Aquatic Organisms

Benthic invertebrate production around the new pier may be reduced. New pilings may reduce the substrate available to benthic aquatic organisms, and leaching of contaminants, specifically metals, may negatively impact the survival, growth and reproduction of benthic organisms. However, these impacts will be localized and temporary, and will not significantly alter the benthic ecosystem of the area.

6.5.3. Terrestrial Organisms

As a result of the development of the primary staging area, mule deer, coyotes, mountain cottontail rabbits, white-tailed jackrabbits, other small mammals, quail and other game birds, passerine birds, reptiles/rodents, and the raptors that feed upon these animals may be displaced from this area for the duration of the project. Upon project completion, the staging area will be

restored with native plants, and these animals will likely resume their use of the site. Other staging activities will occur in areas that are already disturbed. No significant impacts to wildlife are expected as a result of the development of the staging area because a large amount of similar habitat is available for use in the surrounding area.

6.6. Social/Economic

6.6.1. Treaty Fishing Access for Colville Confederated Tribes

Tribal fishing may be disrupted to some extent by construction. Fishing in the area immediately down stream of the right bank training wall may be interupted during the rock armoring, but fishing access will be maintained in the area behind the right bank training wall. As described earlier, the primary tribal fishery occurs from July to September, but may extend into October depending on the steelhead return. At this time, the Corps plans to conduct the rock armoring activities in February/March.

Some existing access points (i.e. trails and concrete stairs, pads) may be altered by the rock placement. If access points are obscured or destroyed, the Corps will restore or improve the access.

Other fishing sites might be affected by construction of the flow deflectors in 2005-2007. At this time, the Corps anticipates some restrictions/closures near the head of the training walls close to the dam to accommodate contractor activities. On the right bank, an area that extends approximately 370 feet from the face of the dam will be fenced off for contractor use during the flow deflector construction. This security boundary during construction excludes access by the public to 5 parking spaces, the comfort station, a covered picnic area, and the water fountain. The space is needed for a truck turnaround and for the settling basins for the dewatering system. Several parking spaces at the termination of the spillway access road will still be available for use, and overflow parking is available at the top of the spillway access road. However, there may be times when the parking spaces at the termination of the spillway access road are unavailable due to the movement of equipment into and out of the staging area. When this occurs, fishermen should still be able to drive down the spillway access road to drop off/pick up coolers and fishing gear, but will need to park at the top of the spillway access road. Sanitary facilities will be provided for use while the comfort station is inaccessible. Fishing access along the training wall will be maintained by installing a permanent metal stairway down the right bank that enables members of the public to traverse the riprap down to the training wall. As previously discussed with members of the CCT, fishing may be periodically restricted within 75 feet of the dam along the training walls on both the right and left banks. The Contractor will be required to provide advance notice prior to closing these areas. Otherwise, there should be fishing access along the majority of both banks during the flow deflector construction. No other restrictions/closures are anticipated at this time. However, as construction proceeds, unforeseen events may necessitate additional closures and/or restrictions. The Corps will maintain close coordination with the CCT to address issues as they arise, and to identify alternate fishing

locations and other potential mitigation actions to allow continued opportunities for the CCT to meet its ceremonial and subsistence needs.

6.6.2. Cultural Resources

No effect on historic or prehistoric National Register eligible properties would result from the proposed construction, including use of the proposed staging and work areas, as no such properties are present. A technical report documenting the finding and supporting facts is being prepared for coordination with the CCT THPO and Washington SHPO in accordance with Sec. 106 of the National Historic Preservation Act procedures in 36 C.F.R. Part 800.

6.7. Recreation and Public Use

Recreational use in the construction areas during the period of project construction will be limited due to safety and security concerns. Some trails may be unavailable to the public, and fishing access on the right bank may be limited at times, particularly during the rock armoring work. Recreational traffic accessing Bridgeport State Park and the golf course east of the proposed right bank staging areas may be slowed due to the presence of large trucks along Half-Sun Way.

The construction activities are not expected to have long term effects on recreational opportunities in the project area. The staging areas on the right bank will be returned to the pre-project condition to the greatest extent possible. Restoration activities will include removing all foreign materials, re-establishing the former site grade, grass-seeding with appropriate reclamation grass species, and invasive species control.

7.0 ENVIRONMENTAL COMPLIANCE

Please reference the Chief Joseph Dam Dissolved Gas Abatement Project Final EA and FONSI for a complete list of laws and regulations previously addressed, and the associated assessment of compliance.

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	ISSUES ADDRESSED	CONSISTENCY OF PREFERRED ALTERNATIVE
National Environmental Policy Act (NEPA) 42 U.S.C. 4321 et seq.	Requires all federal agencies to consider the environmental effects of their actions and to seek to minimize negative impacts.	Consistent per FONSI and EA document.
Clean Water Act (CWA) 33 U.S.C. 1251 et seq.; Section 404	Requires federal agencies to protect waters of the United States. Disallows the placement of dredged or fill material into waters (and excavation) unless it can be demonstrated that it is the least environmentally damaging practicable alternative. This restoration activity is proposed under the authority of a Nationwide 27 permit.	A Section 404(b)(1) evaluation was prepared for fill in waters of the United States in relation to the flow deflector construction. The rock armoring of the right bank is an exempt activity per 33 CFR 323.4(a)(1)(i)(2).
Clean Water Act Section 401	Requires federal agencies to comply with state water quality standards.	The rock armoring is exempt from 404, therefore no 401 water quality certification is required for that activity. However, as described in section 6.3, no long-term negative impacts to water quality are expected as a result of the placement of the armor. All other construction activities will be consistent with 401 water quality certification as issued by the Washington Department of Ecology and/or the Environmental Protection Agency (EPA).
Clean Water Act Section 402	Requires federal agencies to comply with state water quality standards	The contractor will be required to obtain Construction General/National Pollutant Elimination Discharge Permits (NPDES) for activities that disturb greater than one acre.

