Application for New License

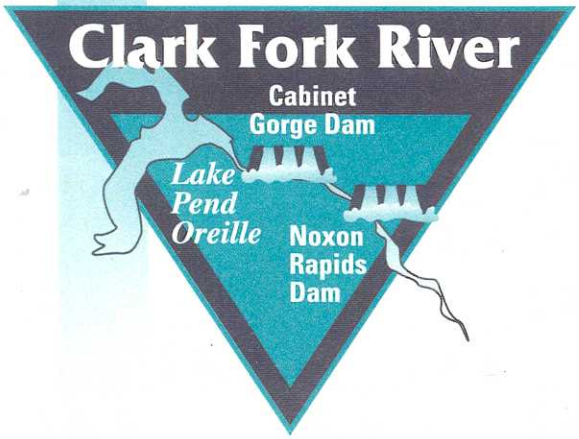
Volume III
Settlement Agreement

Including Appended PM&Es, and Cultural Resource Programmatic Agreement

Cabinet Gorge
Hydroelectric Project
(FERC No. 2058)

&

Noxon Rapids
Hydroelectric Project
(FERC No. 2075)



submitted by:

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February 1999

ANATOMY OF THE CLARK FORK LICENSE APPLICATION

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V.A-1 Beak. 1997. Observations on Reservoir Limnology and Water Quality Data. Memo (April 1, 1997) to the Water Resources Work Group, Clark Fork Relicensing Team. Spokane, WA.

V.A-2 Beak. 1997. Evaluation of Feasibility/Effectiveness of Water Temperature Manipulation. Report prepared by Beak Consultants, Incorporated for WWP.

V.A-3 Beak. 1997. Nutrient Loading. Memo (September 9, 1997) to Water Resources Work Group, Clark Fork Relicensing Team. Spokane, WA.

V.A-4 Beak. 1997. Evaluation of Phytoplankton Community for the Noxon Rapids and Cabinet Gorge Hydroelectric Projects.

V.A-5 Beak. 1998. Handout: Flow and Fluctuation Effects in the lower Clark Fork River. Operations Sub Group, Clark Fork Relicensing Team. Spokane, WA.

V.A-6 Beak. 1998. Handout: Effects of Fluctuations in Noxon Reservoir on Spawning and Overwintering of Largemouth Bass. Operations Sub Group, Clark Fork Relicensing Team. Spokane, WA.

V.A-7 Beak. 1998. Handout: Potential Effects of Reservoir Drawdown on Outmigration of Juvenile Salmonids. Operations Sub Group, Clark Fork Relicensing Team. Spokane, WA.

V.B-1 Cascades Environmental Services, Inc. 1997. Assessment of Avian Impacts Related to the Transmission Line at Noxon Rapids Dam.

V.B-2 Cascades Environmental Services, Inc. 1998. Historic and Current Resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects.

V.B-3 Cascades Environmental Services, Inc. 1998. Assessment of Fish Habitat and Populations in lower Clark Fork Tributaries in Idaho. Washington Water Power, Spokane, WA.

V.C-1 Lang, B. Z. 1997. Lower Clark Fork River Mollusc Community Assessment. Water Resources Work Group, Clark Fork Relicensing Team. Spokane, WA.

V.D-1 Moore. J. N. 1997. Metal Contamination in Lower Clark Fork River Reservoirs. Washington Water Power, Spokane, WA.

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V.E-2 ND&T. 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Development: 1993 Water Quality Study Report. Washington Water Power, Spokane, WA.

V.E-3 ND&T. 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1993 Botanical Studies Report. Washington Water Power, Spokane, WA.

V.E-4 ND&T. 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1993 Recreation Study Report. Washington Water Power, Spokane, WA.

V.E-5 ND&T. 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1993 Wildlife Study. Washington Water Power, Spokane, WA.

V.E-6 ND&T. 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1993 Aquatic Habitat and Fish Resources Assessment. Volume I. Washington Water Power, Spokane, WA.

V.E-7 ND&T. 1995. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1994 Creel Survey. Washington Water Power, Spokane, WA.

V.E-8 ND&T. 1995. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1994 Wetland Mapping and Assessment study Volume I. Washington Water Power, Spokane, WA.

V.E-9 ND&T . 1995. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1994 Wetland Mapping and Assessment study Volume II. Washington Water Power, Spokane, WA.

V.E-10 ND&T. 1995. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1994 Recreation Study Report. Washington Water Power, Spokane, WA.

V.E-11 ND&T. 1995. Cabinet Gorge and Noxon Rapids Hydroelectric Developments: 1994 Botanical Resources Study.

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V.F-3 Parametrix. 1998. Assessment of Geomorphic Processes Phase I Report. Washington Water Power, Spokane, WA.

V.G-1 Pratt, K. L., and J. E. Huston. 1993. Status of bull trout *(Salvelinus confluentus)* in Lake Pend Oreille and the lower Clark Fork River. Washington Water Power, Spokane, WA.

V.H-1 WWP (Washington Water Power). 1995. 1994 Water Quality and Limnologic Evaluations on the lower Clark Fork River. Washington Water Power, Spokane, WA.

V.H-2 WWP. 1995. Fish community assessment on Cabinet Gorge and Noxon Rapids Reservoirs. Washington Water Power, Spokane, WA.

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V.H-4 WWP. 1995. Initial Stage Consultation Document. Noxon Rapids (FERC no. 2075) and Cabinet Gorge (FERC No. 2058) Hydroelectric Projects.

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V.H-7 WWP. 1996. Lower Clark Fork River tributary survey, Volumes I and II. Washington Water Power, Spokane, WA.

V.H-8 WWP. 1996. 1994-1995 Evaluation of fish communities on the lower Clark Fork River, Idaho: A supplemental report. Washington Water Power, Spokane, WA.

V.H-9 WWP. 1996. Cabinet Gorge and Noxon Rapids Hydroelectric Projects: Wintering bald eagle report. Washington Water Power, Spokane, WA.

V.H-10 WWP. 1996. Summary of 1995 Canada Goose Bald Eagle, Osprey, and Beaver Surveys Cabinet Gorge and Noxon Rapids Hydroelectric Projects. Washington Water Power, Spokane, WA.

V.H-11 WWP. 1996. 1994-1995 Fish Community Assessment on Cabinet Gorge and Noxon Reservoirs: A Supplemental Report. Washington Water Power, Spokane.

V.H-12 WWP. 1998. Evaluation of the Permanent Reservoir Drawdown Alternative for Cabinet Gorge and Noxon Rapids Hydroelectric Project. Clark Fork Relicensing Team, Economics Task Force, Spokane, WA.

V.I-1 Weitkamp, D. E. 1998. Tolerable Level of Supersaturation. March 4, 1998 memo to the Water Resources Work Group, Clark Fork Relicensing Team. Spokane, WA

VOLUME VI. MEETING SUMMARIES

VOLUME VII. SUPPORTING DESIGN REPORT

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

	)	**Project No. 2058**
	)	**(Cabinet Gorge)**
Avista Corporation	)	
	)	**Project No. 2075**
	)	**(Noxon Rapids)**

CLARK FORK SETTLEMENT AGREEMENT

INTRODUCTION AND PURPOSE

A. This Settlement Agreement, dated as of January 1, 1999, ("Agreement") is made and entered into pursuant to Rule 602 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("FERC" or "Commission") (18 CFR §385.602) by and between the following entities who shall hereinafter be referred to as a "Party" and collectively as "Parties": Avista Corporation ("Avista"); the United States Fish and Wildlife Service ("USFWS"); the United States Department of Agriculture, Forest Service ("USFS"); the Confederated Salish and Kootenai Tribes; the Kalispel Tribe; the Kootenai Tribe of Idaho; the Coeur d'Alene Tribe; Trout

Unlimited; the Noxon-Cabinet Shoreline Coalition; the Idaho Division of Environmental Quality ("IDEQ"); the Idaho Department of Fish and Game ("IDFG"); the Idaho Department of Parks and Recreation; the Montana Department of Environmental Quality ("MDEQ"); the Montana Department of Fish, Wildlife and Parks; the Montana Department of Natural Resources and Conservation; the Green Mountain Conservation District; the Montana State Historic Preservation Officer; the Idaho State Historic Preservation Officer; Sanders County, Montana; the Montana B.A.S.S. Federation; the Cabinet Resource Group; Idaho Rivers United; the Rock Creek Alliance; the Elk Creek Watershed Council; the Lake Pend Oreille Idaho Club; the Tri-State Implementation Council, and the Alliance for the Wild Rockies.

B. This Agreement sets forth the agreement of the Parties with regard to the environmental, cultural, public recreation, fishery, wildlife, operational and related measures (hereinafter "Protection, Mitigation and Enhancement Measures," or "PM&Es") which Avista will undertake in consultation with the other Parties pending issuance of a new FERC license and during the term of the new FERC license for Avista's Cabinet Gorge Project (FERC No. 2058) and Noxon Rapids Project (FERC

No. 2075) (hereinafter "Cabinet Gorge," "Noxon Rapids," and, collectively, "Clark Fork Projects" or "Projects"). This Agreement also establishes the obligations of the Parties to support this Agreement before FERC and to support the issuance of a new license for the Clark Fork Projects which is consistent with the terms of this Agreement.

AGREEMENT

EFFECTIVE DATE AND TERM

1. This Agreement shall become effective and binding on March 1, 1999, and shall continue for the term of the new license to be issued by FERC for the Clark Fork Projects plus the term of any annual license which may be issued upon expiration of the new license and shall be binding upon the successors and assigns of the Parties.

GENERAL AGREEMENTS AND UNDERSTANDINGS OF THE PARTIES

New License Should Conform to Settlement

2. The Parties agree that FERC should issue a new license to Avista which is consistent with this Agreement and which contains conditions that properly reflect the PM&Es described in and made a part of this Agreement which Avista has agreed

to undertake and implement pending issuance of a new license, including the term of any annual licenses, and during the term of the new license. The Parties further agree that with respect to matters covered by this Agreement, FERC should not include in the new license additional or supplemental conditions except as otherwise provided or contemplated in this Agreement or except as may be necessary to enable FERC to ascertain and monitor Avista's compliance with the conditions of the new license and its regulations under the Federal Power Act ("FPA"). The Parties understand that before it may issue a new license, FERC must comply with a number of statutory requirements including Section 4(h)(11)(A)(ii) of the Northwest Power Act.

Term of License

3. In recognition of Avista's significant obligations under this Agreement, of the fact that it sought and obtained the acceleration of the termination date of the Noxon Rapids license, the fact it has committed to commence implementation of this Agreement two years prior to license expiration, and of the adaptive management component of this Agreement, the Parties agree that the term of the new license for the Clark Fork Projects should be for 45 years.

Rehearing and Judicial Review

4. The provisions of this Agreement are not severable and this Agreement is made with the understanding that each term is in consideration and support of every other term and is a necessary part of the entire Agreement. In the event that FERC issues a new license with modifications or issues a new license with terms or conditions that are materially inconsistent with the Agreement, the Agreement shall, except as provided in Paragraph 5, be considered modified to conform to the terms of the new license unless any of the Parties advises the other Parties in writing, within 30 days after the issuance of such license, of its objection to the modification, change or condition. The Parties shall then immediately commence negotiations for a period not to exceed 90 days to resolve the issue(s) and modify the Agreement as needed. If agreement cannot be reached within the 90 day period or any extended period to which the negotiating Parties may agree, an objecting Party other than Avista may, by notice to all the other Parties, either withdraw from the Agreement or elect not to be bound by the modification, change or condition except to the extent the Party is otherwise subject to the jurisdiction of the FERC with respect to that modification,

change or condition. The foregoing shall not preclude any Party from seeking rehearing or judicial review with respect to the modification, change or condition and the time period within which the parties must attempt to negotiate a resolution of the issue(s) may, at the option of the objecting Party, be tolled pending the disposition of the rehearing request and, if applicable, a petition for judicial review.

Conditions Omitted by FERC

5. In the event that FERC issues a new license that omits any conditions of this Agreement or reduces any of Avista's obligations under this Agreement, Avista agrees that it will nonetheless be bound by all such conditions and that such conditions will be enforceable in a court of competent jurisdiction by and against any of the Parties. The Parties agree, however, that nothing in this Agreement is intended to be construed as a waiver by any agency or sovereign of any immunity from suit which it may otherwise have.

Funding Suspension

6. Avista agrees that prior to the issuance of a new FERC license, it will not suspend or terminate its funding and implementation of this Agreement if another Party

exercises the withdrawal rights provided by this Agreement and withdraws from this Agreement, unless Avista reasonably determines that the withdrawal of that Party could adversely affect the likelihood of the acceptance of this Agreement by FERC as part of the order issuing a new license.

Reopeners

7. The Parties agree that they will not invoke or rely upon any reopener clause contained in the new license for the purpose of seeking changes to or otherwise seek to modify this Agreement or the new license with respect to any matter covered by this Agreement unless that Party determines that new information reasonably demonstrates that applicable provisions of this Agreement are inconsistent with the public interest and affords the Management Committee, to be established under Paragraph 26 of this Agreement, at least 90 days to consider the new information and that Party's position. Said Party shall not be required to comply with this 90 day notice provision if it believes an emergency situation exists, or as necessary to comply with the Endangered Species Act ("ESA"). Notwithstanding the provisions of this paragraph, the Parties agree that USFWS may seek reopening of the new license as

necessary to comply with the ESA and implementing regulations, or pursuant to its authority under Section 18 of the FPA as set forth in Paragraph 17 of this Agreement, and the parties agree that FERC should reserve authority to reopen the license in such circumstances.

Cooperate in Studies

8. The Parties agree to cooperate in conducting studies and monitoring activities to be implemented pursuant to this Agreement and in providing reasonable assistance in any approval or permitting process that may be required for implementation of this Agreement; provided that any Parties who are governmental agencies are not by this commitment compromising or relinquishing any legal authority they may have in those situations where they may be the permitting agency.

Establishes No Precedents

9. The Parties understand and agree that this Agreement establishes no principles or precedents with regard to any issue addressed herein or with regard to any Party's participation in the next relicensing proceeding and that none of the Parties to this Agreement will cite either this Agreement or its approval by FERC as establishing

any principles or precedents except with respect to the matters to which the Parties have herein agreed. The Parties further understand and agree that no Party to this Agreement shall be deemed to have approved, accepted, agreed to or otherwise consented to any operation, management, valuation or other principle underlying any of the matters herein, except as expressly provided herein.

Agency Environmental Statements

10. Nothing in this Agreement shall be construed to predetermine the outcome of any analysis under environmental assessments or statements or decisions based on those assessments or statements which must be undertaken by any of the state or federal agencies which are Parties to this Agreement. In addition, nothing in this Agreement shall preclude the IDFG from exercising its full prerogatives under the NEPA process, including scoping, alternative development, the effects of alternatives, and records of decisions.

Successors and Assigns

11. This Agreement shall be binding upon the Parties and their successors and assigns and any successor licensee shall assume and be responsible for the same

funding obligations of Avista established by this Agreement including obligations with respect to interest on carry-over funds. No change in the status of any Party shall in any way alter any Party's interests, rights, or obligations under this Agreement. No interest, right or obligation under this Agreement shall be transferred or assigned by any Party hereto without the approval of the Management Committee to be established under Paragraph 26 of this Agreement. Nothing herein shall affect the right of Avista to transfer its existing licenses or its new license including any interest in these Projects nor the right of any Party to oppose any license transfer.

Liability of Parties

12. By entering into this Agreement, the Parties other than Avista have not accepted any legal liability for the operation of the Clark Fork Projects.

Relates to Specific Matters

13. The provisions of this Agreement are intended to relate only to the specific matters set forth or referred to herein, and no party waives any claim, right or authority which it may otherwise have with respect to any matters not expressly provided for or referred to herein. To the extent a federal, state or tribal governmental

Party has not expressly waived the exercise of its authorities and rights in this Agreement, it fully retains such authorities and rights with respect to this and other proceedings.

Responsibilities Under Existing Laws

14. Nothing in this Agreement shall be construed to relieve the parties of their responsibilities under any applicable law or to diminish the authority of any government or governmental agency over the Clark Fork Projects, including but not limited to authority under any provisions of the FPA.

SEPARATE AGENCY STATUTORY RESPONSIBILITIES

Section 10(j)

15. The state and federal fish and wildlife agency Parties represent that the measures which Avista would be required to implement under this Agreement would adequately and equitably protect, mitigate damages to, and enhance fish and wildlife, including related spawning grounds and habitat, within the meaning of § 10(j) of the FPA. Such agencies represent that they are not aware of any reason at this time which would require that they submit any recommended § 10(j) condition(s) to FERC which

would be inconsistent with or additive to the obligations of Avista under this Agreement. Should, for whatever reason, any recommended § 10(j) condition(s) be materially inconsistent with the terms of this Agreement, any Party may withdraw from this Agreement.

Montana Major Facility Siting Act

16. The Parties understand that MDEQ is required by State law (Montana Major Facility Siting Act, Title 75, Ch. 20, MCA) to intervene in FERC proceedings involving facilities in the State of Montana and to make recommendations to FERC on behalf of the state. By executing this agreement, MDEQ represents that with the exception of an issue relating to the exercise of Avista's water rights at Noxon Rapids it is not aware of any reason at this time which would require that it submit any recommendation(s) to FERC which would be inconsistent with or additive to this Agreement. Should, for whatever reason, MDEQ make any recommendation(s) to FERC which are materially inconsistent with or additive to the terms of this Agreement, any Party may withdraw from this Agreement.

Section 18

17. USFWS represents that, because of this Agreement and the measures Avista would be required to implement thereunder, neither the Secretary of the Department of the Interior, the USFWS nor any delegate thereof will prescribe the construction of any fishway(s) for the Clark Fork Projects pursuant to § 18 of the FPA, 16 U.S.C. § 811, as a condition of a new license, provided that the FERC includes in the new license a full reservation of the Secretary's authority, pursuant to § 18 of the FPA, to prescribe upstream and downstream fishways after the new license for the Clark Fork Projects is issued, said authority to be used at the Secretary's discretion. The USFWS hereby reserves the Secretary's authority pursuant to § 18 of the FPA to prescribe upstream and downstream fishways after the issuance of new licenses. The USFWS further agrees, however, that no such use of that reserved authority shall be made as long as the fishery related PM&Es set forth in this Agreement are implemented by Avista with diligence and good faith and continue to show a reasonable likelihood of adequately increasing the target populations, as determined by the Secretary following consideration of any relevant information provided by Avista or other Parties. The Parties agree that any fishways ordered by FERC shall be

paid for in full by Avista independent of and in addition to the funding commitments otherwise specified in this Agreement or in the attached PM&Es, except as provided in paragraph VI(d) of Appendix C of the PM&Es.

Section 4(e)

18. The Parties agree that nothing in this Agreement is intended to diminish the management authority of the USFS over any National Forest System lands and nothing in this Agreement is intended to waive this authority or to imply that National Forest management decisions will be made or influenced by the actions and recommendations of the committees established by this Agreement. USFS does represent that, given the measures Avista is required to implement under this Agreement, including Avista's commitment to spend operation and maintenance dollars as estimated by USFS for their recreation facilities within the project, as described in the Recreation Resource Management Plan (Appendix H), it is presently unaware of any reason which would require it to submit any mandatory conditions for the Clark Fork Projects pursuant to Section 4(e) of the FPA which would be materially inconsistent with the terms of this Agreement. Should USFS, for whatever reason,

submit mandatory Section 4(e) conditions to FERC which are materially inconsistent with this Agreement, any Party may withdraw from this Agreement. USFS agrees that should it determine that any of the Section 4(e) conditions it intends to submit may be materially inconsistent with this Agreement, it will so advise the Management Committee (to be established under Paragraph 26 of this Agreement) and attempt to afford the Committee 90 days to discuss and consider such conditions.

Endangered Species Act

19. USFWS and the other Parties recognize that it will be necessary for FERC, pursuant to § 7(a) of the ESA, to engage in formal consultation with the USFWS regarding certain listed species and the habitat of such species before it may issue a new license for the Clark Fork Projects. The Parties further recognize that in the course of such consultation USFWS has an obligation under that statute to determine whether the relicensing of the Clark Fork Projects is likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat and, if so, to propose to FERC those

"reasonable and prudent" alternatives which USFWS believes would not violate the ESA and can be taken by FERC or Avista. By its execution of this Agreement USFWS is not waiving its authorities, rights or obligations under the ESA. The USFWS does believe at this time that the terms of this Agreement are consistent with the conservation of listed species. If, for whatever reason, the USFWS, following formal consultation, does submit to FERC reasonable and prudent alternatives which would be materially inconsistent with or additive to the terms of this Agreement, any Party may withdraw from this Agreement. If USFWS determines that any of the reasonable and prudent alternatives they propose would be materially inconsistent with this Agreement, they will afford the Management Committee (to be established under Paragraph 26 of this Agreement) 90 days to discuss and consider such alternatives.

Water Quality Certifications

20. If either IDEQ or MDEQ issues Section 401 water quality certification(s) for the Clark Fork Projects that is materially inconsistent with or additive to the terms of this Agreement, any Party can withdraw from its participation in this Agreement by providing written notice thereof to the other Parties within 30 days from the date of

issuance of any such certification(s) or, in the event any Party seeks judicial review, 30 days from the date of any final court decision. If either IDEQ or MDEQ issues water quality certification(s) that is consistent with the provisions of this Agreement, the Parties agree not to contest these certifications in any forum. Avista will distribute to the Parties copies of any 401 certifications which are issued, including copies of any draft or tentative certifications that may be issued by the agencies for comment. If either IDEQ or MDEQ determines that any provisions of a 401 certification that it proposes to issue will be materially inconsistent with the terms of this Agreement, it will make reasonable efforts to provide the Management Committee an opportunity to discuss and consider those provisions.

PROTECTION, MITIGATION, AND ENHANCEMENT MEASURES

PM&Es

21. The parties agree that FERC should issue new licenses for the Clark Fork Projects with conditions which provide for the implementation by Avista of the PM&Es described below. The Parties further agree that the Funding Table attached hereto as Appendix U summarizes Avista's monetary obligations in connection with the implementation of the PM&Es. In the event of any inconsistency between any of the PM&Es and the Funding Table, the PM&Es shall control.

(a) For the purpose of offsetting the power peaking and reservoir operational impacts of the Cabinet Gorge and Noxon Rapids Projects to native salmonid species, Avista shall fund and implement the Idaho Tributary Habitat Acquisition and Fishery Enhancement Program PM&E which is attached hereto as Appendix A.

(b) For the purpose of offsetting the power peaking and reservoir operational impacts of the Cabinet Gorge and Noxon Rapids Projects to native salmonid species and recreational fisheries, Avista shall fund and implement the

Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program PM&E which is attached hereto as Appendix B.

(c) For the purpose of meeting the goal of increasing the viability of native salmonid populations by providing fish passage between tributaries upstream of Cabinet Gorge, Noxon Rapids and Lake Pend Oreille, Avista shall fund and implement a fish passage program in accordance with the terms of the Fish Passage/Native Salmonid Restoration Plan PM&E which is attached hereto as Appendix C.

(d) For the purpose of meeting the goal of increasing the viability of bull trout populations by reducing poaching, accidental harvest, and habitat loss, Avista shall fund and implement an education and enforcement program in accordance with the terms of the Bull Trout Protection and Public Education Project PM&E which is attached hereto as Appendix D.

(e) For the purpose of assisting local landowner groups to protect and improve lower Clark Fork River and Lake Pend Oreille tributary watersheds with the expectation that native salmonid and recreational fisheries, water quality and wildlife

habitats will be benefited, Avista will fund watershed councils in accordance with the Watershed Council Program PM&E attached hereto as Appendix E.

(f) For the purpose of meeting the goal of maintaining and improving water quality in the vicinity of the Projects, Avista shall fund and implement the Water Resources Program PM&E which is attached hereto as Appendix F and which includes the following measures: (1) systemic, long term monitoring of nutrients and metals which enter, are retained in and which pass the Projects; (2) the monitoring of Noxon reservoir stratification and the evaluation of nutrients and heavy metals; (3) evaluation of tissues from aquatic organisms for the presence of heavy metals and other substances; (4) developing plans for monitoring maintenance, construction, and emergency activities associated with the Projects and protecting water quality from the impacts thereof; and (5) the implementation of gas supersaturation monitoring, control and mitigation plans.

(g) For the purpose of ensuring that Project lands can reasonably satisfy a variety of competing resource demands and for the purpose of ensuring the implementation of a land classification system, a land and reservoir use permitting

system, and appropriate monitoring and enforcement mechanisms, Avista shall fund and implement the Land Use Management Plan PM&E which is attached hereto as Appendix G.

(h) For the purpose of maintaining and managing appropriate recreational facilities at the Projects and developing new recreational facilities in the vicinity of the Projects to effectively meet recreation demand during the term of the new licenses, Avista shall fund and implement a public recreation plan in accordance with the terms of the Recreation Resource Management Plan PM&E attached hereto as Appendix H.

(i) For the purpose of protecting important aesthetic resources on Project lands, Avista shall fund and implement the Aesthetic Management Plan PM&E which is attached hereto as Appendix I.

(j) For the purpose of providing organization and presentation of the various wildlife, botanical, and wetland PM&E measures within a single, comprehensive management plan, Avista shall fund and implement the Wildlife, Botanical and Wetland Management Plan PM&E which is attached hereto as Appendix

J.

(k) For the purpose of promoting enhancement of wildlife, botanical and wetland resources in the vicinity of Project lands, Avista shall fund and implement the Wildlife Habitat Acquisition, Enhancement and Management Program PM&E which is attached hereto as Appendix K.

(l) For the purpose of protecting Black Cottonwood habitats on Avista property surrounding the reservoirs, Avista shall fund and implement the Black Cottonwood Habitat Program PM&E which is attached hereto as Appendix L.

(m) For the purpose of protecting and enhancing wetland areas within the Project boundary, Avista shall fund and implement the Wetlands Enhancement Program PM&E which is attached hereto as Appendix M.

(n) For the purpose of protecting and enhancing the habitat of bald eagles, peregrine falcons and common loons on Project lands and waters, Avista shall fund and implement the Bald Eagle, Peregrine Falcon and Common Loon Plan PM&Es which are attached hereto as Appendix N.

(o) For the purpose of protecting and enhancing wildlife habitat

associated with the Clark Fork River Delta and surrounding area and controlling erosion, Avista shall fund and implement the Clark Fork Delta Habitat and Erosion Control Program PM&E which is attached hereto as Appendix O.

(p) For the purpose of protecting and managing certain forest wildlife habitats on Project lands, Avista shall fund and implement the Forest Habitat Program PM&E which is attached hereto as Appendix P.

(q) For the purpose of protecting and enhancing certain island wildlife habitats within the Project reservoirs, Avista shall fund and implement the Reservoir Island Habitat Program PM&E attached hereto as Appendix Q.

(r) For the purpose of protecting and enhancing eligible historic and prehistoric resources on Project lands, Avista shall fund and implement the Clark Fork Heritage Resource Program and the Clark Fork Heritage Resources Management Program as agreed to in the Programmatic Agreement. The Programmatic Agreement and the Clark Fork Heritage Resource Program are attached hereto as Appendix R.

(s) For the purpose of designing and implementing effective erosion-control measures to protect important resource values on lands affected by Project

induced erosion, Avista shall fund and implement the Erosion Fund and Shoreline Stabilization Guidelines Program PM&E which is attached hereto as Appendix S.

(t) For the purpose of mitigating for the impacts of Project operations, Avista shall operate the Projects in accordance with the terms and conditions of the Project Operating Limits Plan PM&E which is attached hereto as Appendix T.

Annual Plans and Budgets

22. In the case of any PM&Es which provide for the expenditure of funds for measures and programs as agreed upon from time to time by the Management Committee, Avista will file each year or at such other times as FERC finds appropriate: (1) a plan which shows the amounts of money proposed to be spent or contributed including the purposes for which the expenditures are to be made and (2) a subsequent statement showing the amounts actually spent or contributed during the relevant period of time. Such plans and statements will be submitted to the Management Committee for approval prior to being submitted to FERC.

Inflation/Deflation Index - Interest Rate

23. In the case of any PM&E which establishes a fund or an amount of

money to be made available by Avista on an annual basis, the amount of the funds to be made available during the second Avista fiscal year (January 1 through December 31) year after this Agreement becomes effective, or on such other anniversary date as the Management Committee may establish for administrative convenience, and each year thereafter, be adjusted by calculating the percentage change of the Gross Domestic Product-Implicit Price Deflator ("GDP-IPD") as reported by the Bureau of Economic Analysis, Department of Commerce, over the most recent four quarters for which the Department has reported the GDP-IPD, and adjusting the funding for that year by this percentage change. In the event that applicable funds, as described in the Funding Summary Table (Appendix U) to be made available on an annual basis by Avista are not spent or used in that year, the amount of any unexpended funds carried forward shall, at the end of the year in question and each year thereafter, be increased by the yield in percent per year, compounded daily, on U.S. Treasury securities at a constant maturity of one year, as reported in the Federal Reserve Statistical Release H-15 (Daily Update on Selected Interest Rates for January 1) or the most recent reporting date prior to January 1, of the given year.

Accounting

24. Avista shall commence the funding and implementation of the PM&Es on March 1, 1999. Within six months of the effective date of the new license, Avista, in consultation with the Management Committee, shall cause an appropriate accounting to be made and, in consultation with the Management Committee, shall determine and inform the FERC and all Parties of the amounts spent by Avista prior to the issuance of the new license pursuant to this Agreement and of Avista's remaining funding obligations under each PM&E during the term of the new license.

Land Protection

25. Whenever Avista acquires lands or interests in lands ("PM&E lands") for the purpose of implementing any of the PM&Es, it shall at the time such PM&E lands are acquired, take such actions as may be necessary and appropriate in the circumstances to insure that such PM&E lands are protected in perpetuity from uses which are inconsistent with the purposes for which such PM&E lands are being acquired. Prior to being placed in perpetual protection and in order to allow time to insure PM&E lands are meeting desired goals, the lands will be held by Avista for a

period of not more than ten years subject to a restrictive covenant that would require Management Committee approval for the disposition of those lands. It is understood that in most cases FERC policies will require Avista to include such PM&E lands in the Project boundary and it is further understood that nothing in this Agreement shall be construed either to modify that FERC license obligation of Avista or to prevent the Management Committee in appropriate cases from deferring or not requiring perpetual protection of any PM&E lands which the Committee determines may have a greater value consistent with the purposes of the relevant PM&E, in subsequent land conveyances. In the event Avista should sell or convey the Projects to another entity, it shall also convey to that entity its interest in any PM&E lands located outside the Project boundary and take appropriate measures to insure that such entity will assume the same obligations with respect to those lands as Avista has under this Agreement. The Parties agree that the Management Committee should consider and to the extent practicable implement the land acquisition and protection guidelines reflected in the Land Acquisition Policies Statement attached as Appendix V.

MANAGEMENT COMMITTEE

Authority

26. There is hereby established a Management Committee which shall be composed of one representative from each of the Parties. The Management Committee shall have the authority, subject to such FERC approvals as may be necessary in appropriate cases, to: (1) approve plans developed by Avista and/or the appropriate technical committee for the implementation of PM&Es, including the related funding; (2) approve modifications of the PM&Es; (3) oversee the implementation of all PM&Es by Avista and the appropriate committees; (4) establish such committees as it deems necessary for the purpose of implementing this Agreement and the attached PM&Es and determining, as appropriate, the size, membership and procedures of such committees, including those of any of the committees identified specifically in this Agreement or in the attached PM&Es; (5) establish appropriate procedures for conducting its activities, including procedures for proxy voting, and holding meetings by teleconferencing methods; (6) permit additional entities to execute this Agreement and thereby become Parties and, as appropriate, permitting the addition of such new

entities as Parties on terms different from those of the original signatories to this Agreement; (7) resolve all disputes regarding implementation of approved PM&Es and all disputes brought to it for resolution by any of the Parties or committees; and (8) following the issuance of the new license and subject to the approval of the FERC, amend this Agreement and any of the PM&Es, in accordance with the voting provisions set forth in this Agreement.

Avista License Responsibilities

27. Notwithstanding any of the provisions of the foregoing Paragraph, the Parties intend and agree that Avista will be responsible for license compliance and for the implementation of the PM&Es, including the costs of permits or applicable environmental analyses within the respective PM&E implementation budgets, pursuant to the terms of this Agreement and the terms of its new license and shall be and remain responsible regardless of the Management Committee's inability to resolve any implementation plan issue in a timely manner. In seeking FERC approval of an

implementation plan in such circumstances Avista shall inform FERC of the issues which the Management Committee or the appropriate technical committee was unable to resolve and shall fairly disclose to FERC the positions of the various members of the Management Committee on the pertinent issues.

Public Notice and Voting

28. The Management Committee shall meet at least twice each year. The meetings of the Management Committee shall be open to the public and Avista shall provide reasonable notice of the meetings of the Management Committee and the technical advisory committees in local newspapers and by mailings to an interested party list. The Management Committee shall endeavor to conduct its business by consensus. For decisions on which consensus among all Parties cannot be attained and a vote is necessary, the States of Idaho and Montana shall for purposes of compliance with item (2) below have one vote apiece. In the event a vote of the Management Committee should become necessary on any matter, decisions of the Management Committee shall be by: (1) Majority vote of the members present and voting at a duly called meeting of the Management Committee at which a quorum is present and (2)

unanimity of (i) the USFS, (ii) USFWS, (iii) the State of Idaho, (iv) the State of Montana, and (v) Avista. The aforementioned Parties shall make reasonable efforts to participate in the discussions held by the Management Committee on any issue upon which there may be the need for a vote. When an issue before the Management Committee involves a decision to spend funds which are within the funding amounts Avista is committed to spend under the terms of the applicable PM&Es (as distinguished from decisions involving PM&Es which contain funding estimates), consensus by Avista is not required. A quorum for meetings of the Management Committee shall be seven Parties and must include at least two of the federal agency Parties, at least one agency Party from each of the States of Idaho and Montana and Avista. The state agency Parties will be responsible for determining the representative or agency Party that will represent the state in any determination of the Management Committee under item (2) of this Paragraph. As used in this Paragraph the term "present" shall also include any Party or Parties participating in a meeting by teleconference.

