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April 30, 2009

DECISION MEMORANDUM

TO: Council members

FROM: Mark Fritsch, project implementation manager

SUBJECT: Step 2 review of the *Chief Joseph Hatchery Program*, Project # 2003-023-00.

PROPOSED ACTION

- I. That the Council recommend that the *Chief Joseph Hatchery Program* proceed to step three level activities.
- II. That the Council call for additional information to be developed that fully addresses the issues raised by the independent peer review for consideration during the Step 3 review.

SIGNIFICANCE

On November 12, 2007 the Confederated Tribes of the Colville Reservation submitted Step 2 documents to the Council for the *Chief Joseph Hatchery Program*, Project # 2003-023-00. The intention of the submittal was to address the conditions placed on the project as part of the Council's approval of the master plan¹ (Step 1) and address the required elements of Step 2 (i.e., Council's conditions, preliminary design and environmental review). At your May meeting the Council staff will provide an overview of the Step 2 submittal and discuss our proposed recommendations with you regarding Step 3 activities (e.g., detail/final phase) for the project.

The goal of the Chief Joseph Hatchery Program (CJHP) is to increase the abundance, distribution, and diversity of naturally spawning populations of summer/fall Chinook salmon and related fisheries in the Okanogan River and in the Columbia River above Wells Dam by constructing a hatchery and acclimation ponds, and instituting terminal, selective fisheries. The proposed facility will also be used to reintroduce extirpated spring Chinook salmon to their historical habitats in and around the Colville Reservation and to re-establish a ceremonial and subsistence fishery. A summary of the proposed production follows.

¹ On March 15, 2005 the Council gave a conditional approval of the step 1 submittal (master plan).

I. The summer/fall Chinook components of the CJHP consist of two complementary programs:

- A short-term integrated recovery program designed to increase abundance, distribution, and diversity of naturally spawning summer/fall Chinook salmon within their historical Okanogan subbasin habitat.
- A longer-term integrated harvest program designed to support a tribal ceremonial and subsistence fishery, and to provide increased recreational fishing opportunities for local citizens.

The summer/fall Chinook population in the Okanogan River is at present supported by natural production and a single hatchery program that produces up to 576,000 yearling smolts annually. The proposed CJHP will increase production of juvenile summer/fall Chinook for the Okanogan River by 400,000 early-arriving and 700,000 later-arriving fish.

The summer/fall Chinook integrated recovery program will be implemented through six conservation actions:

- Develop a local Okanogan River broodstock.
- Expand the current broodstock collection by two months, in order to propagate the full historical run of summer/fall Chinook.
- Initially propagate both the yearling and sub-yearling life histories to achieve full, natural diversity and provide necessary programmatic flexibility.
- Improve distribution of spawning throughout the historical summer/fall Chinook habitat.
- Control of the proportion of hatchery-origin fish spawning in the wild.
- Upon successful rebuilding of the historical summer/fall Chinook, transition the integrated recovery program to an integrated harvest program.

The summer/fall integrated harvest program is designed to support a tribal ceremonial and subsistence fishery and to provide increased recreational fishing opportunities for local citizens. To support the integrated harvest objectives, 500,000 early-arriving, and 400,000 later-arriving summer/fall Chinook will be released at Chief Joseph Hatchery. Total new production for the production and harvest purposes is therefore 2,000,000 summer/fall Chinook.

II. Spring Chinook components of the CJHP:

The Colville Tribes have developed a two-phase management plan to reintroduce extirpated spring Chinook. The CJHP would provide the artificial production facilities necessary for this phased reintroduction. A combination of existing and new facilities will be used to accomplish the program objectives.

The CJHP spring Chinook component includes two complementary parts:

- An integrated recovery program designed to restore naturally spawning spring Chinook populations to their historical habitats in and around the Colville Reservation.
- An isolated harvest program designed to restore a stable ceremonial and subsistence fishery, and to provide increased recreational fishing opportunities for local citizens.