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	ISSUES ADDRESSED	CONSISTENCY OF PREFERRED ALTERNATIVE
Clean Air Act, 42 USC 7401 et seq.	Requires states to develop plans, called State implementation plans (SIP), for eliminating or reducing the severity and number of violations of National Ambient Air Quality Standards (NAAQS) while achieving expeditious attainment of the NAAQS. The Act also requires Federal actions to conform to the appropriate SIP.	Consistent -The area is in attainment or is unclassified for all pollutants. The contractor will be required to obtain and comply with all applicable permits.
Endangered Species Act 16 U.S.C. 1531 et seq.;	Requires federal agencies to protect listed species and consult with US Fish & Wildlife or NOAA Fisheries regarding the proposed action.	Consistent – proposed actions are in support of NOAA Fisheries BiOp of 2004.
National Historic Preservation Act 16 U.S.C. 461;	Requires federal agencies to identify and protect cultural and historic resources.	Consistent upon determination of No Effect by the State Historic Preservation Officer and the Colville Tribal Historic Preservation Officer. Concurrence may be presumed if there is no response within 30 days of the request for concurrence.
Coastal Zone Management Act (CZMA), 16 USC 1451 et seq.	Compliance with CZMA for protection of the coastal zone; may need certification by state.	Not applicable. Douglas and Okanogan Counties are not coastal counties.

8.0 REFERENCES

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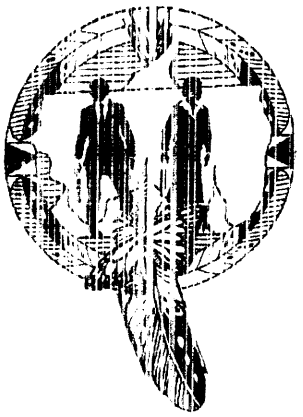
Appendix A: Comments received from reviewers of the draft document and responses to those comments.



The Confederated Tribes of the Colville Reservation
Planning Department
Pete Palmer, Land Use/Shoreline Administrator
P.O. Box 150, Nespelem, WA 99155 509-634-2577

Monday, October 25, 2004

Comment for Chief Joseph Dam Gas Abatement Supplemental Environmental Assessment

The Colville Confederated Tribes have a primary interest in the protection, control, conservation, and utilization of the shoreline resources of the Colville Indian Reservation. It is the purpose of the Colville Tribes Shoreline Management Plan, Chapter 4.15 of Colville Tribal Law, to establish the shoreline regulatory structure for the management of shoreline areas within the Reservation through the planning and fostering of all reasonable and appropriate uses.

The Tribes, in adopting this Chapter for shoreline management will give preferences to uses which:

(1) Preserve, protect, enhance and restore the natural character and ecology of shoreline areas, as well as its natural and cultural resources;

(2) Produce long term over short term ecological and economic benefit;

(3) Encourage appropriate access to the shoreline of the Reservation; and

(4) Increase and enhance tribal members' opportunities for traditional cultural activities in accordance with Tribal and federal law.

The Colville Confederated Tribes have jurisdiction to enforce this Shoreline Management Chapter in order to protect the economy, health, safety and welfare of the Tribes and the Reservation community.

The provisions of this Chapter, known as the Shoreline Use and Development Chapter of the Colville Tribal Code, shall apply to all shorelines of all bodies of water within the exterior boundaries of the Colville Indian Reservation. Areas subject to regulation under this Chapter shall include all Type 1, Type 2, Type 3, and Type 4 waters (as defined in this Chapter) of the Reservation and shall include lakes and reservoirs and the shorelines associated with such lakes

and reservoirs, and floodplains and wetlands (as defined in this Chapter) and the underlying lands associated with such floodplains and wetlands.

With the afore-mentioned Tribal Law in mind, it is required that the Army Corp of Engineers apply and obtain approval for the Gas Abatement Project by filing the enclosed shoreline development permit application with the Colville Tribes Land Use and Shorelines Administrator before the project begins. The application will be reviewed as a conditional use and would only require that the form and a fee of $138.00 be returned as all other pertinent information has already been reviewed. I would recommend that application be filed as soon as possible to avoid any hold ups in process or the project.

Thank you for the opportunity to comment on this beneficial project. I look forward to continuing and strengthening our work relationship.

Respectfully,

Pete Palmer

Pete Palmer
Land Use Shoreline Administrator

C. Rit Bellis, Reservation Attorney
John St. Pierre, Natural Resources
Mary Beth Clark, Planning Director

* SHORELINES *

LAND USE APPLICATION FOR CITIES, COUNTIES AND THE COLVILLE CONFEDERATED TRIBES

(The City/County/Tribes may require that additional application forms be completed)

PROJECT TITLE: _____

THIS APPLICATION IS FOR (check one):

☐ Building Permit	☐ Short Form/Home Development Permit	☐ Variance	☐ Conditional/ Special Use Permit (CUP/SUP)	☐ Short/Minor Subdivision	☐ Subdivision/ Major subdivision
☐ Binding Site Plan	☐ Petition for Rezone or Code Amendment	☐ Planned Development	☐ Flood Plain Development Permit	☐ Shoreline Development Permit or Exemption	☐ Other (specify) _____ _____

Total Fees: $_____

APPLICANT INFORMATION:

Name: _____

E-911 Address: _____

City/State/Zip: _____

Phone: _____

SURVEYOR OR AGENT INFORMATION:

Name: _____

Address: _____

City/State/Zip: _____

Phone: _____

NAME AND ADDRESS OF PROPERTY OWNER, IF DIFFERENT FROM APPLICANT ABOVE:

Name: _____

Address: _____

City/State/Zip: _____

Phone: _____

CHECK ONE: ☐ Colville Tribal Member (Enrollment number _____) OR ☐ Non-tribal member

CHECK ONE: ☐ Within the boundaries of the Reservation OR ☐ Outside the boundaries of the Reservation

TOWNSHIP _____ RANGE _____ SECTION

CHECK ONE: ☐ Trust Land [allotment number(s)] 101-_____ 101-_____

☐ Fee Land [10-digit parcel number(s)] _____

_____

This property is located within the _____ ZONING DISTRICT

FOR OFFICIAL USE ONLY

After reviewing all relevant information about this land use application, the reviewing agencies hereby agree that:

☐ the Colville Tribes ☐ Okanogan County / Municipality of _____

will be the permitting agency.

Signature _____ Date _____

Authorized Colville Tribal Representative

Signature _____ Date _____

Authorized County/City Representative

PROJECT INFORMATION:

Brief Description of Proposal (kind of use, size, # of units, method of water supply and sewage disposal, etc.)