Dispute Resolution

29. Any dispute that arises in the implementation of this Agreement and any of its PM&Es, or in any committees formed under this Agreement, shall, in the first instance, be the subject of informal negotiations among the parties to the Agreement. A party or parties may refer a dispute to the Management Committee, along with a written statement outlining the dispute and proposed resolution. The Management Committee shall meet and by majority vote, determine whether the resolution is acceptable. During this informal dispute resolution period, any party may request the FERC Director of the Office of Hydropower Licensing, or the Director's Designee, to participate in the negotiations to assist in resolving the dispute. If no resolution is reached during the informal process, the disputing party or parties shall have thirty days following the Management Committee decision to refer the dispute to FERC for expedited dispute resolution. All disputes taken to FERC under this section shall be governed by FERC's Rules of Practice and Procedures, 18 C.F.R. Part 385. The proposed resolution and the Management Committee decision, and all supporting documents, may be submitted to the FERC. If a disputing party does not refer a

dispute to the FERC within the thirty day time period, the Management Committee resolution will become binding on all parties.

Administrative and Clerical Support

30. Avista will provide reasonable administrative, clerical and support facilities for the Management Committee and TACs. Avista will be responsible for preparing proposed agendas, minutes of all committee meetings, for distributing minutes from prior meetings to the members in advance of upcoming meetings, and for the management and preservation of data and studies including the provision of reasonable public access to such data and studies. Avista will keep the Management Committee reasonably informed of the status of its license compliance filings and, in the event that any such filing is disputed by any Party, Avista shall notify all Parties of the dispute and make copies of its filing available to the Parties.

Annual Report

31. Within one year of the issuance of a Commission order approving this Agreement and issuing a new license, and annually each year thereafter during the term

of the new license, Avista shall prepare and file with FERC a detailed report on the activities of the Management Committee and other committees and on the implementation of the PM&E measures during the previous year. Such report shall identify all revisions made to approved PM&Es during the previous year and all new PM&Es implemented during the previous year. Avista will prepare the annual reports in consultation with the members of the Management Committees and will provide such members with at least thirty (30) days in which to comment on a draft of the report prior to filing a final version with the Commission.

TECHNICAL ADVISORY COMMITTEES

WRTAC and TRTAC

32. Initially, the Management Committee shall have two technical advisory subcommittees. The first shall be known as the Water Resources Technical Advisory Committee ("WRTAC"). The second will be known as the Terrestrial Resources Technical Advisory Committee ("TRTAC"). The WRTAC shall have responsibility for fishery resources, water quality, and water quantity. The TRTAC shall have responsibility for wildlife, botanical resources, wetlands, land use, recreation, and

aesthetics. Avista shall consult with the TACs in developing appropriate implementation plans for the PM&Es and related funding recommendations.

Membership

33. The WRTAC and the TRTAC shall unless later modified by the Management Committee, consist of one representative from each of the Parties. Within sixty (60) days of the effective date of this Agreement and annually each year thereafter during the terms of the new licenses for the Clark Fork Projects, each of the Parties shall provide written notice to the Management Committee of the identity of its representatives on the WRTAC and TRTAC. Notwithstanding the above, any Party may choose not to participate in the WRTAC and/or the TRTAC during any year, in which case it should so indicate in the written notice(s) referenced above. In order to ensure continuity and stability in the membership of the TACs, the Parties will attempt to designate representatives for three (3) year terms.

Procedures

34. The TACs shall, unless and until modified by the Management Committee, establish the procedures for conducting their activities, including those necessary for developing and submitting to the Management Committee implementation plans for PM&Es and related funding recommendations.

Relationship of Committees to Federal Agencies

35. The Parties agree that the Management Committee, the TACs and any other groups or committees identified in this Agreement are established to ensure Avista's implementation of the PM&Es. If a decision by any committee or group established by this Agreement involves a recommendation for action by a federal agency which is a Party to this Agreement, it is understood that that agency will consider the recommendation in the same manner as it would consider recommendations and information from any other person or group and that the agency may seek additional public comments on the matter as part of its normal administrative process.

CULTURAL RESOURCES MANAGEMENT GROUP

Programmatic Agreement

36. The Parties recognize and acknowledge the special role of the Cultural Resources Management Group ("CRMG") in overseeing the protection, enhancement and mitigation of cultural resources. The composition, procedures, and protocols for the CRMG are described in the Programmatic Agreement and Clark Fork Heritage Resource Program ("CFHRP") attached hereto as Appendix R. The Parties agree that they will comply with the provisions of the CFHRP and that the TACs and other committees will consult with the CRMG on any PM&Es that are likely to directly or indirectly affect cultural properties and will advise the Management Committee of the comments of the CRMG related to cultural properties when submitting recommendations for PM&Es to that Committee. The CRMG may submit written comments to the Management Committee on PM&Es recommended to that Committee by the TACs at the time those recommendations are submitted to the Management Committee. Within one year of the effective date of this Agreement, the Management Committee shall adopt protocols for determining those PM&Es and related activities

which are likely to directly or indirectly affect cultural properties.

MISCELLANEOUS

Force Majeure

37. No Party shall be liable for failure to perform or for delay in performance due to any cause beyond its reasonable control. This may include, but is not limited to, fire, flood, strike or other labor disruption, Act of God or riot. The Party whose performance is affected by a force majeure will make all reasonable efforts to promptly resume performance. The Party affected by a force majeure event shall notify the other Parties by telephone, fax or e-mail, as soon as it is reasonably possible and practical to do so of the circumstances of the event which it believes constitutes a force majeure event.

Estimating Decommissioning Costs

38. Avista agrees that in the event FERC makes any material changes to its current policy regarding decommissioning costs during the first 35 years of its new license, Avista will consult with the Management Committee and thereafter undertake such steps as may be reasonable and consistent with those policy changes to estimate the remaining useful life of the Projects and the cost of decommissioning the Projects or a portion of the Projects.

Costs

39. No PM&E funds shall be used to reimburse any Party for its costs of participating in the work of the committees established under this Agreement or for costs incurred in defending this Agreement from any non-Party challenge. No Party shall be required to bear the costs incurred by any other Party in implementing or defending this Agreement or any of the PM&Es established or to be established under this Agreement from any non-party challenge. Nothing in this Agreement, however, shall be construed to prohibit any Party from reimbursing any other Party for its own out-of-pocket costs of attending meetings of any committee established under this Agreement.

Rock Creek Mine

40. Avista shall give timely notice to the Parties in the event that it receives a request for access across project lands for the purpose of installing any outfall or discharge facility in connection with the development of the proposed Rock Creek mine.

Aboriginal and/or Federally Reserved Water Rights

41. Nothing in this Agreement is intended in any way to affect, diminish, impair, or predetermine any aboriginal and/or federally reserved or state law based water rights, if any, the signatory tribes or federal agencies may have in the Clark Fork River and its tributaries.

EXPENDITURE OF AGENCY FUNDS

Federal Agencies

42. Nothing in this Agreement shall be construed as binding the USFWS or the USFS to expend in any one fiscal year any sum in excess of appropriations made by Congress or administratively allocated for the purpose of this Agreement for the fiscal year, or to involve the USFWS or USFS in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocations.

State Agencies

43. Nothing in this Agreement shall be construed as binding any state agency that is a Party to this Agreement to expend in any one fiscal year any sum in excess of appropriations made by its state legislature or administratively allocated for the

purpose of this Agreement for the fiscal year, or to involve any such state agency in any contract or other obligation for the future expenditure of money in excess of such appropriations or allocations.

Execution

44. This Agreement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument and as if all the signatory Parties to all of the counterparts had signed the same instrument. Any signature page of this Agreement may be detached from any counterpart of this Agreement without impairing the legal effect of any signatures thereon, and may be attached to another counterpart of this Agreement identical in form hereto but having attached to it one or more signature pages. Each signatory to this Agreement hereby certifies that (1) he or she is authorized to execute this Agreement and legally bind the Party he or she represents and (2) the Party he or she represents will be fully bound by the terms hereof.

AVISTA CORPORATION

By: Gary D. Ely
Gary D. Ely
Title: Senior Vice President

CONFEDERATED SALISH AND KOOTENAI TRIBES

By: Michael Pablo
Michael Pablo
Title: Chairman

KOOTENAI TRIBE OF IDAHO

By: Velma Bahe
Velma Bahe
Title: Chairwoman

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

By: Kathleen McAllister
Kathleen McAllister
Title: Deputy Regional Forester

IDAHO DEPARTMENT OF FISH AND GAME

By: Stephen P. Mealey
Stephen P. Mealey
Title: Director

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Mark A. Simonich
Mark A. Simonich
Title: Director

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

By: Bud Clinch
Bud Clinch
Title: Director

COEUR D'ALENE TRIBE

By: Ernest L Stensgar
Ernest L. Stensgar
Title: Chairman

KALISPEL TRIBE

By: Glen Nemena
Glen Nemena
Title: Chairman

UNITED STATES. FISH AND WILDLIFE SERVICE

By: Elliott Sutta
Elliott Sutta
Title: Acting Regional Director

IDAHO DIVISION OF ENVIRONMENTAL QUALITY

By: Larry Koenig
Larry Koenig
Title: Assistant Administrator, Water Quality and Remediation

IDAHO DEPARTMENT OF PARKS AND RECREATION

By: Yvonne S. Ferrell
Yvonne S. Ferrell
Title: Director

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

By: Patrick J. Graham
Patrick J. Graham
Title: Director

MONTANA STATE HISTORIC PRESERVATION OFFICER

By: Paul Putz
Paul Putz
Title: State Historic Preservation Officer

IDAHO STATE HISTORIC PRESERVATION OFFICER

By: Robert M. Yohe II
Robert M. Yohe II
Title: State Historic Preservation Officer

MONTANA B.A.S.S. FEDERATION

By: Steve McGuire
Steve McGuire
Title: State President

NOXON-CABINET SHORELINE COALITION

By: James J. Marshall
James J. Marshall
Title: President

CABINET RESOURCE GROUP

By: Bob Zimmerman
Bob Zimmerman
Title: Board President

ROCK CREEK ALLIANCE

By: Diane M. Williams
Diane M. Williams
Title: Board Member

LAKE PEND OREILLE IDAHO CLUB

By: Jim Hahn
Jim Hahn
Title: Vice President

ALLIANCE FOR THE WILD ROCKIES

By: Liz Sedler
Liz Sedler
Title: President

SANDERS COUNTY, MONTANA

By: Harold L. Laws
Harold L. Laws
Title: Commissioner

TROUT UNLIMITED

By: Robert D. Dunnagan
Robert D. Dunnagan
Title: State Council President

GREEN MOUNTAIN CONSERVATION DISTRICT

By: Pat Kelly
Pat Kelly
Title: Supervisor

IDAHO RIVERS UNITED

By: Wendy L. Wilson
Wendy L. Wilson
Title: Executive Director

ELK CREEK WATERSHED COUNCIL

By: Michael Miller
Michael Miller
Title: Chairman

TRI-STATE IMPLEMENTATION COUNCIL

By: Ruth Watkins
Ruth Watkins
Title: Project Coordinator

IN WITNESS WHEREOF, the Parties have executed this Agreement on the dates indicated below.*

CONFEDERATED SALISH AND KOOTENAI TRIBES

By_____

KALISPEL TRIBE

By_____

KOOTENAI TRIBE OF IDAHO

By_____

THE COEUR d'ALENE TRIBE

By_____

AVISTA CORPORATION

By_____

*Original signatures are on file at Avista Corporation's Hydro Licensing and Safety Department.

UNITED STATES FISH AND WILDLIFE SERVICE

By_____

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE

By_____

IDAHO DIVISION OF ENVIRONMENTAL QUALITY

By_____

IDAHO DEPARTMENT OF FISH AND GAME

By_____

IDAHO DEPARTMENT OF PARKS AND RECREATION

By_____

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

By_____

MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

By_____

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

By_____

MONTANA STATE HISTORIC PRESERVATION OFFICER

By_____

IDAHO STATE HISTORIC PRESERVATION OFFICER

By_____

SANDERS COUNTY, MONTANA

By_____

MONTANA B.A.S.S. FEDERATION

By_____

TROUT UNLIMITED

By_____

NOXON-CABINET SHORELINE COALITION

BBy_____

_

GREEN MOUNTAIN CONSERVATION DISTRICT

By_____

CABINET RESOURCE GROUP

By_____

IDAHO RIVERS UNITED

By_____

ROCK CREEK ALLIANCE

By_____

ELK CREEK WATERSHED COUNCIL

By_____

LAKE PEND OREILLE IDAHO CLUB

By_____

TRI-STATE IMPLEMENTATION COUNCIL

By_____

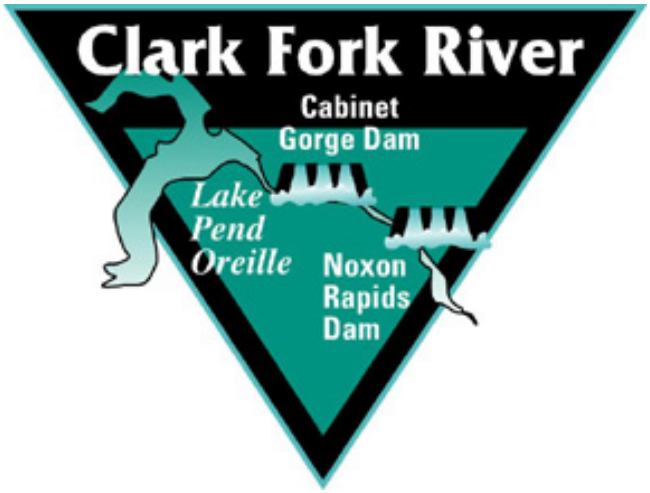
ALLIANCE FOR THE WILD ROCKIES

By_____

Attachments

APPENDICES TO THE

CLARK FORK SETTLEMENT AGREEMENT



Protection, Mitigation and Enhancement Measures

Cabinet Gorge (FERC No. 2058)
Noxon Rapids (FERC No. 2075

PROTECTION, MITIGATION AND ENHANCEMENT MEASURES

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Idaho Tributary Habitat Acquisition and Fishery Enhancement Program

II. PURPOSE AND GOAL:

The purpose of this program is to offset the power peaking impacts of the Cabinet Gorge Project to native salmonid species (i.e. bull trout, westslope cutthroat trout, and mountain whitefish) through watershed restoration and enhancement, fishery monitoring and management support, and a public education and enforcement initiative focused on bull trout in Idaho.

Tributary Habitat Acquisition and Enhancement. This component of the program will help meet the primary goal of this relicensing to restore and secure the long-term population viability of those native salmonid species affected by the Projects, and which depend on tributary habitats for one or more stages of their life cycle. It will also assist with meeting the broader goal of protecting and enhancing native salmonid populations throughout the Lake Pend Oreille - Clark Fork River (LPO-CFR) system. Protection of tributary spawning and rearing sites and stream side riparian buffers, as well as enhancement of stream carrying capacity through instream habitat modifications or other measures, will complement and support other efforts intended to restore and maintain migratory salmonid populations in the LPO-CFR system (e.g. Fish Passage/Native Salmonid Restoration Plan).

Fish Resource Monitoring, Enhancement and Management. This component of the program will be directed by Idaho Department of Fish and Game (IDFG) to support the monitoring of the fish resources in waters downstream of Cabinet Gorge Dam (lower Clark Fork River and Lake Pend Oreille). The purpose of this program is to evaluate whether the proposed change in minimum flow (to 5,000 cfs) is producing the intended benefits, and to support achieving the goals for enhanced populations of native salmonids (i.e. bull trout, westslope cutthroat trout, and mountain whitefish) and important recreational fisheries (e.g. kokanee, rainbow trout, etc.). Evaluation of the increased minimum flow releases will be the primary focus of this measure, at least initially, although the data generated will likely be useful in evaluating the results of other Protection, Mitigation and Enhancement (PM&E) efforts as well (e.g. tributary protection and enhancement, Fish Passage/Native Salmonid Restoration, Bull Trout Protection and Public Education Project, etc.). Upon approval of the Management Committee, resources provided for in this measure may also be used for augmenting or supporting existing, proposed, or new fish management and enhancement efforts in the lower Clark Fork

River or Lake Pend Oreille (e.g. net pen salmonid rearing and release, spawning channel creation or maintenance, summer fishery technicians etc.).

The **Bull Trout Protection and Public Education Project** and the **Watershed Council Program**, which are also part of the measures to mitigate for project operations, are joint projects with the Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program, and are described in separate PM&E descriptions in Appendices D and E, respectively.

III. **CONCERNS TO BE ADDRESSED:** The power peaking operation of the Cabinet Gorge and Noxon Rapids Projects have had and will continue to have adverse impacts on native fish populations and their habitat in the river reach between Cabinet Gorge Dam and Lake Pend Oreille. This is particularly true for migratory, native salmonid populations that historically used the Clark Fork River as a travel corridor between Lake Pend Oreille and tributary spawning and rearing habitats located upstream of the dams. Two such species, bull trout and westslope cutthroat trout, have experienced substantial declines in distribution and numbers throughout their range, resulting in the recent Endangered Species Act listing of bull trout as threatened and the current consideration of listing westslope cutthroat trout. Concern for the status of these native salmonids and the effects of the Cabinet Gorge and Noxon Rapids Projects to the river habitat and migratory corridor of the lower Clark Fork River were identified by relicensing participants as significant issues needing to be addressed at the earliest stages of this collaborative relicensing process (see Initial Stage comment letters and various Clark Fork Relicensing Team and Fisheries Work Group Meeting Summaries).

Tributary Habitat Acquisition and Enhancement. The importance of high quality stream habitat and riparian area protection in seeking long-term population viability for these two species is well recognized.. This measure provides for an ongoing commitment of resources that will be used to protect and enhance stream habitats important to native salmonids, thereby mitigating the operating impacts of the Projects to these species and supporting the restoration and protection of numerous other fish and wildlife species as well.

Tributary stream habitats represent important spawning and rearing habitat for both resident and migratory native fish species, including bull trout and westslope cutthroat trout. The condition of these important habitats has been variably affected by a range of natural and human disturbances. If native salmonid populations that require these stream spawning and rearing habitats are to be restored and maintained, these critical habitat elements of their life cycle will also need to be restored and protected. In the majority of cases, restoration of fish populations will be achieved through a watershed restoration approach, which will require protection and restoration of high quality stream habitats by

protecting lands either through purchase, conservation easement, or other efforts. In other cases, instream habitat improvements may be deemed desirable in order to enhance the streams existing carrying capacity and thereby increase both the stream specific and native aquatic biota, including salmonid fish populations throughout the drainage.

Fish habitat protection and enhancement using stream side land acquisition and instream habitat improvements tends to be an expensive undertaking. But without such a program, other efforts aimed at restoring and maintaining native fish populations (e.g. fish passage) may be limited or negated by a lack of the necessary habitat components. Therefore, any effort aimed at restoring migratory, native fish populations in the LPO-CFR system should have both a fish passage component and a habitat protection and enhancement component. Given that sources for the required resources other than Washington Water Power (WWP) are currently quite limited, this measure provides a long-term commitment of resources to address the habitat related component and will result in benefits to both migratory and resident fish stocks.

Fish Resource Monitoring, Management and Enhancement. Virtually all participants have expressed a concern that implemented PM&E measures be appropriately and adequately monitored to determine if they are producing the intended results, and to provide a basis for adjusting or redirecting PM&E efforts and resources consistent with an adaptive management and Living License™ philosophy. In the spirit of this interest, IDFG has requested WWP provide funding for monitoring of the proposed increased minimum flow below Cabinet Gorge. In addition, the Department has expressed interest in having WWP continue to support and assist IDFG with fish population monitoring and other fisheries management efforts similar to the support it now provides on an as requested basis. Since these two issues are closely related (evaluating fish population response to increased minimum flows and assisting with lower Clark Fork-Lake Pend Oreille fish population monitoring and management), this component of the PM&E measure provides resources to be used in addressing both concerns.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE:

Tributary Habitat Acquisition and Enhancement. Stream habitat protection needs and potential enhancement opportunities were identified as an interest of several stakeholders even before the formal relicensing process began. In cooperation with the U.S. Forest Service and State of Montana, WWP initiated an extensive, multi-year challenge cost-share project in 1992 examining trout habitat and populations in reservoir tributary streams in Montana (WWP 1996). WWP also funded an intensive review of historical information including interviews of long-time area residents concerning bull trout occurrence in Lake Pend Oreille and in the lower Clark Fork River and tributaries (Pratt and Huston 1993). Upon request of participants in the Fisheries Work Group (FWG) for the relicensing effort, WWP funded a consolidation and summary of the

results of the Montana tributary evaluations (S. Ahern 1997 - misc. comm., summary tables, trout population and habitat characteristics maps, and a stream enhancement decision matrix presented to the FWG) and an evaluation of stream habitat and trout populations in Clark Fork River tributaries in Idaho (CES 1998). At the request of the FWG, WWP collected information on stream habitat restoration and enhancement efforts in the region that includes cost and benefit summaries (S. Ahern 1998). In addition, the Operations Subgroup and FWG recently requested Ken Carlson of Beak Consultants, Inc. (Beak), to collect and summarize information already developed on stream habitat enhancement opportunities in tributaries in Idaho and Montana (Beak 1998). Finally, the states of Idaho and Montana have developed numerous documents related to the management and/or restoration of bull trout and westslope cutthroat trout (IDFG 1996; MBTSG 1996a, 1996b, 1996c; MFWP 1998; PBTTAT 1998). It is anticipated the Water Resources Technical Advisory Committee (WRTAC) will use these information sources, their own personal knowledge of the lower Clark Fork River tributaries and fish populations to recommend to the Management Committee annual implementation of watershed restoration and enhancement programs. A more extensive listing of key information sources related to this tributary habitat program, including those referenced here, is presented in the attached Key References related to the Tributary Habitat Acquisition and Enhancement Fund.

Fish Resource Monitoring, Enhancement, and Management. As noted above, the need to evaluate target resource response to implemented PM&E measures has been a constant theme throughout the collaborative relicensing process and the development of PM&E's. In this case, the IDFG interest in and authority for fish resources monitoring and management in Idaho waters integrates well with the interest in monitoring fish population response to minimum flow changes. Utilizing and supporting IDFG in the implementation of these interrelated efforts provides the most efficient means for meeting these shared monitoring and resource management obligations, responsibilities and goals. Allowing the resources committed to this effort to also be used for other fish population monitoring or resource management and enhancement efforts will increase the likelihood of accomplishing the goals for improved fishery resources in the lower Clark Fork-Lake Pend Oreille system.

V. **PROPOSED PM&E MEASURE:** WWP will implement the program as outlined below to mitigate the operational effects of the projects through enhancement of native salmonid populations. This will be accomplished through a coordinated program of improving tributary habitats through the acquisition and enhancement of lands or enhancement of habitat features; supporting fish resource monitoring and management; supporting bull

trout protection and education programs; protecting WWP's Antelope Lake properties[1], or selling them and using proceeds to support similar measures; and by facilitating development of local stakeholder watershed councils. Although this PM&E measure targets primarily native salmonids and their habitats, actions taken will also significantly benefit other wildlife, and likely recreation and cultural resources as well.

Tributary Habitat Acquisition and Enhancement Program Details:

- WWP will make available funds in the amounts described below to be used under the direction of the Management Committee to acquire key riparian lands and/or enhance and manage instream tributary habitat.
- Funds will be spent on protection and enhancement projects to meet native salmonid fisheries goals in tributaries associated with Lake Pend Oreille and the lower Clark Fork River in Idaho. Funds may also be spent on watershed restoration programs on tributaries in Montana that have a high likelihood of benefiting native salmonid populations managed principally in Idaho, only upon approval of the Management Committee. Projects will be prioritized using results from the population modeling exercise described in the Native Salmonid Restoration Plan (Kleinschmidt and Pratt 1998), and additional screening criteria discussed below.
- Funds can be used to accomplish resource goals in the following ways:
    - — Enhancement of stream habitat through watershed restoration and instream habitat modification and maintenance.
    - — Protection through conservation easement or other land or water rights purchase.
    - — Protection through fee simple land acquisition.
- At the request of the FWG, Beak collected information on stream habitat restoration and enhancement efforts, and summary information already developed on stream habitat enhancement opportunities in tributaries in Idaho and Montana. This information includes a proposed decision-making framework for agreeing on annual and longer-term implementation priorities.
- Using the resources identified above, and guidance given by the population modeling exercise, screening criteria to determine what projects to undertake will be developed and utilized by the WRTAC to make recommendations to the Management Committee. These criteria will be based upon resource goals or priority habitats such as bull trout spawning and rearing habitats. The location of habitat to be acquired or enhancement projects to be funded will be identified using a combination of the modeling results, screening criteria, and best professional judgment, including

[1] If the Management Committee decides to sell the Antelope Lake properties, the funds derived will be applied to other PM&E measures by agreement of the Management Committee. Further, in the event the Antelope Lake properties are sold, fishing and hunting access to the lake will be maintained in perpetuity.

WRTAC member's knowledge of the area, and recommended to the Management Committee.

- The fund can also be used to attract matching dollars or grants from other sources to grow the amount available annually or for the long term. WWP proposes to employ a grant writer (cost covered separately through WWP administration of license) to assist in the pursuit of matching dollars and grants.
- The WRTAC will meet as needed to review results and evaluate proposals based on modeling results, screening criteria, budget, matching funds, overall project goals, and to make recommendations to the Management Committee.
- Funds will not be used to mitigate reservoir or lower Clark Fork River shoreline erosion. Those funds are available in the Erosion Fund and Clark Fork Delta Habitat PM&Es.

Fish Resource Monitoring, Enhancement and Management. WWP will support and cooperate with the IDFG in the monitoring, enhancement and management of fish populations in the lower Clark Fork River and Lake Pend Oreille as provided for below. This effort will include fishery research and monitoring evaluations concerning Cabinet Gorge project operations, and may also include developing and implementing fisheries management and enhancement plans, and monitoring sediment aggradation at tributary mouths.

VI. PROPOSED OR ESTIMATED FUNDING:

Tributary Habitat Acquisition and Enhancement. In order to provide for the effective implementation of this tributary habitat initiative for native salmonid restoration and enhancement in Idaho, WWP will make available $400,000 annually. This funding is for the purpose of implementing, under the direction of the Management Committee, the Idaho Tributary Habitat Acquisition and Fishery Enhancement Program. Funds may also be spent on watershed restoration programs on tributaries in Montana that have a high likelihood of benefiting native salmonid populations managed principally in Idaho, but only upon approval of the Management Committee. In the event other Lake Pend Oreille stakeholders provide outside funding for implementation of watershed or fishery restoration plans, then matching funds (on a not less than 50% basis) up to $30,000 annually may be provided from this PM&E for coordination of these plans.

Costs of land acquisition or instream enhancements can vary widely depending on the site-specific actions taken. This level of funding, however, should allow on average for the protection and/or enhancement of approximately 5-10 miles of stream habitat annually (using an estimated average cost of $50,000-$100,000 per mile of stream protection/enhancement, although many recent projects have produced positive results for costs substantially lower than this). Depending on the pre-existing stream conditions and associated fish production, these efforts are expected to result in the enhancement of fish

numbers of up to several hundred fish per mile of stream enhancement and, perhaps most importantly, the protection, maintenance and enhancement of existing, key fish production sites, areas, and native fish species populations.

Fish Resource Monitoring, Enhancement and Management. WWP will fund this component of the PM&E as specified in implementation plans approved by the Management Committee, and at a cost of $35,000 annually.

VII. KEY REFERENCES:

Ahern, S. Longview Associates. 1997. Miscellaneous communications and informational summaries for the Fisheries Work Group. Washington Water Power. Spokane, WA.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program

II. PURPOSE AND GOAL: The purpose of this program is to offset the power peaking and reservoir operational impacts of the Cabinet Gorge and Noxon Rapids Projects to native salmonid species (i.e. bull trout, westslope cutthroat trout, and mountain whitefish) and recreational fisheries, through watershed restoration and enhancement and recreational fishery monitoring and management support.

Tributary Habitat Acquisition and Enhancement. This component will help to meet the primary goal of this relicensing to restore and secure the long-term population viability of those native salmonid species affected by the Projects, and which depend on tributary habitats for one or more stages of their life cycle. It will also assist with meeting the broader goal of protecting and enhancing native salmonid populations throughout the lower Clark Fork River system. In addition, this component will support the efforts of the Montana Department of Fish, Wildlife, and Parks (MFWP) to provide for new and improved existing recreational fishing opportunities in tributaries in the vicinity of the projects. Protection of tributary spawning and rearing sites and stream side riparian buffers, as well as enhancement of stream carrying capacity through instream habitat modifications or other measures, will complement and support other efforts intended to restore and maintain migratory salmonid populations in Montana (e.g. Fish Passage/Native Salmonid Restoration Plan).

Bass Fishery Evaluation and Enhancement. The purpose of this component of the program is to provide for an assessment of the relationship between the bass populations in Noxon Reservoir and federally listed (ESA) fish species prior to the implementation of any project related or Washington Water Power (WWP) funded, bass enhancement effort. At the present time, this evaluation would only apply to the potential interaction with bull trout although other species would be included in the event they are listed or proposed for listing (e.g. westslope cutthroat trout). The goal is to allow for the implementation of bass enhancement and mitigation efforts only if they will not conflict with the protections afforded to and required for federally listed (ESA) species. In the event that feasibility studies show that bass enhancement efforts would be inconsistent with listed species protection, resources will be devoted to the other efforts in this program to provide for enhanced recreational fishery benefits.

Sub-Impoundment Fisheries. The purpose of this program component is to evaluate the feasibility of diversifying recreational fishing opportunity in several sub-impoundments located adjacent to and/or in close proximity to the project reservoirs. The goal is to mitigate for project related impacts to recreational fisheries by implementing a sub-impoundment fishery program if, and as, determined appropriate. In the event that feasibility studies show such an effort is not feasible or of less than intended benefit, resources can be devoted to other efforts focused on providing for enhanced recreational fishery benefits consistent with this purpose and goal.

Fish Resource Monitoring, Enhancement, and Management. This program component will support and provide for the monitoring of fish resources in the Montana waters of Cabinet Gorge and Noxon Reservoirs and associated and/or nearby waters in order to more effectively manage those resources and evaluate the effects of project related PM&E measures. Funding may also be used for developing fish resource management plans, and for supporting existing or new research or fisheries resource enhancement initiatives, consistent with the goal of providing for effective resource management and enhancement of, and mitigation for, project associated and/or affected fish resources.

The Bull Trout Protection and Public Education Project and the Watershed Council Program, which are also part of this program, are joint projects with the Idaho Tributary Habitat Acquisition and Fishery Enhancement Program, and are described in separate PM&E descriptions in Appendices D and E, respectively.

III. **CONCERNS TO BE ADDRESSED:** Concern for the status of native salmonids, particularly bull trout and westslope cutthroat trout, and the effects of the Cabinet Gorge and Noxon Rapids Projects to the river habitat and migratory corridor of the lower Clark Fork River, were identified by relicensing participants as significant issues needing to be addressed at the earliest stages of this collaborative relicensing process (see Initial Stage comment letters and various Clark Fork Relicensing Team and Fisheries Work Group Meeting Summaries). In addition, MFWP and several other participants expressed concern about the impacts of the projects to the existing and historical recreational fisheries occurring along the lower Clark Fork River. Lastly, virtually all participants in the relicensing have identified concerns that implemented measures be monitored and evaluated to determine if they are achieving the desired results or whether efforts should be modified or better directed to new or different programs.

Tributary Habitat Acquisition and Enhancement. The importance of high quality stream habitat and riparian area protection in seeking long-term population viability for bull trout and westslope cutthroat trout, and important recreational fisheries is well recognized. This measure provides for an ongoing commitment of resources which will

be used to protect and enhance stream habitats, thereby mitigating the operating impacts of the Projects on these species and recreational fisheries, and supporting the restoration and protection of numerous other fish and wildlife species as well.

Tributary stream habitats represent important spawning and rearing habitat for both resident and migratory native fish species, including bull trout and westslope cutthroat trout. The condition of these important habitats has been variably affected by a range of natural and human disturbances. If native salmonid populations that require these stream spawning and rearing habitats are to be restored and maintained, these critical habitat elements of their life cycle will also need to be restored and protected. In some instances, restoration of fish populations will require protection and restoration of quality stream habitat by protecting lands through purchase, conservation easement, or other efforts. In other cases, habitat improvements may be deemed desirable in order to enhance the streams' existing carrying capacity and thereby increase both the stream specific and overall native salmonid fish populations. In all instances, restoration of tributary habitats will benefit native aquatic biota, including salmonid populations, and may promote improvement of important recreational fishing opportunities as well.

Fish habitat protection and enhancement using stream side land acquisition and habitat improvements tends to be an expensive undertaking. But without such a program, other efforts aimed at restoring and maintaining native fish populations (e.g. fish passage) may be limited or negated by a lack of the necessary habitat components. Therefore, any effort aimed at restoring migratory, native fish populations in the Lake Pend Oreille-Clark Fork River system should have both a fish passage component and a habitat protection and enhancement component. Given that sources for the required resources other than WWP are currently quite limited, this measure provides a long-term commitment of resources to address the habitat related component and will result in benefits to both migratory and resident fish stocks.

Bass Fishery Evaluation and Enhancement. MFWP and the Montana Bass Anglers Sportsman Society (BASS) Federation expressed a concern that water level fluctuations in Noxon Reservoir due to project operations were having an adverse impact on the bass populations and associated fishery. They expressed a concern that these impacts, and opportunities to enhance this significant recreational fishery, be evaluated and addressed during the relicensing process and in the subsequent PM&E programs. The U. S. Fish and Wildlife Service (USFWS), Confederated Salish and Kootenai Tribes, and others expressed concern that enhancement of bass, a potential predator on bull trout, was in conflict with current and proposed efforts to restore and protect bull trout, and with protection of the species required as a result of its ESA listing as a threatened species.