The CJHP spring Chinook programs will produce 900,000 yearling smolts of unlisted Leavenworth stock spring Chinook, with returning adults destined for the Colville Reservation. The spring Chinook integrated recovery program will initially reintroduce naturally spawning populations of Leavenworth stock spring Chinook into Omak Creek on the Colville Reservation. The isolated harvest program will support selective fisheries in the Okanogan River and in the Columbia River from Wells Dam upstream to the tailrace of Chief Joseph Dam. These fisheries will target the Leavenworth-stock spring Chinook produced in the program.

In the second phase of the integrated recovery program, production will be transitioned from the Leavenworth stock to Methow River stock to benefit recovery of the ESA-listed Upper Columbia River Spring Chinook ESU.

BUDGETARY/ECONOMIC IMPACTS²

The total cost for the CJHP through Fiscal Year 2008 is \$6.8 million and includes the master plan, conceptual and preliminary engineering designs, environmental review, permitting and the necessary research studies. Final design and associated work to complete Step 3 is estimated to cost \$3.3 million. Construction of all project elements and management for the CJHP is estimated at \$37.5 million, assuming that major project construction would occur in Fiscal Year 2010 and 2011. Total cost for all aspects of this proposed project, including planning and design, and construction costs, is estimated to be \$40.8 million. Annual operation and maintenance costs after facilities are fully developed would approximate \$2.1 million annually. Monitoring and evaluation is estimated to cost about \$735,000 annually.

Summary of costs from Fiscal Year 2005 through Fiscal Year 2017 are provided below (dollars in millions). Assumptions utilized in development of these costs are provided as notes to the table. Funds for the project addressed in this Step 2 submittal are reserved in the Memorandum of Agreement (MOA) budgets totaling \$41,036,547.³ The funding identified in the MOA is expected to be a maximum. Anticipated cost sharing of CJHP with mid-Columbia public utility districts should significantly reduce federal costs (see below).

² This project is part of the Columbia Basin Fish Accords. In May 2008, Bonneville, the U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation (the "Action Agencies") signed an agreement with the Confederated Tribes of Colville Reservation.

³ Currently the capital budget is aligned to Fiscal Year 2008 at \$782,500, Fiscal Year 2009 at \$4,301,828 and Fiscal Year 2010 at \$24,152,428 and Fiscal Year 2011 at \$12,330,273

Costs to Date

FY	03	04	05	06	07	08
Planning						
Step 1 Planning ⁴	.021	.334				
Step 2 Planning ⁵			.575	.675	2.314	1.020
Research Studies						
Brood Research Plan to Access Behavior			.319			
Broodstock Testing Collection Plan			.300	.240	.255	
Land Purchase and Easements						
USACE ⁶					0	0
Irrigation District Ponds ⁷						.024
Riverside and Omak Acclimation Ponds ⁸				.460	.162	
Lease of Housing Site ⁹					.003	.033
Environmental Review						
Final EIS			.033	.549	.019	

Future Costs

FY	09	10	11	12	13	14	15	16	17
Planning									
Step 3 Planning ¹⁰	3.268								
Construction									
Summer/Fall and Spring Chinook ¹¹	.964	23.233	11.476						
Management ¹²	.70	.650	.450						
Capital Equipment									
Summer/Fall and Spring Chinook ¹³		.269	.404						
O&M									
Summer/Fall & Spring Chinook	.410	.644	1.129	1.950	1.999	2.049	2.100	2.152	2.206
M&E									
Summer/Fall & Spring Chinook	.273	.386	1.447	.691	.708	.725	.744	.762	.781

⁴ Step 1 planning, completion of HGMPs and master plan.

⁵ Costs associated with preliminary designs and training.

⁶ It is expected that the hatchery site lease to be a no-cost agreement.

⁷ Long term Irrigation pond leases are included in Operating Costs after FY 2008.

⁸ Riverside property utilized all FY 2006 funding, added funds were for Omak reimbursement in FY 2007.

⁹ Washington Parks is arranging to lease CCT property to build hatchery housing. Purchase of housing site is estimated to be \$30,000 as per FY 2008 arrangements. These arrangements may slip to 2010 or 2011.

¹⁰ Funds are for final designs.