_____

_____

_____

General Description (miles from nearest town, water body, highway etc. Vicinity map may be attached): _____

_____

Current Land Use, Comprehensive Plan, Shoreline, Flood and Zoning Designations: _____

_____

Name of Irrigation District _____ Electrical Service Provider _____

Name of Water System _____ Name of Local Telephone Company _____

Point of Legal Access (existing or proposed) _____

Please attach any other plans, specifications, or information as required by ordinance or guidelines. Please see specific site plan requirements for Okanogan County applications.

SIGNATURE BLOCK:

I am the applicant named on the reverse and hereby state that the foregoing information and all information attached hereto, is true to the best of my knowledge.

Signature _____ Date _____

General Location Map
[A site plan is also required]

North

CENWS-PM-PL-ER

Response to letter from Colville Confederated Tribes' Planning Department (Pete Palmer) dated October 25, 2004.

As a federal entity, the U.S Army Corps of Engineers would not apply for shoreline development permits because there has been no waiver of sovereign immunity. We will therefore not be completing or submitting the shoreline development permit application attached to the above-referenced letter. However, we will continue our practice of working closely with the Confederated Tribes of the Colville Reservation to address their water quality and fisheries' concerns.

The Confederated Tribes of the Colville Reservation

M E M O R A N D U M

November 5, 2004

To: Nicolle R. Rutherford
Biologist
Seattle District Corps of Engineers

From: Todd Thorn
Forest Practices Administrator
Colville Confederated Tribes

Subject: Comments re Chief Joseph Dam Dissolved Gas Abatement Project

The following comments are based upon review of the Draft Supplemental Environmental Assessment and Finding of No Significant Impact (September 2004).

Section 6.3. Water Quality

1. Provide CCT Environmental Trust Department a copy (and any updates) of Stormwater Pollution Prevention and Spill Prevention Control and Countermeasures plans related to right bank activities.
2. Provide CCT Environmental Trust Department project contact names and information to allow notification and coordination with Corps and project personnel prior to CCT on-site monitoring of the project.
3. Assure that heavy equipment used during right bank armoring is clean, free of defect and any leakage of fuels, lubricants, coolants, hydraulic fluids, etc. Pre-work and routine inspection of this equipment should be carried out and documented using an appropriate checklist form.
4. Equipment operated on the ramp and construction work pad during right bank armoring should have appropriate spill kits on board.
5. CCT Environmental Trust Department contact information is:

   Gary Passmore
   Environmental Trust Director
   Colville Confederated Tribes
   PO Box 150
   Nespelem, WA 99155
   509-634-2425

CENWS-PM-PL-ER

Responses to Memorandum from Colville Confederated Tribes (Todd Thorn), dated November 5, 2000 regarding the Chief Joseph Dam Dissolved Gas Abatement project.

(comments enumerated using numbers in CCT letter)

Responses:

1. We will provide requested documents to the CCT.

2. Requested contact information will be provided prior to construction, once all appropriate personnel have been assigned.

3. Measures to prevent and/or deal with leaks from equipment will be taken, per the environmental specifications for construction that are being prepared and will be mandatory for the contractor and other pertinent personnel.

4. See response to item 3, above.

5. Thank you. We have been, and will remain, in contact with Mr. Passmore.

Appendix B: Technical Report: Chief Joseph Dam Project, Dissolved Gas Abatement Project Historic Properties Considerations

Brief Technical Report

Chief Joseph Dam Project

Dissolved Gas Abatement Project, Historic Properties Considerations

Sections 23 and 24, Township 29 North, Range 25 East, Willamette Meridian, Douglas and Okanogan Counties, Washington

Prepared by Lawr V. Salo, Archaeologist
U.S. Army Corps of Engineers, Seattle District

2 February 2005

1. **Introduction and Background**. The Seattle District, U.S. Army Corps of Engineers owns and operates Chief Joseph Dam and Rufus Woods Lake Project ("project") as originally authorized by Congress for the purpose of hydroelectric power generation. The project, located on the Columbia River from River Miles 545 to 590 in Douglas and Okanogan Counties, Washington, has associated lands and appurtenances that are used for the original and other Congressionally-authorized purposes such as recreation, public access, and management of the project's natural and cultural resources.

When the Corps proposes construction or major maintenance at a project, many of the component activities comprise "*undertakings*" for the purposes of the National Historic Preservation Act ("NHPA")(36 CFR Part 800.3 (a)) as the activities use Federal funding, would take place on Federal property, and can have material consequences. Compliance with the National Historic Preservation Act (NHPA) requires the Corps to identify, evaluate and assess the effects any such undertakings might have on historic properties, including prehistoric and historic archaeological sites and Traditional Cultural Properties (TCP). The Corps identifies the *area of potential effects* ("*APE*") for each proposed undertaking before starting the analysis of the undertaking's environmental effects. Some undertakings have no potential to affect historic properties (either by their very nature or by restrictions in their APE) (Part 800.3(a)(1)), but others might affect such properties under certain circumstances. Where undertakings might affect properties, the Corps carries out investigations including archival studies and fieldwork to identify the properties and to determine the extent and kind of effects that could occur. The Corps makes a formal determination of what effect, if any, such undertakings might have on historic properties, and then involves other parties in considering the findings.

At times when runoff exceeds power generation requirements, especially in spring during heavy snowmelt, the Corps involuntarily spills water over the dam. However, spilling under the current dam design results in high levels of total dissolved gases (TDG) that have unacceptable adverse effects on the survival of aquatic organisms. Below Chief Joseph Dam, various species of fish may be affected by high TDG levels. Included are stocks listed under the Endangered Species Act. Those stocks are the Upper Columbia Evolutionarily Significant Unit (ESU) of spring Chinook (endangered), the Upper Columbia ESU of steelhead (endangered), and the Columbia Basin Distinct Population Segment (DPS) of bull trout (threatened). Thus, the Corps has identified a need to change the shape of the surface of the dam's spillways to reduce the harmful effects of spilling. The design solution uses specially-configured flow deflectors on the dam face to achieve TDG reductions. This action is called for by the National Marine Fisheries Service in their Biological Opinion of 2000 concerning operation of Federal Columbia River Power System dams, of which Chief Joseph Dam is one.