Sub-Impoundment Fisheries. The MFWP expressed concern that Cabinet Gorge Reservoir provides habitat conditions poorly suited to native and introduced fish populations supporting recreational fisheries. They also expressed an interest in diversifying recreational fishery opportunities near Noxon Reservoir, and the desire to evaluate opportunities to improve conditions, and identify and implement appropriate mitigation and enhancement measures.

Fish Resource Monitoring, Management and Enhancement. Virtually all participants have expressed a concern that implemented PM&E measures be appropriately and adequately monitored to determine if they are producing the intended results, and to provide a basis for adjusting or redirecting PM&E efforts and resources consistent with an adaptive management and Living License™ philosophy. In the spirit of this interest, MFWP has requested WWP provide funding and otherwise assist, support, and cooperate in the monitoring of the fish resources of the lower Clark Fork River in Montana in order to assess the affects of fish resources and recreational fisheries restoration, protection and enhancement measures.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE:

Tributary Habitat Acquisition and Enhancement. Stream habitat protection needs and potential enhancement opportunities were identified as an interest of several stakeholders even before the formal relicensing process began. In cooperation with the U.S. Forest Service and State of Montana, WWP initiated an extensive, multi-year challenge cost-share project in 1992 examining trout habitat and populations in tributary streams to the Noxon and Cabinet Gorge Reservoirs in Montana (WWP 1996). WWP also funded an intensive review of historical information including interviews of long-time area residents concerning bull trout occurrence in Lake Pend Oreille and in the lower Clark Fork River and tributaries (Pratt and Huston 1993). Upon request of participants in the Fisheries Work Group (FWG) for the relicensing effort, WWP funded a consolidation and summary of the results of the Montana tributary evaluations (S. Ahern 1997 - misc. comm., summary tables, trout population and habitat characteristics maps, and a stream enhancement decision matrix presented to the FWG) and an evaluation of stream habitat and trout populations in Clark Fork River tributaries in Idaho (CES 1998a). At the request of the FWG, WWP collected information on stream habitat restoration and enhancement efforts in the region that included cost and benefit summaries (S. Ahern 1998). In addition, the Operations Subgroup and FWG recently requested Ken Carlson of Beak Consultants, Inc. (Beak), to collect and summarize information already developed on stream habitat enhancement opportunities in tributaries in Idaho and Montana (Beak 1998b). This information includes a proposed decision-making framework for agreeing on annual and longer-term implementation priorities. Additionally, MFWP has continually expressed an interest throughout this consultation in enhancing tributary

habitat potential and recreational fisheries opportunity in the Bull and Thompson River[1] drainage's, and plans to prepare more detailed implementation programs for these initiatives. Finally, the states of Idaho and Montana have developed numerous documents related to the management and/or restoration of bull trout and westslope cutthroat trout (IDFG 1996; MBTSG 1996a, 1996b, 1996c; MFWP 1998; PBTTAT 1998). It is anticipated the MFWP will work closely with the Water Resources Technical Advisory Committee (WRTAC) in using the information sources referenced above, the programs to be prepared for the Bull and Thompson River initiatives, and their own personal knowledge of the lower Clark Fork River tributaries and fish populations to guide annual implementation of watershed restoration and enhancement programs. A more extensive listing of key information sources related this Tributary Habitat Acquisition and Enhancement Fund can be found at the end of this Appendix.

Bass Fishery Evaluation and Enhancement. The FWG discussed available information concerning the impacts of water level fluctuations on bass populations and their potential applicability to the situation in Noxon Reservoir at one of their early meetings (FWG Meeting Summary January 16, 1997). They established a subgroup to evaluate project operations, which contracted with Beak (Beak 1998a) to evaluate the potential influence of project operations on a variety of bass life stages (e.g. spawning/reproduction, fry, etc.) and key habitats (e.g. over-wintering habitat). Beak presented and discussed their evaluations and conclusions at several subgroup and FWG meetings.

At about the same time the FWG was considering Beak's evaluations and appropriate mitigation measures, the bull trout was listed under the ESA as a threatened species for waters that include the lower Clark Fork River. The USFWS identified a concern that any enhancement of species that might constitute potential predators to bull trout, such as bass, would be in conflict with the Service's required ESA protection of bull trout. The FWG, including the USFWS and MFWP, subsequently agreed upon conducting the bass evaluation program outlined below prior to any WWP support and implementation of bass enhancement measures as an appropriate process for addressing this potential conflict. It was also recommended by the FWG that in the event enhancement of the bass fishery in Noxon Reservoir was not appropriate, that alternative options for providing enhanced recreational fisheries should be explored.

Sub-Impoundment Fisheries. Participants in the FWG identified early in the consultation process the desire to mitigate for the apparent inability of the project reservoirs to support substantial recreational fisheries for salmonids. Significant

[1] Although the Thompson River is not located in the immediate project vicinity, its proximity to the project area and the limited number of recreational fishery enhancement opportunities in the area make the Thompson River a viable recreation fishery mitigation area.

salmonid recreational fisheries were documented prior to project construction (CES 1998b). However, substantial efforts to establish salmonid fisheries in the reservoirs following project construction failed (Huston 1985). The Water Resources Work Group (WRWG) requested Beak evaluate the potential for improving conditions for salmonids in Cabinet Gorge Reservoir and the lower Clark Fork River using selective withdrawal from Noxon Reservoir to cool and improve the suitability of downstream waters. Beak's report (Beak 1997) concluded little if any benefit was likely, and the WRWG and FWG agreed at a combined meeting that selective withdrawal was not a feasible enhancement measure (WRWG Meeting Summary June 12-13, 1997). MFWP proposed, and the FWG subsequently discussed and agreed to an evaluation of the suitability of sub-impoundments near the reservoirs for providing recreational fisheries, and for determining appropriate species and stocking levels to support those fisheries. It was also recommended and agreed to by the FWG that in the event use of the sub-impoundments for providing enhanced recreational fishing opportunity was not appropriate, that alternative options for providing enhanced recreational fisheries should be explored.

Fish Resource Monitoring, Enhancement, and Management. As noted above, and reflected in many other Project related PM&Es and resource management plans, the need to evaluate target resource response to implemented PM&E measures has been a constant theme throughout the collaborative relicensing process and the development of PM&E measures. In this case, the MFWP's interest in and authority for fish resource management and monitoring in Montana waters integrates well with the interest of WWP and all stakeholders in the relicensing process for an ongoing monitoring of the response of fish resources to the implemented measures. Allowing resources potentially or initially committed to fish resource monitoring to also be used for resource management and enhancement efforts, as determined appropriate by MFWP and Management Committee participants, will increase the likelihood of accomplishing the goals for improved fish populations and recreational fisheries in the lower Clark Fork River-Lake Pend Oreille system. This is consistent with the adaptive management approach embodied in the Living License™ concepts and philosophy.

V. **PROPOSED PM&E MEASURE:** WWP will implement the program as outlined below to mitigate the operational effects of the projects through enhancement of native salmonid populations and recreational fishery opportunities. This will be accomplished by improving instream tributary habitats through the acquisition and enhancement of lands or enhancement of instream habitat features, supporting assessment and enhancement of the Noxon Reservoir bass fishery, if appropriate, implementing sub-impoundment evaluations and fishery enhancement programs, supporting fish resource monitoring and management, supporting bull trout protection and education programs, and by facilitating development of local stakeholder watershed councils. Although this PM&E measure targets primarily native salmonids and their habitats, and sportfishing opportunities, the

actions taken will also significantly benefit other aquatic biota, wildlife, and likely recreation and cultural resources as well.

Tributary Habitat Acquisition and Enhancement. This component of the Program includes the following details:

- WWP will make available funds in the amounts described below to be used under the direction of the Management Committee to acquire key lands and/or enhance and manage instream tributary habitat.
- The fund will be spent on protection and enhancement projects to meet native salmonid fisheries and recreational fishery goals in tributaries associated with the lower Clark Fork River in Montana. Funds from this PM&E may be spent on watershed restoration programs on tributaries in Idaho that have a high likelihood of benefiting native salmonid populations and recreational fisheries managed principally in Montana, but only upon approval of the Management Committee. Projects will be prioritized using basin-specific programs approved by the Management Committee, results from the modeling exercise described in the Native Salmonid Restoration Plan, and additional screening criteria discussed below.
- The fund can be used to accomplish resource goals in the following ways:
    - — Enhancement of stream habitat through watershed restoration and instream habitat modification and maintenance.
    - — Protection through conservation easement or other land or water rights purchase.
    - — Protection through fee simple land acquisition.
- At the request of the FWG, WWP collected information on stream habitat restoration and enhancement efforts, and summary information already developed on stream habitat enhancement opportunities in the lower Clark Fork tributaries in Idaho and Montana (Beak 1998b).
- Using the resources identified above, recreational fishery initiatives developed by MFWP, and guidance given by the population modeling exercise, screening criteria to determine what projects to undertake will be developed and utilized by the WRTAC in making recommendations to the Management Committee. These criteria will be based upon resource goals or priority habitats identified by the WRTAC, and approved by the Management Committee, such as bull trout spawning and rearing habitats. The location of habitat to be acquired or enhancement projects to be funded will be identified using a combination of the modeling results, screening criteria, and best professional judgment, including WRTAC member's knowledge of the area. WRTAC proposals will be subject to the approval of the Management Committee before being funded.
- The fund can also be used to attract matching dollars or grants from other sources to grow the amount available annually or for the long term. WWP proposes to employ a

grant writer (cost covered separately through WWP administration of license) to assist in the pursuit of matching dollars and grants.

- The WRTAC will meet as needed to review results and evaluate proposals based on modeling results, screening criteria, budget, matching funds, and overall project goals in developing recommendations for the Management Committee.
- Funds are not intended to mitigate reservoir or lower Clark Fork River shoreline erosion. Those funds are available in the Erosion Fund and Clark Fork Delta Habitat PM&Es.

Bass Fishery Evaluation and Enhancement. WWP will support a bass fishery evaluation and enhancement program guided by and including the cooperation, support, and participation of MFWP and the WRTAC. Prior to any bass enhancement activities being supported or implemented by WWP, the Management Committee, and in particular the USFWS, must determine such activities will not conflict with the protections afforded to federally listed (ESA) threatened or endangered species (or those proposed for listing).

Therefore:

a. WWP will assist MFWP in consultation with the Management Committee, in designing and implementing studies to be initiated under the authorization of MFWP, to assess the potential for existing or enhanced bass populations in Noxon Reservoir to adversely impact federally listed (ESA) threatened or endangered fish species. Presently, the bull trout is the only federally listed fish species that would need to be considered, however, the westslope cutthroat trout is currently being considered for listing. If the cutthroat trout populations or other species occurring in project associated waters are subsequently proposed for listing, then the potential impacts to these species would also be included in the studies and assessment. These studies will be designed in consultation with the WRTAC, and will be implemented only upon agreement of the Management Committee. For the purposes of the first year of study design and implementation, WWP will provide for the costs of personnel, consultant, equipment, and other support services as specified in annual implementation plans approved by the Management Committee and from the funds provided by this PM&E measure (see Section VI below).

b. Following the first year of study design and implementation, WWP will continue to assist with and support the review and analysis of study results, study modification, new study design, and study implementation, for up to four more years (i.e. potential total of five years of WWP study design and implementation support) in the manner and within the funding provided below.

c. At such time as the Management Committee, specifically including the USFWS, agrees that implementation of bass enhancement measures in Noxon Reservoir will not conflict with native salmonid restoration efforts, or the protections required for federally listed species, then WWP will assist MFWP with the development and implementation of bass enhancement measures and related studies developed in consultation with the WRTAC. These studies and the implemented measures may include: 1) stocking of bass fingerlings and assessment of first year growth, survival, and contribution to the recreational fishery; 2) assessment and development of bass reproduction and/or rearing ponds; 3) other measures that may be identified for the specific purpose of enhancing bass populations and/or the associated recreational fishery in Noxon Reservoir, and 4) monitoring to detect potential future impacts to native salmonids resulting from bass enhancement. Similar to a) and b) above, WWP's assistance may be provided through the provision of WWP personnel, consultant, equipment or other support services (including the purchase of or reimbursement to MFWP for stocked fingerlings). WWP will support the bass enhancement program as approved by the Management Committee and from the funds annually made available by this PM&E measure.

d. Should the Management Committee be unable to agree that bass enhancement efforts can be implemented as part of this measure, the annual funding made available by this program will be redirected to other programs to provide recreational fishery benefits in, or in close proximity to, the Noxon or Cabinet Gorge Reservoirs. Such alternative recreational fishery enhancement programs will be guided by the policies and recommendations of the MFWP and developed in consultation with the other members of the WRTAC, and as specified in implementation plans approved by the Management Committee.

Sub-Impoundment Fisheries. WWP will evaluate the feasibility of creating or enhancing recreational fisheries in the existing or new sub-impoundments near Noxon and Cabinet Gorge Reservoirs. WWP will evaluate, at the direction of MFWP, pond morphometry, water quality, and fish populations at locally known sites (Birdland Bay, The Frog Pond, Triangle Pond, and Quinns Cut), or other locations as requested. This information will be used to assess the feasibility of providing recreational fisheries, and to develop appropriate species and stocking rates for each pond. WWP will then implement programs for fish stocking, habitat enhancement, or pond modifications, and an evaluation of stocking success, as approved by the Management Committee. WWP will fund the program as specified in implementation plans approved by the Management Committee from funds included in this PM&E measure.

Fish Resource Monitoring, Enhancement, and Management. WWP will support and cooperate with the fishery monitoring, enhancement, and management efforts of MFWP

on Noxon and Cabinet Gorge Reservoirs, and associated or nearby lower Clark Fork River tributaries, through activities that may include developing management plans, implementing fisheries management and enhancement activities, monitoring fish populations and enhancement programs, and monitoring aggradation at tributary mouths. WWP will fund the program as specified in implementation plans approved by the Management Committee and from the funds provided by this PM&E measure.

VI. **PROPOSED OR ESTIMATED FUNDING:** In order to provide for the effective implementation of the Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program as outlined above, WWP will make available an initial lump-sum contribution of $500,000, and annual contributions of $475,000. Initial assignments for these funds are as follows: 1) $500,000 initial lump-sum to the recreational fishery programs directed by MFWP[2], for waters either within the project area or for the benefit of Thompson River fisheries, and $190,000 annually to the same, and 2) $285,000 annually to the Tributary Habitat Acquisition and Enhancement initiative, as directed by Management Committee. Funding for recreational fishery enhancement programs may be increased above these limits only upon approval of the Management Committee.

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Beak Consultants, Inc. 1998a. Handout: Effects of Fluctuations in Noxon Reservoir on Spawning and Overwintering of Largemouth Bass. Operations Subgroup. Washington Water Power. Spokane, WA.

Beak Consultants, Inc. 1998b. August 28, 1998 Memo to Operations Subgroup. Washington Water Power. Spokane, WA.

[2] MFWP will develop recreational fisheries proposals that meet their organization's objectives, while in consultation with the Water Resources Technical Advisory Committee and the Management Committee. The Management Committee's decision to approve funding for these recreational fisheries initiatives will be limited to issues of federal conflict arising between the actions of providing funding under the federal hydropower license, and those of other applicable federal laws (e.g. ESA).

CES (Cascades Environmental Services, Inc.). 1998a. Assessment of Fish Habitat and Population in Lower Clark Fork Tributaries in Idaho. Final Report March 1998. Prepared for Washington Water Power. Spokane, WA.

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PBTTAT (Panhandle Bull Trout Technical Advisory Team). 1998. Lake Pend Oreille Key Watershed Bull Trout Problem Assessment. Prepared for Lake Pend Oreille Watershed Advisory Group and the State of Idaho. Boise, ID.

Pratt, K.L., and J.E. Huston. 1993. Status of bull trout (*Salvelinus confluentus*) in Lake Pend Oreille and the lower Clark Fork River. Prepared for Washington Water Power. Spokane, WA.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Fish Passage/Native Salmonid Restoration Plan

II. PURPOSE: The purpose of this protection, mitigation, and enhancement (PM&E) measure is to mitigate the continuing effects of the Projects as obstructions to fish passage, and to achieve the goal of increasing the long-term population viability of native salmonids in the Lake Pend - Oreille lower Clark Fork River system. This will be accomplished through Washington Water Power's (WWP) implementing the programs called for in the Clark Fork River Native Salmonid Restoration Plan (Kleinschmidt and Pratt 1998), as developed and recommended for implementation to the Clark Fork Relicensing Team (CFRT) by the Fisheries Work Group (FWG).

III. CONCERNS TO BE ADDRESSED: Prior to the construction of dams on the Clark Fork River, a number of adfluvial (freshwater, migratory fish that spawn and rear in streams but complete maturity and live as adults in lakes) fish species, including bull trout and westslope cutthroat trout, utilized the Clark Fork River as a migratory corridor between Lake Pend Oreille and upstream tributary spawning, nursery, and rearing habitat. Cabinet Gorge and Noxon Rapids dams are impassable barriers that block access to approximately 58 miles of the Clark Fork River and the associated tributaries for adfluvial fish in Lake Pend Oreille.

Recently, concern over declines in the range and numbers of both bull trout and westslope cutthroat trout have resulted in the U.S. Fish and Wildlife Service (USFWS) listing of bull trout as threatened (pursuant to the Endangered Species Act) throughout the Columbia River watershed, and the currently ongoing consideration of listing the westslope cutthroat trout as well. Fragmentation of historically larger, more interconnected populations, and isolation of the remaining populations due in part to the construction of dams, has been implicated in the decline of bull trout. The continued operation of the Noxon Rapids and Cabinet Gorge Projects, without provisions for fish passage, will continue to isolate adfluvial fish. These concerns are addressed by this PM&E measure through the implementation of a variety of fish passage related programs, focused initially on bull trout and westslope cutthroat trout, that will provide for a comprehensive evaluation of the feasibility, desirability, and the most appropriate and beneficial methodologies for accomplishing fish passage. The PM&E measure provides for an ongoing WWP commitment to fish passage evaluation and programs, and a funding mechanism to provide for the necessary fish passage facilities and programs as they are further defined or as may be identified in the future.

IV. **STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE:** In developing this PM&E measure and the Clark Fork River Native Salmonid Restoration Plan (Restoration Plan) (Kleinschmidt and Pratt 1998), the CFRT and the FWG developed, reviewed, and used a large number of fish resource and fish passage related studies, reports, and other information (e.g. as provided in memoranda or other communications by contractors/consultants to the group). These include WWP conducted or contracted studies of historic and current fish species occurrence and abundance (CES 1998a, 1998b; NDT 1994; Pratt and Huston 1993; WWP 1995a, 1995b, 1996a, 1996b), several of which focused specifically on adfluvial, native salmonid populations and their habitat (CES 1998b; Pratt and Huston, 1993; WWP 1996); numerous state and multi-agency reports specific to the restoration of bull trout in the Lake Pend Oreille-lower Clark Fork River system (MBTSG 1996a; PBTTAT 1998), in other areas of the Clark Fork River (MBTSG 1996b, 1996c, 1996d), or for bull trout restoration in general terms in Idaho or Montana waters (State of Idaho 1996); an evaluation of the suitability of the lower Clark Fork River as a migratory corridor for adfluvial species (Beak 1998); and a preliminary engineering assessment of the feasibility and potential options for providing fish passage at Cabinet Gorge Dam (Kleinschmidt 1997a, 1997b).

Identification and discussion of the fish passage issue began at the earliest stages of the Clark Fork Collaborative Relicensing Process, including initial stage consultation comments, early NEPA scoping by FERC staff, and at the initial meetings of both the CFRT and FWG. Discussions of the issue have occurred at the majority of FWG meetings since. The FWG reached final consensus on the plan at their June 25, 1998 meeting, and approved recommending the PM&E measure for implementation to the CFRT.

V. **PROPOSED PM&E MEASURE:** WWP will implement the Clark Fork River Native Salmonid Restoration Plan (Restoration Plan), as developed by Kleinschmidt Associates and K. Pratt (1998) in consultation with the Fisheries Work Group (FWG). The primary interest of the FWG and CFRT is whether fish passage at the projects is an effective tool to increase fish numbers and long-term native species population viability (initially for bull trout and westslope cutthroat trout) in the lower Clark Fork River, it's tributaries, and Lake Pend Oreille.

The Restoration Plan provides a structure for a step-wise examination of the factors limiting native salmonids, and gives guidance for implementation of restoration programs through the term of the new license. Among the initial planning steps called for in the Restoration Plan is a collaborative scoping process that will: identify additional information needs; establish realistic recovery goals and objectives; determine the

viability of various restoration programs for meeting recovery goals (with a primary focus on fish passage alternatives); and, identify the specific fish passage programs to be implemented, measurable objectives for assessing those programs, and the frequency, duration, and methodologies for monitoring and refining the programs.

To insure sufficient funds are available if substantial fish passage facilities are warranted, WWP will also make available funds in the amounts described below to be used for fish passage facility design and construction costs. In the event the Water Resources Technical Advisory Committee and Management Committee agree that such facilities are not warranted, or should surplus funds remain in the account following construction of permanent facilities, the dollars in this account as well as the amount that would have been annually contributed to the account by WWP will be available for the implementation of other, non-fish passage related programs intended to benefit native salmonid recovery and long-term population viability.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the Fish Passage/Native Salmonid Restoration Plan PM&E in the following manner:

a. WWP will establish a line of credit to fund startup operations in the amount of $584,000.
b. WWP will fund actual costs for annual operations in the amount of $551,000. Annual implementation plans will be approved by the Management Committee. In the event projected costs for annual operations exceeds $551,000 in any given year, and upon approval of WWP and the Management Committee, funds may be drawn from the permanent fish passage facilities budget (described below) to support annual operations.
c. WWP will make available $400,000 annually for fish passage design and construction costs for permanent facilities.
d. In the event the decision is reached to design and build permanent fish passage facilities, and the accumulated funds in the above facilities budget are not adequate, WWP will fund the additional amount required to complete the facilities to the agreed specifications and on the agreed schedule. In that instance, the subsequent annual $400,000 contributions will then be applied to the additional funds WWP has been required to contribute.

VII. **KEY REFERENCES:**

Beak Consultants, Inc. 1998. Handout to the Operations Subgroup: Potential Effects of Reservoir Drawdown on Outmigration of Juvenile Salmonids. May 28, 1998. Washington Water Power. Spokane, WA.

CES (Cascades Environmental Services). 1998a. Historic and Current Resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

CES. 1998b. Assessment of Fish Habitat and Population in Lower Clark Fork Tributaries in Idaho. Final Report March 1998. Prepared for Washington Water Power. Spokane, WA.

FWG (Fisheries Work Group). 1996-1998. Meeting Summaries. Washington Water Power, Spokane, WA.

Kleinschmidt Associates. 1997a. Cabinet Gorge Fish passage and protection study Phase I report. Prepared for Washington Water Power. Spokane, WA.

Kleinschmidt Associates. 1997b. Cabinet Gorge Fish passage and protection study Phase I report—Addendum A. Feasibility of a natural waterway at the Cabinet Gorge hydroelectric project. Prepared for Washington Water Power. Spokane, WA.

Kleinschmidt Associates and K.L. Pratt. 1998. Clark Fork River Native Salmonid Restoration Plan. Prepared for Washington Water Power. Spokane, WA.

MBTSG. 1996a. Lower Clark Fork River drainage bull trout status report (Cabinet Gorge Dam to Thompson Falls). Prepared for Montana Bull Trout Restoration Team. Helena, MT.

MBTSG. 1996b. The role of stocking in bull trout recovery. Prepared for Montana Bull Trout Restoration Team. Helena, MT.

MBTSG. 1996c Assessment of methods for removal or suppression of introduced fish to aide in bull trout recovery. Prepared for Montana Bull Trout Restoration Team. Helena, MT.

MBTSG. 1996d. Other status reports (bull trout) for drainages in the Clark Fork River System.

ND&T (Northrop, Devine and Tarbell). 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Aquatic Habitat and Fish Resources Assessment. Prepared for Washington Water Power. Spokane, WA.

PBTTAT (Panhandle Bull Trout Technical Advisory Team). 1998. Lake Pend Oreille Key Watershed Bull Trout Problem Assessment. Prepared for Lake Pend Oreille Watershed Advisory Group and the State of Idaho. Boise, ID.

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State of Idaho. 1996. Governor Philip E. Batt's State of Idaho bull trout conservation plan. Boise, Idaho. July 1, 1997.

WWP (Washington Water Power). 1995a. Fish community assessment on Cabinet Gorge and Noxon Reservoirs. Washington Water Power. Spokane, WA.

WWP. 1995b. 1994 evaluation of fish communities on the lower Clark Fork River, Idaho. Washington Water Power. Spokane, WA.

WWP. 1996a. 1994-1995 Evaluation of fish communities on the lower Clark Fork Fork River, Idaho: A supplemental report. Washington Water Power. Spokane, WA.

WWP. 1996b. Lower Clark Fork River Tributary Survey. Final Report for a cooperative challenge cost share project between: Washington Water Power, U.S.

Forest Service, and Montana Department of Fish, Wildlife, and Parks. Volumes I and II. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Bull Trout Protection and Public Education Project

II. PURPOSE AND GOAL: The purpose of this protection, mitigation, and enhancement (PM&E) measure is to protect bull trout through a combination of enhanced law enforcement and public education outreach. In addition to reducing the intentional, illegal harvest of bull trout, this effort will also increase public awareness concerning the life history, habitat needs, identifying characteristics, and potential vulnerability of bull trout in Lake Pend Oreille, and during their spawning run, so that impact of human activities will be minimized or eliminated. By reducing or eliminating certain direct (e.g. illegal and incidental harvest) and indirect (e.g. habitat degradation) losses, this PM&E effort will result in increased numbers of bull trout in the project area thereby helping to mitigate for impacts to the species due to continued peaking operation of the Projects.

III. CONCERNS TO BE ADDRESSED: Bull trout are a key target resource associated with the relicensing of the Cabinet Gorge and Noxon Rapids Projects. The populations associated with the Lake Pend Oreille - Clark Fork River (LPO-CFR) system have been listed as threatened under the Endangered Species Act. The State of Idaho identified the illegal harvest of bull trout in spawning streams as a significant threat to Lake Pend Oreille bull trout with the potential to effectively wipe out the entire spawning run in a stream. They presented evidence to the Fisheries Work Group (FWG), at the June 11-12, 1997, meeting concerning the magnitude of the problem which may range into the "hundreds of fish lost annually," and requested support for an enhanced law enforcement effort and public education program beyond the limited resources currently available. Without such a program, there is concern that gains realized through other efforts (e.g. fish passage, tributary habitat protection and enhancement, etc.) could be nullified by illegal harvest or habitat disturbances. Given the limited number of natal streams supporting the Lake Pend Oreille bull trout population, the potential loss of any component of that population or even individual fish in some of the smaller spawning runs would represent a significant blow to the goal of maintaining the long-term population health and viability.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Most of the information providing the basis for this PM&E measure was provided to the FWG by the Idaho Department of Fish and Game (IDFG) personnel at work group meetings beginning in April of 1997. Related information on the current status of LPO-CFR bull trout populations and threats posed by intentional or incidental harvest and the effects of land use activities can be found in various state restoration plans (State of Idaho

1996), status reports (MBTSG 1997, PBTTAT 1998), and documents prepared by or for Washington Water Power (WWP 1996, Pratt and Huston 1993).

In addition to the IDFG verbal descriptions of the magnitude and potential impacts to bull trout of illegal harvest based on the results of their current enforcement activities, they also showed the FWG a video (June 11-12, 1997 meeting) of an interview with an individual apprehended for illegal harvest (video property of IDFG, Boise, ID). That video confirmed their descriptions of the extent of such activities and the vulnerability of bull trout when in the spawning streams. IDFG also provided the FWG with cost projections for the anticipated program and was also able to secure matching funds for the first two years of this effort, beginning in 1998. The FWG agreed at it's July 29-30, 1997 meeting that Idaho's proposal to implement the program in 1998 should be forwarded to the Clark Fork Relicensing Team (CFRT) as a recommended interim PM&E measure to be funded by WWP immediately. The CFRT accepted and approved the FWG recommendation (at the January 28-29, 1998 CFRT meeting) and WWP provided the two years of interim funding to Idaho Fish and Game as noted below.

Later, the FWG approved this PM&E for developing and funding a longer term Bull Trout Protection and Public Education Project at their May 14, 1998 meeting as outlined below. Both Idaho and Montana have provided input into determining an adequate level of WWP funding to effectively implement the program within both states, which is also reflected below.

V. **PROPOSED PM&E MEASURE:** Given the immediate threat that illegal harvest represents to the remaining bull trout populations of Lake Pend Oreille and the lower Clark Fork River, WWP, in consensus with the FWG and CFRT, has already committed to provide two years of interim funding to Idaho for immediate implementation of the Bull Trout Protection and Public Education Project. This funding is considered a cost associated with the settlement agreement and project relicensing similar to programs implemented and costs incurred following signing of the settlement agreement and/or as part of implementing new license conditions.

In addition to providing funds for the interim program, WWP, working with state, tribal, and federal resource agencies and other interested parties will design and implement a Bull Trout Protection and Public Education Project (Bull Trout P&E Project) for the Lake Pend Oreille and lower Clark Fork River Watershed. This Bull Trout P&E Project will have two components:

1. law enforcement designed to reduce and prevent the illegal taking of bull trout, particularly the highly vulnerable adult spawning run fish, and

2. public education about bull trout life history, identifying characteristics and similar species, and sensitivity to various human activities.

WWP will provide for the staffing, support services, and expenses of designing a plan and support materials as developed in coordination with the Water Resources Technical Advisory Committee (WRTAC) and as recommended to the Management Committee for the Bull Trout P&E Project.

Resources for law enforcement efforts will be distributed between Idaho and Montana waters, based on the Management Committee's determination of bull trout resource protection needs in each state. In addition, no less than 15 percent of the WWP long-term annual funding commitment will be dedicated to the public education component of the Bull Trout P&E Project. The public education component may be implemented by any appropriate party (e.g. Trout Unlimited, local resource groups, WWP, resource agency, etc.) as agreed to by the Management Committee.

The scope of either or both components (enforcement or education) of the Bull Trout P&E Project may be expanded in the future to specifically focus on other target fish species (i.e. cutthroat trout, other native or important recreational fishery species), at the discretion and direction of the Management Committee, but within the funding commitment identified below. It is the understanding of the CFRT that matching funds and grants from other stakeholders in the Clark Fork - Pend Oreille drainage, or other interested parties and funding sources, may be used to augment WWP's efforts and contribution, thereby enhancing overall project efforts and benefits.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP funding of the two-year, interim Bull Trout P&E Project has been agreed to by the FWG and CFRT and provided to Idaho at a total cost to WWP of $56,000. In addition, WWP will provide funds in 1999 for the design of a plan for a longer-term Bull Trout P&E Project at a cost not to exceed $30,000. Following design and agreement on the plan for this project, WWP will fund implementation of the Bull Trout P&E Project, beginning in the year 2000, based on the needs identified in annual work plans approved by the Management Committee, and at a cost of $125,000 annually. No less than 15 percent of this annual funding will be dedicated to the public education component of the project.

VII. **KEY REFERENCES:**

CFRT (Clark Fork Relicensing Team). Meeting summaries: January 28-29, 1998; May 14, 1998. Washington Water Power. Spokane, WA.

FWG (Fisheries Work Group). Meeting summaries of April 30-May 1, 1997; June 11-12, 1998; July 29-30, 1997. Washington Water Power. Spokane, WA.

IDFG (Idaho Department of Fish and Game). 1997-1998. Miscellaneous information and materials presented at FWG meetings. Washington Water Power. Spokane, WA.

MBTSG (Montana Bull Trout Scientific Group). 1996. Lower Clark Fork River drainage bull trout status report (Cabinet Gorge Dam to Thompson Falls). Prepared for Montana Bull Trout Restoration Team. Helena, MT.

PBTTAT (Panhandle Bull Trout Technical Advisory Team). 1998. Lake Pend Oreille Key Watershed Bull Trout Problem Assessment. Prepared for Lake Pend Oreille Watershed Advisory Group and the State of Idaho. Boise, ID.

Pratt, K.L., and J.E. Huston. 1993-DRAFT. Status of bull trout (*Salvelinus confluentus*) in Lake Pend Oreille and the lower Clark Fork River. Prepared for Washington Water Power. Spokane, WA.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Watershed Councils Program

II. PURPOSE: The purpose of this program is to facilitate the protection and restoration of tributary stream habitat in the Lake Pend Oreille - Clark Fork River (LPO-CFR) watershed. This effort will improve conditions for aquatic life inhabiting those streams, including macroinvertebrates and native fish species such as bull trout, westslope cutthroat trout, and mountain whitefish. The associated protection and enhancement of tributary streams and the aquatic life inhabiting them will serve as mitigation and resource enhancements to offset impacts to aquatic life due to continued power peaking operation of the Cabinet Gorge and Noxon Rapids Projects.

III. CONCERNS TO BE ADDRESSED: There appears to be little question the operation of hydroelectric projects has an impact on the indigenous aquatic life inhabiting rivers and streams. The Cabinet Gorge and Noxon Rapids Projects have had and will continue to have impacts to stream and riverine habitats and the indigenous aquatic life that inhabit them (Beak 1997, 1998a, 1998b; Lang 1997). Concerns were expressed early on in the consultation process that Washington Water Power (WWP) should attempt to eliminate, minimize, or mitigate for these impacts, and this measure was one of those sponsored by the Fisheries Work Group (FWG) to help meet these objectives.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Early in the consultation process, the FWG considered the potential mitigation benefits of protecting habitat and improving conditions in LPO-CFR tributary streams. Information on the positive results from local landowner and stakeholder driven Watershed Councils was presented to the FWG, and discussed at their April 30-May 1, 1997 and June 11-12, 1997 meetings (FWG meeting summaries). The success of The Elk Creek Watershed Council, a group active along a tributary to Cabinet Gorge Reservoir, was highlighted as a site-specific example of the benefits of such groups (pers. comm. of J. Davies, FWG member). Lack of initial financial resources and assistance was identified as an obstacle to the potential formation of additional Watershed Councils on those LPO-CFR tributaries where local interests are or would otherwise be supportive. The FWG agreed at it's June 11-12, 1997 meeting to recommend to the Clark Fork Relicensing Team (CFRT) a PM&E measure providing for support and/or facilitation of the formation of additional Watershed Councils along tributaries to the lower Clark Fork River or Lake Pend Oreille.