¹¹ Construction change shown to accommodate escalation of the estimate of probable cost (ENR National average 4.3%) escalated at 4% from mid 2007 to mid 2009 which is current proposed start (total budget \$37 million, 60% in FY 2010 and 40% in FY 2011).

¹² Line Item shows an estimate for construction management at 3% of total escalated construction costs provided in B.1, (40% in FY 2009 and 60% in FY 2010).

¹³ Capital Equipment, escalated at 3.4% from mid 2007 through mid 2010 (40% in FY 2010 and 60% in FY 2011).

BACKGROUND

I. Initial development of the Chief Joseph Hatchery Program

In December 2001, as part of the solicitation associated with the Columbia Cascade Province, the Colville Tribes submitted a series of new proposals to address habitat restoration, fish propagation (spring Chinook and summer/fall Chinook), fish harvest, and research, monitoring, and evaluation needs in the Okanogan subbasin. This list of new proposals, prioritized by the Columbia Cascade fish and wildlife managers and fitting within the province allocation, included Proposal #29040 *Develop and Propagate Local Okanogan River Summer/Fall Chinook*.¹⁴ In October 2002 as part of the issue summary for the Columbia Cascade provincial review (Project Issue #3) the Council recommended this proposal for funding.

Prior to contracting for Chief Joseph Hatchery Program¹⁵ the Colville Tribes raised concerns that some of the original, unfunded proposals were not intended to stand alone, but were interrelated to the summer/fall Chinook propagation proposal (e.g. selective harvesting gear and spring Chinook propagation) and part of the Colville Tribes' broader anadromous fish recovery objectives. Though some of the key objectives of the unfunded proposals could be addressed as part of the Master Plan during the Three-Step Review Process, the Colville Tribes were concerned with anticipated future needs regarding the spring Chinook production. The Colville Tribes thought it would be cost effective to simultaneously include separable spring Chinook facilities in the hatchery's conceptual design.

Council and Bonneville staff met with the Colville Tribes and determined that inclusion of this additional information regarding spring Chinook at the Step 1 Master Plan stage for summer/fall Chinook would be beneficial to both plan reviewers and decision-makers. Moreover, all parties recognized that potential cost efficiencies might be secured through early identification of design and construction alternatives associated with the spring Chinook components of the CJHP proposal.

From this meeting, Bonneville contracted the development of a Master Plan (Step 1), including conceptual designs for hatchery facilities necessary for production of summer/fall Chinook and spring Chinook. The reasons for including the spring Chinook component in Step 1 were:

- Low planning costs to include both summer/fall and spring Chinook in the Master Plan development.
- An opportunity for the Council and the Independent Scientific Review Panel to review the summer/fall and spring Chinook programs together within the context of the Okanogan subbasin ecosystem.
- Opportunities to achieve cost savings by developing, designing and constructing the summer/fall and spring Chinook propagation facilities at the same time.

II. Major Project Review (The Three-Step Review process)

¹⁴ The proposal is now titled *Chief Joseph Hatchery Program*, and is implemented through Project # 2003-023-00.

¹⁵ In April 2003, BPA agreed to fund development of the CJHP Master Plan. In July 2003, BPA negotiated a contract with the Colville Tribes to develop a CJHP Master Plan.

Step 1 - Conceptual Phase (Master Plan)

On May 26, 2004, the Colville Tribes submitted the Step 1 Master Plan. The spring Chinook components in the CJHP Master Plan were presented in a single separate chapter and all costs and facility requirements were presented as separate components. Council staff determined that the inclusion of this additional information at the Step 1 Master Plan stage benefited both plan reviewers and decision-makers. On June 9, 2004, the Council supported the staff recommendation that the spring Chinook component of the submitted Chief Joseph Hatchery Program Master Plan be reviewed by the ISRP. At the time of the Step 1 decision, the scope and direction of this project would then be determined.

On June 11, 2004, Council staff submitted to the ISRP the Step 1 documents. Due to the anticipated workload associated with the subbasin plan reviews, Council staff did not anticipate reviewing the Tribes' documents until the fall of 2004.