High water velocities, turbulence, waves, and spray from deflector operation will lead to shoreline erosion, which, if unchecked, can result in large-scale unraveling of the right bank below the dam, posing a threat to the dam's structural integrity. The Corps therefore must take measures to prevent the bank from further erosion before the TDG reduction project can be completed. The preventive measures will require restoration of the original footprint and reduction in the slope of the existing bank armor on the right bank immediately below the dam. The erosion control project will need staging areas for equipment and materials; the deflector project will need staging areas to establish Corps and contractor administrative offices, to store materials and equipment, possibly to place a concrete batch plant, and to load personnel, equipment, and materials on workboats and barges. Following the erosion control work, the

deflection contractor may also use the staging areas to fabricate items needed for construction on the dam face, for example formwork and the dewatering caissons.

In reviewing the proposed sequence of activities, we have concluded that most of them meet the above criteria for "*undertakings*" and thus require further consideration of their effects on historic properties, including prehistoric and historic archaeological sites and TCP, in accordance with procedures specified in 36 CFR Part 800 for the implementation of NHPA.

2. **Purpose and Scope.** This brief technical report documents consideration of the proposed undertaking's effects on historic properties, presents a finding of "no resources present" and discusses the reasons for that finding. The consideration is based on use of existing information about land conditions and current historic properties inventories of the APE segments. The report consolidates earlier hard-to-obtain information on historic properties inventory for future reference and is thus presented as a technical rather than purely administrative report.

3. **Description of Undertaking and APE**. Because the undertaking includes several discrete noncontiguous areas and comprises kinds of actions with different characteristics and potential for affecting historic properties, the analysis of effects will be broken down by discrete geographic segments defined as "APE segments". The APE segments for the proposed undertaking are shown as polygons in figure 1 and are described in the following subparagraphs.

a. **Right Bank Training Wall Riprap Repair (Fishing Area Work Site)**. The Corps would extend the bank armor riprap in a small, eroded embayment at the end of the right (north) bank training wall immediately below spillway, to fill in the embayment and to reduce the slope angle of the over-steepened existing bank armoring. The footprint would be what was originally constructed at the time the dam was built. The work is necessary to protect against erosion caused by the existing and proposed spill operations on the structure. Material would consist of 3,000 cubic yards (CY) of Class V riprap and 5,000 CY of 6-ton derrick stone (average size 5 ft. x 4 ft. x 3 ft.), to be placed on a 2.5:1 slope along approximately 220 lineal feet of shoreline starting behind the end of the training wall. Rock armor is sized for the sustained project flood of 500,000 cubic feet per second (cfs). The toe of the slope would extend minimally, if at all, beyond the alignment of the training wall. The riprap placement will be in the original design footprint. Rock would be placed individually in the water, probably using an excavator on the bank. There would be an equipment loading area on a flat immediately above the riprap work area.

b. **Barge Loading Area and Launch Ramp**. The Corps would build a temporary (duration of the flow deflector construction) barge landing and loading area on the left bank near the existing warehouse and commons building. There would be an access road to the bank and a temporary ramp or floating dock would be built to allow loading of personnel, equipment, and materials on workboats and barges. The area was used for similar purposes in the original dam construction in the 1950's and also during the pool raise work in the 1970's (figures 2 and 3). Barges would be launched at the City of Bridgeport's launching ramp about one mile downstream from the S.R. 17 bridge.

c. **Primary Contractor Staging Area**. The primary construction staging area would be a 40- to 50-acre area that had been used for staging during the 1950's dam construction; the area is on a high kame terrace on the right bank just to the north of spillway (figure 2). The site would support a large concrete batch plant with connecting haul roads on existing alignments and

electrical, water, and phone lines would have to be extended from mains to the site. Water lines would be underground and electrical and communications would be either underground or aerial.

d. **Alternative Staging Area**. The other potential right bank staging area is a 10-acre manmade bench just east of Highway 17 and north of Half Sun Way; the area was used for dam construction staging in the 1950's. The area is a little less than a mile downstream from the dam and has an abandoned access road that runs northwest approximately 1500 feet from Half Sun Way. The site was leveled in the 1950's and is of adequate size for construction of the gas abatement deflector project's concrete batch plant.

e. **Left Training Wall Equipment Loading Area**. Certain equipment loading operations for the spillway modifications would take place at a hard-surfaced area between the powerhouse and the dam structure, on the left bank.

f. **Top of Dam Equipment Loading Area**. Other operations for the spillway modification would take place in reserved areas on top of the dam.

g. **Fish Hatchery Site**. An area on the right bank where the current visitor orientation center is designated as a site for eventual construction of a fish hatchery. The location might be made available for contractor use during the stabilization effort. The area was a construction staging area in the 1950's and 1970's and has been graded and filled.

h. **Corps and Contractor Project Office**. The Corps and Contractor Project Offices would be located in an area previously used for project offices, on the left bank overlooking the barge loading area, downstream from the mouth of Foster Creek.

4. **Context**.

a. **Historical**. The Chief Joseph Dam project has over 150 prehistoric archaeological sites, many of them contributing to the significance of the Rufus Woods Lake Archaeological District (RWLD), which was determined eligible for the National Register of Historic Places in 1978. A search of the National Register of Historic Places (NRHP), the Washington Office of Archaeology and Historic Preservation (OAHP) electronic historic database, and inspection of other background materials confirmed that the gas abatement project's individual areas of potential effects ("APEs") do not include the RWLD or any known prehistoric or historic archaeological sites or other potential historic properties. The dam itself is not eligible for the National Register of historic places as it was heavily modified in the late 1970's. Corps archaeologists and archaeological contractors have inventoried the APE segments on several occasions over the past 20 years, but have found no evidence of historic properties. Investigations of TCP associated with occupation and use of the area by the Southern Okanogan (Sinkaietk) band members of the Confederated Tribes of the Colville Indian Reservation (CCT) to date have not identified TCP associated with the APE segments (Sprague and Miller 1978; Shannon 2003 [1]). The right bank training wall is an established fishing location for the CCT members, but is not itself a TCP.

b. **Environmental**. The APE segments are on landforms comprising two early Holocene or late Pleistocene kame terraces; in areas where the terraces have not been graded or filled, aeolian

[1] The CCT History and Archaeology Department is carrying out a TCP study covering the entire Chief Joseph Dam project under two contracts with the Corps of Engineers (DACW67-00-D-1002, Task Order 2 and DACW67-03-D-1000, Task Order 3).

sediments mantle late Glacial outwash and colluvium, that in turn overlie highly compact till. Aerial photography from before the dam was built shows a large field of linear dunes covering much of the upper terrace, but construction in the dam vicinity has erased many of those features. Vegetation on the upper terrace is an upper Sonoran suite, with xeric species such sagebrush, bitterbrush, rabbitbrush, forbs, cheatgrass and bunchgrass dominating, and occasional large patches of prickly pear. The lower terraces largely are covered by domesticated grasses.