V. **PROPOSED PM&E MEASURE:** In the first year WWP, in consultation with the Water Resources Technical Advisory Committee (WRTAC), will:

a. provide funding to be used for the initial start up and implementation costs for a program to develop and support local stakeholder based Watershed Councils for tributaries to the lower Clark Fork River (downstream of Thompson Falls Dam) or to Lake Pend Oreille, and

b. using the funding, identify and provide for a WWP staff person, or retain the services of local individual(s), to facilitate the formation of a Watershed Council for the Bull River drainage and other drainage's as appropriate.

In the second year and beyond, WWP will provide annual funding for the continued development and support of additional Watershed Councils in tributaries to the lower Clark Fork River or Lake Pend Oreille. It is anticipated that each Watershed Council will initially require one to two years of moderate funding (estimated at $8,000 - $15,000 total), followed by reduced levels of support (< $1,000 - $3,000 annually) as each council moves toward self-sufficiency. Selection of additional tributaries for Watershed Council development, and apportionment of annual funding among existing or developing councils, will be recommended by the WRTAC to the Management Committee for approval.

VI. **PROPOSED OR ESTIMATED FUNDING:** During the first year WWP will provide $20,000 for initial Watershed Council start-up costs and implementation. In subsequent years, WWP will contribute $10,000 annually for the continued development and support of Watershed Councils. Unexpended funds shall be carried over into subsequent years; however, the carry over funding in any one year shall not exceed $20,000 as adjusted in Paragraph 23 of the Settlement Agreement.

VII. **KEY REFERENCES:**

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Beak Consultants Inc. 1998a. Reservoir and flow fluctuation study *in prep*. Prepared for Washington Water Power. Spokane, WA.

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FWG (Fisheries Work Group). Meeting Summaries of April 30-May 1, 1997 and June 11-12, 1997. Washington Water Power. Spokane, WA.

Lang, B. 1997. Lower Clark Fork River Mollusc Community Assessment. Prepared for Washington Water Power. Spokane, WA

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Support of Tri-State Implementation Council Water Quality Monitoring Program

II. PURPOSE: The purpose of this measure is to provide for systematic, long-term monitoring of nutrients and metals which enter, are retained in and which pass the Noxon Rapids and Cabinet Gorge Projects. Excessive nutrient loading and metals contamination represent high priority water quality concerns in the Lake Pend Oreille - Clark Fork River (LPO-CFR) system, and the proposed monitoring will provide valuable information on trends in water quality associated with the projects and their reported role as nutrient and/or metals retention "sinks".

III. CONCERNS TO BE ADDRESSED: Excessive nutrient levels and the resulting productivity enrichment problems have been reported as significant water quality concerns in the Clark Fork River (Ingman 1992, USEPA 1992). However, these concerns are most acute in the upper portions of the river, and due to dilution by tributary inflow and other factors, nutrient concentrations in the lower Clark Fork River are generally low and algae blooms are uncommon (Johnson and Schmidt 1988; ND&T 1994; WWP 1995, 1996). Heavy metals contamination resulting from extensive mining activities in the headwaters and upper Clark Fork River basin has resulted in establishment of several Superfund sites, although they are located over 100 miles upstream of the Noxon Rapids and Cabinet Gorge Projects. With the focus on these concerns confined largely to the upper basin, relatively little hard data was available on nutrient and metals conditions in the vicinity of the projects prior to Washington Water Power's (WWP) recent evaluations. However, earlier conclusions and the results of the recent evaluations have indicated that the two project reservoirs do serve as sediment sinks, and therefore do retain nutrients and metals. The relative effectiveness of the reservoirs to serve in this capacity appears to be highly variable depending on loading and river flow conditions, but at least some benefit through net annual retention is provided by the Projects to Lake Pend Oreille (K. Carlson, Beak, pers. comm. to WRWG). Given the high priority of these concerns in the LPO-CFR system, a better understanding of trends in water quality in project waters, and the influence of the projects on downstream water quality, remains an interest of participants in the relicensing process.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: As noted above, although there has been a substantial focus on water quality conditions in the upper Clark Fork River basin, relatively little data was available for waters in the

project area prior to WWP's investigations. Johns and Moore (1985) provides data on metals contamination in river sediments, including some sampling in the project reservoirs. The U. S. Environmental Protection Agency (1992), Ingman (1985, 1992), and Johnson and Schmidt (1988) provide relatively recent summaries of the available information concerning water quality in the Montana portion of the Clark Fork River, conclusions concerning the relative status of various portions of the river, and alternatives and plans for addressing water quality concerns.

Most recently, WWP has contracted for or conducted several limnological studies during 1993 - 1995 (ND&T 1994; WWP 1995, 1996) that provide substantial new information on nutrients and productivity in the lower Clark Fork River and also included some analysis of metals contamination in reservoir sediments and two tributary mouths (as background indicators) (ND&T 1994). Finally, as part of the collaborative consultation process, the Water Resources Work Group (WRWG) has obtained substantial additional analysis and evaluation of nutrient, productivity, and metals information from their consultants (Beak 1997, 1998; Moore 1997; WRWG meetings, early 1997 through Dec. 9, 1997), and has continued to discuss these issues and appropriate measures for addressing them through their May 13, 1998 meeting.

Specific to this protection, mitigation, and enhancement (PM&E) measure, the WRWG began discussing coordination of it's monitoring needs with the activities of the Tri-State Implementation Council (TSIC) in early 1997 (WRWG Meeting Summary, April 10-11, 1997). The TSIC is an interstate body (Montana, Idaho, Washington) tasked with monitoring significant trends in the Clark Fork - Pend Oreille watershed, with the goal of recommending measures to improve water quality. The TSIC was in the final stages of developing and implementing a Clark Fork River Nutrients Monitoring Program, and was interested in the participation and support of the WRWG and WWP. Given similarity of data needs and a desire to avoid duplicative efforts, the WRWG requested the TSIC consider an additional sampling station to better define conditions in each of the two reservoirs and an expansion of their analysis on the lower river to include metals.

The TSIC agreed to sampling program changes and asked for immediate funding to implement that component of the overall program quickly (June 12-13, 1997 WRWG meeting). The Clark Fork Relicensing Time (CFRT) subsequently concurred with the WRWG recommendation and WWP has and will continue to provide the agreed upon interim support.

The WRWG developed and agreed to a comprehensive water quality PM&E package (meeting of May 13, 1998), including a recommendation for a long-term commitment by WWP to provide nutrient and metals monitoring data by supporting the TSIC monitoring program on the lower Clark Fork River.

V. **PROPOSED PM&E MEASURE:** As generally recommended and presented to the CFRT by the WRWG:

a. Beginning with 1998 sampling, WWP has provided the TSIC with annual, interim funding for the purpose of conducting nutrient monitoring at three stations on the lower Clark Fork River. The monitoring stations are located:

1. downstream of Thompson Falls Dam near the upper extent of Noxon Reservoir,
2. at the Noxon Bridge (downstream of Noxon Rapids Dam and at the head of Cabinet Gorge Reservoir) and,
3. at the Clark Fork Bridge (downstream of Cabinet Gorge Dam).

Sampling at these three sites allows for evaluation of the Clark Fork River entering and leaving both the Noxon Rapids and Cabinet Gorge Projects. The anticipated sampling schedule and other details of collection and analysis are presented in the TSIC's recommended monitoring program issued in 1997, with final determinations and adjustments concerning specific sampling locations, dates, and methodologies to be made by the TSIC or its designated staff or contractor, as appropriate, and upon notification of the Water Resources Technical Advisory Committee (WRTAC).

b. WWP will continue to provide funding to the TSIC for nutrient monitoring at the three stations on the lower Clark Fork River. In addition, WWP will provide annual funding that will allow the TSIC to collect water samples at these three sampling stations and have them analyzed for heavy metals. The TSIC nutrient and metals monitoring efforts along the lower Clark Fork River are outlined in their 1997 monitoring program, and expanded here to include metals. In addition, WWP will provide for and fund the services of a technical, private sector consultant to assist the WRTAC in evaluating the results of this monitoring effort.

c. In the event the TSIC ceases its program(s) or is otherwise unable to perform the outlined monitoring efforts, WWP will provide an equivalent monitoring program at the three sampling stations identified above, through either WWP personnel, state, tribal, or other governmental entity, or a private sector contractor/consultant. Similarly, should the USGS discontinue management of the gaging stations located downstream of the Noxon Rapids or Cabinet Gorge Projects, WWP, in consultation with the WRTAC, will provide river flow data sufficient for analysis of the nutrient and metals monitoring, and for the purposes of the stratification evaluation described in the reservoir stratification monitoring PM&E measure.

d. WWP shall report annually to the WRTAC on the results of this nutrient and metals monitoring, with the WRTAC making a determination on whether technical assistance for evaluation of results as provided for in b) above is needed. Should the WRTAC determine that such assistance is desired, WWP will secure the services of a technical consultant agreed to by the WRTAC.

VI. **PROPOSED OR ESTIMATED FUNDING:** As an interim PM&E measure approved to begin in 1998, WWP will provide financial support to the TSIC of $4,000 annually until an overall agreement is reached to support nutrient monitoring of the three sites associated with the projects.

When the overall agreement has been concluded, WWP will provide annual funding for the nutrients and metals monitoring program based on needs identified in annual work plans as approved by the Management Committee, and at a cost of $15,000.

In addition, WWP will provide for technical, private sector consultant services to assist in periodically evaluating the monitoring results as approved by the Management Committee, and at a cost not to exceed $10,000 during any five-year period.

Costs associated with developing and implementing an equivalent monitoring program should the TSIC no longer be able to conduct this effort are anticipated to be similar to the annual funding level noted above. Similarly, costs associated with providing the required river flow data should USGS data no longer be available, are expected to be similar to the costs incurred by WWP presently. WWP now fully funds USGS maintenance and operation of these gaging stations.

VII. **KEY REFERENCES:**

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Beak Consultants, Inc. 1998. Summary of available information on metals contamination in the lower Clark Fork River presented to the Water Resources Work Group, October 23, 1997. Washington Water Power. Spokane, WA.

Ingman, G.L. 1992. Assessment of phosphorus and nitrogen sources in the Clark Fork River basin, 1988-1991, final report. Section 525 of the 1987 Clean Water Act Amendments. Montana Department of Health and Environmental Services, Division of Environmental Water Quality. Helena, MT.

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Johns C., and J.N. Moore. 1985. Copper, zinc, and arsenic in bottom sediments of Clark Fork River reservoirs—Preliminary findings. Clark Fork Symposium, Butte, MT. Montana Academy of Sciences.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Monitoring of Noxon Reservoir Stratification and Mobilization of Sediment Nutrients/Metals

II. PURPOSE: The purpose of this measure is to provide for monitoring of Noxon Reservoir during periods when reservoir stratification is possible and, if the reservoir stratifies, to initiate more intensive monitoring of nutrient and metals levels. This effort will provide a better understanding of whether nutrients and/or metals in the reservoir sediments are re-mobilized into the water column during periods of low oxygen conditions in deep water resulting from reservoir stratification.

III. CONCERNS TO BE ADDRESSED: This measure will address the concern of whether Noxon Reservoir stratification and low oxygen conditions at near-bottom depths are resulting in remobilization of nutrients and/or metals that have accumulated in reservoir sediments. This information will be provided to the Management Committee and appropriate technical committees for further consideration and possible action.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Water quality monitoring in 1994 indicated relatively high levels of phosphorus (i.e. nutrients) and phytoplankton production in Cabinet Gorge Reservoir during the September 1994 sampling (WWP 1995; Beak 1997). There was no clear explanation for these "elevated" levels (Beak Consultants, Inc. - K. Carlson pers. comm. to Water Resources Work Group [WRWG] at April 10-11, 1997 meeting). The WRWG discussed the potential for remobilization of sediment nutrients in Noxon Reservoir during periods of stratification (i.e. low oxygen conditions at deeper depths) as a possible causative factor. They also discussed the desirability of additional monitoring of Noxon Reservoir stratification and the associated conditions in the hypolimnion (e.g. near bottom).

The WRWG also discussed at several meetings during 1997 the issue of metals accumulation in Noxon Reservoir sediments. They had a summary report prepared on available information for metals contamination in the lower Clark Fork River and the potential influences of the projects (Moore 1997). Following review of the available information and Dr. Moore's summary report, the WRWG identified the possibility that potential anoxic (i.e. low oxygen) conditions could result in the remobilization of sediment metals as an issue warranting further study. The WRWG had Ken Carlson, Beak Consultants Inc. (Beak), develop a sampling protocol for evaluating the issue of nutrient and/or metals remobilization in Noxon Reservoir (WRWG meeting of September

11, 1997, October 23, 1997, and as agreed to on May 13, 1998). The WRWG agreed that evaluations during three years of stratified conditions would be sufficient to determine the effect of reservoir stratification.

V. **PROPOSED PM&E MEASURE:** In order to address the issue of whether stratified conditions in Noxon Reservoir are resulting in the remobilization of nutrients and/or metals that have accumulated in reservoir sediments, Washington Water Power (WWP) will initiate a program to monitor development of stratified conditions (temperature and dissolved oxygen) in Noxon Reservoir. Should reservoir stratification benchmarks occur as identified below under item b2, then WWP will implement more intensive nutrient and metals mobilization evaluations during as many as three different years of stratified reservoir conditions over the term of the new license.

a. Monitoring for reservoir stratification will be targeted to the summer period of July through September and will be initiated when Noxon Reservoir average daily outflow is equal to or less than 8,000 cfs for 4 out of 7 consecutive days. It is at these river flows (<8,000 cfs) that retention times in Noxon Reservoir begin to result in stratification of the water column.

b. Sampling will be repeated every 10-14 days until Noxon Reservoir average daily outflow increases to greater than 12,000 cfs for 4 out of 7 consecutive days. Sampling and analysis will be conducted in the following manner and sequence:

1. Vertical profiles of water temperature, dissolved oxygen (DO), pH, conductivity, and Secchi disk depth will be taken at a single fixed station in each of reaches 4 and 5 (as established in 1994 and 1995 water quality studies) of Noxon Rapids Reservoir. Fixed sampling stations will be located within the deepest portion of each reach, and vertical sampling frequency will be determined in the field depending on the depth of the epilimnion, thermocline, and hypolimnion and strength of stratification.

2. If a vertical profile indicates that the water column is at least moderately stratified, based on a surface to bottom temperature differential greater than 5°C and near bottom, DO of less than 4.0 mg/l, more intensive sampling for nutrient and metals analysis will be conducted concurrent with the b1 sampling at that sampling station. No more than two such intensive sampling efforts will be conducted at a station in the same year. These nutrient and metals samples will be obtained from two water depths:

    1. a grab sample at 2 m above the bottom (hypolimnion conditions); and

2. a composite sample from within the near surface zone equal to twice the observed Secchi depth (photic zone conditions).

In addition, as soon as reasonably practical following a more intensive nutrient and metals sampling event, grab samples will also be collected near the upper extent of Noxon Reservoir (between Birdland Bay and Thompson Falls) and from tailrace outflows (Noxon Bridge).

Samples collected for nutrient and metals analysis will be analyzed for the following nutrient components:

- total phosphorus
- soluble reactive phosphorus (SRP)
- total Kjeldahl nitrogen (TKN)
- ammonia (NH3 + NH4)
- nitrate-nitrite (NO3 + NO2)

Samples will also be analyzed for both total recoverable and dissolved levels of:

- arsenic (As)
- cadmium (Cd)
- copper (Cu)
- lead (Pb)
- zinc (Zn)

Photic zone and inflow/outflow samples will also be analyzed for chlorophyll a.

c. WWP shall report annually to the Water Resources Technical Advisory Committee (WRTAC) and the Management Committee on the results of the Noxon Reservoir stratification monitoring and any subsequent nutrient and metals analysis. WWP shall also provide the results of any stratification related nutrient and metals sample analysis (as called for in b2 above) to the Montana and Idaho DEQ's, interested Indian Tribes, and other WRTAC members as soon as the sample analysis becomes available from the analytical laboratory.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will provide funding for the actual cost of the monitoring, as approved by the Management Committee, in annual work plans. The estimated annual cost is $4,000. In addition, WWP will provide funding for the actual cost of the more intensive monitoring of nutrients and metals during periods of stratification as approved by the Management Committee. This work will be conducted in up to three years over the term of the license, and at an estimated cost of $40,000 in each year.

VII. KEY REFERENCES:

Beak Consultants Inc. 1997. Evaluation of the phytoplankton community for the Noxon Rapids and Cabinet Gorge Hydroelectric Projects. Prepared for Washington Water Power. Spokane, WA.

John C., and J.N. Moore. 1985. Copper, zinc, and arsenic in bottom sediments of Clark Fork River reservoirs—Preliminary findings. Clark Fork Symposium, Butte, MT. Montana Academy of Sciences.

Moore, J.N. 1997. Metal Contamination in Lower Clark Fork River Reservoirs. Prepared for Washington Water Power. Spokane, WA.

ND&T (Northrop, Devine, and Tarbell, Inc.). 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Water Quality Study Report. Prepared for Washington Water Power. Spokane, WA.

WWP (Washington Water Power). 1995. 1994 Water quality and limnologic evaluations on the lower Clark Fork River. Washington Water Power. Spokane, WA.

WWP. 1996. 1994 - 1995 water quality and limnologic evaluations on the lower Clark Fork River: a supplemental report. Washington Water Power. Spokane, WA.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Aquatic Organism Tissue Analysis

II. PURPOSE: The purpose of this measure is to provide a commitment to analyze aquatic organism tissues (e.g. fish, crayfish, macroinvertebrate, etc.) for the presence of toxic substances should such analysis be warranted at some future time. This measure will help ensure resources are available to monitor the food chain in the event other water quality monitoring efforts indicate increasing levels of metals or other substances of concern are occurring in project waters.

III. CONCERNS TO BE ADDRESSED: There are currently four Superfund sites located on the Clark Fork River upstream of the Cabinet Gorge and Noxon Rapids Projects. These sites have been designated due to contamination by heavy metals and other substances resulting from mining-related activities. Although these sites are located over 100 miles upstream of the projects, and contaminant levels in project related waters and sediments are substantially reduced from those upstream, there remains some concern that conditions could change and monitoring of fish or other aquatic organism tissue from the project reservoirs would be desirable. This measure addresses this concern through a commitment to collect and analyze aquatic organism tissues should it become warranted. This data would then be made available to the appropriate state, federal, tribal or other health agencies for their use in considering human consumption advisories.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: As a result of the Clean Water Act and the designation of several Superfund sites, contamination of the Clark Fork River by toxic substances has received substantial attention over the last fifteen or so years.

Johns and Moore (1985, 1986) conducted an extensive study of metals contamination in river sediments, with sampling sites located from the project waters to the headwaters. A downstream trend of decreasing metals contamination was shown, with the Noxon Reservoir sampling showing levels substantially lower than those of upstream sites although still slightly elevated above presumed background levels. Additional data on sediment contamination was also collected by Washington Water Power's (WWP) consultants in 1993 (ND&T 1994).

The Water Resources Work Group (WRWG) had Dr. Johnnie Moore, co-author of the earlier work (Johns and Moore 1985, 1986) and additional work conducted on the Clark

Fork since, prepare a summary of the available information on metals contamination in the project reservoirs, and the potential risks to aquatic life. That summary identified a number of additional studies that could be done to provide additional data on the issue, but it also concluded that contaminant levels in the project reservoirs were likely to be so low that extremely sophisticated analyses would be required to obtain sufficient detection levels and confidence limits._

The WRWG also received and discussed additional information on metals and fish tissue analysis from their water quality technical consultant at several consultation meetings (Beak - K. Carlson, pers. comm. and summary documents distributed to WRWG at meetings of October 23, 1997; December 9, 1997; and January 21-22, 1998). The WRWG agreed at their January 21-22, 1998 meeting that the available information on metals contamination was sufficient and that there was no need for fish or other aquatic organism tissue analysis at the present time. They also agreed at that meeting that metals analysis should be included as part of the Tri-State Implementation Council monitoring effort (see measure for: Support of Tri-State Implementation Council Water Quality Monitoring) and that a provision for aquatic organism tissue analysis should be retained in case conditions changed and it became warranted.

V. **PROPOSED PM&E MEASURE:** As may be recommended by the Water Resources Technical Advisory Committee (WRTAC), WWP will provide for the collection of fish or other aquatic organism tissue samples from the Noxon and/or Cabinet Gorge Reservoirs and will have them analyzed for the presence of heavy metals or other substances of concern. The need for tissue analysis, and for the identification of the species to be sampled, and the substances to be tested will be determined in consultation with the WRTAC. WWP will provide the results of the tissue analysis to the appropriate Idaho and Montana State health agencies, interested Indian Tribes, and other WRTAC and Management Committee members for their use in determining the need for and nature of any human health related fish consumption advisories.

VI. **PROPOSED OR ESTIMATED FUNDING:** For the purposes of collection and analysis of aquatic organism tissue in the future, WWP will provide funding for collection and laboratory analysis based on needs identified in annual work plans approved by the Management Committee, and at a cost not to exceed $15,000 during any five-year period.

VII. **KEY REFERENCES:**

Johns C. and J. N. Moore. 1985. Copper, zinc, and arsenic in bottom sediments of Clark Fork River reservoirs - Preliminary findings. Clark Fork Symposium, Montana Academy of Sciences. Bozeman, MT.

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Moore, J. 1997. Metals contamination in lower Clark Fork River reservoirs.[1] Prepared for Washington Water Power. Spokane, WA.

ND&T (Northrop, Devine and Tarbell, Inc.). 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 water quality study report. Prepared for Washington Water Power. Spokane, WA.

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[1] This recent summary report includes a bibliography that identifies numerous additional sources of information concerning Clark Fork River metals contamination and aquatic life toxicity.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Water Quality Protection and Monitoring Plan for Maintenance, Construction, and Emergency Activities

II. PURPOSE: The purpose of this measure is to provide for the development and implementation of a plan to minimize or eliminate the impact of project related maintenance, construction, and emergency activities to water quality and associated resources of the Clark Fork River and Lake Pend Oreille.

III. CONCERNS TO BE ADDRESSED: Initial stage consultation comments from the Idaho Division of Environmental Quality (IDEQ) identified a concern about potential water quality or other resource impacts related to maintenance or emergency activities at the Cabinet Gorge Project. The Water Resources Work Group (WRWG) reviewed the water quality related initial stage consultation comments and agreed this was an issue to address (WRWG Meeting Summary, June 12-13, 1997). There was an interest in having clearly established policies and plan(s) for consultation with and notification of resource agencies, and for standardized protection and monitoring actions, related to unusual reservoir and river levels associated with construction, maintenance, or emergency activities. There was concern that in the absence of such policies and plan(s), there was a potential for impacts to water quality, fish, or other resources that might otherwise be avoided and/or which should be monitored.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: In the past, greater than normal reservoir drawdown and/or restricted discharge at the Cabinet Gorge Project has occasionally been required during emergency situations (e.g. drownings and vehicles in the river) and for maintenance purposes (e.g. FERC ordered tailrace inspections). The WRWG, at their September 11, 1997 meeting, discussed the types of activities that have occurred in the past and reviewed a summary of the "anticipated" and "possible" activities that would require those conditions. Several members of the group agreed on (at that same meeting) the desirability of having a formal notification and monitoring plan for maintenance, construction, or emergency activities that require significant changes to typical flows or pool levels (WRWG Meeting Summary, September 11, 1997).

Montana Department of Environmental Quality (MTDEQ) and IDEQ representatives presented anticipated conditions for Clean Water Act Section 401 water quality certification that included provisions related to planning, notification, and monitoring of

maintenance, construction, and emergency activities (September 11, 1997 meeting). Washington Water Power (WWP) used that information to develop and present to the WRWG at their October 23, 1997 meeting, a package of proposed water quality related protection, mitigation, and enhancement measures that included development and implementation of a water quality protection and monitoring plan for maintenance, construction, and emergency activities (WRWG meeting of October 23, 1997). The group continued to discuss the PM&E package at their next meeting, noting there was "general agreement" on the measure for development of a maintenance, construction, and emergency activities plan (WRWG Meeting Summary, December 9, 1997). The group continued to discuss and edit this measure and the overall PM&E package at their next four meetings (January 21-22, 1998; March 11, 1998; April 16, 1998; and May 13, 1998).

The WRWG reached final consensus on the overall water quality PM&E package, including this measure, and agreed to recommend it to the Clark Fork Relicensing Team at their May 11, 1998 meeting (WRWG Meeting Summary, May 11,1998).

V. **PROPOSED PM&E MEASURE:** In consultation with federal, state and tribal natural resource and public safety agencies, and Water Resources Technical Advisory Committee (WRTAC) members, WWP will develop for recommendation to the Management Committee a Water Quality Protection and Monitoring Plan (Plan) for project related maintenance, construction, and emergency activities, that will:

- identify, characterize, and describe the potential effects of foreseeable or potential maintenance, construction, emergency, or non-typical project operation activities that could be reasonably expected to affect water quality, quantity, or beneficial uses as identified in Idaho and Montana water quality standards and classifications;
- include guidelines and contact telephone numbers for notifying the appropriate agencies of potential or emergency required activities of concern;
- identify and describe best management practices (BMP's) to protect beneficial uses of water resources from direct or indirect impacts due to project related maintenance, construction, emergency, or non-typical project operation activities;
- identify and describe water quality, quantity, BMP, or other monitoring activities to be initiated in the event of non-typical operations in order to document the resulting conditions, identify resource impacts, and provide a basis for modifying either the activity causing the conditions or the implemented BMP's so as to minimize water resource impacts to beneficial uses of water identified in Montana and Idaho water quality statutes and regulations;
- include provisions for development of more detailed Special Projects Water Resources Protection and Monitoring Plans for those currently unforeseen maintenance, construction, emergency, or non-typical project operation activities that

arise in the future and where the WRTAC agrees a more detailed, activity specific plan is warranted; and,

- provide for an annual summary report to the WRTAC of the previous years Plan related activities, compliance with Idaho and Montana state water quality standards, and the Management Committee's water resource objectives, and recommended revisions to the plan.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the actual cost for development of the plan at a cost not to exceed $45,000.

VII. **KEY REFERENCES:**

IDEQ (Idaho Division of Environmental Quality). 1996. First stage consultation comment letter of March 16, 1996 in response to WWP distribution of Initial Stage Consultation Document and request for comment. Washington Water Power. Spokane, WA.

WRWG (Water Resources Work Group). 1997-1998. Meeting Summary: June 12-13, 1997; September 11, 1997; October 23, 1997; December 9, 1997; January 21-22, 1998; March 11, 1998; April 16, 1998; and May 13, 1998. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Dissolved Gas Supersaturation Control, Mitigation, and Monitoring

II. PURPOSE: The purpose of this measure is to provide for the study, control, mitigation, and monitoring of gas supersaturation and the associated biological resource impacts in the Clark Fork - Pend Oreille system related to spill at the Cabinet Gorge and Noxon Rapids Projects. This measure commits WWP to multiple actions and activities for achieving this purpose: 1) minimize or eliminate increases in Clark Fork River total dissolved gases (TDG) due to spill at the Noxon Rapids Project through the selective and coordinated use of specific spill gates, 2) a comprehensive TDG monitoring program in the Clark Fork - Pend Oreille system, 3) intensive study of the biological impacts of gas supersaturation to aquatic organisms in the Clark Fork - Pend Oreille system downstream of the Cabinet Gorge Project, 4) a comprehensive feasibility analysis of structural dam alterations or other engineered options for reducing, offsetting, or otherwise mitigating increases in TDG due to spill at Cabinet Gorge Dam, and 5) development and implementation of a Gas Supersaturation Control, Mitigation, and Monitoring Plan designed to reduce TDG levels downstream of Cabinet Gorge Dam.

III. CONCERNS TO BE ADDRESSED: Recent studies (WWP 1995; Parametrix 1996, 1997) have documented that during periods of high river flows, spill at the projects can result in supersaturated total dissolved gas levels in downstream waters that exceed the 110 percent Idaho and Montana standard. Exposure to gas supersaturation has been shown to result in gas bubble disease in aquatic organisms. Depending on duration and depth of exposure (increasing pressure at greater depths offsets the supersaturation effect), and the severity of the gas bubble symptoms that develop gas bubble disease can be lethal. Studies by Parametrix, Inc. (1996, 1997) show that spill induced TDG increases at Noxon Rapids Dam can be minimized or eliminated through the use of specific or combinations of spill gates. At Cabinet Gorge, substantial increases in downstream TDG levels during heavy spill periods were observed regardless of the specific spill gates used.

While water entering Noxon Reservoir from upstream sources was already in excess of state TDG standard there is no clear understanding of the various sources of the elevated TDG levels. Similarly, the extent to which these levels extended downstream into and beyond Lake Pend Oreille was identified as a concern and a study/monitoring need. In addition, as part of considering and discussing the potential biological impacts of elevated TDG levels on aquatic organisms, the Water Resources Work Group (WRWG) quickly realized that substantial additional study would be necessary to better understand and

quantify the actual biological impacts occurring downstream of the Cabinet Gorge Project. Several members of the WRWG also felt strongly that the feasibility for structural modification of the Cabinet Gorge Dam, tailrace, river, or other options to reduce TDG levels downstream of the project should be evaluated regardless of the results of biological impact studies.

In summary, the concerns of the WRWG addressed by the various components of this measure are: 1) a need to utilize, monitor, and refine the spill gate configuration(s) at Noxon Rapids Dam to result in the lowest downstream TDG levels; 2) the need for a better understanding of TDG sources in the Clark Fork River and the downstream extent of elevated TDG levels; 3) the need for a better understanding and definition of the actual biological impacts of elevated TDG levels downstream of Cabinet Gorge Dam; 4) the need for a comprehensive evaluation of possible structural modification or other treatments, and ultimately, 5) the need for a plan to mitigate for project induced impacts by reducing and monitoring TDG levels in the Clark Fork - Pend Oreille system and mitigating for any remaining, unavoidable impacts due to spill related increases in TDG levels.

III. **Proposed PM&E Measure:** In order to detect and control gas supersaturation conditions resulting from spilling excessive river flow at the Noxon Rapids Dam and Cabinet Gorge Dam, WWP will implement interim operational measures, conduct TDG monitoring, biological impact and engineering studies and develop and implement an overall Gas Supersaturation Control Program (GSCP) as described in section V.c.

a) Interim Operational Procedures

Recent studies conducted by Parametrix on behalf of WWP indicate that the selective use of spill gates can effectively control TDG production from Noxon Rapids Dam. Current information indicates that selective use of spill gates at the Cabinet Gorge Project provides only marginal control of TDG production below the project. These interim operational procedures may need to be changed based on TDG monitoring results or eventual structural changes or modifications to the Projects. Operational procedures will become part of the required GSCP, described in V.c.

(1) Noxon Rapids Spill Gate Operations - When spilling of water is required at Noxon Rapids Dam, WWP will utilize spill gates 1-6 as the primary gates for passing water. Spill through gates 7 and 8 will be avoided to the extent possible within potential constraints posed by structural considerations and limitations, total river flow, and spill gates 1-6 hydraulic capacity. As spill volumes through any one gate become greater than 4,000 cfs, WWP will distribute the spill at Noxon Rapids Dam approximately equally through two or more of the primary gates (1-6). Until the point that all six gates are

passing 4,000 cfs (24,000cfs combined spill), the spill volume in any one gate will not exceed 4,000 cfs. This will be done to the degree reasonably possible, unless operational variations in spill gate configuration are being performed for the specific purpose of evaluating the influence of spill gate usage.

WWP will annually evaluate the results from the interim TDG monitoring requirements, described in V.b.1, and corresponding spill gate 1-6 usage to identify potential changes in interim spill gate operations to further minimize TDG levels from Noxon Rapids Dam. Changes to interim spill gate operation shall be implemented by WWP after consultation with the Management Committee, and upon review and approval of MDEQ and IDEQ.

(2) Cabinet Gorge Dam Spill Gate Operations – In 1999, WWP in consultation with IDEQ, will develop a protocol for spill operations at Cabinet Gorge Dam. The protocol will identify the threshold at which successive gates will be used, and will specify the distribution of spill among gates. The protocol will be based on the interests of achieving uniformity in spill, and accommodating applicable operations and dam safety considerations. This protocol will be adhered to by WWP unless operational variations in spill gate configuration are being performed for the specific purpose of evaluating the influence of spill gate usage on TDG downstream.

WWP will annually evaluate the results from TDG monitoring requirements, described in V.b.1 and corresponding spill gate usage to identify any potential changes in interim spill gate usage to further minimize TDG levels from Cabinet Gorge Dam. Changes to interim spill gate usage at Cabinet Gorge will be implemented by WWP after consultation with the Management Committee, and upon review and approval of IDEQ.

b) Monitoring and Studies

(1) Interim TDG Monitoring Requirements - WWP will conduct interim monitoring of TDG levels in the Clark Fork-Pend Oreille system as outlined in the TDG Monitoring Plan prepared for the Clark Fork River Projects (Parametrix 1998a). TDG monitoring requirements will generally focus on the following basic objectives: 1) Identify the presence, levels, duration and extent of gas supersaturation resulting from the Projects; 2) Identify various sources of TDG and determine their relative contribution of TDG to the Clark Fork-Pend Oreille system during high river flow conditions; 3) Assess the optimum spill gate configuration at each project based on the configuration that provides the greatest reduction of TDG; and 4) Provide intensive temporal and spatial monitoring of TDG levels downstream of the Cabinet Gorge Dam and throughout Lake Pend Oreille/Pend Oreille River, in Idaho, for the purpose of correlation and integration with biological impact assessments and risk assessment studies.