On January 12, 2005, the ISRP provided the Council with their review of the Chief Joseph Hatchery Program Master Plan (ISRP Document 2005-02). The ISRP comments generally confirmed the content and the basis of the master plan for both the summer/fall and spring Chinook components, including support for the proposed research projects (i.e., a radio telemetry study to better understand the migration and spawn timing of the Okanogan summer/fall Chinook, and a study to test and develop live-capture, selective fishing gear for collection of local broodstock). The ISRP made references to revising the master plan to accommodate its comments. The ISRP raised issues that needed to be addressed as the project proceeded in its development. In summary, six issues were raised:

1. a specific time frame process (i.e., decision tree) that outlines the expected range of the production scenarios,
2. additional discussion on the proposal as it relates to alternative forms of mitigation,
3. additional detail regarding the proposal and the relationship to the BAMP (Biological Assessment and Management Plan¹⁶),
4. better integration with other Council and basinwide documents (i.e., subbasin plans),
5. basic information regarding the in-basin and out-of-basin assumptions concerning survival, and
6. more detail on methods, designs (including controls), and hypotheses in the monitoring and evaluation plan.

On March 15, 2005, the Council approved the Step 1 review of the *Chief Joseph Hatchery Program*, Project # 2003-023-00 and recommended conditions associated with Step 2. The specific language associated with the recommendations and approved budget was as follows:

¹⁶ The Master Plan benefits from a foundation laid by development of the Habitat Conservation Plans (HCPs) developed among entities affected by three of the mid-Columbia PUD dams, Wells, Rocky Reach and Rock Island. The BAMP presents a plan for operation and evaluation of anadromous salmonid hatcheries in the Columbia River upstream of the Yakima River confluence. Although the BAMP has not been formally approved, it includes broadly supported genetic and ecological assessments of summer/fall Chinook, spring Chinook, sockeye and steelhead.

- The Council approved the Chief Joseph Hatchery Program Step 1 Master Plan, including the spring Chinook component and the two research studies.¹⁷
- The Council recommended that the Step 2 submittal include estimated costs, including a value engineering review. The submittal should also provide detail of any cost share opportunities identified with the Bureau of Reclamation, public utility districts and irrigation districts.
- The Council recommended that additional information be included in the Step 2 submittal that fully addresses the issues raised by the ISRP.

Step 2 - Progress Review/Preliminary Phase

On November 12, 2007, the Colville Tribes submitted the Step 2 reports. These Step 2 documents were intended to address the conditions placed on this project as part of the Step 1 Council decision. In addition, the Step 2 review included environmental review and preliminary design of the facility and out-year costs.

On March 7, 2008, the ISRP provided their preliminary review (ISRP document 2008-2) of the Step 2 submittal. In response to its review, the ISRP requested additional information from the project sponsors including recommendations and modeling results from the Hatchery Scientific Review Group and revision of the Master Plan to address issues raised in the ISRP's Step 1 and Step 2 reviews. The ISRP determined that the master plan's primary deficiency was a lack of adequate linkage between the environmental assumptions and the objectives of the program. The ISRP thought the HSRG's new modeling capabilities would provide reasonable estimates of natural and hatchery recruitment consistent with limitations on habitat carrying capacity, hydrosystem operations, and downstream and marine harvest.

On July 3, 2008, the Colville Tribes submitted its response to the ISRP's preliminary Step 2 review. The ISRP determined that additional detail was needed to provide a clear linkage as to where and if the issues raised by the ISRP were addressed. This additional information was provided to the ISRP in August and November 2008 to complete the submittal for review.

On January 22, 2009, the ISRP provided a "response requested" review (ISRP document 2009-2) to provide an opportunity for the Colville Tribes to provide additional information associated with the six issues identified in the ISRP's preliminary review. The ISRP found that two of the six Step 1 issues were resolved, but four issues needed additional treatment. The ISRP requested further information, discussion, and response on the four unresolved issues before the ISRP could judge whether the program meet Fish and Wildlife Program scientific criteria.