5. **Methodology**. The current investigation was designed as a simple National Historic Preservation Act, Section 106 clearance action to determine first whether the proposed undertaking will have any effect on historic properties, and then to identify the nature of effects, if any. The first stage comprised records and archival search to identify known properties at the site, including TCP, and to determine whether previous investigations were adequate to determine effects. If needed, a second stage would include an on-the-ground pedestrian inspection of APE segments as needed to determine whether the proposed undertaking would affect potential historic properties. Field inspection transects would be recorded on printouts of digital orthophotographic quads with APE segments overlaid. Field conditions and inspection findings would be noted and photographed with color print film. For this report, all transect and inspection area data from either stage would be transferred to shapefiles using ESRI ARCGis® version 9 ArcMap® display software, registered to the USGS digital raster graphic file for the Bridgeport Point, Washington 7.5 minute quadrangle (48119-A5), using projected coordinate system Washington State Plane South Zone, with reference to NAD27/NVD29 datums.

6. **Discussion**. The following paragraphs describe the investigation's archival and field findings for each of the seven APE segments.

a. **Right Bank Training Wall Riprap Repair (Fishing Area Work Site)**. The right training wall site has been subjected to heavy construction, including excavation and filling, and is overlaid by massive granite riprap. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. Although no inventory transects are shown on Figure 1, Mr. Salo inspected the area on foot during an environmental compliance review at the project in the early 1990's and found no evidence whatsoever of prehistoric or historic archaeological sites or other potential historic properties in the area. No historic properties are present in the Right Bank Training Wall Riprap Repair APE segment.

b. **Barge Loading Area and Launch Ramp**. The barge loading area and access is on a landform that has been graded, filled and severely compacted on at least two occasions in the 1950's and 1970's during its use as a main construction staging area. Although potential historic properties may have been present before construction started in the 1950's, they were effaced during that era; the part of the Southern Okanogan village *spuk^{w}puk^{w}mín* within the APE did not survive. Some historic foundations are near the Bridgeport city boat launch ramp barge deployment site, but they are not reported as sites nor are they listed on either the State or National Register of Historic Properties; barge launching operations would not affect them. Ongoing TCP studies have found no evidence for TCP in either location. No historic properties are present in the Barge Loading Area or Launching APE segment.

c. **Primary Contractor Staging Area**. Previous inventory at the south margin of the area and a sequence of historical aerial photographs (figures 2 and 3) show that the primary contractor staging area above the right bank is disturbed to considerable depth by grading, filling and

compaction from use of that area for construction staging in the 1950's and 1970's. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. Although an inventory transect is not shown, Mr. Salo drove over the roads through and ringing the area in a "windshield" inventory with ground spot-checks in the mid-1980's before the area was graded and replanted, and observed no intact sediments or evidence of prehistoric or historic archaeological sites or other potential historic properties in the area. No historic properties therefore are present in the Primary Contractor Staging Area APE segment.

d. **Alternative Staging Area**. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. This area also is made land; therefore, no historic properties are present in this APE segment.

e. **Left Training Wall Equipment Loading Area**. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. This area also is completely altered by recent construction, and contains paved surfaces and made land. Although no inventory transects are shown on Figure 1, Mr. Salo inspected the area on several occasions during environmental compliance review and development of the dam's Visitor Center in the late 1980's and early 1990's, finding no evidence of prehistoric or historic archaeological sites (including rock art on the adjacent exposed rock surfaces) or other potential historic properties. No historic properties therefore are present in this APE segment.

f. **Top of Dam Equipment Loading Area**. This area is on a recent manmade concrete dam structure and therefore no historic properties are present in this APE segment.

g. **Fish Hatchery Site**. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. The area was inventoried in the 1970's and in 1999 (Munsell and Salo 1977; Salo 2004); no evidence of prehistoric or historic archaeological sites or other potential historic properties was encountered on either occasion. The area has been graded and filled during construction staging in the 1950's and 1970's, and context of any potential historic properties would have been destroyed if any had been present. No historic properties therefore are present in this APE segment.

h. **Corps and Contractor Project Office**. Existing archival sources and ongoing TCP studies contain no evidence of historic properties in this APE segment. The area has been graded and was previously used for project offices during both the 1950's original dam construction and the 1970's pool raising project. As the landform upon which the new construction would take place was not alluvial during the period of human occupation, and has been disturbed to depth, any potential historic properties within the APE would not have integrity, and would not be eligible for the National Register of Historic Places. No historic properties therefore are present in this APE segment.

7. **Analysis of Effects on Historic Properties**. No effects on historic or prehistoric National Register eligible properties, including TCP, would result from the proposed undertaking, including use of the proposed staging, barge launching and other work areas, as no such properties are present. This technical report documents the findings and their supporting facts and is the basis for coordination with the CCT THPO and Washington SHPO in accordance with Sec. 106 of the National Historic Preservation Act procedures in 36 C.F.R. Part 800.

8. **Conclusions and Recommendations**. No prehistoric or historic archaeological sites or other potential historic properties are present within the undertaking's APE, and the undertaking

therefore will have no effect on properties that are eligible for the National Register of Historic Places. The finding therefore is "*no properties present*". As there is always a chance, no matter how remote, that inadvertent discoveries of archaeological sites or human remains may occur during excavations, construction contracts and instructions to Corps staff supervising the project should include language to deal with such contingencies. Paragraph 12, appendix a exhibits suggested clauses for Supplemental Construction Data.