Amendments to the interim TDG monitoring requirements may be necessary to adequately evaluate TDG reductions resulting from the implementation of structural modification(s) to the Cabinet Gorge Dam, physical alterations in the river below the dam or other measures that may be implemented to reduce TDG levels downstream of the Cabinet Gorge Dam. Other circumstances which may necessitate amendment to TDG monitoring requirements are shifts in priorities in on-going biological impact studies or critical results and conclusions based on ongoing monitoring activities. Amendments to interim and final TDG monitoring requirements will be implemented by WWP after consultation with the Management Committee, and upon review and approval by IDEQ. Finalized TDG monitoring requirements will be incorporated into the final GSCP as described in section V.c.

(2) Engineering Study - WWP, in consultation with the Management Committee, and IDEQ, will initiate a comprehensive engineering feasibility/TDG reduction study (Engineering Study) to identify options and provide preliminary design and construction feasibility information, cost estimates, as well as estimates of anticipated effectiveness for various types of modifications and/or combinations of modifications which may be made to Cabinet Gorge Dam, the Clark Fork River below downstream, or upstream projects or features. MDEQ will be consulted regarding applicable modifications, and as appropriate approve modifications to upstream facilities. The Engineering Study will also include a description of anticipated environmental effects and suggested controls associated with the construction of applicable options. Time schedules for construction or installation of gas saturation control features and/or devices will also be included in the Engineering Study. The Engineering Study will identify a recommended strategy for structural modification(s) to effectively meet gas supersaturation water quality standards downstream of Cabinet Gorge Dam.

In consultation with the Management Committee, WWP will submit the Engineering Study to IDEQ for review, modification and approval in 2000. Upon approval by IDEQ, the recommended strategy for structural modification(s) of the Engineering Study will constitute the "default" strategy in the proposed GSCP, as described in section V.c, for meeting the TDG water quality standard downstream of Cabinet Gorge Dam and will be implemented by WWP unless an alternative strategy is presented by WWP and approved by IDEQ.

3) Biological Impact Studies - In response to initial physical assessments of elevated TDG levels in the lower Clark Fork River and Lake Pend Oreille and the known effects of elevated TDG levels on fish held or captured downstream of Cabinet Gorge Dam in 1997, WWP, in consultation with the WRWG, decided to scope and conduct more detailed and comprehensive biological impact studies on a "Pilot Program" basis

beginning in 1998. The purpose of the studies conducted in 1998, is to evaluate study methods and determine whether field studies can produce useful information about the impact of elevated TDG on aquatic communities in the lower Clark Fork River and Lake Pend Oreille. WWP and members of the Management Committee believe this type of information, provided it can be gathered in a reliable and timely manner, may help provide a better understanding of the impact of gas supersaturation conditions on aquatic communities in the natural environment below the Projects. The ultimate purpose of the biological assessments is to aid the development of alternative gas supersaturation mitigation strategies, which may differ from the "default" structural modification(s) in the approved Engineering Study, but which are expected to provide similar or greater biological benefits. In that event, the "default" structural modification(s), will become a benchmark against which a biological-impact-based mitigation alternative(s) can be measured on both a biological enhancement, cost-benefit basis and other criteria. Furthermore, biological impact studies may be useful for evaluating the biological effectiveness of proposed structural controls or operational procedures to control gas supersaturation.

WWP will provide biological impact study results and proposed study designs to the Management Committee, and IDEQ, annually for review and approval. WWP, in consultation with the Management Committee and IDEQ, may elect to either modify and continue biological impact studies during the following year or discontinue such studies due to inability to collect reliable information in a timely manner.

***c. Proposal, approval and implementation of Gas Supersaturation and Control Program (GSCP)*:**

In 2002, WWP will, following close consultation with the Management Committee, will submit a proposed comprehensive GSCP for the detection and control of gas supersaturation downstream of Cabinet Gorge Dam for IDEQ review, modification and approval. The proposed GSCP will include: 1) Proposed operational procedures to minimize TDG production from the Projects; 2) Proposed TDG Monitoring and reporting requirements, including requirements to evaluate the effectiveness of control and mitigation; and 3) Proposed strategies to control gas supersaturation downstream of Cabinet Gorge Dam. If any proposed control strategies differ from the "default" structural modification(s) strategy, a comparative analysis of the proposed control strategies and the default structural modification strategy, as identified in the approved Engineering Study, shall be included. Strategies which may be proposed include strategies to control gas supersaturation by alternative mitigation as an alternative to, or in combination with strategies to control gas supersaturation by structural modifications. Each strategy considered will include proposed time schedules for implementation. The strategies will be analyzed for effectiveness in meeting water quality standards for gas

supersaturation, mitigation of existing or potential gas supersaturation biological impacts, feasibility of implementation, and, secondarily, cost.

Upon approval by IDEQ, the proposed GSCP shall become final and will be implemented in accordance with its terms, schedules and requirements. In the event the monitoring component of the GSCP indicates that the goal of the selected control strategy is not being obtained, WWP will propose additional control strategies and/or mitigation, and appropriate monitoring requirements for review, modification and approval by IDEQ. WWP will begin implementation of the amended GSCP upon approval.

VI. **PROPOSED OR ESTIMATED FUNDING:** The total eventual cost associated with this measure can not be determined at this time. Annual costs specific to the monitoring, study, and evaluation of the gas saturation issue have been in excess of $100,000 to $200,000/year during the previous 2-3 years. It is reasonable to expect similar, and likely greater study, monitoring, control feasibility assessment, and control plan development costs in the next several years as this measure is implemented. Cost of implementing the control plan and required mitigation measures will depend on the specific structural or other physical modifications called for and the nature of any additional resource impact mitigation. Preliminary projections of potential costs associated with dam and/or spillway modification options generally fall into the range of tens of millions of dollars.

VII. **KEY REFERENCES:**

Parametrix, Inc. 1996a. Study plan for the characterization of dissolved gas conditions at Cabinet Gorge and Noxon Rapids Hydroelectric Projects during spill periods. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1996a. Characterization of dissolved gas conditions at Cabinet Gorge and Noxon Rapids Hydroelectric Projects during spill periods. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1997. Physical and biological evaluations of total dissolved gas conditions at Cabinet Gorge and Noxon Rapids Hydroelectric Projects - Spring 1997. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1998a. Study plan - 1998 pilot study, dissolved gas supersaturation, Clark Fork Projects. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1998b *in prep*.. 1998 pilot study, dissolved gas supersaturation, Clark Fork Projects. Prepared for Washington Water Power. Spokane, WA.

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RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Implementation of the Land Use Management Plan

II. PURPOSE: The purpose of this measure is to provide for the long-term protection and maintenance of sensitive and important resources on Washington Water Power (WWP) owned project lands, including the existing rural and semi-remote character of the shoreline, through the implementation of a land use management program. It is intended that use of WWP owned project lands will be managed to protect and preserve the rural character and habitat values of those lands while still allowing for reasonable public access and other compatible uses.

III. CONCERNS TO BE ADDRESSED: WWP owns much of the land surrounding the Noxon and Cabinet Gorge Reservoirs. Recent growth trends in Sanders County, and specifically in the area surrounding the reservoirs and WWP's ownership, has resulted in an increased demand for the use of and access across WWP lands. Participants in the relicensing process expressed concerns about the developmental pressures in the lower Clark Fork River valley and the need to protect and maintain the existing character and habitat value of the lands along the reservoirs and lower river. Development and implementation of a land use management program for WWP owned lands was identified as a way to guide land use activities and protect the rural character of the shorelines while still allowing for public access and other compatible uses.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: The Land Use, Recreation, and Aesthetics Work Group (LURAWG) reviewed a variety of geographic information system (GIS) analyses for the lands surrounding the reservoirs and lower river. These included land ownership maps, WWP's Most Suitable Use maps developed as part of their existing land use management program, Recreation Opportunity Spectrum (ROS) maps, current locations of WWP-issued shoreline use permits, dock density patterns, wetlands mapping, etc.. Since WWP owns a substantial proportion of the shoreline surrounding Noxon and Cabinet Gorge Reservoirs, and for a short distance downstream of Cabinet Gorge Dam WWP's management of land use will have a major effect on development. The width of WWP's shoreline ownership varies greatly, in some cases extending back from the shoreline more than a mile. Most of the remaining reservoir shoreline is either National Forest land or railroad (Montana Rail Link) right of way.

The LURAWG used the previously developed Most Suitable Use maps as a starting point for developing a comprehensive land use classification system for WWP lands. Those maps were revised by the LURAWG utilizing a set of site characteristics criteria for determining the appropriate land use classification, and incorporating input from the Wildlife, Botanical, and Wetlands Work Group and the Cultural Resources Management Group. Protection of high value wildlife habitats, cultural resources, and the predominantly rural character of the shoreline and surrounding area, provision for public and private recreation needs, and aesthetic concerns are all reflected in the land use classifications and land use management program. The LURAWG also agreed upon a variety of land use policies, guidelines, and standards (e.g. tree removal policy, dock standards, etc.) to provide additional guidance for managing land use and associated activities on WWP owned project lands. Ultimately, over a period of approximately two years and more than a dozen work group meetings, the LURAWG incorporated the land use classification maps, land classification definitions, land use policies, guidelines, and standards, a land use permit program, coordination with other land use planning and management entities (e.g. Sanders County, Green Mountain Conservation District, etc.), and periodic program and land classification review and revision into a Land Use Management Plan (LURAWG 1998). The LURAWG agreed at their February 24-25, 1998 meeting to recommend to the Clark Fork Relicensing Team that implementation of the Land Use Management Plan (LUMP) be included as a protection, mitigation, and enhancement measure within the Settlement Agreement (LURAWG Meeting Summary February 24-25, 1998).

V. **PROPOSED PM&E MEASURE:** WWP will implement the LUMP as developed by the LURAWG. The goal of the LUMP is to protect sensitive and important resources on WWP owned project lands, including the existing character of the shoreline, over the term of the new license. Specifically, the LUMP establishes appropriate land use classifications and management guidelines to protect identified natural, aesthetic, and cultural resources that occur on WWP owned project lands. It also provides opportunity for public and some private access to project lands and waters.

Implementation of the LUMP has three distinct components:

1. Administration,
2. Monitoring, and
3. Enforcement.

1. Administration consists of:

- reviewing and processing requests for leases and private recreation permits on WWP lands (as provided for in the LUMP);

- ongoing coordination of the land use management program with members of the Terrestrial Resources Technical Advisory Committee (TRTAC), Sanders County Planning Board, Green Mountain Conservation District, and the cultural, wildlife, recreation, aesthetic, and erosion programs;
- annual TRTAC meetings; and,
- WWP, in consultation with the TRTAC, will review and update the plan every five years.

2. Monitoring

   Monitoring will consist of annual inspections of WWP lands to assure compliance with permit and lease conditions, and assure compliance with acceptable land uses and restrictions as identified in Chapter 4, Land Use Categories, of the LUMP. Monitoring results will be reported to the TRTAC and to the Management Committee.

3. Enforcement

   Enforcement to prevent and prosecute violations of the law, and of permit and lease conditions (as identified in the appendices of the LUMP) and other unauthorized uses of project lands (i.e. vegetation removal, ground disturbance, trespass, violation of lease/permit conditions, etc.) will be coordinated with WWP real-estate, legal, and land survey staff, and Montana Fish, Wildlife, and Parks, and Idaho Department of Fish and Game law enforcement staff, and other local, state or federal law enforcement staff (to include the U.S. Forest Service).

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the actual costs of implementation of the LUMP in the amount specified in the implementation plans approved by the Management Committee. WWP estimates that it will cost between $50,000 and $100,000 annually to implement the LUMP, depending on the number and nature of land use permit requests and the degree of land use monitoring and nature and amount of enforcement ultimately required.

VII. **KEY REFERENCES:**

LURAWG (Land Use, Recreation and Aesthetics Work Group). 1996 - 1998. Land Use, Recreation and Aesthetics Work Group Meeting Summaries. Washington Water Power. Spokane, WA.

LURAWG 1998. Land Use Management Plan. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Implementation of the Recreation Resource Management Plan

II. PURPOSE: The purpose of this measure is to provide for appropriate and adequate recreational opportunities and facilities associated with the Noxon Rapids and Cabinet Gorge Projects through the implementation of the Recreation Resource Management Plan (RRMP). The Land Use, Recreation and Aesthetics Work Group (LURAWG) developed the plan and identified seven goals to be met through its implementation:

1. Manage existing recreation resource needs.
2. Manage future recreation resource needs.
3. Provide adequate and safe public access.
4. Preserve recreation resources.
5. Coordinate recreation planning and needs.
6. Provide cost-effective and desirable recreation opportunities.
7. Provide compatible recreation opportunities.

III. CONCERNS TO BE ADDRESSED: The Noxon and Cabinet Gorge Reservoirs, and the reach of river downstream of Cabinet Gorge Dam, offer substantial, water-based recreational opportunities. This measure addresses concerns that impacts to recreational resources and/or water access related to the continued operation of the projects be mitigated, and that sufficient resources be available over the term of the new licenses to maintain project associated recreation facilities and meet demand for new, expanded, or improved facilities, including those related to compliance with the Americans With Disabilities Act (ADA). There was also concern that recreation development be consistent with preserving the rural and semi-remote existing character of the area.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Beginning in April of 1997 (LURAWG Meeting Summary, April 24-25), and during the course of 10 subsequent consultation meetings, the LURAWG and their recreation technical consultants (EDAW, Inc.) worked on compiling and reviewing the available recreation resource information, developing additional resource information and analysis as needed, and preparing the RRMP for the Noxon Rapids and Cabinet Gorge Projects. Existing available information included several years of recent recreation use and demand studies (ND&T 1994, 1995a, 1995b), Statewide Comprehensive Outdoor Recreation Plans (SCORPs), Forest Service campground use data, and local and regional population growth and projection data. Additional recreation resource inventory studies

and needs analyses were conducted and presented to the group by EDAW (see RRMP [EDAW 1998] and its appended Exhibits), and recommendations on ADA related needs were prepared by an ADA compliance expert (Alpha One 1998).

Recreation Opportunity Spectrum (ROS) and Limits of Acceptable Change (LAC) planning and analysis concepts were used in crafting the Recreation Plan, and are to be used in the longer term monitoring and management of the project associated recreation resources. In developing the RRMP, the LURAWG discussed and agreed on site-specific recreation facility needs and priorities, segregating current and future needs into high, medium, and low priority. The group discussed and agreed to a schedule for addressing the high priority facility needs during the first five years of plan implementation, and a long term commitment of annual funding and other resource commitments sufficient to ensure continued recreation facility development as warranted by future demand and use, a recreation monitoring program, and recreation facility maintenance and operation.

The LURAWG agreed to a recommended PM&E measure for implementing the RRMP (LURAWG Meeting Summary, April 8-9, 1998), including the funding commitments and cost estimates indicated below, and forwarded their recommendation to the Clark Fork Relicensing Team. The LURAWG subsequently finalized and approved the RRMP at their September 22, 1998 meeting (LURAWG Meeting Summary).

V. **PROPOSED PM&E MEASURE:** Washington Water Power (WWP) will implement the RRMP and its programs, prepared by EDAW (1998) consistent with the PM&E. This plan and its programs have been developed in consultation with the LURAWG, including other local recreation providers. These RRMP programs will provide recreational opportunities and facilities for WWP's Clark Fork Projects that are consistent with the rural character of the area, as defined by the Limits of Acceptable Change (LAC) and Recreation Opportunity Spectrum (ROS) classes established by the LURAWG.

WWP's role in implementation of the RRMP consists of seven components:

1. RRMP Administration and Resource Integration Programs.
2. Americans With Disabilities Act Compliance.
3. RRMP Recreation Facility Development Program (high priority actions).
4. RRMP Monitoring Program.
5. RRMP Recreation Facility Development Program (medium and low priority actions).
6. Operation and Maintenance Program.
7. Interpretation and Education Program.

1. RRMP Administration and Resource Integration Programs. Administration of the program consists of coordinating the management of:

- project-related recreation sites,
- recreation site improvements,
- new facility development,
- monitoring of recreational use and impacts, and
- operation and maintenance activities.

These activities will be coordinated with activities of other local recreation providers (e.g. United States Forest Service [USFS]; Montana Fish, Wildlife and Parks [MFWP]; Idaho Department of Parks and Recreation [IDPR]; Idaho Department of Fish and Game [IDFG]; Sanders and Bonner Counties; and, private concessionaires and other interested organizations), and will be integrated with WWP's Land Use Management, Cultural Resources, Wildlife, Fisheries, Aesthetics, and Erosion programs. WWP will administer the program using a recreation specialist along with clerical, consultant, and technical support as needed.

2. Americans with Disabilities Act Compliance. To comply with the ADA, WWP will provide ADA facilities and opportunities at recreation sites associated with the projects. These facilities will be based on the recommendations of Alpha One, a nationally recognized ADA consultant, in consultation with the LURAWG and consistent with the RRMP.

3. RRMP Recreation Facility Development Program (high priority actions). Based on EDAW's assessment of existing and future recreation needs, new recreation sites are not needed for the foreseeable future. However, immediate and long-term modification, improvement, expansion, and repair of existing sites and facilities is needed and planned. EDAW, in consultation with the LURAWG, prioritized recreation resource needs into three phases: high (years 1-5), medium (years 6-10), and low (years 11 and beyond).

During the first five years of implementation, WWP will make available funds in the amounts described below to fund the "high priority" modifications and repairs to existing recreation sites as specified in Exhibits 1 through 3 of the RRMP. EDAW, in consultation with the LURAWG, has prepared a recreation development implementation schedule that identifies specific project related recreational site modifications, repairs, and improvements, their estimated cost, and locations to be funded in the five year period. Where possible, and to increase the annual funding available, WWP will seek matching funds from cooperators, private concessionaires and/or foundations. Sites, facilities and activities identified for improvements or funding are:

- picnicking facilities,
- day use and group shelters,
- restrooms,
- roads/parking/site access,
- paths and trails,
- fishing access/shoreline access/swimming areas,
- boat launches,
- planning and design,
- campgrounds, and
- other miscellaneous improvements.

4. RRMP Monitoring Program. WWP will implement the Monitoring Program as defined in the RRMP. A primary focus of the program is the monitoring of the LAC indicators and standards at specified locations as described in Exhibit 5 of the RRMP. The program calls for WWP, in consultation with Terrestrial Resources Advisory Committee (TRTAC) and as approved by the Management Committee, to develop and test a detailed program to monitor developed and undeveloped sites at two levels: (1) annual monitoring, utilizing data that is collected during routine management of recreation resources; and (2) more detailed survey work such as sweeping counts, mail out surveys, and surveys identified under item 6 below that are conducted as needed every five to ten years.

Information collected during annual monitoring will be compiled, analyzed, and provided to the TRTAC and Management Committee. Annual data will be compiled into a report every five years. Information collected will aid in assessing adequacy of monitoring effort, documenting recreation use, assessing adequacy of recreation facilities, projecting recreation resource needs, amending the development schedule, amending operation and maintenance costs, and amending and updating the plan.

WWP will:

- complete the Monitoring Program development and testing at an estimated one time cost of $30,000;
- conduct annual monitoring and reporting at an estimated cost of $15,000 annually; and,
- conduct periodic (estimated once every five to ten years based on need) detailed surveys at an estimated cost of $60,000 per survey.

5. RRMP Recreation Facility Development Program (medium and low priority actions). EDAW, in consultation with the LURAWG, has prepared a recreation development implementation schedule for the term of the new license. At five year

intervals through the term of the new license WWP, in consultation with the TRTAC and as approved by the Management Committee, will revise this schedule. Revisions will be based on recreation use monitoring and LAC indicators and standards and will be finalized following consultation with the Water Resources Technical Advisory Committee (WRTAC) and the Cultural Resources Management Group (CRMG). The revised schedule will identify WWP site-specific funding commitments toward recreation site modifications, improvements, and/or repairs needed to meet demand for the next five year period. The schedule may also include new facility development if identified as being necessary by the TRTAC and as approved by the Management Committee, based on monitoring and LAC indicators and standards.

Beginning in year six of implementation, WWP will provide $150,000 annually to the Recreation Facilities Fund through the term of the new license(s) to fund actions identified in the revised implementation schedules.

6. Operation and Maintenance Program. To assure the continued operation and maintenance of recreation sites and use areas associated with the projects, WWP will fund the actual costs of implementation of the Operation and Maintenance Program of the RRMP in the amount specified by annual implementation plans approved by the Management Committee. The Operation and Maintenance Program includes:

- maintain WWP-controlled recreation facilities and undeveloped recreation sites on WWP lands at an estimated cost of $28,500 annually;
- assist the U. S. Forest Service (USFS) with the maintenance of Finley Flats Recreation Area, North Shore Recreation Area, Martin Creek Recreation Area, Bull River Recreation Area and Big Eddy Recreation Area. The USFS believes that 95% of the recreation demand at their sites on the projects is induced by the existence of the projects, and that WWP should be responsible for a commensurate Operation and Maintenance contribution. The USFS has agreed that for the first two years of the agreement, WWP will fund 90% of the Operation and Maintenance of these USFS facilities, during which time WWP will collect survey information will be collected to better determine project-induced recreation demand. Survey content and methodology will be developed by the TRTAC, approved by the Management Committee, and will be subject to approval by the USFS. Estimated funding for Operation and Maintenance of USFS sites, at the 90% level, is $27,698 annually. This figure includes a WWP contribution of $25,180, plus the addition of an applicable overhead assessment, which could range from 3 to 10%. Within the levels of project-induced demand, both at the preliminary 90% level, and at the level agreed to at the conclusion of the survey, WWP commits to spend operation and maintenance dollars as estimated by the USFS for their facilities listed above;

- assist with the maintenance of Thompson Falls State Park and the Flat Iron Ridge Fishing Access Site, at an estimated cost of $9,000 annually;
- provide leases of WWP property to the private recreation concessionaires at Birdland Bay and Cabinet Gorge RV Park; and,
- provide low-cost leases to the community or civic groups providing recreation opportunities (i.e. Thompson Falls Golf Course, Trout Creek Recreation Area, and Pilgrim Creek Park).

7. Interpretation and Education Program. WWP, in consultation with the TRTAC, WRTAC, and the CRMG, will develop and implement an Interpretation and Education (I&E) Program subject to the approval of the Management Committee. The first task identified in the RRMP's I&E Program is to develop an I&E Plan. The I&E Plan will guide the content, format and location of educational, informational and interpretive media, kiosks, or programs at public recreation or other identified sites. The purpose of the I&E Plan is to provide the public with information on safety, recreation facilities and opportunities, natural and aesthetic resources, and historical information associated with the project area.

In the first year following the execution of the Settlement Agreement, WWP will fund the development of the I&E Plan at an estimated total cost of $50,000. In the second and third years of the program, WWP will implement measures identified in the I&E Plan at an estimated cost of $18,000 annually. Beginning in year four, and annually thereafter, WWP will maintain and update the I&E Program and associated measures at an estimated cost of $5,000 annually.

WWP also proposes to employ a grant writer (cost to be covered separately through WWP administration of license) to assist in the pursuit of matching dollars or grants.

VI. **PROPOSED OR ESTIMATED FUNDING:** During the first five years of implementation, WWP will make available $187,000 annually for the purpose of funding the high priority facility needs (recreation facility fund). Additionally, average annual costs of other Recreation Plan programs and staffing (e.g. plan administration and supervision, development and implementation of the recreation monitoring program, site and facility maintenance, etc.) for which WWP will be responsible for during this period is estimated to be approximately $100,000.

Beginning in year 6 and beyond, WWP will make available $150,000 annually for the purpose of funding recreation facility needs (recreation facility fund). Average annual costs for the other recreation programs and staffing for which WWP will be responsible for are estimated to be approximately $85,000.

VII. KEY REFERENCES:

Alpha One. 1998. Letter (dated June 12, 1998) and attached Memo Report (dated June 8, 1988) from Dennis Pratt, Alpha One Architect/Access Specialist, to Tim Swant, Washington Water Power. Noxon, MT.

EDAW, Inc.. 1998. Recreation Resource Management Plan (*for the Noxon Rapids and Cabinet Gorge Hydroelectric Projects*). Prepared for Washington Water Power. Spokane, WA.

IDPR (Idaho Department of Parks and Recreation). 1990. 1990 centennial edition, Idaho outdoor recreation plan (SCORP). Boise, ID.

LURAWG (Land Use, Recreation, and Aesthetics Work Group). 1997 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

MFWP (Montana Fish, Wildlife, and Parks). 1993. 1993 Montana statewide comprehensive outdoor recreation plan (SCORP). Helena, MT.

ND&T (Northrop, Devine and Tarbell, Inc.). 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Recreation Study Report. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 Recreation Study Report. Prepared for Washington Water Power. Spokane, WA.

ND&T . 1995b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 Creel Survey. Prepared for Washington Water Power. Spokane, WA.

United States Forest Service, Kootenai National Forest, Cabinet Ranger District. 1990-1997. Campground Use Data. Trout Creek, MT.

WWP (Washington Water Power Company). 1996. Initial Stage Consultation Document (*for the Noxon Rapids and Cabinet Gorge Hydroelectric Projects*). Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Implementation of the Aesthetics Management Plan

II. PURPOSE: The purpose of this measure is to provide for the protection and enhancement of aesthetic resources associated with the projects and to mitigate for project related impacts to those resources through the implementation of an Aesthetics Management Plan (AMP) developed by the Land Use, Recreation, and Aesthetics Work Group (LURAWG). The Aesthetic Management Plan developed by the LURAWG (EDAW 1998) identifies a twofold purpose:

1. ensure that aesthetic concerns and protection of scenic resources will be considered in the management of Washington Water Power (WWP) lands and project facilities, particularly in locations where the landscape plays an important role in the recreation experience, and
2. provide viewshed information to agencies that manage or administer lands outside the project boundary but within view from key project related viewpoints.

III. CONCERNS TO BE ADDRESSED: The Cabinet Gorge and Noxon Reservoirs, and the area surrounding them, possess high quality scenic value and experience substantial recreation use that is in many cases partly or largely dependent on the scenic character of the area (EDAW 1998). Members of the LURAWG identified a number of concerns or issues related to the need to protect and preserve the scenic character of the area and ensure that project related impacts to those resources are minimized or eliminated (see Section 1.4 of the AMP [EDAW 1998] for the more detailed, complete list of concerns or issues addressed).

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: The LURAWG agreed to utilize the services of EDAW, Inc., an environmental consulting firm whose specialties include land use planning and aesthetic resource analysis and protection, to assist them in addressing their concerns related to aesthetic resource issues. EDAW conducted and presented to the group a variety of aesthetic resource inventories and analyses, including a regional context characterization, characterization of the project area based on 15 "planning units", characterization of 40 key viewpoints located along the projects and lower river, and, in cooperation with the U.S. Forest Service (USFS), a ridgetop to ridgetop mapping of the viewsheds from the reservoirs and adjacent viewpoints. This information was used by the LURAWG and their consultant to develop

the AMP as the tool for guiding WWP's aesthetic resource protection and management efforts over the term of the new license.

EDAW's studies and analysis also identified two existing WWP developments that could be removed or screened to enhance the scenic character of the corridor - the large WWP billboard along Highway 200 at the entrance to the Cabinet Gorge viewpoint (removal recommended) and the substation located a short distance away (vegetative or other screening recommended); mitigating the impacts of these two sites as recommended was discussed and agreed to by WWP and the other members of the LURAWG (LURAWG Meeting Summary January 14-15, 1998).

At their April 8-9, 1998 meeting the LURAWG approved a recommended PM&E measure for implementation of the AMP, removal of the WWP Hwy. 200 billboard, and screening of the substation (LURAWG Meeting Summary April 8-9, 1998). The group subsequently completed and approved the AMP at their August 5, 1998 meeting (LURAWG Meeting Summary August 5, 1998).

V. **PROPOSED PM&E MEASURE:** WWP will implement the AMP as developed by EDAW (1998) and approved by the Land Use, Recreation and Aesthetics Work Group and subject to the approval of the Management Committee. The goals of the AMP are to manage visual resources on WWP lands to achieve and maintain high levels of scenic quality; protect and enhance visual and other aesthetic qualities of the corridor; and maintain the existing rural character of the corridor.

The AMP recognizes that responsibility for funding or implementing aesthetics resource protection and enhancement measures does not solely rest with one entity or agency. Accordingly, WWP will coordinate its aesthetics resource-related activities with local entities and/or agencies who share responsibility or manage these resources and, WWP will implement two site-specific protection and enhancement measures for aesthetic resources associated with the Noxon Rapids and Cabinet Gorge Projects. These measures are consistent with the AMP: 1) screening of the Highway 200 substation at Cabinet Gorge and 2) removal of WWP's Highway 200 billboard.

Aesthetics management guidelines and considerations implemented through the plans and programs listed below provide design guidelines and goals for management activities on project lands to maintain and enhance their high scenic quality. These guidelines will be implemented as follows:

- guidelines related to private or commercial shoreline improvements (e.g. docks, gazebos, etc.) will be implemented through the Private Recreation Permit Standards of the Land Use Management Plan;

- guidelines related to vegetation alteration will be implemented through the Land Use Management Plan and site-specific management plans;
- guidelines related to recreation site design, monitoring and improvements will be implemented through the Recreation Resource Management Plan; and,
- guidelines related to shoreline stabilization measures will be implemented through the Shoreline Stabilization Guidelines Program.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP estimates a one time cost of $14,000 for removal of the Highway 200 billboard and screening of the substation. Other costs associated with the implementation of the AMP will depend on the nature of proposed WWP activities potentially affecting aesthetics and the resulting mitigation costs to avoid or minimize impacts. These costs are met in the funding provided for the activity proposed (e.g. recreation facilities, erosion control program, etc.) or by the person or entity proposing the activity (e.g. commercial or private facilities on WWP land). Personnel and/or support costs for WWP to administer the plan will also likely vary from year to year, but are estimated to require no more than a 1/4 to 1/2 full-time equivalent (FTE) commitment at an estimated average annual cost of approximately $15,000.

VII. **KEY REFERENCES:**

EDAW, Inc. 1998. Aesthetics Management Plan. Prepared for Washington Water Power. Spokane, WA.

LURAWG (Land Use, Recreation, and Aesthetics Work Group). 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Development and Implementation of Wildlife, Botanical, and Wetland Management Plan

II. PURPOSE AND GOAL: The purpose of this resource protection, mitigation, and enhancement measure (PM&E) is to provide for the organization and presentation of the various wildlife, botanical, and wetland PM&E measures, site specific plans, and other management activities (e.g. noxious weed control) within a single, comprehensive management plan document. The goal is to have a dynamic reference document that the in-field staff, technical advisory committees, and Management Committee can utilize and refer to for guidance in implementing the required PM&E's and overall wildlife, botanical, and wetlands resource management program for the Clark Fork Projects.

III. CONCERNS TO BE ADDRESSED: Early on in the course of developing their PM&E recommendations, various members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) expressed a concern that additional information about the resources and issues in question be captured within a more comprehensive management plan type document. Development of the work groups PM&E recommendations and a Wildlife, Botanical, and Wetlands Management Plan (Plan) proceeded concurrently, with the plan still in draft form at the time of developing and finalizing the settlement agreement. This PM&E measure addresses the concern that development and implementation of the Plan may not be completed prior to signing of a settlement agreement or filing of a license application and that plan development and implementation should continue and be part of the requirements of the settlement agreement and new license(s) (WBWWG Meeting Summary January 21-22, 1998).

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: This PM&E measure and the Plan that it provides for are based upon and supported by the numerous wildlife, botanical, and wetland resource inventory and analysis studies conducted or funded by WWP (ND&T 1994a, 1994b, 1995a, 1995b; WWP 1995, 1996a, 1996b; CES 1997, 1998), the PM&E recommendations developed by the WBWWG, and the ongoing technical input and analysis of the WBWWG and other work groups provided during plan development and implementation. These studies and analyses and the technical work group input provide a substantial source of information concerning target resources and habitats, existing resource conditions, desired future conditions, resource needs, opportunities, possible limiting factors, and desired resource management activities. All will be reflected in the Plan. The WBWWG agreed upon the recommended

PM&E measure outlined below at their April 14, 1998 meeting (WBWWG Meeting Summary April 14, 1998).

V. **PROPOSED PM&E MEASURE:** WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will complete the development as necessary and implement the Wildlife, Botanical, and Wetland Management Plan. Implementation will include the refinement of the Plan as site (e.g. Conservation 1 areas) and resource (e.g. Wetland and Cottonwood PM&Es) specific plans are completed. The Plan will include, and be based upon, the target habitats and species identified by the WBWWG and the PM&E measures agreed to in the Settlement Agreement. A review and updating of the Plan will occur every 5 years in conjunction with revision of the Land Use Management Plan.

VI. **PROPOSED OR ESTIMATED FUNDING:** Average annual cost for completion and implementation of the plan and the periodic review and revision (every five years) is estimated at approximately $5,000 per year. Costs for the various site and/or resource specific management activities are provided for in the various resource specific and other PM&E measures (e.g. bald eagle and peregrine falcon monitoring and protection PM&Es, wildlife habitat acquisition and enhancement PM&E, black cottonwood, wetlands, forest habitat, etc. PM&Es, Land Use Management Program PM&E, etc.).

VII. **KEY REFERENCES:**

CES (Cascades Environmental Services, Inc.) 1997. Assessment of Avian Impacts related to the transmission line at Noxon Rapids Dam. Prepared for Washington Water Power. Spokane, WA.

CES 1998. Historic and current resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

ND&T (Northrop, Devine and Tarbell, Inc.) 1994a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 wildlife study. Prepared for Washington Water Power. Spokane, WA.

ND&T 1994b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T 1995a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T 1995b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 wetlands mapping and assessment study. Prepared for Washington Water Power. Spokane, WA.

WWP (Washington Water Power Company) 1995. 1994 wildlife report, Noxon Rapids and Cabinet Gorge Reservoirs. Washington Water Power. Spokane, WA.

WWP. 1996a. Cabinet Gorge and Noxon Rapids Hydroelectric Projects wintering bald eagle report. Washington Water Power. Spokane, WA.