¹⁷ The first critical study consisted of a radio-telemetry research to determine where and when summer/fall Chinook migrate, where they congregate, the extent to which they are spatially separated from other population components, and whether the timing of passage over Wells Dam is related to timing and location of subsequent spawning. This information is critical to the development of broodstock protocols and subsequent acclimation of progeny. The second research study was to test the viability of live-capture, selective fishing gear for local broodstock collection.

On March 2, 2009, the ISRP and the Colville Tribes met to discuss the recent review and subsequent request for information. This provided an opportunity for Colville Tribes to seek clarification on the remaining issues and discuss likely responses with the ISRP. On March 11, 2009, the Colville Tribes provided additional modeling results and other information sought by the ISRP.

On April 17, 2009, the ISRP provided their final Step 2 review (ISRP 2009-12). The ISRP found that the Step 2 submittal “meets scientific review criteria”. The ISRP stated that the Chief Joseph Hatchery Master Plan had progressed significantly from the Step 1 and earlier Step 2 plans. The ISRP was impressed by the Colville Tribes’ efforts to address the issues and their use of modeling to assist them in making plan refinements that reflect the best practices of the Fish and Wildlife Program and the Hatchery Scientific Review Group.

The ISRP cautioned that much uncertainty remains as to whether the salmon harvest and conservation goals can be reached. They stressed the need for an adequate monitoring and evaluation (M&E) plan to address these uncertainties and to adaptively manage the Chief Joseph Hatchery Program.

ANALYSIS

On March 15, 2005 the Council provided conditional approval of the Step 1 Master Plan. The Council recommended that Bonneville fund Step 2 activities (i.e., preliminary design, environmental review and associated research studies). The approval was conditioned on the project sponsors addressing six issues raised by the ISRP. As discussed in the previous section, the Council’s conditions placed on this project have been addressed.

The ISRP has requested the opportunity to review a draft of a final monitoring and evaluation plan. The ISRP is also interested in being apprised of a) the progress in the Tribes’ selective fishing research as this harvest capability is critical to achieving the CJHP objectives, and b) how the population status and genetic diversity of summer/fall Chinook above Wells Dam will be assessed during final CJHP planning and implementation.

The Colville Tribes are agreeable to further interactions with the ISRP, including providing a draft M&E plan for ISRP review. The Colville Tribes anticipate that a draft final M&E plan can be provided to the ISRP by July 2009 and a complete Step 3 submittal can be provided to the Council in September 2009. The Tribes are hopeful to break ground on Chief Joseph Hatchery in April 2010.

Based on the ISRP review, the Council staff recommends that the Council approve the *Chief Joseph Hatchery Program* (Project # 2003-023-00) to proceed to Step 3. This recommendation is conditioned on the understanding that the additional information requested by the ISRP, as outlined above, be addressed as part of the Step 3 submittal and review process.

Costs

Total costs with this submittal are significantly higher than Step 1. The major increase in estimated costs relates to construction which is now estimated to occur in 2010 through 2012. The general scope of the facilities relate to the production needs initially identified in the Step 1

submittal. Current costs for construction and construction management are estimated to be about \$37,000,000. Assumed escalation for construction was calculated from mid 2007 to mid 2009. It is now assumed that construction would start in 2010 and 2011 and costs were escalated at 4% annually to reflect this. It should be noted that escalation for a year could be as much as \$1,500,000 for construction costs. It should also be noted that the initial cost estimates in the Step 1 submittal were conceptual. In addition, the estimated costs shown are aligned with the MOA.

Though this project is part of the Columbia Basin Fish Accords, the three mid-Columbia public utility districts (PUDs), Chelan County, Grant County and Douglas County, are in talks with the Colville Tribes and Bonneville about potentially cost-sharing the project (capital and expense) to help meet mitigation responsibilities for non-federal hydropower projects in the area. The PUDs, have expressed interest in acquiring about one-quarter of the new hatchery's production. Gaining the participation of the PUDs would give Bonneville an opportunity to stretch the fish and wildlife budget further than otherwise expected.