9. **Coordination and Consultation**. Since 1997, a Cultural Resource (or Historic Property) Management Cooperating Group (CG) composed of Federal, local, and state and tribal government representatives has met to identify, scope, review, and prioritize work items and take part in all historic preservation compliance work at the project. The Corps began discussing the planned work item in the late fall 2003, and continued to update the CG during FY2004.

The work would take place on lands for which oversight of Federal effects on historic properties is administered by both the Washington State (Douglas County) and the Colville Confederated Tribes (Okanogan County within the Colville Reservation) Historic Preservation Officers. The Corps maintains that the *public interest* in the current coordination effort is best represented through the *CG* (Part 800.3(f). In view of the CG members' frequently-expressed concerns for security of archaeological site locational information, the Corps will not carry out more general public involvement (Part 800.3 (e)). This report will be provided to:

- The Washington State Historic Preservation Officer;
- The Colville Confederated Tribes, History and Archaeology Department and Historic Preservation Officer
- Others with a need-to-know, including Seattle District cultural resource management contractors.

The report also will be filed in Seattle District environmental coordination files for the Chief Joseph Dam project, where it will be accessible to individuals or organizations for public inspection (with appropriate safeguards to prevent disclosure of any sensitive site locational information.)

10. **References**.

Hamilton, S. and B. Hicks. 2003. *Chief Joseph Dam Project Area, Historic Properties Inventory 2000-2001*. Confederated Tribes of the Colville Reservation, History/Archaeology Department. Nespelem, Washington.

Jermann, J.V. 1985. *Archaeological Inventory and Testing of Prehistoric Habitation Sites, Chief Joseph Dam Project, Washington*. Office of Public Archaeology, Institute for Environmental Studies, University of Washington, Seattle.

Munsell, D.A., and L.V. Salo. 1977. *Chief Joseph Dam Cultural Resources Reconnaissance Report, Rufus Woods Lake, Columbia River, Washington*. U.S. Army Corps of Engineers, Seattle District.

Salo, L.V. 2004. *Chief Joseph Dam Project, Dam Area Recreational Facilities, Historic Properties Considerations for North Shore Trail and Appurtenances*. Brief Technical Report. U.S. Army Corps of Engineers, Seattle District. Seattle.

Shannon, D. 2003. *Chief Joseph Dam and Rufus Woods Lake, Traditional Cultural Property Research, Annual Report*. History and Archaeology Department, Colville Confederated Tribes. Nespelem, Washington.

Sprague, R. and J. Miller. 1979. *Chief Joseph Dam Burial Relocation Survey, Rufus Woods Lake, Washington*. University of Idaho Anthropological Research Manuscript Series, No. 51. Moscow, Idaho.

11. **Graphics**.

Figure 1. Proposed Construction Features and Existing Historic Properties Inventory Transects.

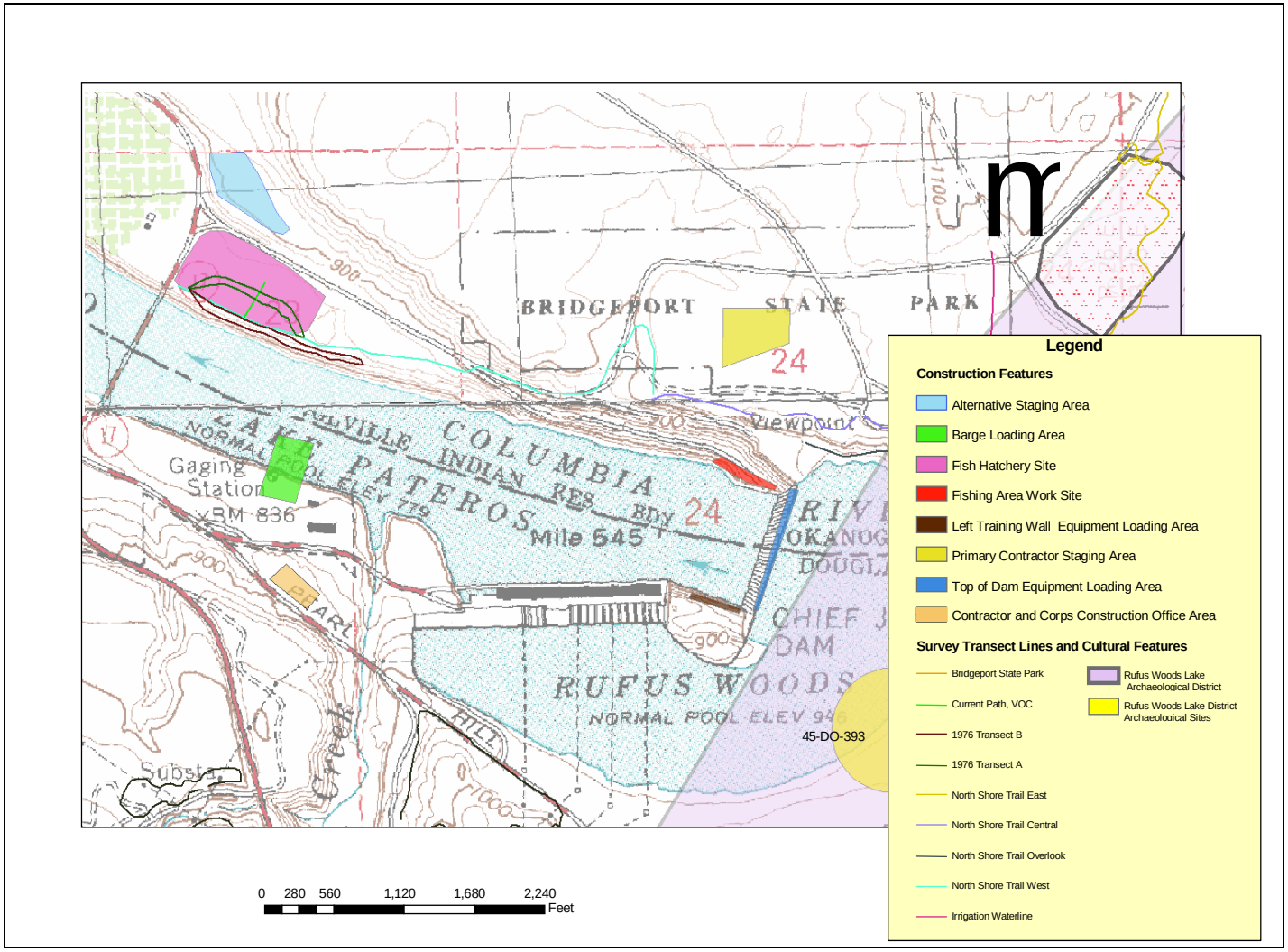


Figure 2. Construction Areas of Potential Effect, 1954 Surface Conditions.