WWP. 1996b. Summary of 1995 Canada goose, bald eagle, osprey, and beaver surveys, Noxon Rapids and Cabinet Gorge Hydroelectric Projects. Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Wildlife Habitat Acquisition, Enhancement, and Management Program

II. PURPOSE AND GOAL: The purpose of this program is to mitigate for the potential effects to wildlife resources and habitat due to the continued operation of the Clark Fork Projects. The program will focus on the types of habitat most significantly affected (i.e. wetland and other riparian areas and habitats that support waterfowl and furbearers among other species). The goal is to provide for a continuing source of financial resources that will be used to acquire, protect, enhance, and/or manage important wildlife habitat in the vicinity of the projects. This measure is in addition to the many other PM&E measures that will also benefit wetland and riparian habitat (e.g. Black Cottonwood, Wetland, Clark Fork Delta Habitat, Forest Habitat, Reservoir Islands, Tributary Habitat, and Land Use Management Plan PM&E measures), and which will cumulatively serve to meet the policies of various participating organizations to mitigate for a range of project impacts to wildlife habitats and resources.

III. CONCERNS TO BE ADDRESSED: Comments on the Initial Stage Consultation Document and concerns raised by several members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) during work group meetings identified the potential impacts of continued project operations to wildlife habitats and resources. This measure was developed by the WBWWG to address this concern and mitigate for impacts to wildlife habitats and resources through an ongoing, long-term program of wildlife habitat protection and enhancement that will provide substantial benefit to those resources with the greatest likelihood of experiencing project operations related effects.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: The WBWWG identified and began discussing the issue of impacts to wildlife habitats at its early meetings (beginning in 1996) and continued those discussions well into their 1998 meetings. Work group members exchanged a variety of opinions and information concerning the effects to wildlife of continued project operation. The WBWWG discussed and compared the wildlife enhancement benefits and impacts of a variety of project alternatives relative to current project operations, including run-of-river (i.e. stable reservoir water levels), permanent drawdown (i.e. 54 feet lower in Noxon Reservoir), and dam removal. Both positive (e.g. shorebird and waterfowl foraging, nutrient cycling and productivity, etc.) and negative (e.g. shoreline dwelling aquatic furbearers,

macroinvertebrate community composition and productivity in the varial zone, etc.) effects to resources were identified for all alternatives.

Studies and information on project related impacts to wildlife habitat and potential enhancements included the report on historic and current resource conditions on the lower Clark Fork River (CES 1998), the assessment by Montana Fish, Wildlife and Parks (MFWP) of the habitat loss related to project construction (MFWP 1984), information presented by Idaho Fish and Game (P. Cole April 22, 1997 handout to WBWWG), and an analysis of the acreage and stream miles that would be re-exposed with a permanent, 54-foot drawdown of Noxon Reservoir (WWP distribution of July 9-10, 1997). These materials provided the group with information about the effects of project construction and various project alternatives in terms of acres of habitat and stream miles lost or gained (CES 1998; MFWP 1984; WWP distribution of July 9-10, 1997), and the potential adverse effects to wildlife habitat and resources of continued operations (P. Cole, April 22, 1998 handout). But, the group also recognized that quantitatively characterizing or predicting the actual changes and benefits or adverse impacts to the wildlife community (i.e. in terms of numbers or diversity) of the existing project or alternatives would be speculative. In addition, the most recent resource inventories document and/or indicate the wildlife, botanical, and wetland communities associated with the Projects are relatively diverse and healthy (ND&T 1994a, 1994b, 1995a, 1995b; WWP 1995, 1996a, 1996b).

Ultimately, the seemingly diverse and healthy status of the wildlife populations associated with the projects, and the acknowledged variability and difficulty of definitively characterizing operating effects to wildlife precluded the WBWWG from reaching a conclusive, quantified consensus on the overall net effects of the projects to wildlife populations. There was however, general agreement that wetland and other riparian habitats, and the wildlife associated with them, were the habitats most significantly affected by project construction and had the greatest likelihood of experiencing adverse impacts due to continued project operation. Protection and enhancement of similar habitats was identified as an appropriate mechanism for addressing the potential for adverse impacts. Therefore, and in the event that peaking operations continue, the WBWWG agreed to recommend the PM&E measure outlined below (WBWWG Meeting Summary September 2, 1998), which will provide for the protection and enhancement of wetland and riparian habitats in the vicinity of the projects.

While the benefits from this program will vary from year to year and site to site depending on exactly how the money is expended (e.g. fee simple acquisition vs. conservation easements vs. habitat enhancements, spending incrementally, or borrowed against annual payments, etc.), the WBWWG did consider and discuss the anticipated benefits of the proposed program as part of determining an appropriate funding level. At

current land prices, if the funding proposed below were utilized strictly for habitat protection through fee simple ownership approximately 500-600 acres could be purchased and protected over every ten year period (assuming an average cost of $3,000/acre and approximately 10 percent of the annual contribution is used for administrative and land management costs associated with the acquisition program and acquired lands). If applied to the purchase of 300 foot shoreline riparian buffers, this equates to more than 14 miles of shoreline habitat protection every ten years, or 2,500 acres and 70 miles over the term of a fifty year license. Similar or greater benefits to wildlife would occur if the fund is used for the purchase of conservation easements or habitat enhancement activities. In addition, there are many other PM&E measures that will also benefit wetland, riparian, and other wildlife habitats (e.g. Black Cottonwood, Wetland, Clark Fork Delta Habitat, Forest Habitat, Reservoir Islands, Tributary Habitat, and Land Use Management Plan PM&E measures), which individually and cumulatively serve to mitigate for project impacts to wildlife habitat and resources.

V. **PROPOSED PM&E MEASURE:** WWP, in consultation with the Terrestrial Resource Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will implement the following program for the acquisition, enhancement and management of lands for wildlife habitat, with an emphasis on riparian systems.

The program elements are as follows:

1. WWP will hold a "Fund", and will contribute to it annually, to meet wildlife, botanical, and wetland specific resource protection and mitigation goals not addressed in other PM&E measures. Additionally, the Fund can be used in conjunction with other PM&Es, such as the Black Cottonwood PM&E, to maximize resource benefits. Efforts will be made by the TRTAC to keep administrative costs associated with habitat acquisition or enhancement to a minimum.

2. The Fund can be used to accomplish resource goals in the following ways:
   - Improvement of habitats on WWP owned lands.
   - Improvement of habitats on land owned by others where there are assurances that these improvements can be protected and maintained through the term of the new license.
   - Acquisition of management rights to lands (i.e. conservation easements).
   - Acquisition of fee title lands (property rights to be retained by WWP).
   - Attract matching dollars or grants from other sources.
   - Provide for long term management, enforcement, and monitoring.
   - A Riparian Implementation Team (RIT) will operate as a subgroup of the TRTAC as approved by the Management Committee, and will consist of personnel designated by the tribal, Idaho, Montana, federal and other interested stakeholders

with expertise, or interest, in riparian systems, including wildlife biology, stream ecology, riparian and wetland science, and hydro-geomorphology.

- The RIT will be charged with developing an implementation plan, including a proposed schedule, for the TRTAC's review and the Management Committee's approval that will oversee the initiation by WWP of the agreed upon actions, and will provide leadership in finding innovative solutions to riparian resource issues.

- The RIT will develop screening criteria to be used to evaluate how best to utilize the Fund to achieve the desired resource goals. This will include targeting areas for acquisition or enhancement using best professional judgment, including individual members knowledge of the area.
- As habitat acquisitions, enhancements, and management programs are implemented, the RIT will develop, for approval by the Management Committee, specific monitoring plans to determine if desired goals are being met, and whether existing enforcement and other protection and site management programs are adequate. The costs for these monitoring efforts will be covered by the Fund.
- The RIT, in consultation with the TRTAC, and as approved by the Management Committee, will also have the ability to sell lands purchased by the Fund. Proceeds from these sales will be returned to the Fund.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will annually contribute $192,500 to the fund.

VII. **KEY REFERENCES:**

CES (Cascades Environmental Services, Inc.) 1998. Historic and current resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

Cole, P. (Idaho Fish and Game Wildlife Biologist) April 22, 1997 handout to the WBWWG. Potential Ongoing Wildlife Impacts Associated with Operation of Cabinet Gorge and Noxon Rapids Dams. Sandpoint, ID.

MFWP (Montana Department of Fish, Wildlife and Parks). 1984 . *Wildlife impact assessments and mitigation summary.*

ND&T (Northrop, Devine and Tarbell, Inc.) 1994a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 wildlife study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1994b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 wetlands mapping and assessment study. Prepared for Washington Water Power. Spokane, WA.

WWP (Washington Water Power Company) 1995. 1994 wildlife report, Noxon Rapids and Cabinet Gorge Reservoirs. Washington Water Power. Spokane, WA.

WWP. 1996a. Cabinet Gorge and Noxon Rapids Hydroelectric Projects wintering bald eagle report. Washington Water Power. Spokane, WA.

WWP. 1996b. Summary of 1995 Canada goose, bald eagle, osprey, and beaver surveys, Noxon Rapids and Cabinet Gorge Hydroelectric Projects. Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power, Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Black Cottonwood Habitat Protection and Enhancement

II. PURPOSE AND GOAL: The purpose of this protection, mitigation, and enhancement (PM&E) measure is to provide for the protection of black cottonwood trees and stands on WWP owned project lands through the development and implementation of site-specific management and enhancement plans for three specific cottonwood sites identified by the Wildlife, Botanical and Wetlands Work Group (WBWWG). The goal of this measure is to ensure that the high wildlife value, but relatively limited, black cottonwood trees and stands occurring on WWP owned project lands are protected, and that the three relatively large areas with an existing or potentially significant cottonwood component are managed and enhanced to maximize and maintain their habitat value.

III. CONCERNS TO BE ADDRESSED: Several members of the WBWWG expressed concern that project construction had significantly impacted black cottonwood habitats that historically occurred along the lower Clark Fork River and that such habitats were now relatively limited and subject to less than favorable hydrologic regimes (i.e. a lack of the seasonal flooding important for their establishment and maintenance). There was a concern that without specific protection and active management the currently existing black cottonwood trees and stands would be lost or have reduced wildlife value.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: The WBWWG had a variety of wildlife habitat inventories and assessments available that provided them with information about historic and current occurrence of riparian habitats, including black cottonwood habitats, along the lower Clark Fork River (MFWP 1984; ND&T 1994, 1995a, 1995b; CES 1998). Group members also had familiarity with and discussed the occurrence of black cottonwood along more natural, free flowing sections of the Clark Fork River and other rivers in the region. Group members readily acknowledged the fairly unique nature and high value wildlife habitat that black cottonwood trees and stands provide. The available information on historic conditions (MFWP 1984; CES 1998) documented that project construction had resulted in the loss of the riparian hardwood habitat present along the river shorelines, much of which would presumably have had a significant cottonwood component. The recent botanical resource inventories (ND&T 1994, 1995) showed that black cottonwood habitat is of limited occurrence along the project reservoirs.

WBWWG members identified a number of factors potentially limiting black cottonwood establishment and maintenance, including a lack of seasonal flooding, reduced sediment deposition along the shorelines to provide sites for seedling establishment, beaver activity, and cattle grazing, timber harvest, or other land use activities. The group agreed that active protection and management of black cottonwood trees and stands could overcome many of these limiting factors. As a result, black cottonwood protection and, where reasonably possible, enhancement on WWP owned project lands was identified as a desired and appropriate PM&E recommendation that would help maintain and improve the overall wildlife habitat value of WWP's project associated lands. The WBWWG also discussed and agreed to the desirability of retaining the flexibility to shift resources to other nearby black cottonwood stands if it is determined that similar, but greater, wildlife benefits would be realized.

The WBWWG discussed the specific details of a PM&E measure for black cottonwood at several meetings (WBWWG Meeting Summary(s) April 22-23, 1997, June 9, 1997, July 15-16, 1997), and agreed on the PM&E recommendation as generally outlined below at their August 28, 1997 meeting (WBWWG Meeting Summary August 28, 1997).

V. PROPOSED PM&E MEASURE:

Protection Through Land Use Management Program. WWP will use the land use management program as described in the Land Use Management Plan to protect black cottonwood habitat on WWP property. Cottonwood habitats will be protected under several different land use classifications based on the stands existing and their potential function and value:

Conservation 1—Three high priority black cottonwood sites, Big Eddy, Hereford Slough and Noxon Slough, will be managed under the Conservation 1 land use classification of the Land Use Management Plan.

Additional black cottonwood habitat will also be managed under the Conservation 1 land use classification because of their association with other priority habitats.

Conservation 2—Black cottonwood habitat managed under the Conservation 2 land use classification will also receive a high level of protection although other management activities which are compatible with designated wildlife goals may also be acceptable.

All Other Land Use Classifications—Due to the small size (<1 acre), linear shape, and reduced function and value of some cottonwood stands they will be managed to allow more intensive land use activities to occur such as boat docks, picnic areas, gazebos and trails. Efforts will still be made, however, to avoid and/or minimize detrimental impacts to individual black cottonwood trees.

The cost of implementing and administrating the black cottonwood protection portion of the Land Use Management Plan will be part of the overall cost for the plan.

Site Specific Adaptive Management Plans. WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will evaluate and develop site specific plans for the Big Eddy, Hereford Slough and Noxon Slough cottonwood sites, or agreed upon alternate sites. These plans will be completed no later than 2 years after implementation of the settlement agreement. Implementation of the plans will start no later than the 3rd year after implementation.

Plan development will include:

- description of site characteristics for the three sites noted above;
- compare the three sites noted above, in wildlife habitat function and value, to off-site alternate cottonwood stands, as identified and agreed upon by the TRTAC; decide whether to invest in the management of the three identified parcels or shift resources to other cottonwood sites;
- desired future condition;
- measurable site specific goals;
- evaluation of stand protection and enhancement opportunities;
- schedule for implementation;
- monitoring plan and schedule; and
- measures to be taken if goals are not achieved.

Monitoring and Adaptive Management. When a site-specific project is implemented WWP will monitor the success for a five-year period. At the end of 5 years WWP, in consultation with the TRTAC, will prepare a report for the Management Committee. The report will include:

- description of site characteristics;
- evaluation of site characteristics and trends in relation to the desired condition and management goals for the cottonwood habitats;
- modifications needed (if any) to meet the desired future condition or site specific goals;
- implementation plan for agreed upon modifications;
- ongoing monitoring plan and schedule (if needed).

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the following activities in the amount specified in annual implementation plans approved by the Management Committee, at the levels specified below.

— $6,000 annually during first two years for site evaluation and planning,
— $5,000 annually during years 3 through 8 for management plan implementation, and
— $3,000 annually in year 4 and beyond for post-management/enhancement action monitoring and additional, adaptive management maintenance and/or enhancement actions.

Costs associated with the protection of black cottonwood trees and stands through the land use management program are not reflected here, but will be borne by WWP as part of implementing that program (i.e. staff and administrative costs not reflected in a PM&E measure).

VII. KEY REFERENCES:

CES (Cascades Environmental Services, Inc.) 1998. Historic and current resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

MFWP (Montana Department of Fish, Wildlife and Parks). 1984. *Wildlife impact assessments and mitigation summary.*

ND&T (Northrop, Devine and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 wetlands mapping and assessment study. Prepared for Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Wetlands Protection and Enhancement Program

II. PURPOSE AND GOAL: The purpose of this protection, mitigation, and enhancement measure (PM&E) is to provide for the protection of wetlands occurring on Washington Water Power (WWP) owned project lands, and for the evaluation and potential enhancement of selected wetland areas. The goal is to ensure no net loss of wetlands, or of wetland function and values in certain high priority wetland areas, while also evaluating opportunities for wetland enhancement.

III. CONCERNS TO BE ADDRESSED: Comments on the Initial Stage Consultation Document and by members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) expressed concern about the impacts of project operation to wetlands and an interest in the potential for enhancement of wetlands through more stable water levels. WWP expressed concerns over the impact that maintaining more stable water levels would have to their ability to meet varying customer energy demands (i.e. load following). This PM&E measure was developed as a mutual gains solution that addresses these concerns.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Studies and analysis providing information on the wetlands associated with and/or in close proximity to the projects included two years of botanical studies which included a detailed inventory of the plant species occurring in some 70-plus wetland areas (ND&T 1994, 1995a), and a wetland mapping and assessment study that provided a more detailed mapping of wetlands (some 214 individual wetlands or wetland groupings were mapped), and an assessment of each wetlands characteristics including hydrologic regime and the apparent degree of project influence and dominant functions and values (ND&T 1995b). Assessments of historic conditions also provided the group with a sense of the occurrence of wetlands in the area prior to project construction (MDFWP 1984; CES 1998).

Wetland occurrence and characteristics are a direct function of the hydrologic regime to which an area is subjected. The WBWWG discussed the potential effects that the fluctuating water levels caused by the project's peaking operations were having and could continue to have on project associated wetlands (WBWWG Meeting Summaries October 2-3, 1996; December 2-3, 1996; January 7-8, 1996; April 22-23, 1997; June 9, 1997, July 15-16, 1997). While some work group members expressed opinions that more stable water levels would benefit and enhance the existing wetlands, other work group members felt that the wetlands had developed and were a result of the 40-plus years of project

peaking operations and compared the project related water regimes to a highly productive tidal type of wetland system. There was general consensus that the existing wetland areas should be protected from human land use related disturbance and alterations that would adversely affect their occurrence or important wetland functions and values.

Eventually, the group developed a PM&E measure that provided for a relatively high level of wetlands protection utilizing the Land Use Management Plan. They also included provisions to evaluate wetland enhancement opportunities, including the feasibility and potential benefits of constructing water control structures to control and stabilize water levels in certain wetland areas without requiring changes in project operations. The WBWWG agreed to recommend the wetland protection and enhancement programs outlined below as a PM&E measure at their August 28, 1997 meeting (WBWWG Meeting Summary August 28, 1997).

V. PROPOSED PM&E MEASURE:

Tiered Wetland Protection. WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will implement the wetland protection plan outlined below as part of the Land Use Management Plan for WWP lands associated with the Noxon Rapids and Cabinet Gorge projects.

High Priority Wetland Protection. Wetlands that fall within Conservation 1 land use classification are afforded the maximum protection under this system because of the unique functions and values they possess. No alteration is allowed in these wetlands unless it is for the management of the wetland's functions and values. Two general wetland groups occur within the Conservation 1 land use classification:

1. Wetlands which have been specifically identified as meriting Conservation 1 classification due to the functions and values they possess are:

    - Big Eddy Wetland Complex
    - Hereford Slough
    - Gravel Pit Slough
    - Noxon Slough

2. Wetlands located in areas classified as Conservation 1 for reasons other than just the wetland's functions and values.

Wetland Protection with Limited Development or Alteration Allowed with TRTAC and Management Committee Approval. Wetlands that fall within the Conservation 2 land use classification will be protected, however, allowable activities are not as restricted or

limited as those in High Priority Wetlands. Limited development or alterations not compatible with the wetland specific functions and values can occur in or adjacent to these wetlands. Development or other alterations of these wetlands will be approved by the TRTAC before work is permitted by WWP.

Wetland Protection with Limited Development or Alteration Allowed without TRTAC or Management Committee Review. Wetlands that fall within Recreation/Public Use and other land use classifications are also protected, however, more latitude is given in the amount and type of development or alterations allowed in or adjacent to them. Requests for development, which are consistent with the guidelines provided in the Land Use Management Plan, in or near these wetlands will be reviewed and acted upon by WWP.

This program for tiered protection of wetlands occurring on WWP lands in no way diminishes any wetland protections or regulations effecting local, state, or federal authorities.

Wetland Evaluation and Enhancement. The purpose for this wetland enhancement program is to determine if specific wetlands can be improved through stabilization of water levels. If specific wetlands are identified where this is reasonably feasible, then appropriate enhancement measures will be implemented. This program presumes that stabilization will be accomplished through development of water level control structures at individual wetland sites, and that WWP will retain the same hydro operational flexibility (reservoir fluctuation) in the new license. However, if the new license requires a more stable pool the level of project influence, and therefore the wetland enhancements provided for here, would be scaled back accordingly.

WWP, in consultation with the TRTAC and as approved by the Management Committee, will evaluate and develop site specific plans for the enhancement of selected wetland sites owned by WWP and associated with the Noxon Rapids and Cabinet Gorge projects, or alternate sites as identified and agreed upon by the TRTAC.

Identification and Evaluation of Potential Wetland Enhancement Sites

- Evaluation to begin within 1 year of signing settlement agreement.
- Compare existing wetlands, in function and value, to alternate wetland sites identified and agreed upon by the TRTAC.
- WWP will provide a report detailing wetland enhancement recommendations and/or acquisition opportunities, including site specific costs and goals including the feasibility for water level control structures.

Development of Measurable Site Specific Goals

- Within two years of implementation the TRTAC will prioritize wetland enhancement opportunities, potentially including protection through acquisition, and develop site specific goals utilizing the above report.

Develop and Implement Enhancement Measures

- Development and implementation of enhancement measures will begin within one year of the enhancement prioritization and the formation of site specific goals.
- The year following the completion of the first wetland enhancement project, WWP will begin the funding of the operation and maintenance of these enhancements.

Monitoring for Site Specific Wetland Goals

- WWP will monitor the success of enhancement measures 1, 3, and 5 years after completion of an individual project. At the end of 5 years, WWP, in consultation with the TRTAC, will prepare a site enhancement report for the review of the Management Committee. The report will include:
  - updated description of site characteristics,
  - evaluation of site characteristics and trends in relation to the desired
  - condition and management goals for the wetland,
  - modifications (if any) needed to meet the desired future conditions,
  - implementation plan for new measures, and
  - a continuing monitoring plan and schedule if needed.
- WWP will fund the monitoring effort for all wetland enhancements for 5 years starting after the completion of the first project.
- After the initial 5 year period, additional funding will be provided by WWP for long term monitoring for all of wetland enhancements at $5,000 per year.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will provide the following funding:

First year of wetland enhancement site identification and evaluation at $ 20,000.

Development of measurable, site-specific goals (within 2 years) at $ 5,000.

Development and implementation of enhancement measures - $50,000 per year for 6 years (beginning once site specific goals are developed).

Enhancement measure maintenance and/or operation - $15,000 per year and beyond.

Enhancement site monitoring - $10,000 per year for 5 years following completion of the first project; then $5,000 per year and beyond for long term monitoring

The cost of implementing wetland protection through the land use management program will be part of WWP's overall costs for that program and have not been independently quantified (i.e. administrative staff and related costs for program administration which are borne by WWP as part of settlement agreement and new license implementation).

VII. KEY REFERENCES

CES (Cascades Environmental Services, Inc.) 1998. Historic and current resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

MFWP (Montana Department of Fish, Wildlife and Parks). 1984 . *Wildlife impact assessments and mitigation summary.*

ND&T (Northrop, Devine and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T. 1995a. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 botanical resources study. Prepared for Washington Water Power. Spokane, WA.

ND&T 1995b. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1994 wetlands mapping and assessment study. Prepared for Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power, Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Bald Eagle Monitoring and Protection

II. PURPOSE: The purpose of this protection, mitigation, and enhancement measure (PM&E) is to provide for the monitoring and protection of bald eagle occurrence and nest sites, which could be negatively affected by project operations or project related human activities related to recreation or other land use activities.

III. CONCERNS TO BE ADDRESSED: While the Wildlife, Botanical, and Wetlands Work Group (WBWWG) has focused its recommendations for PM&E measures primarily on habitat protection and enhancement, they identified three species, bald eagle, peregrine falcon, and common loon, which they determined warranted species specific monitoring, protection, and/or enhancement programs. The basis for a specific PM&E measure for bald eagles was the concern that absent any specific monitoring and protection program, there is the potential for project related human disturbances (e.g. recreationists, land management activities, etc.) or project operations to negatively impact bald eagles, particularly nesting activity and subsequent productivity.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: A variety of state, federal, and WWP inventory, monitoring, and management efforts and programs have documented the occurrence of bald eagles along the project reservoirs and downstream waters. Bald eagle nest site occurrence and productivity along the reservoirs and lower Clark Fork River has been monitored by WWP and/or the U.S. Forest Service (USFS) since 1987. Nest surveys have followed the guidelines of the Montana Bald Eagle Working Group (MBEWG 1986, 1994). Available data includes nest locations, nest tree characteristics, nest status (active/inactive), and nest productivity (# of young eagles fledged per active nest) (ND&T 1994; WWP 1995, 1996a). WWP also monitored the occurrence of bald eagles along the reservoirs periodically during the winters of 1989-1990 and 1991-1992 (WWP 1996b), and annual, single event mid-winter surveys have been conducted by the USFS since 1986. The WBWWG also had a consultant provide an analysis of the potential impacts to birds of the transmission line at the Noxon Rapids Dam that are part of the FERC licensed project (CES 1997).

The number of active bald eagle nests along the reservoirs and lower Clark Fork River has increased in recent years, to the point where 5-7 active nests are now observed annually. Average annual productivity from the eagle nests along the lower Clark Fork River has generally exceeded the rate believed necessary to maintain a population (0.9

young fledged/active nest/year; USFWS 1986), with six or more young eagles produced annually since 1993 (WWP 1995, 1996a, unpubl. data for 1996-1998). None of the existing bald eagle nest sites along the lower Clark Fork River occur on WWP property although all are located in relatively close proximity to the reservoir or lower river shoreline, including one located on an island (USFS property) in Noxon Reservoir.

Bald eagles are observed along the reservoirs and lower river throughout the winter, but in numbers substantially less than at more noteworthy wintering areas in the area (e.g. Lake Pend Oreille; Crenshaw 1987) or region (e.g. Kootenai River or Glacier National Park, MBEWG 1991). During WWP's 1989-1990 and 1991-1992 winter surveys, the number of eagles observed ranged from 3 to 15 per survey. Wintering eagles were most often observed in areas that had either carrion or waterfowl available as a food source.

In reviewing the report concerning the potential for avian impacts related to the transmission line at Noxon Rapids Dam (CES 1997), the WBWWG discussed the potential for impacts to birds, including bald eagles, foraging in the tailrace area or flying along the river corridor. As noted in the report, the location (i.e. below, and lower than, the dam), spacing between the lines, individual line size, and overall configuration is such that electrocution of birds is virtually impossible, and bird collisions with the lines unlikely. The work group concluded that the CES report (1997) was sufficient for the purpose of assessing the potential for avian impacts related to the project transmission line at Noxon Rapids Dam, and that given the minimal likelihood of impacts no further study or actions related to this line was needed (see WBWWG Meeting Summary, August 28, 1997).

The potential for human activities to adversely affect nesting or foraging eagles has been extensively studied and well documented (MBEWG 1986, 1994; USFWS 1986). The WBWWG discussed various protective measures to minimize or eliminate such effects for bald eagles occurring along the lower Clark Fork River, including seasonal land use restrictions and buffer zones, perch tree protection, and nest site management plans. In order to have sufficient information for identifying and implementing appropriate protection measures for bald eagles, the work group identified the need to continue the annual nest site monitoring program and single event winter survey, and to identify, protect and provide additional bald eagle perch trees, along the reservoirs and the downstream reach of river. The WBWWG also agreed that where nest sites are located on WWP property, WWP should develop and implement nest site management plans, and in other cases cooperate with the landowner (e.g. USFS or private) as they develop any nest site management plan where buffer zones would extend onto WWP property.

The WBWWG reached consensus on a bald eagle PM&E measure to be recommended to the Clark Fork Relicensing Team at their August 28, 1997 meeting (see WBWWG

Meeting Summary August 28, 1997); the WBWWG recommended programs are reflected in the proposed PM&E measure specified below.

V. PROPOSED PM&E MEASURE:

Eagle Nest Surveys and Monitoring Program. WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) will:

a. Conduct yearly bald eagle nest surveys. The survey program will consist of:
   - annual field survey of Noxon and Cabinet Gorge Reservoirs during the potential bald eagle egg laying and incubation period (March 15 through May 1) to identify active nests;
   - if a new nest is found record data on nest site including location, species of nest tree, nest height, nest condition and aspect.

b. Conduct yearly monitoring of known bald eagle nests. The monitoring program will consist of:
   - visit each nest site three times during the nesting season; during egg laying and incubation (March 15 - May 1), when nestlings are in the nest (May 1 - June 20), and again during fledging (June 20 - July 20).
   - record data on each visit including; date, survey method (boat, vehicle, or aircraft), nest condition, nest occupancy and eagle activity.

c. Report annually to the TRTAC and the Management Committee on monitoring results.

General Breeding Area Management Plans. If the bald eagle nest program identifies a nest on WWP property a Bald Eagle General Breeding Area Management Plan will be developed by WWP within 1 year of nest identification.

In addition, WWP will cooperate on any other bald eagle planning efforts where the nest management boundaries cross onto WWP property.

Perch Tree Identification and Protection. In conjunction with other field activities, WWP will monitor the reservoirs to identify trees commonly used for perching by bald eagles on WWP property. Those trees, as well as 2-3 suitable recruitment trees around the key perch trees will be mapped and protected through the Land Use Management Program.

Winter Bald Eagle Counts. WWP, in consultation with the TRTAC and in support of the annual United States Forest Service (USFS) and the Montana Bald Eagle Working Group winter survey, will conduct an annual winter bald eagle count on Noxon and

Cabinet Gorge Reservoirs. The protocol for the survey will be the same as that recommended by the USFS.

VI. PROPOSED OR ESTIMATED FUNDING: WWP will provide the following funding:

Bald Eagle Nest Surveys and Monitoring at $3,000 annually.

Breeding Area Management Plans at $2,500 per nest site for nests located on WWP property.

Perch tree Identification and Protection costs are integrated into other activities and the Land Use Management Plan.

Winter Count at $1,000 annually.

VII. KEY REFERENCES:

CES (Cascades Environmental Services, Inc.) 1997. Assessment of avian impacts related to the transmission line at Noxon Rapids Dam. Prepared for Washington Water Power. Spokane, WA.

Crenshaw, J.G. 1987. Effects of the Cabinet Gorge Kokanee Hatchery on wintering eagles in the lower Clark Fork River and Lake Pend Oreille, Idaho. Prepared for Bonneville Power Administration. Portland, OR.

MBEWG (Montana Bald Eagle Working Group) 1986, 1991, 1994. Montana bald eagle management plan (several editions). U.S. Dept. of Interior, Bureau of Land Management (and/or Reclamation). Billings, MT.

ND&T (Northrop, Devine and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 wildlife study. Prepared for Washington Water Power. Spokane, WA.

USFWS (U.S. Fish and Wildlife Service) 1986. Pacific bald eagle recovery plan. U.S. Dept. of Interior, USFWS. Portland, OR.

WWP (Washington Water Power Company) 1995. 1994 wildlife report, Noxon Rapids and Cabinet Gorge Reservoirs. Washington Water Power. Spokane, WA.

WWP. 1996a. Summary of 1995 Canada goose, bald eagle, osprey, and beaver surveys, Noxon Rapids and Cabinet Gorge Hydroelectric Projects. Washington Water Power. Spokane, WA.

WWP. 1996b. Cabinet Gorge and Noxon Rapids Hydroelectric Projects, wintering bald eagle report. Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group). 1996-1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Peregrine Falcon Monitoring and Protection

II. PURPOSE AND GOALS: The purpose of this protection, mitigation, and enhancement measure (PM&E) is to provide for the monitoring of peregrine falcon occurrence and nesting activity and the protection of nest sites which might be negatively affected by project related human activities related to recreation or other land use activities. The goal is to maximize the opportunity for peregrine falcons to establish and maintain successful nest sites adjacent to project associated waters.

III. CONCERNS TO BE ADDRESSED: While the Wildlife, Botanical, and Wetlands Work Group (WBWWG) has focused its recommendations for PM&E measures primarily on habitat protection and enhancement, they identified three species, bald eagle, peregrine falcon, and common loon, which they determined warranted species specific monitoring, protection, and/or enhancement programs. The basis for a specific PM&E measure for peregrine falcons is a result of both the birds Endangered Species Act (ESA) status (listed as endangered) and the concern that absent any specific monitoring and protection program there is the potential for project related human disturbances (e.g. recreational activities, land management activities, etc.) to negatively impact peregrine falcons, particularly nesting activity and subsequent productivity.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: WWP has been cooperating with and assisting state and federal agencies to reestablish a breeding population of peregrine falcons along the lower Clark Fork River. This effort has apparently been at least partially successful, with adult peregrines (presumably representing the return of young birds reared and released along the river) having been observed at several locations along the river in the past few years (ND&T 1994; WWP 1995a, 1995b). A single peregrine falcon was observed in the vicinity of the large cliffs located approximately 1.5 miles upstream of Noxon Rapids Dam in 1993, although subsequent monitoring did not indicate any nesting activity (ND&T 1993). Rearing and release of young peregrines along the river was suspended in 1995 due to the presence of a pair of peregrine falcons in the vicinity of Clark Fork, Idaho, downstream of the Cabinet Gorge Project.

The WBWWG discussed the sensitivity of nesting peregrine falcons to human disturbance and agreed that a monitoring program and appropriate protective measures should be instituted by WWP along the project associated waters. With peregrine falcon

nest sites normally located on cliffs or similar habitats, and hunting areas normally occurring over water and riparian habitats, the project area would appear to represent favorable habitat (ND&T 1994). The peregrine falcon monitoring program outlined below is based on the Montana Peregrine Recovery Group monitoring protocols. The WBWWG reached consensus on this program as a recommended PM&E at their August 28, 1997 meeting (WBWWG Meeting Summary, August 28, 1997).

The WBWWG also had a consultant provide an analysis of the potential impacts to birds due to the transmission lines at the Noxon Rapids Dam that are part of the FERC licensed project (CES 1997). In reviewing this analysis, the WBWWG discussed the potential for impacts to birds, including peregrine falcons, foraging in the tailrace area where these lines are located. As noted in the report, the location (i.e. below, and lower than, the dam), spacing between the lines, individual line size, and overall line configuration is such that electrocution of birds is virtually impossible and bird collisions with the lines unlikely. The work group concluded that the CES report (1997) was sufficient for the purpose of assessing the potential for avian impacts related to the project transmission lines at Noxon Rapids Dam, and that given the minimal likelihood of impacts no further study or actions related to those lines were needed (see WBWWG Meeting Summary, August 28, 1997).