The U.S. Army Corps of Engineers, Washington Department of Fish and Wildlife, Washington Parks and Recreation Commission (WPRC), Oroville-Tonasket Irrigation District (OTID) and others have cooperated on project design to reduce costs. The hatchery would be located on the Columbia River just below Chief Joseph Dam on Corps' land. A hatchery housing complex would be located upland of the hatchery on WPRC land. Along the Okanogan River, three existing OTID irrigation ponds, one Tribal acclimation pond, and two new ponds would be used to acclimate, imprint, and volitionally release about 1.3 million summer/fall and spring Chinook smolts annually.

Science Review

I. Research Studies

The Colville Tribes recognized early in the conceptual design of this project that key questions about Chinook behavior and migration patterns above the Wells Dam needed to be answered to guide development of a hatchery broodstock strategy. In addition, selective harvest capabilities needed to be developed to collect hatchery broodstock and harvest available hatchery Chinook while protecting wild fish and listed species. These questions were researched and the results were included in the Step 2 documents submitted to the Council and reviewed by the ISRP.

Through a radio telemetry study, the Colville Tribes confirmed that significant life history diversity remains in the summer/fall Chinook run that needs to be protected and reflected in collection of hatchery broodstock and subsequent rearing and release of progeny.

Research on live-capture, selective fishing gears confirmed that the Colville Tribes would be able to successfully collect, transport and hold Okanogan summer/fall Chinook broodstock for CJHP to preserve population structure in the upper Columbia River.

In a related research project, in 2008, the Colville Tribes began testing selective fishing gears to harvest hatchery Chinook while releasing wild fish. Results from the first year were very encouraging, with significant numbers of hatchery fish harvested and wild Chinook released with

minimal or no direct mortality. These studies will continue and intensify in 2009. Selective harvest capabilities will not only allow the Colville Tribes to reap the full benefits of the CJHP, but also allow them to minimize the escapement of these hatchery fish, thereby enhancing the productivity and viability of the natural population.

II. Science Review

The ISRP found that the Step 2 submittal met scientific review criteria and that the Colville Tribes have adequately addressed the 6 issues that had been identified in the Step 1 review. Though the issues have been adequately addressed, follow up and additional concerns need to be addressed as part of the decision recommending that the Chief Joseph Hatchery Program move to Step 3 activities (i.e. final designs). The primary item that will need to be addressed as part of a Step 3 decision will be the adequacy of an anticipated monitoring and evaluation plan. Several of the follow-up items (e.g., stock/recruit analysis, juvenile estimates, and annually reporting) identified as part of their final review (ISRP 2009-12) will be addressed as part of this plan. The ISRP is confident that the Colville Tribes have demonstrated the capability to address these follow-up items as they finalize their monitoring and evaluation plan.

Environmental Review and Endangered Species Act

In May 2007, the Draft Environmental Impact Statement (EIS) for the Chief Joseph Hatchery Program was published in the Federal Register. Public hearings on the draft EIS were held in June, 2007. The U.S. Army Corps of Engineers became a National Environmental Policy Act (NEPA) Cooperating Agency in April, 2008, since the hatchery is proposed on their land. During the environmental process, no unique environmental circumstances or major, controversial impacts were found. Some minor fish impacts were raised, the focus being on effects of the Tribes' ceremonial and subsistence fisheries and impacts to naturally spawning Chinook and steelhead. Hydrology and water quality, related mostly to Okanogan River water diversion and use, and hatchery and acclimation pond discharge were also minor concerns. But, these impacts would be within permit limits of the National Pollutant Discharge Elimination System and would be monitored frequently to ensure compliance. A cultural resources investigation and construction monitoring/mitigation at one acclimation pond is being prepared in cooperation with Colville Tribes' History/Archaeology Department.

Upper Columbia River (UCR) summer/fall Chinook were not warranted for listing under the Endangered Species Act (ESA). The UCR spring Chinook are listed as endangered, but have been extirpated from the Okanogan River which was therefore not designated as critical habitat. The UCR steelhead are also ESA-listed, and their range does include the Okanogan River. The ESA Section 7 consultation was initiated in May 2006. USFWS concurred with BPA findings in June 2006. A Biological Opinion was issued by NOAA Fisheries in July 2008. Both agencies indicated a positive reaction to the project.

The Record of Decision (ROD) to proceed with construction is anticipated in February 2010.