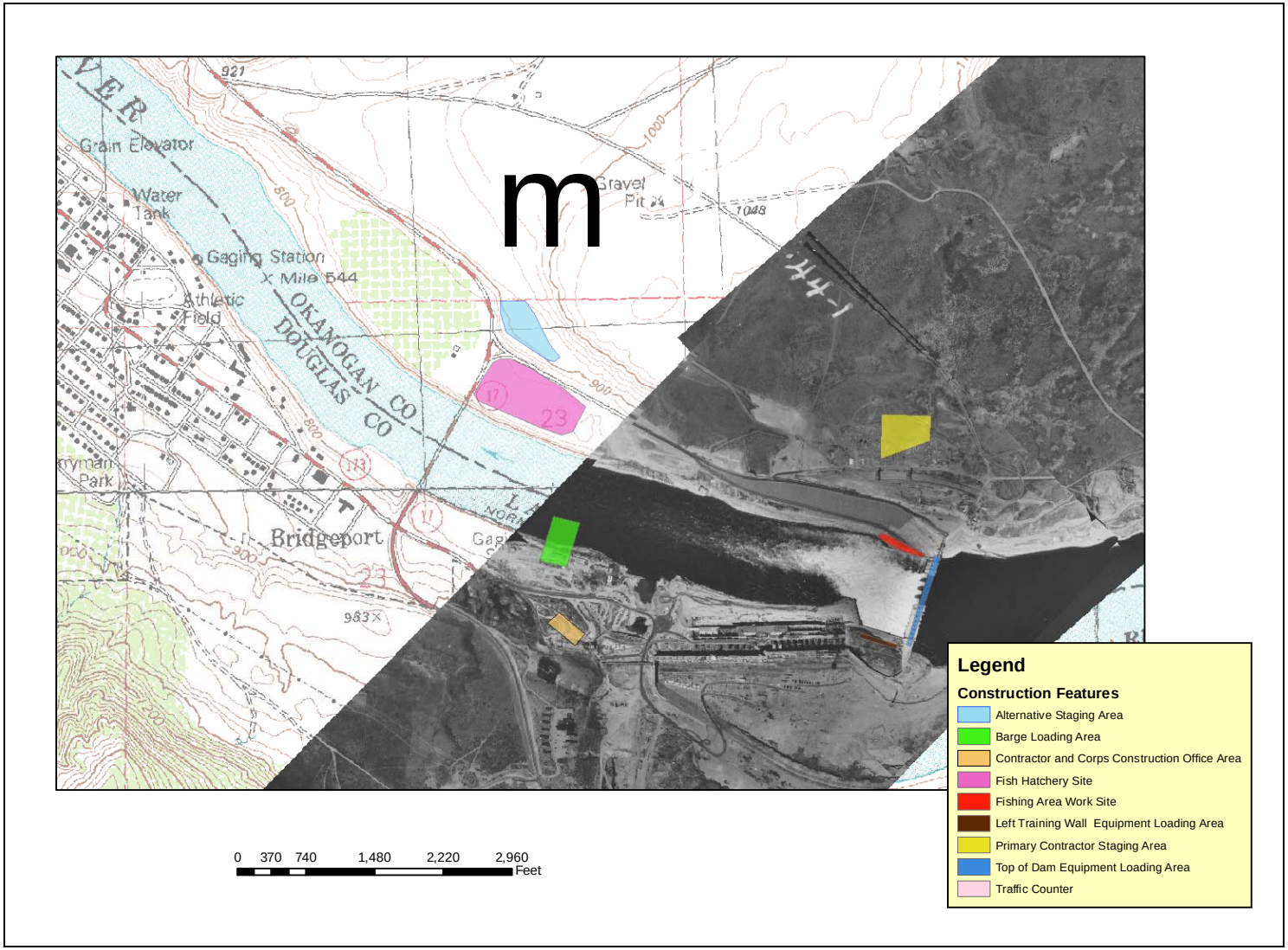
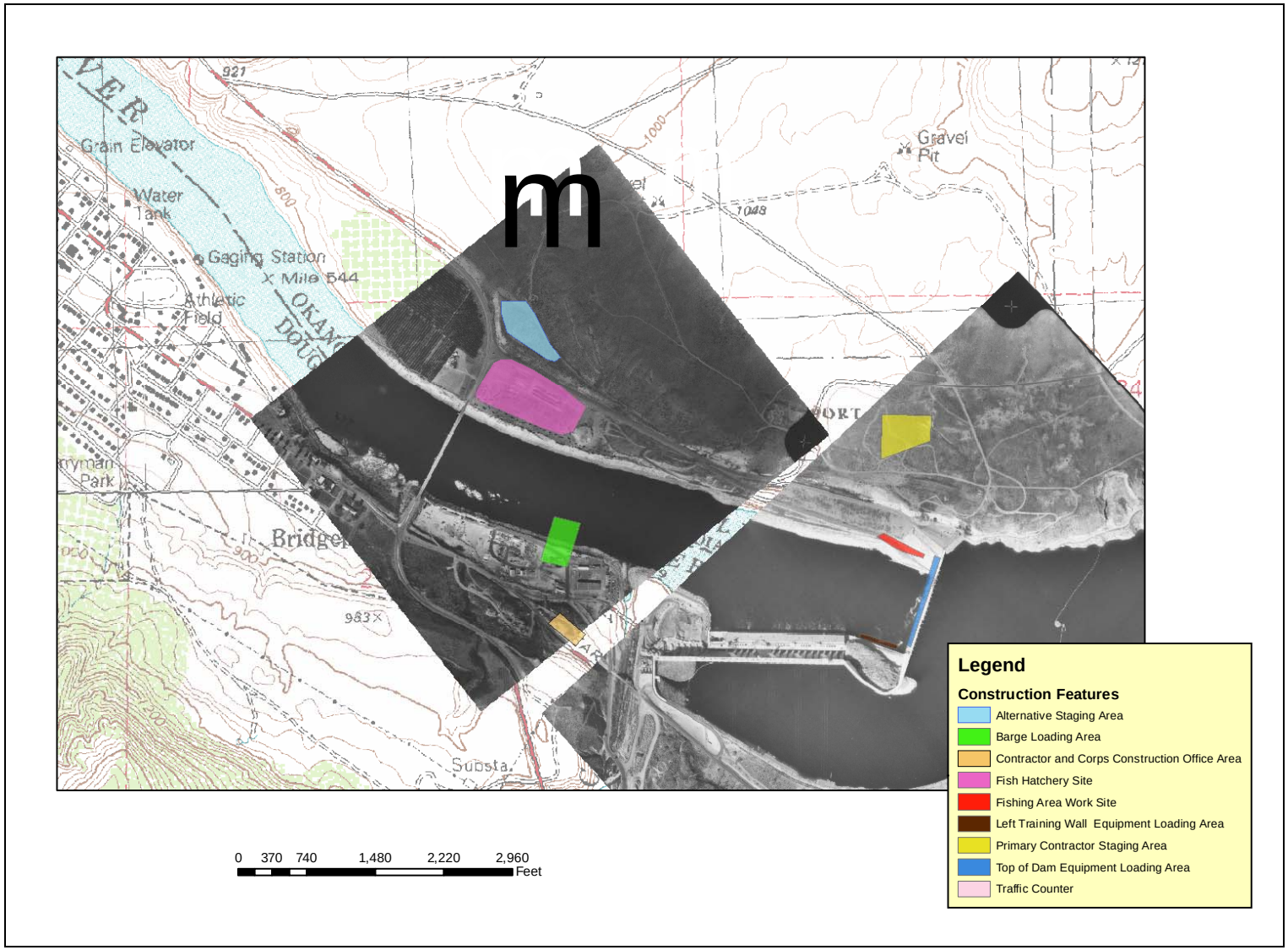