V. **PROPOSED PM&E MEASURE**: WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC), will implement a nesting peregrine falcon monitoring program. The program will consist of:

- An initial assessment of where potential nesting habitat occurs adjacent to the projects.
- Annual field monitoring will include 2 visits at each potential nesting area during both the occupancy period (April 1 - April 15), and again during the nestling period (June 15 - July 15). Monitoring will last 2 hours at each area during the 4 hours just before dusk and/or the 4 hours just after dawn.
- All cliff nesting raptors observed utilizing sites in the identified areas will be recorded.
- If a peregrine falcon nesting territory is located:
  - WWP will contact both the USFWS and appropriate state wildlife agency,
  - WWP will contact the appropriate USFS District for nests on USFS property,
  - WWP will develop nest site management plans for nests occurring on WWP property within 1 year of nest identification, and
  - for nests not on WWP property, ensure that activities occurring on the adjacent WWP property do not disrupt the nesting activity.

WWP will provide either the funding or services to complete the monitoring work.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the actual cost of implementing programs approved by the Management Committee in the amount of $3,000 annually.

VII. **KEY REFERENCES:**

CES (Cascades Environmental Services, Inc.) 1997. Assessment of avian impacts related to the transmission line at Noxon Rapids Dam. Prepared for Washington Water Power. Spokane, WA.

ND&T (Northrop, Devine and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Wildlife Study. Prepared for Washington Water Power. Spokane, WA.

WWP (Washington Water Power Company) 1995a. 1994 Wildlife Report, Noxon Rapids and Cabinet Gorge Reservoirs. Washington Water Power. Spokane, WA.

WWP 1995b. Initial Stage Consultation Document, Noxon Rapids (FERC No. 2075) and Cabinet Gorge (FERC No. 2058) Hydroelectric Projects. Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996-1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Common Loon Monitoring and Protection Program

II. PURPOSE AND GOALS: The purpose of this protection, mitigation, and enhancement measure (PM&E) is to provide for the monitoring of common loon occurrence and nesting activity and the protection of nest sites which might be negatively affected by project operations or project related human activities related to recreation or other land use activities. The goal is to maximize the opportunity for common loons to establish and maintain successful nest sites on or along project associated waters.

III. CONCERNS TO BE ADDRESSED: While the Wildlife, Botanical, and Wetlands Work Group (WBWWG) has focused its recommendations for PM&E measures primarily on habitat protection and enhancement, they identified three species, bald eagle, peregrine falcon, and common loon, which they determined warranted species specific monitoring, protection, and/or enhancement programs. The potential for adverse impacts to nesting and brood rearing common loons related to water level fluctuations and human disturbance or harassment has been well documented and recognized within the scientific community (Fair 1995; Kelly 1992). The basis for a specific PM&E measure for common loons is a result of the concern that absent any species specific monitoring and protection program there is the potential for project operations or project related human disturbances (e.g. recreational activities, land management activities, etc.) to negatively impact common loons, particularly nesting activity and subsequent productivity.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Beginning in 1993, WWP funded or conducted several years of intensive waterbird surveys on the project reservoirs that included common loons as a target species. These surveys documented substantial use of the reservoir waters by migrating loons, but no nesting activity was observed (ND&T 1994; WWP 1995). Nonetheless, common loon breeding populations in the region have been increasing and expanding (Kelly ?), and it is reasonable to assume that loons may attempt to establish one or more breeding territories on the project reservoirs. As noted above, it is well recognized that both water level fluctuations and human disturbance can adversely impact loon nesting success. Various measures (e.g. floating nest platforms, boater exclusion and signage, educational posters) have been shown to be effective at mitigating these potential impacts.

The WBWWG, including substantial input from the Panhandle Loon and Wetlands Project (PLWP) and their loon experts, discussed the desirability and specific nature of a

loon monitoring and protection program for project associated waters at a number of their early meetings (see WBWWG Meeting Summaries of October 2-3, 1996 through July 15-16, 1997). The WBWWG agreed upon a recommended PM&E program for common loons at their August 28, 1997 meeting (WBWWG Meeting Summary, August 28, 1997). At the request of the PLWP representative, the WBWWG later revisited and revised the recommended common loon PM&E (WBWWG Meeting Summary, April 14, 1998), which is reflected in the program outlined below.

V. PROPOSED PM&E MEASURE:

Monitoring and Public Education. WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will:

a. Implement a nesting loon monitoring program consisting of:

- an initial orientation and training program for the WWP or other wildlife biologist(s) and other interested volunteers participating in the monitoring program, conducted by a loon expert agreed to by the TRTAC and repeated in subsequent years as deemed necessary by the TRTAC;
- annual field monitoring of Noxon Rapids and Cabinet Gorge Reservoirs during the potential loon nesting period (April 15 through May 30). In order to meet Panhandle Loon and Wetlands Project (PLWP) interests, WWP agrees to leave open the ability to modify the annual monitoring program to include the Clark Fork Delta. Any modification will be designed to maintain the same total effort for this program, and allow WWP to meet their commitment to monitor for loon nesting activity on Noxon Rapids and Cabinet Gorge Reservoirs;
- a volunteer public involvement monitoring program for recording and reporting to WWP observations of actual or potential loon nesting activity on the reservoirs, with WWP actively seeking out and providing for close coordination of observation efforts by volunteers who live along the project reservoirs and other interested persons who spend time on the reservoirs during the spring and summer loon nesting and brood rearing period;
- an initial evaluation by a loon expert agreed to by the TRTAC of the suitability of specific sites on the reservoirs for loon nesting and first year monitoring program results, conducted shortly after the first years monitoring efforts are completed; and,
- annual reporting of monitoring results to the TRTAC and Management Committee.

The field monitoring will consist of systematic surveys of each reservoir, by a wildlife biologist on staff or funded by WWP and who has participated in the orientation and training program identified above, conducted at least once every 7-10 days during the April 15 through May 30 period (weather and reservoir conditions permitting) to

determine if loon nesting efforts, or territorial behavior suggestive of potential nesting activity, is occurring. If loon nesting or territorial behavior is observed, additional monitoring of that site will be conducted at least twice during the following 7 day period to confirm loon nesting or territorial behavior. Once nesting is confirmed, follow-up monitoring will continue until nest fate (abandonment, destroyed, or hatched) is determined. This effort will be supplemented by the volunteer monitoring and reporting program coordinated by WWP.

b. Implement a public education program consisting of:

- an annual presentation about common loons, including information on loon nesting habits, loon behavior indicative of nesting or territorial activity, the WWP and volunteer monitoring program, and the results of previous monitoring, protection and enhancement efforts, to be presented to the public each spring. The annual presentation on common loons will be advertised, and a location selected, to include the public from Thompson Falls, Montana to Sandpoint, Idaho;
- production and posting of educational posters about loons at developed boat ramps on the reservoirs, including the Big Eddy, Bull River, Marten Creek, North Shore, Trout Creek, Vermilion River, Finley Flats, Flat Iron, Johnson Creek, the Drift Yard and other boater access sites agreed to by the TRTAC, including information about loon identification, life history and nesting habits, use of project reservoirs, the potential harm from human disturbance, and the volunteer monitoring program including how to report observations of nesting loons or loon chicks; and,
- ten additional educational posters to be provided to PLWP for their use.

WWP will provide for the initial year start-up and reservoir suitability and first year monitoring results evaluation costs and thereafter for nine years, in funding or services, for these loon monitoring and public education programs. During or at the end of the tenth year of monitoring, the TRTAC will reevaluate these programs and determine whether continued funding is warranted for recommendation to the Management Committee.

Nest Protection and Enhancement Program. If the loon monitoring program identifies that loons have made a nesting attempt along the Projects' reservoirs or are indicating strong territorial behavior at a site, WWP will consult with the other members of the TRTAC to determine if a site-specific loon nest protection and enhancement program, or additional consultation with an agreed upon loon expert (for results subsequent to the first year analysis called for in part (a) above), is necessary. If the TRTAC agrees that a protection and enhancement program is or may be necessary, WWP will implement some or all of the following measures at the direction of the Management Committee:

- provide funding for consultation with a loon expert;
- buoy signage encouraging voluntary boater avoidance;
- shore signage and general access exclusion on WWP shorefront lands;
- floating nest platforms; and,
- new loon nesting protection or enhancement measures that may be developed in the future and found to be effective elsewhere.

Site specific measures will be implemented no later than the beginning of the loon nesting period in the year following the initial observations of nesting or territorial activity. The measures will be continued until no loon territorial or nesting activity has been observed at the site for three consecutive years. Site specific measures will be reinstituted by WWP after this three year period, as soon as reasonably possible depending on the measures called for (i.e. signage versus construction and placement of a floating platform), if the nesting loon monitoring program indicates that loons are again showing territorial or nesting activity at the site.

VI. PROPOSED OR ESTIMATED FUNDING: WWP will provide the following funding:

Monitoring and public education - $10,000 for the first year; $6,500 annually thereafter for 9 years; continuance is then dependent on program reevaluation and Management Committee approval.

Nest site protection and enhancement - up to $2,500 per nest site.

VII. KEY REFERENCES:

Fair, Jeff. 1995. Information on common loons pertinent to reservoir management. Unpublished white paper.

Kelly, Lynn. 1992. The effects of human disturbance on common loon productivity in northwestern Montana. Unpublished MS thesis, Montana State Univeristy. Bozeman, MT.

ND&T (Northrop, Devine and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 wildlife study. Prepared for Washington Water Power. Spokane, WA.

WWP (Washington Water Power Company) 1995. 1994 wildlife report, Noxon Rapids and Cabinet Gorge Reservoirs. Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group). 1996-1998. Meeting Summaries. Washington Water Power, Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Clark Fork Delta Habitat Protection and Mitigation Program

II. PURPOSE AND GOAL: The purpose of this protection, mitigation, and enhancement measure is to prevent the loss of wildlife habitat in the Clark Fork Delta, or mitigate for that loss, to an extent comparable to the loss of habitat that would result from the continued operation of the Cabinet Gorge and Noxon Rapids Projects. The goal is to fully mitigate for any such habitat losses attributable to the continued operation of the projects.

III. CONCERNS TO BE ADDRESSED: Comments on the Initial Stage Consultation Document and by members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) identified concerns over the past and ongoing loss of the high quality wildlife habitat located at the mouth of the Clark Fork River where it enters Lake Pend Oreille (Delta). This area is characterized by multiple channels and numerous islands, with historic and current mapping documenting a substantial loss of land area over the past fifty to one hundred years. Concerns specific to the Clark Fork Projects focused on the influence of peaking operations on the erosion processes and erosion rate and, the effect that sediment deposition in the reservoirs was having on bedload availability and new land/island formation in the Delta.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Initial information available to the WBWWG related to the loss of habitat in the Delta included a variety of photographs and maps that depicted the changes that have occurred in the Delta region over the past 50-100 years (P. Cole, Idaho Fish and Game, materials presented and reviewed at WBWWG meetings), the impact assessment report for the Army Corp of Engineers (Corps) Albeni Falls Project (located on the Pend Oreille River, the outlet to Lake Pend Oreille, and controls lake water levels) (Corps 1983; BPA 1988), and the historic and current resources report prepared as part of the collaborative relicensing effort (CES 1998). This information documented that substantial acreage of Delta habitat had been lost, but it did not provide any specific conclusions or indications about the relative magnitude of the multiple influences in this area (i.e. natural processes, land use activities, Albeni Falls Project construction and operation, or Cabinet Gorge/Noxon Rapids Project Operation).

In order to better understand the Delta region and the geomorphologic processes of the Clark Fork River and Delta, including the effects of the projects to the river and Delta

downstream of Cabinet Gorge Dam relative to the other influencing factors, Parametrix Inc., a consulting firm, was hired to conduct hydrologic and geomorphic studies and analysis as requested by several work groups. The scope and methodologies of the Parametrix studies and analysis were developed in the work groups, including the WBWWG. Parametrix presented the results of these studies and analysis at a January 21, 1998 meeting and also provided interested participants with a detailed study report (Parametrix 1998).

Recognizing the variety of influences affecting the Delta habitat and the relative contribution of the Clark Fork Projects to habitat loss (erosion and lack of bedload availability) in the Delta was determined by the Parametrix (1998) studies and analysis. That analysis concluded that 15-25 percent of the habitat losses in the Delta, equating to an average annual loss of approximately 1.2 to 3.0 acres, could be attributed to the WWP projects, most of which is due to sediment deposition in the reservoirs preventing downstream transport and subsequent aggradation (deposition) in the Delta area.

The WBWWG discussed the issue of Delta habitat losses and appropriate mitigation measures at numerous work group meetings (WBWWG Meeting Summaries: October 2-3, 1996; October 29-30, 1996; January 7-8, 1997; September 30, 1997; November 6-7, 1997; December 4-5, 1997; and January 21-22, 1998). In discussing the issue and developing the recommended PM&E measure, the WBWWG considered the relative contribution of WWP's Clark Fork Projects versus the Corps Albeni Falls Project to the habitat losses, and recognized the need to coordinate remediation efforts to the maximum extent possible (WBWWG Meeting Summaries: September 30, 1997; November 6-7, 1997). Work group members also felt strongly however that efforts to address the Clark Fork Project's impacts should not be delayed or precluded by a lack of Corps involvement (WBWWG Meeting Summary December 4-5, 1997). Other details discussed by the group at these meetings included erosion control versus land acquisition (erosion control determined to be first priority), implementing only those erosion control measures that have a high likelihood of reducing overall net Delta habitat losses and possessing long-term stability, permanent protection of acquired lands, mitigation credit for land acquisition, and the value of the Olson Island property within this mitigation effort. The WBWWG agreed to recommend the Clark Fork Delta Habitat PM&E as outlined below at their April 14, 1998 meeting (WBWWG Meeting Summary April 14, 1998).

V. **PROPOSED PM&E MEASURE:** The WBWWG has discussed two mitigation options for the project-related loss of Delta habitat:

- implementation of erosion control measures, or
- habitat acquisition, enhancement, and permanent protection.

Implementation of either of these mitigation alternatives would occur during year three of the Agreement, following a feasibility assessment and selection of a mitigation option.

Erosion Control Option. The Clark Fork Delta is composed of unique and high value wildlife habitat. Consequently, measures to protect remaining Delta habitat through erosion control will receive first priority. To evaluate the feasibility of developing and implementing effective erosion control measures for the Clark Fork Delta, an assessment study will be initiated the first year. This effort will provide the following assessments:

- feasibility (cost vs. likelihood of success) of implementing erosion control measures in the Delta;
- magnitude of erosion control measures that would need to be implemented to successfully mitigate WWP's impacts; and,
- need for participation of the Army Corps of Engineers, and/or Albeni Falls Interagency Work Group, in implementing effective erosion control in the Delta area.

During the second year, the Terrestrial Resources Technical Advisory Committee (TRTAC) will review the above information to determine whether to recommend to the Management Committee erosion control or habitat acquisition as the preferred mitigation option. Feasibility of erosion control will be based upon the following:

- an assessment of the likelihood of implementing measures that will be effective and stable in the long term,
- need for and potential to secure the needed participation and funding from the Army Corps of Engineers, and/or Albeni Falls Interagency Work Group.

Implementation (during year 3) of erosion control measures would include:

- sale of WWP owned Olson Island property to fund initial work,
- coordination with the Army Corps of Engineers, and or Albeni Falls Interagency Work Group, as needed;
- implementation of erosion control programs; and,
- develop and implement monitoring program for evaluation of control measures.

Should monitoring indicate that erosion control measures are not effectively stemming habitat loss commensurate with the impacts related to the operation of the Noxon Rapids and Cabinet Gorge projects, the TRTAC, will determine if mitigation efforts should shift to habitat acquisition, protection, and enhancement, and make the appropriate recommendation to the Management Committee. WWP would receive credit for expenditures on erosion control efforts commensurate with the cost of acquisition,

enhancement, and protection of alternate sites. As an example, if WWP were to expend $100,000 on erosion control prior to abandoning the effort as unsuccessful, and average land values (using dollar values at the time of agreement) plus the cost of protection and management were equal to $5,000 per acre, WWP would get credit for 20 acres of acquisition (or 3.3 years worth of mitigation at an estimated loss of 3.0 acres per year and an off-site mitigation ratio of 1:2).

Habitat Acquisition, Enhancement, and Protection Option. The habitat acquisition option has received considerable discussion in the WBWWG meetings, and the group has agreed that if the purchase and protection of habitat is the chosen alternative WWP should retain its current property rights on Olson Island and thereby protect important wildlife habitat values in the vicinity of the Delta. Mitigation credit for the 75 acres of WWP ownership on the island will be at 1:2 (1 acre credit for 2 acres protected), thus offsetting 37.5 acres of habitat loss due to erosion and lack of aggradation (equating to the accumulated loss in the Delta over 12.5 years).

In year 12, and at the beginning of each appropriate year period during the term of the new license, WWP will pursue the acquisition of the necessary property rights to protect important wildlife habitat values on at least an additional 72 acres (assume 1:2 credit, therefore 36 acres of mitigation credit) selected in consultation with the TRTAC and approved by the Management Committee. If more than 36 acres of mitigation credit are acquired, they will be applied to future obligations, extending as appropriate the time period before the next acquisition is required. WWP will pay up to the appraised value for the property rights. WWP may fund protection and enhancement measures on lands acquired under this program as an alternative or in addition to land acquisition, or through the use of other PM&E resources (e.g. Wildlife Habitat Acquisition, Enhancement, and Management Fund PM&E) as determined by the TRTAC for recommendation to the Management Committee. If these alternatives are initiated, the TRTAC will recommend the appropriate mitigation credit. One method of permanently protecting land purchased as part of this mitigation measure could be to transfer fee title to a public agency, or other appropriate measures, as recommended by the TRTAC.

If, through other project and/or operations modifications, WWP is able to eliminate or diminish that portion of habitat loss in the Clark Fork Delta attributed to their projects, the level of commitment to pursue either the erosion control or the habitat acquisition option will change accordingly.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the following activities:

Year 1,erosion control assessment - $50,000

Year 2,review of assessment and selection of mitigation option(s) - $5,000

Year 3 and beyond, cost of control/mitigation implementation undetermined at this time pending completion of the erosion control assessment

VII. KEY REFERENCES:

BPA (Bonneville Power Administration). 1988. Albeni Falls Wildlife, Protection, Mitigation and Enhancement Plan; BPA Final Report 1987.

CES (Cascades Environmental Services, Inc.) 1998. Historic and current resources for the Washington Water Power Cabinet Gorge and Noxon Rapids Projects. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1998. Assessment of Geomorphic Processes, Clark Fork Hydroelectric Projects Relicensing. Prepared for Washington Water Power. Spokane, WA.

Corps (U.S. Army Corps of Engineers). 1983. Final Environmental Impact Statement – Operation of Albeni Falls Dam, Idaho. Seattle District, Seattle, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Forest Habitat Protection and Enhancement

II. PURPOSE AND GOAL: The purpose of this protection, mitigation and enhancement measure (PM&E) is to provide for the protection and enhancement of specific parcels of WWP land along the reservoirs. These have been identified as having significant wildlife habitat value. The goal is to maximize the wildlife habitat function and values of these parcels, and to protect them from land use and other activities or changes which might diminish those values.

III. CONCERNS TO BE ADDRESSED: Members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) expressed concern about recent growth trends in Bonner County, Idaho and Sanders Counties, Montana, particularly along the lake shorelines and in the Clark Fork River valley, and the impact this growth was having on the riparian and other river valley wildlife habitats. There was concern that without specific provisions for protection and management, some of the somewhat larger parcels of WWP ownership along the Projects shorelines might be lost to development or degraded in habitat value.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Recent growth and development trends in the Bonner and Sanders Counties areas where the projects are located, clearly show a trend of increasing population and shoreline development. Virtually all members of the WBWWG had personal knowledge of riparian shoreline habitats in the area that had been lost or degraded in wildlife habitat value as a result of land use and development activities. Group members discussed the numerous parcels in the area that had already been or were proposed for subdivision and sale, noting that wildlife habitat along the valley bottom was becoming increasingly fragmented and of little or diminished value to wildlife (WBWWG Meeting Summaries October 2-3, 1996; January 7-8, 1997; April 22-23,1997).

The WBWWG reviewed the available land use and cover type mapping for the area surrounding the reservoirs, information on stand characteristics and previous management, made several field trips, and discussed individual member's knowledge of the WWP ownership around the project reservoirs (WBWWG Meeting Summaries June 9, 1997, July 15-16, 1997, September 30, 1997). They identified six fairly large WWP parcels they felt represented particularly high value wildlife habitat that should be protected and managed to preserve, and if feasible enhance, the habitat condition and

associated value to wildlife. These areas are commonly referred to as Finley Flats, Copper Flats, Tuscor, Stevens Creek Point, the State Shop Area, and Elk Creek Point.

The WBWWG subsequently developed and agreed on the PM&E measure applicable to these areas and outlined below as an appropriate and desirable mechanism for WWP to provide for the protection and enhancement of the wildlife habitat and resources associated with and potentially affected by the continued operation of the Projects (WBWWG Meeting Summaries of November 6-7, 1997 and December 4-5, 1997).

V. PROPOSED PM&E MEASURE:

Protection. WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and as approved by the Management Committee, will implement a Forest Habitat Protection and Enhancement Program . Areas included in this program are Finley Flats, Copper Flats, Tuscor, Stevens Creek Point, State Shop Area, and Elk Creek Point.

These areas will be designated Conservation 1 under the Land Use Management Plan (LUMP), which will provide these areas the maximum protection under this system. No forest management activities or development will occur in these areas unless it is for the express purpose of, or consistent with, maintaining or enhancing specific wildlife habitat goals.

The cost of implementing and administrating the protection component within the Land Use Management Plan will be part of WWP's overall cost for implementing the LUMP, and therefore has not been independently quantified.

Area Specific Management Plans. WWP, in consultation with the TRTAC and as approved by the Management Committee, will evaluate and develop area specific management plans for Finley Flats, Copper Flats, Tuscor, Stevens Creek Point, State Shop Area, and Elk Creek Point. One area specific management plan will be developed per year, for a period of 6 years. These management plans will be developed based on site specific characteristics, with an emphasis on promoting old growth stands, riparian habitat, or other important wildlife habitat features identified at each site. These management plans should also include measurable resource goals and associated monitoring programs.

There will likely be an overall cost in the short term to initiate these plans. In recognition of this, WWP will provide funds during the term of the new license for stand improvement activities needed to help reach management goals. In addition, revenue received from timber harvest activities on these sites will be first used to offset these

initial costs, with the remainder being used exclusively for future management and monitoring of these areas.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will fund the actual costs of this PM&E as specified in annual work plans approved by the Management Committee in the amounts below.

Years 1 through 6 - $5,000 per year for the development of one site management plan per year.

Year 1 and beyond - $25,000 for habitat improvement activities. In addition, of the net timber revenue received as a result of stand improvement harvesting on these sites, WWP will only retain the amount equal to that portion of the $25,000 already expended. The remainder will be used for future habitat enhancement and site monitoring as determined by the Management Committee.

Costs associated with protection of these parcels through the land use management program are borne by WWP as part of the overall costs of administering that program and implementing the settlement agreement/license conditions.

VII. **KEY REFERENCES:**

ND&T (Northrop, Devine, and Tarbell, Inc.) 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Botanical Resources Study (includes land use and cover type maps and information). Prepared for Washington Water Power. Spokane, WA.

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Reservoir Islands Protection

II. PURPOSE AND GOAL: The purpose of this protection, mitigation and enhancement measure (PM&E) is to provide for the protection of islands owned by WWP in the project reservoirs. The goal is to maintain the unique and high quality wildlife habitat functions and values of these islands.

III. CONCERNS TO BE ADDRESSED: Members of the Wildlife, Botanical, and Wetlands Work Group (WBWWG) expressed concern that without specific provisions for protection, the unique and high quality wildlife habitat provided by islands in the reservoirs might be lost to development or degraded in habitat value.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Islands are well recognized as a unique and relatively limited habitat type that provide equally unique and significant benefits to wildlife. Many wildlife species use these isolated and protected (i.e. from human disturbance or predators) habitats for reproductive or other life history requirements. In recognition of this habitat value, WBWWG members believed specific provisions should be made to protect the reservoir islands in WWP ownership. As a result, the WBWWG reviewed information on the islands located in the two reservoirs and developed and agreed to the PM&E measure outlined below (WBWWG Meeting Summaries of June 9, 1997 and November 6-7, 1997).

V. PROPOSED PM&E MEASURE: WWP, in consultation with the Terrestrial Resources Technical Advisory Committee (TRTAC) and subject to approval by the Management Committee, will implement a protection program for WWP owned islands in Noxon Rapids and Cabinet Gorge Reservoirs.

These areas have been identified by the TRTAC as having significant wildlife value and will be designated Conservation 1 under the Land Use Management Plan (LUMP). This will ensure that these areas are provided the maximum protection under the LUMP. No management activities will occur in these areas unless it is for the express purpose of maintaining or enhancing specific wildlife goals.

The cost of implementing and administrating the island protection program portion of the LUMP will be part of the overall cost of the plan, and therefore has not been independently quantified. Funding for enhancement of island habitats is available

through other habitat enhancement PM&E measures, such as the Wildlife Habitat Acquisition and Enhancement Program.

VI. PROPOSED OR ESTIMATED FUNDING:

Costs associated with protection of the WWP-owned reservoir islands through the land use management program are borne by WWP as part of the overall costs of administering that program and implementing the settlement agreement/license conditions.

VII. KEY REFERENCES:

WBWWG (Wildlife, Botanical, and Wetlands Work Group) 1996 - 1998. Meeting Summaries. Washington Water Power. Spokane, WA.

Clark Fork Heritage Resource Program

Introduction

This Program covers the culturally sensitive landscape of the Clark Fork River Valley west of Thompson Falls, Montana to the bridge upstream of Lightning Creek, east of Lake Pend Oreille, Idaho. It focuses on the dynamic interaction between the rural historic landscape and the peoples who have lived there. This interaction continues today. Consequently, this program includes supporting the traditional users' ongoing relationship to the valley and their vision for its future.

Living human values are the network of symbolic relationships that tie people to the land and landscape. All people have connections to the places where they live, work and play. People form relationships with these places. People define places as good, powerful and safe. They find comfort by living in these places. There is a sense of belonging that is valued. This sense of belonging is based on the compatibility between the group's way of life and their environment (Tallbull and Deaver 1995).

The Clark Fork Valley has been a culturally meaningful rural historic landscape throughout time. Groups that have formed a relationship with the physical, spiritual and cultural aspects of this environment include the Kootenai, Salish, Coeur d'Alene and Kalispel Tribes. Later in time, Euro-American immigrants, Chinese railroad workers, loggers, dam builders and their descendants formed a culturally meaningful relationship with this valley. All of these peoples have formed historic associations with particular resources and aspects of this environmental setting.

The concept of ethno-habitat is a useful analytical tool for exploring these peoples relationships with the valley. *Ethno-habitats are places, defined and understood by groups of people, within the context of their culture identifiable in part by the culturally significant life forms or life form groups found there by cultural participants....They are places of culturally familiar features, unique biological resources and usually have spatial conditions that facilitate harvests and often processing facilities. Ethno-habitats are defined by the cultural knowledge and ordinary experiences of traditional users, their well being is often known by these same people.... Places such as fishing grounds and stations, hunting districts, berry patches, root fields, tree groves...and medicine sites may all be examples of ethno-habitats. They also can be thought of as components of larger units such as traditional cultural places, aboriginal homelands or areas of interests, including both specific areas where traditional uses/activities are most likely to occur and general areas where harvest related activities may occur. Thus ethno-habitats may serve as the basic unit for examining or determining whether cultural uses are being provided for on federal lands* (ICRBEMP 1996:55-56).

** terms defined in the glossary*

Ethno-habitats may be either rural historic landscapes as defined by NPS Bulletin 30 (McClelland et al. 1994) or Traditional Cultural Properties (TCP) as defined by NPS Bulletin 38 (Parker and King 1990) and Forest Service (FS) R-1 Position Statement on Traditional Cultural Sites (1991). Ethno-habitats are culturally defined places that may be associated with culturally important plant or animal species. Sites are places associated with humans that may contain some material evidence of past human use. An ethno-habitat/rural historic landscape/TCP may include one or more sites.

The tribal culturally sensitive rural historic landscape of the Clark Fork Valley can be understood from the perspective of the generational knowledge of this rural historic landscape passed down orally in the tribal traditions of the Kootenai, Salish, Coeur d'Alene and Kalispel Tribes. This is directly related to the distribution of tribally affiliated sites* and tribal peoples ongoing relationship to these sites. The spiritual, physical and cultural qualities of the environment recognized by tribal peoples determined site location and underlies the use of ethno-habitats, cultural rural historic landscapes, TCPs such as traditional plant harvesting areas, fishing sites, hunting sites, other special use sites and the cultural significance of particular topographic features (landmarks).

The non-tribal culturally sensitive rural historic landscape of the Clark Fork Valley can also be understood in terms of the distribution of non-tribally affiliated sites on the landscape. Relevant non-tribal concerns include: How did the Chinese railroad workers, the loggers, the dam builders view this environment? Where did the Chinese railroad workers and the early dam builders put their construction camps? What was the nature of the Chinese railroad workers relationship to this landscape? Where did the loggers choose to live? What economic, spiritual, physical and cultural considerations affected their decisions? What are the similarities and differences between a tribal fuel harvesting ethno-habitat and the logger's timber stand (also an ethno-habitat)?

The culture history of the rural historic landscape can also be understood from the scientific perspective of archaeology. By studying site distribution and density through time, archaeologists can construct histories of the area and explore riverine adaptations which provide useful comparative data for other areas. In addition to the heritage values associated with the rural historic landscape and the cultural material remains of the people who lived there, these properties are also reservoirs of information which is used to construct past lifeways and explore universal human problems of adaptation.

The ongoing and historic use of the valley as a transportation conduit is also critical to our understanding of this rural historic landscape and the people who lived there, continue to live there and will live there for the foreseeable future. The valley contains pre-horse trails, fiber optic lines and everything in between that

** terms defined in the glossary*

has been used by Americans to transport people, goods and services, including hydro-electric power, and information. All of the cultural resources (cairns, trails, roads, dams, powerlines, railroads, etc.) associated with this use of valley affect our image of the valley and our plans for its future.

Potential Effects of Projects Operations

The effects of the project on the Clark Fork rural historic landscape are potentially both positive and negative. Shoreline erosion and associated erosion control measures may potentially impact the extent and use of ethno-habitats, rural historic landscapes, TCPs as well as tribal and non-tribally affiliated sites.

Reservoir/riverine shorelines are defined as the fluctuation zones, lands between full pond contour and the pool elevation at the lowest annual or operational cycle. Due to the age of the Clark Fork River Projects (both built in the 1950s) and the fact that large seasonal drawdowns are now avoided except under extreme conditions, the effects of inundation and normal operational level fluctuation have largely subsided (NDT 1994:1). However, there is continuing small-scale erosion along the shorelines which is primarily related to soil type, bank slope, the presence or absence of wind caused waves and tractive forces caused by currents in the riverine sections (NDT 1994). Ice jams are another source of potential impact to the shoreline (Cross 12/18/96). The potential impacts to cultural resources in the fluctuation zone are ongoing, continuous and extensive (non-localized) since the water action is ongoing.

Normal pool elevation at the Noxon reservoir is 2,331 msl. The reservoir typically fluctuates about two feet daily (NDT 1994:8). Cabinet Gorge Reservoir is operated by drawing down the reservoir 2-4 feet during the day and refilling during the night. The riverine section downstream of Cabinet Gorge undergoes level changes of three to five feet within a 24 hour period (NDT 1994:9). Therefore, the fluctuation zones vary between 2-5 vertical feet. Their width is determined by shoreline topography. Vertical slopes will have fluctuation zones of 2 to 5 feet. The lower the slope of the shoreline, the wider the fluctuation zone will be.

The Cabinet Gorge and Noxon Rapids Projects influence approximately 70 miles of the Clark Fork (NDT 1994:4). The eastern boundary of the area is T21N R30W, Section 1 (the outskirts of Thompson Falls, MT) and it extends west to the bridge upstream of Lightning Creek in T55N R2E, Section 11.

Shoreline effects over the course of the license can reasonably be anticipated in the fluctuation zone and its expected expansion over the period of the license. According to Northrop, Devine and Tarbell, Inc. (NDT) 1994, the ongoing project related erosion in the area is highly patterned. In the reservoir segments of the project area, fine-grained soils (alluvium and lacustrine deposits) subject to wind driven wave action is eroding at a rate of “several inches a year.” Coarse-grained

soils (till and gravels) subject to wind driven wave action is eroding at a rate of a "few inches a year" and coarse-grained soils on steep slopes not subject to wind generated wave action are eroding at a rate of "less than a few inches a year." In the riverine segments, fine-grained soils are subject to the tractive forces caused by currents and are eroding at a rate of "several inches a year." Also according to NDT, weathered bedrock banks have extremely slow erosion rates compared to banks consisting of soil. Erosion of bedrock will likely be negligible during the period of the project license (1994:1-2). Northrop, Devine and Tarbell are working at a geologist's scale where "several inches a year" is deemed to be minor. For tribal cultural resource protectors and agency cultural resource managers who work at a smaller scale "several inches a year" is significant and over the term of the license could result in the permanent loss of a resource.

The worst case scenario calls for erosion of the shoreline at a rate of several inches a year. Northrop, Devine and Tarbell did not quantify its assessment. An extremely conservative worst case estimate would be an erosion rate of one foot a year. The Federal Energy Regulatory Commission (FERC) licensing of the project can cover up to 50 years. Therefore, the worse case scenario would call for direct effects to extend 50 feet or 15.24 meters from the current shoreline. Again to be conservative, if 30 m is covered by intensive cultural resource investigations*, this will more than cover the areas of predictable direct shoreline impact. Areas of indirect effect, primarily recreational activities, will extend beyond this 30 m corridor particularly on the relatively flat and accessible lacustrian and alluvial terraces. These areas will be surveyed using 30 m transect intervals which shall be narrowed to 15 m when vegetative cover obscures ground visibility.