Figure 3. Construction Areas of Potential Effect, 1975 Surface Conditions



b. **Plates.**

Plate 1. Recent Oblique Aerial View of Chief Joseph Dam, showing most of the APE segments.

12. **Appendixes**.

a. **Supplementary Construction Data Clauses**. These clauses are to be inserted into any construction contract or instructions to Corps maintenance wage-grade employees.

Unexpected Finds of Human Remains. The "inadvertent discoveries" provisions of the Native American Graves Protection and Repatriation Act (NAGPRA)(43 CFR Part 10.4) shall apply if the discovery is within the exterior boundaries of the Colville Reservation, on associated trust lands within former reservation boundaries, or on Federal fee lands. For other lands the Indian Records and Graves Act (Chapter 27, Section 44 of the Revised Code of Washington –RCWW 27.44) applies. As all activity would take place either within the Reservation or on Federal fee lands, NAGPRA would apply for the Gas Abatement project.

Although it is very unlikely that human remains may be encountered during investigations, if Contractor encounters them, the Contractor shall **immediately** cease work in the area of the find and leave all materials intact. The Contractor shall notify the COR within 4 hours of the find, and the COR will contact the law enforcement department with criminal jurisdiction for the area (Douglas or Okanogan County Sheriff's Departments or the Colville Confederated Tribes' (CCT) Police Department) to ascertain whether the remains are of recent and potentially criminal origin. Concurrently, the COR will contact Chief Joseph Dam resource management and the CCT' Historic Preservation Officer (Camille Pleasants, 509-634-2654). Should the appropriate law enforcement department determine that the remains are associated with Native American burial practices, the Corps will consult with CCT-HPO about the nature and disposition of the remains.

Contractor shall redirect work to other areas, sites or tasks until the Corps and THPO arrange for disposition of the remains to the satisfaction of the appropriate CCT group. Disposition will take place as rapidly as possible, in any case within 30 days of the find, in conformity with Native American Graves Protection and Repatriation Act (NAGPRA), Section 3 (d) and other legal requirements.

Occupation and Midden Sites. If the Contractor encounters evidence of prehistoric occupation such as non-sawed bone fragments, charcoal, fire-modified rock and cryptocrystalline flaking debris in a place where no prehistoric archaeological site has been identified previously; or encounters concentrated historical debris in excess of 50 years of age[2] in a place where no historic archaeological site has been identified previously, the Contractor shall **immediately** cease work in the area of the find, leaving all objects in place. The Contractor shall notify the Corps inspector assigned to the contract within 4 hours of the find. The Corps inspector would then contact the Colville Confederated Tribes (CCT) Historic Preservation Officer (Camille Pleasants, 509-634-2654), the Corps archaeologist assigned to the project, and the COR. The Corps would arrange for an onsite inspection by cultural resource specialists, including but not limited to archaeologists, official CCT cultural specialists, and the Washington State Archaeologist within 24 hours of receiving such notice. The Corps will make a coordinated decision within 30 days regarding the further disposition of the site.

[2] Diagnostic artifactual evidence of ***prehistoric*** occupation in a place where no prehistoric archaeological site has been identified previously includes items such as non-sawed bone fragments, river mussel shell, charcoal, fire-modified rock and cryptocrystalline flaking debris, and anomalously darkened earth. Diagnostic artifactual evidence for ***historic***--greater than 50 years of age--occupation, other than standing architecture, usually comprises low-fired and bisque ceramics with subdued colors, or blue/pink willow-like design (usually decalcomania); thick-bodied sherds indicating crockery; non-tempered glass; violet-colored glass; miscellaneous fragments of non-ferrous metal (or plated) clothing closures (buttons, hooks and eyes, and suspender fittings) (but not zippers); bone, bakelite, celluloid, glass and shell buttons (but no Nylon or polystyrene); stopper-topped glass jars or bottles; press-capped (cork gasket liner) heavy-walled soda bottles (not twist-top thinwalled); zinc and vitreous glass-lidded glass canning jars with colored body; enameled ironware; punch-opened and solder-sealed beverage cans; solder-sealed food tins; older automotive parts; knob-and-tube electrical insulators; sawed bone; general lack of plastic, thin-walled aluminum cans, and welded steel cans.

b. **Correspondence**.