The focus of the initial surface survey will be to identify current erosion impacts and will be conducted by technical specialists trained to locate and record cultural resources in conjunction with designated tribal cultural representatives knowledgeable in the recognition of rural historic landscapes and TCPs. Priority treatment will be given to resources being impacted now.

Future survey and monitoring will be done as needed. The Cultural Resource Management Group (CRMG) is responsible for determining the need for future survey as it relates to any specific Washington Water Power (WWP) proposed action in the project. Except in situations of emergency or unexpected discovery, the need for further survey and monitoring will be decided by consensus at the CRMG quarterly meetings. Specific sites will be discussed at the first quarterly meeting after the draft inventory report has been submitted to the CRMG. The CRMG's recommendations will become part of the Heritage Resources Management Plan. The CRMG retains the right to discuss and make recommendations about sites earlier than this when the threat to the site is perceived as eminent. The project manager will immediately notify the CRMG of such instances.

** terms defined in the glossary*

Recommendations concerning undertakings and/or sites on project lands* made at the quarterly meetings will be sent out for review within 10 days of the meeting. Members of the CRMG will have 30 days to comment on the recommendations. WWP will revise the recommendations, as needed, to take into account comments received by members of the CRMG. If historic properties will be affected, the final plan for treatment of effects to historic properties will be provided to FERC for approval, either separately, or as part of the Heritage Resource Management Plan. However all recommendations may be reviewed when further survey or monitoring reveals new data that justifies plan modification. Any disputes about these recommendations will be handled by the dispute resolution clause of the Programmatic Agreement (PA).

Once a site has received treatment, it will be monitored over the period of the license by the CRMG. The extent and type of monitoring will be designed on a location specific basis in consultation* with the interested parties. The site by site survey, monitoring and treatment plan will be described in the Heritage Resource Management Plan.

When shoreline data indicates that cultural resources are being impacted by the continuing operation of the project, the first option to be considered will always be preservation through erosion control. However, erosion control devices and strategies also have the potential to effect ethno-habitats, rural historic landscapes, TCPs, treaty use areas, sacred areas and treaty right sites. Erosion control, like any other site management tool, will require consultation with the CRMG. Erosion control may enhance ethno-habitats, rural historic landscapes, TCPS, and treaty use areas through the use of native species or by restoring important habitats where feasible.

Natural resource management strategies* can enhance or decrease the cultural value of the rural historic landscape as a whole. Habitats for tribal and non-tribal cultural significant species may be expanded or reduced by natural resource management practices. These practices may also affect access to significant ethno-habitats. Natural resource management strategies can also impact both tribal and non-tribally affiliated sites. The CRMG shall coordinate with the Natural Resource Management Groups* (NRMGs). It will notify them of shoreline survey plans and when possible, collect field data useful to these groups' planning process. Further, the CRMG will present the NRMGs with survey data that can be used in the planning process to avoid conflicts between natural resource management strategies and maintaining or enhancing ethno-habitats and the preservation of sites. Specifically, the CRMG will make recommendations to the NRMGs that will support the preservation and enhancement of ethno-habitats and sites and provide access to significant resources for traditional cultural use.

Recreational developments may increase or decrease the cultural value of the rural historic landscapes to different cultural groups. Further, they have the

** terms defined in the glossary*

potential to effect ethno-habitats, rural historic landscapes, TCPs and sites associated with all cultural groups.

Recreation areas include both existing and planned public recreation facilities operated by WWP. These facilities may be in the fluctuation zone or upslope from the shoreline. Potential sources of effect in recreation areas are related to the construction and maintenance of facilities and their episodic use. The potential direct and indirect impacts to cultural resources in the recreation and surrounding area are ongoing, continuous and extensive since use of the areas is continuous. Established recreation areas will be block surveyed (unless already surveyed) to establish a baseline of data to help plan future expansion or maintenance activities. The survey will employ transect intervals between 15-30 m depending on the extent of ground cover. New recreation areas will be block surveyed prior to any ground disturbing activities and early enough in the planning process that alternate locations can be selected if important ethno-habitats, rural historic landscapes, TCPs and/or sites are found during survey.

The WWP's management decisions also have the potential to affect the historic properties such as dams, powerhouses, transmission lines and other hydro-electric related facilities.

Staging areas around plant facilities include dams, powerhouses, operators' camps, construction camps, laydown yards, dumps and associated facilities such as the concrete batch plants integral to the construction/maintenance of the hydroelectric facilities. Potential sources of effect in these areas are a function of project operations and maintenance since both Noxon and Cabinet Gorge are being relicensed for continuing use. These areas will be defined on the basis of historic operations maps and any known planned expansions. These areas will be surveyed by historians and historical archaeologists familiar with hydroelectric facilities. Survey techniques for these areas will be determined on the basis of the WWP records search and historic map review. Oral historical data from plant operators and construction workers will be an integral part of the recording of the hydro-electric facilities along with architectural/engineering documentation (as-built drawings, photographs, etc.). This will include collecting oral histories from tribal members who worked on the construction of the dams and related facilities. If the data is available, tribal participation in the dam construction crews shall be compared to their participation in the construction of other regional hydroelectric facilities, e.g., Kerr Dam.

Development of new or expansion of existing transportation conduits may effect the overall cultural significance of the rural historic landscape, as well as ethno-habitats, rural historic landscapes, TCPs and sites associated with all groups.

Potential sources of effect in transmission line corridors are primarily associated with the initial construction of the transmission line and any subsequent ground

disturbing maintenance. These impacts are discontinuous, episodic and highly localized. Adverse effects (if any) to ethno-habitats, rural historic landscapes, TCPs and sites located on transmission line routes probably occurred during the initial construction and maintenance of the line. The transmission line corridors all contain at least one historic resource which will be evaluated, the transmission line itself. This will be done in conjunction with the evaluation of the dams as an ancillary facility. These transmission lines can be adequately documented and recorded through the use of historic records and maps. Since no new ground disturbing activities are planned for these corridors, general survey for cultural resources is inappropriate. However, all future maintenance activities with the potential for ground disturbance (pole movement, blading access roads, etc.) will be preceded by cultural resource survey. Within 30 days of planning ground disturbing maintenance activities, WWP will notify the CRMG through the project manager so that the CRMG may decide if survey is warranted and, if it is, carry it out in a timely manner so that affects to cultural resources may be avoided without delaying project actions.

Access roads are associated with all types of impacts. All access roads which involve the construction of new roads, or the modification of old roads requiring ground disturbance will be surveyed prior to ground disturbance. The survey will take place early enough in the planning process that acceptable re-routes can be selected to avoid any important cultural resources found during survey.

Further, the continuing operation of the Noxon Rapids and Cabinet Gorge project may stimulate population growth which will in turn cause the relationship between the people with an interest in the valley and the rural historic landscape to evolve over the term of the license. We recognize culture change and evolution of relationships between peoples and their environment are a constant in human life. It is our intent to channel this change (as it relates to cultural resources) to achieve the greatest degree of compatibility between the peoples with an ongoing interest in the valley and the rural historic landscape. Increasing compatibility may include restoring culturally significant rural historic landscape features and habitats, ensuring access to culturally significant rural historic landscape features and habitats and, where confidentiality and cultural tradition allow, increasing public awareness and respect for such places.

Overall, the basic mechanism for doing this centers around heightening local sensitivity to the cultural significance of the valley. Increasing the public awareness of the historical and continuing cultural importance of the valley can be accomplished through collecting oral histories of the valley, identifying cultural properties, developing historical studies which produce classroom materials, brochures and other off site interpretative materials. These materials will emphasize interpretation from various view points and may include an interpretative display/kiosk somewhere in the valley at a location deemed appropriate by the CRMG.

** terms defined in the glossary*

Program Principles

The guiding principal of the Clark Fork Heritage Resource Program is the recognition that the continuing operation of the Cabinet Gorge and Noxon Rapids Projects has both physical and cultural effects on the Clark Fork Valley rural historic landscape and our vision for its future. By supporting this Heritage Program, WWP is recognizing its responsibilities as a licensee under the Federal Power Act. and its continuing special relationship to the past inhabitants of the valley (the Kalispel, Kootenai, Salish and Coeur d'Alene Tribes as well as Euro-America and Chinese immigrants etc.) and the peoples who have ties to the valley today, both tribal and non-tribal. The dynamic nature of this program is an explicit recognition of our responsibility to the future, as well as our descendants who will have ties with this rural historic landscape.

This program has been developed to give equal weight to traditional cultural and scientific concerns. The program is designed to be extremely conservative in the evaluation of cultural resources to ensure their preservation and protection. All tribal ethno-habitats, rural historic landscapes, TCPs and tribally affiliated sites in the Clark Fork rural historic landscape are culturally important to the Kootenai, Salish, Kalispel and Coeur d'Alene because of their long association with the rural historic landscape. These cultural resources will be evaluated for National Register (NR) eligibility individually and/or as contributing elements to the cultural significance of the rural historic landscape as a whole. For resources found on project lands*, tribal cultural representatives, federal and state cultural resource managers and anthropological researchers shall jointly make site eligibility recommendations to the FERC.

Those sites that are not covered by National Historic Preservation Act (NHPA), e.g., locations with intangible spiritual values or sites that are not 50 years old but have a documentable association with a continuing cultural tradition, will be considered in the context of: 1.) tribal ordinances (e.g., Ordinance 95, Cultural Resource Protection Ordinance of the Confederated Salish and Kootenai Tribes [CSKT]) which provide guidance for fulfilling trust responsibilities to protect and preserve such locations and, 2.) American Indian Religious Freedom Act (AIRFA), Native American Graves Protection and Repatriation Act (NAGPRA), National Envionmental Policy Act (NEPA) and other statues and executive orders (e.g., E. O. 13007) related to the protection of sacred sites and ensuring the social well being of the tribes.

Priority will be given to avoiding impacts and on in-place preservation of all historic properties. Railroads, roads, dams, powerhouses and transmission lines must be upgraded from time to time. These upgrades will be designed to meet the Secretary of Interior's Standards for Rehabilitation and to accommodate adaptive reuse.

** terms defined in the glossary*

All treatment* of historic resources will be developed in consultation with concerned parties, including the tribes, federal agencies, local historical interests, State Historic Preservation Offices (SHPOs) and others expressing interest in being involved.

On project lands* during survey, tribally affiliated artifacts shall not be collected unless they are in danger of loss (e.g., in areas of high recreational use such as trails). They shall be recorded in the field using photography, sketching and measuring tools. These illustrations shall be included on site forms. Publication or use of these illustrations in public education efforts shall require the consultation with the tribal members of the CRMG.

Testing of archaeological sites is conducted for several different reasons: to locate buried sites and surface sites in areas of low surface visibility; to determine site boundaries when vegetation obscures these; and, to determine if the site contains sufficient data to justify a NR eligibility recommendation under Criterion D. Any testing carried out under this agreement will be conducted in conformance with current professional standards and shall include the respectful treatment of all materials.

Excavation (including test excavation) of tribally affiliated sites is among the least desirable options from the tribal perspective. On project lands* excavation will be employed only when all reasonable non-invasive techniques have proved unsatisfactory. Sites will be excavated only after intensive site-specific consultation with the interested tribes. Tribal representatives will be invited to be present at all testing and excavation of tribally affiliated sites.

Any news releases concerning the cultural resources on the project shall be reviewed in advance by the CRMG. The CRMG will make recommendations to WWP concerning the content and distribution of information to the public.

Respecting the Kootenai, Salish, Coeur d'Alene and Kalispel Tribes' intellectual property* is of paramount importance in this program. We recognize the painful sense of loss experienced by tribal peoples when their history is removed from their control. Consequently, confidentiality of tribes' intellectual property* is a critical component of this program.

The CRMG will be consulted about access to all information on tribally affiliated sites. Requests for information will be forwarded to the Project Manager who will in turn inform the CRMG. Mechanisms to ensure this consultation shall include but not necessarily be limited to the following:

1. Site forms for tribally affiliated sites shall be housed at the CSKT Tribal Preservation Office (TPO) as well as in the state site files of Idaho and Montana.

** terms defined in the glossary*

The forms that will be put in the state site files will include only the standard scientific information. The Idaho and Montana SHPOs and FS will notify the CSKT TPO and FS when they receive information requests concerning these sites.

The forms in the CSKT TPO office may include confidential tribal information in addition to the scientific information. WWP will provide copies of forms to the Kootenai of Idaho, Kalispel and Coeur d' Alene when these tribes develop their own repositories.

2. State and federal regulatory and advisory agencies shall be provided with complete site forms which may include confidential traditional knowledge when necessary for eligibility and effect determinations on the condition that these agencies will not copy or otherwise reproduce the confidential traditional knowledge. Sometimes the confidential information* will be shared only in an oral format and may involve direct consultation with the Tribal Elders. After the agency has completed their decision making process which would include rehearing and judicial review, any written confidential materials will be returned to the CSKT TPO.

3. Any artifacts recovered from tribally affiliated sites on private project lands* (excluding those from private lands not owned by WWP) shall be curated in the CSKT Peoples Center until the other tribes have there own repositories. The tribal members of the CRMG will make recommendations concerning their proper treatment which may include reburial of the material in the site from which they were taken.

4. All program generated reports dealing with tribally affiliated sites shall be maintained in the CSKT TPO files as well as the Idaho and Montana SHPO files. All program generated reports dealing with tribally affiliated sites on FS lands shall be maintained in FS repositories where they are treated as confidential and not subject to Freedom of Information Act (FOIA) requests (KNF 1996). The reports filed with the FS and SHPO shall comply with the Secretary of the Interior's standards for documentation (*Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* , Federal Register 48 (190):44716-44742) and the appropriate SHPO guidelines. Confidential appendices containing culturally sensitive information shall be housed only with the CSKT TPO. The WWP will provide copies of reports to the Kootenai of Idaho, Kalispel and Coeur d' Alene.

State and federal regulatory and advisory agencies shall be provided with complete reports including the confidential appendices when necessary for eligibility and effect determinations on the condition that these agencies will not copy or otherwise reproduce the confidential appendices. After the agency has completed their decision making process, any written confidential materials will be

** terms defined in the glossary*

returned to the CSKT TPO. The Montana and Idaho SHPOs will notify the CSKT TPO when the project reports are consulted in their offices.

Management Program

Compiling Background Data. The first step in this process is compiling the currently available materials relevant to the project area. This is envisioned as a two-pronged effort, ethnographic and archaeological.

For the purposes of the ethnographic research, the project area is defined as the Clark Fork Valley between present day Thompson Falls and the eastern end of Lake Pend Oreille.

The ethnographic Class 1 inventory of the project area will include the following at a minimum:

1. A review of the ethnographic sources relevant to the project area and compilation of all data related to settlement patterns, land use variables/siting decisions, general patterns of use of the Clark Fork and site specific land use data including the Clark Fork Probability Model (KNF 1996:23-25; Smith and Timmons 1993). All resultant data will be presented in narrative format. In addition, the site-specific data will be presented in tabular form, where possible located by township, range and section and where possible located on the appropriate 7.5 minute topographic quadrangle. These materials will be presented in a confidential report.

A minimal level of effort for this task will include review of the relevant resources listed in the most recent edition of the Ethnographic Bibliography of North America, the relevant land claims cases in the Garland Series and materials in tribal archives.

2. Collection of oral history data from the Coeur d'Alene Tribe, Kalispel Tribe, Kootenai Tribe of Idaho and the CSKT. The goal of this data collection task is to develop the background data necessary to provide TCP documentation and information for tribal interpretative studies and educational programs. This data gathering effort shall focus on the spiritual environment* of the project area and on where and how Indian people used the study area. In addition, information about the relative sensitivity of different site types and their appropriate treatment will be sought.

3. Collection of oral history data from the local residents with historic ties to the area. The goal of this data collection task is to develop the background data necessary to provide historic property documentation and information for non-tribal interpretative studies and educational programs. This data gathering effort

** terms defined in the glossary*

shall focus on the historic ties to the project area and on where and how non-tribal peoples used the study area. In addition, information about the relative sensitivity of different site types and their appropriate treatment will be sought.

Interviewees will be given the option of anonymity and given culturally appropriate forms of recognition. The exact mechanisms for doing this will be determined in accordance with the culturally appropriate rules of equity and courtesy. Interviewees will be given copies of their interviews for their review and editing. By participating in this project, no interviewee is authorizing the commercial use of the information they choose to share. Further, they are not authorizing its use in any other context other than the development of the Heritage Resource Management Plan.

All resultant data will be presented in narrative format. In addition, the site-specific data will be presented in tabular form, where possible located by township, range and section and where possible located on the appropriate 7.5 minute topographic quadrangle. These materials will be presented in a confidential report.

The archaeological and historical Class 1 inventory of the project area shall include the following as a minimum:

1. A site file search for all sections in the project area. For the purposes of a file search for previously recorded sites and previous surveys, the project area is defined as beginning at T21N R30W, Section 1 and containing all sections on both sides of the reservoirs/rivers and ending at T55N R2E, Section 11. Creation of a database which shall include the following categories at a minimum: legal location, county, topographic quadrangle, descriptive site type, NR and/or the CSKT Tribal Register status, +/- tested, +/- excavated, age, references, distance from the reservoir/river and traditional cultural sensitivity.

2. A literature search of archaeological materials relevant to the study area including a formal Cultural Resource Annotated Bibliography System (CRABS) search in Montana. Creation of a database which shall include the following categories at a minimum: legal location, reference (include CRABS file number in Montana), report type (survey, testing, overview, etc.), for survey reports acreage covered, intensity of survey and results, for overviews note site distribution patterns, for testing/excavation reports note the volume of material excavated and type and density of materials recovered. Where possible, past survey areas will be shown on the same set of topos showing known site locations.

3. A review of all historic maps of the area including, at a minimum, General Land Office Survey Plats (GLOs) for each section and Kootenai Forest Cultural Resource Atlas. Creation of a database which shall include the following categories at a minimum: legal location, reference, map features which may be

recognizable today as cultural resources (e.g. structures, roads etc.), estimated distance from current water level for each feature. In addition, these features will be located on the appropriate 7.5 minute topo to the extent possible.

4. A review of WWP materials concerning dam construction, to determine the type of hydro-related resources likely to occur in the study area, including the dams, ancillary features (e.g., power lines) and construction camps. These materials will be examined to determine what areas will be inventoried in order to fully document the Noxon Rapids and Cabinet Gorge hydroelectric facilities.

Products of this effort will include at a minimum: a site database, a past work database, an historic map derived database and a tabular summary of all three organized by legal, topographic quadrangle, known and potential resources present in each section and references (i.e., a compilation of the site database and the historic database). In addition, a brief, explicit and specific narrative description of the study area will be written. It will focus on the types and range of variation of cultural resources known in the project area and anything known about the site distribution in the area or predictable on the basis of the data compilation. This discussion will also include an explicit application of the Model (KNF 1996:23-25; Smith and Timmons 1993). Finally, a brief narrative description of the survey area necessary to document the Noxon and Cabinet Gorge hydroelectric facilities will be provided. This narrative will include maps of the proposed extent of survey based on the historical development of the facilities. All of this material will be presented in a confidential report.

Pilgrim Creek Park. Since this WWP owned area contains the Noxon community park and a tribally affiliated site that is being affected by ongoing shoreline erosion and recreational use of the location, it is imperative that its current status be assessed as soon as possible. Therefore, during the 1997 field season, a team of tribal members, Noxon community representatives and archaeologists led by Sherri Deaver, technical advisor to the CRMG, will examine the area. If the examination indicates that there are ongoing effects to this property, this team will formulate a plan for continuing use and enhancement of the park while protecting the site. Any recommended remediation actions will be carried out as soon as logistically possible and shall not be delayed to the issuing of the FERC license. The CRMG will review the plan to ensure that the work is completed. WWP will fund the work.

Shoreline and Staging Area Inventories. Field survey of the entire shoreline will be undertaken with the exception of areas 1.) previously surveyed at a minimal intensity of 30 m transect intervals; 2.) where the slope of the shoreline is 30% or greater, 3.) where wet ground conditions make walking impossible (however, hydrophytic vegetation will be inspected for traditionally significant plants) and 4). where extant erosion control devices (rip-rap etc.) make the shoreline inaccessible. Transect intervals shall not exceed 30 m slope distance.

** terms defined in the glossary*

A single transect will be adequate for most shoreline areas not associated with lacustrine or alluvial terraces. However, when there is evidence of water or ice action (strand lines, high-water marks, ice scours) extending beyond 30 m, surveyors will add another transect. It is predictable that these areas will occur where the bank is less than five feet high. As noted previously, the lower the angle of the slope, the more extensive the area to be surveyed. Lacustrine and alluvial terraces accessible by boat will be subject to indirect impacts from boaters and, therefore, will also be surveyed using transect intervals no greater than 30 m. These can be preliminarily mapped prior to survey. However, the exact locations requiring more than one transect in non-terrace circumstances cannot be known until field survey. Surveyors will have to record the expanded areas on 7.5 minute topos.

Field surveyors will zigzag along their transect and maximize survey intensity by seeking out the best surface visibility. Landforms characterized by non-vegetated vertical banks will be intensively examined for buried deposits. In heavily vegetated areas or those landforms that appear to have significant silt deposits, transect intervals will be reduced to 15 m. This reduction of transect intervals may not locate all sites where vegetation cover is heavy and/or sites are buried.

Archaeological data from northwestern Montana and the Idaho panhandle indicate that the riverine areas of the project area will have the lowest prehistoric site density because the older sediments will have been scoured out. On the other hand, in the reservoir areas higher lacustrine and alluvial terraces and all confluences in both the reservoir and riverine areas will have a very high site sensitivity (Malouf 1982; Roll and Smith 1982a, b, and c; Thoms 1984:69-94; Smith and Timmons 1993). In these areas survey intensity will be increased to 15 m transect intervals. High sensitivity areas with 1997 negative survey results will be further investigated during the 1998 field season with non-invasive remote sensing techniques such as ground penetrating radar survey.

In order to recognize ethno-habitats, rural historic landscapes, TCPs as well as sites, the survey teams shall include individuals certified by the tribes as being able to recognize culturally sensitive natural resources and topographic features.

The project shoreline, the hydro-electric staging areas and uninventoried recreational developments will be surveyed using 30 m transects. The Minimal Site Definition to be used on the project is any cultural feature (foundation, cairn, scarred tree, etc.) or 5 or more items of prehistoric cultural material or 10 or more items of historic cultural materials of at least two different types. Window glass, nails, fence staples and tin cans will be treated as isolates regardless of the quantity unless they contain diagnostic or cultural information (mold marks, brands, dietary preferences, etc.). There will be no shovel testing in tribally affiliated sites during the initial phase of inventory.

** terms defined in the glossary*

All cultural resources will be recorded on Intermountain Antiquities Computer System (IMACS) forms for Idaho and on FS forms for Montana. Forms for previously recorded sites will be updated. Sites that extend outside the survey corridor shall be recorded completely with the exception that only features of historic linear sites (railroads, irrigation ditches, roads etc.) within 100 m of the project boundary shall be recorded. Additional information on historic linear sites that cross the project area will be sought from historic records. Prehistoric linear sites such as alignments and trails will be treated in a similar manner except that we anticipate additional information on these types of sites will most likely be available from oral history and historic map sources. A professional quality survey report, including site evaluations for all sites for which surface remains and historic records are sufficient to make systematic defensible recommendations, will be produced. For those sites that require more information to determine eligibility, the report will include recommendations concerning future work, i.e., the level and scope of remote sensing data, consultation, testing, etc.

The primary goal of this program is site preservation and protection. Further, this program is based on the assumption that all cultural resources are eligible to the National Register of Historic Places (NRHP)/Tribal Register of Historic Places (TRHP) until shown otherwise. Since project effects have already largely occurred, it is unnecessary to damage tribally affiliated sites through invasive techniques to determine Criterion D eligibility if no new effects to the site can be demonstrated. Therefore, on project lands* eligibility under Criterion D will be assumed for all tribally affiliated cultural resources and invasive techniques will be avoided unless a project effect is eminent and all non-invasive techniques have proven inadequate to determine Criterion D eligibility. When a project is eminent, the CRMG will advise the FERC on methods to determine eligibility under Criterion D.

Field crews will be made up of qualified archaeologists and traditional cultural specialists. Field crews will be prepared to show Elders sites and the general project area as requested.

Products of this effort shall include but not necessarily be limited to:

1. A listing of all sites being currently impacted by project related activities. This priority treatment listing will include recommendations for ongoing monitoring, treatment (stabilization, data recovery, erosion control techniques emphasizing consultation, use of native species where feasible and restoration of culturally important habitats where feasible).

2. A clean set of topographic quadrangles (no black line copies) showing all sites, all areas surveyed and all exclusion areas coded by rational for exclusion (rip-rap, slope over 30% etc.)

** terms defined in the glossary*

3. Completed site forms, including original photographs, clear readable copies (8.5 x 11) of relevant sections of topographic quadrangles labeled with name, date, contour interval and a north arrow, at least one picture of all sites and all isolates. Minimally, all historic standing structures will be photographed from four directions.

4. Project photo logs and negatives.

5. A Draft Inventory Report.

6. A Final Inventory Report with CRMG comments on the draft appended.

Minimal standards for the Inventory Report are as follows:

a. an abstract, table of contents (TOC) [either the TOC will include site numbers or the report will include an index by site number], list of figures and list of tables,
b. an introduction describing the project,
c. a methods section detailing what was surveyed and how, a discussion of any recognized ethno-habitats, rural historic landscapes, TCPs, a discussion of the Indian Cultural Representatives field visits, a description of site definitions employed (and any modifications made as a result of field observations),
d. an interpretative framework or context statement using the NR guidelines as applicable (36 CFR 60). This may include the traditional recounting of the known chronology of the area but will go beyond this. It will include a description of the site types found in the area and the types of information that they can be expected to contain, a description of site density, diversity and distribution for the Clark Fork Valley and how this is affected by geomorphic and recent hydrologic developments. Historic dam related properties will be put in a context of the development of hydroelectric facilities in the Northwest. This framework for all sites will provide a systematic and, where possible, quantifiable rationale for eligibility recommendations made in the following chapters.
e. a narrative description of all sites including a discussion of how the site fits into the concept of the Clark Fork rural historic landscape,
f. recommendations for any further work,
g. a brief site by site discussion of the current site conditions and any known or anticipated project effects,
h. maps, tables and graphics as necessary including a least one table which includes all sites and other cultural resources (site number, site type, location), the landowner, eligibility recommendations by Criterion (A-D) and recommendations for any further work when project effects are detected or anticipated

** terms defined in the glossary*

i. references cited
j. an appendix showing all survey areas and exclusion areas coded by exclusion rationale

Systematic and defensible site eligibility recommendations are critical to the successful completion of this phase of the project. Eligibility recommendations will be explicit, specific, measurable in so far as possible and defensible. However, as noted previously, tribally affiliated sites for which there is no effect shall not be excavated solely to determine eligibility during this phase of work. The CRMG is fully conversant with National Park Service bulletins 15, 16, 30 and 38. While it is not necessary or desirable to parrot these bulletins, it is critical to have a systematic defensible context for recommendations. Site specific and general rural historic landscape eligibility recommendations will be articulated in culturally relevant terms and supported by ethnographic, archaeological or historic data.

Heritage Resource Management Plan. In the 1998 field season, non-invasive techniques for site discovery will be used as needed. In addition, the CRMG will meet with the field personnel and devise a long term Heritage Resource Management Plan which shall include a site by site plan for protecting the resources. The plan will contain Preservation, Mitigation, and Enhancement measures for cultural resources. Strategies to be considered shall include testing and excavation of non-tribally affiliated sites and tribally affiliated sites when necessary, collection of more extensive oral histories, erosion control to prevent future project effects, creating exclusion zones around known properties so that no future developments intrude on the resources, development of off site mitigation programs (public education programs, brochures, etc.), periodic monitoring plans and other options that the field data suggests are reasonably tied to project effects.

Emergency Undertakings and Unanticipated Discoveries. The Heritage Resource Management Plan shall outline the steps that shall be taken during and after emergencies that pose serious threats to life and property (e.g., emergency drawdowns, repair of storm damage to project facilities etc.) to consider the effects of emergency actions on historic properties. These steps shall include procedures for consultation with the Tribes, FERC, the relevant SHPO and the FS when appropriate.

The Heritage Resource Management Plan shall outline the steps to handle unanticipated discoveries (e.g., previously unknown cultural materials eroding out of the shoreline) during project operation. These steps shall include procedures for consultation with the Tribes, FERC, the relevant SHPO and the FS when appropriate.

Curation and the Disposition of Cultural and Human Remains

** terms defined in the glossary*

Any human remains encountered during the course of WWP project operations will be treated in a respectful manner. Respectful treatment of burials means appropriate in terms of the culture of the individual being disinterred and in a manner consistent with applicable state and/or federal laws. This will include the notification of the proper legal authorities. Tribal members of the CRMG will be asked to provide specific guidance in the case of Indian remains. For example they may advise that it is appropriate to preserve and re-bury the sediments immediately surrounding the bones or that drawing of grave materials is more appropriate than photographing them. In the case of other cultural groups if lineal descendants are unknown or unavailable for consultation the CRMG will take on this responsibility.

In the event that human remains and grave-associated artifacts are recovered on project lands* during any action covered by the undertaking, the federal agencies in consultation with the CRMG shall take all necessary actions to ensure compliance with the full extent and intent of NAGPRA, AIRFA, NHPA and any other relevant federal statutes as well as relevant state burial statutes and the Coeur d'Alene burial protocol (conducting Mass and having a memorial feast immediately after reinternment) when appropriate. In all cases, the principles of respectful treatment and timely reinternment shall guide the CRMG's recommendations.

Curation of all records and other items resulting from identification and data recovery efforts, ethnographic and archaeological, shall be treated respectfully. It shall proceed in accordance with 36 CFR Part 79, the Archaeological Resources Protection Act (ARPA), the Antiquities Act of 1906 where applicable and the provisions of the NAGPRA where applicable.

The Clark Fork Heritage Resource Program may generate confidential data on tribal burials. All tribal burial data will be sent to the CSKT TPO and housed at the either the Kootenai or Salish Culture Committee as appropriate. Single copies of confidential burial reports will be provided to the relevant SHPO and the FS when appropriate. This data will not be released by either SHPO or the FS without consultation with the tribes which results in written permission from the tribes. The CSKT TPO will provide copies of reports to the Kootenai of Idaho, Kalispel and Coeur d' Alene when appropriate.

Roles of the Project Participants

In recognition that the Clark Fork Heritage Resource Program calls for the active participation and cooperation of many different groups with differing goals, legal mandates and responsibilities, this program explicitly recognizes the following roles for the participants:

** terms defined in the glossary*

Tribal Interests. The entire Clark Fork region is a place of great importance to the Salish-speaking and Kootenai people involved in this project. It is a site of their creation stories, an area that has been at the heart of tribal territories since there have been human beings on this land. This river has been the source of food for native people. It has sustained the people with fish, game and plants. Tribal elders have always said that this gift from the creator, the Clark Fork, came with responsibilities. The tribes must care for it and protect it for the generations to come. Tribal elders and ancestors sought to fulfill that responsibility in their treaty negotiations.

Those treaties, as well as other agreements, executive orders and statutes recognized and formalized tribal sovereignty, continuing aboriginal rights and other pre-existing rights which are the legal basis for tribal interests in the Clark Fork. These tribal interests have been further strengthened by Congressional actions calling for and supporting greater tribal self sufficiency and well-being. The full participation of the tribes in the planning and execution of the Clark Fork Heritage Resource Plan is one way that the tribes are choosing to meet their continuing stewardship responsibilities to the Clark Fork area.

The legal basis of tribal interests and rights are founded in the inherent sovereignty of tribes; continuing aboriginal rights; pre-existing rights reserved in treaties, executive orders; agreements passed by both houses of the federal government; and federal statues. Congressional direction for tribal socio-economic self-sufficiency and socio well-being on their reservations, and the federal government's goal of tribal self-determination provide further basis for tribal interest and rights that lie off Indian lands (LNF 1995). Federal Common law also provides a basis of tribal interests and rights (CSKT legal department 1997).

The FS and FERC are in a trust relationship to the tribes [1993 Interior Secretarial Order No. 3175; 1976 Federal Land Policy and Management Act (43 USC SS 1702(e)(2), 1712(b), 1712(c)(9)]. *Trust responsibility is a legal and moral mandate that compels agencies to conduct their activities consistent with obligations set forth in treaties and statutes. Consultation with tribes is essential and central to carrying out trust responsibility*. Continuing the operation of Cabinet Gorge and Noxon Rapids in such a manner that maintains long-term ecosystem and socio-cultural system health and integrity is consistent with meeting the Government's tribal trust responsibilities (ICRBEMP 1996).

CSKT. The Confederated Kootenai and Salish of the Flathead Reservation of Montana include the Montana Kootenai and various Salish speaking peoples (Upper and Lower Pend d'Oreille/Kalispel, Flathead, Coeur d'Alene and Spokane). The CSKT is federally recognized tribe that has signatory power for the Montana Kootenai and Salish.

** terms defined in the glossary*

The Salish, Kootenai and Upper Pend d'Oreilles of the Flathead Reservation in Montana retain Reserved Treaty Rights from the Hellgate Treaty of 1855 (12 Stat. 975). The Reserved Rights exercised on the federal lands within the project include hunting game, fishing, harvesting plants and grazing horses and livestock (LNF 1995:2-44). The Reserved Rights also include erecting temporary buildings for curing (CSKT legal department 1997).

The CSKT believe that the protection and identification of cultural resource sites including cultural plants is of preeminent importance. Their goals for this program are: 1.) gathering specific ethnographic information for the area; 2.) developing creative and effective alternatives to the standard 106 process that incorporate their tribal values; 3.) providing employment, training and experience for Tribal members in cultural resource management; 3.) developing a more complete database, and 4.) providing reciprocal educational opportunities between Tribal and Non-Tribal communities

The Kootenai and Salish are separate peoples each with their own cultural traditions. Their participation in Clark Fork Heritage Resource Program is most appropriately understood in terms of their cultural affiliation, i.e., the Kootenai representatives from both Montana and Idaho are acting as representatives of the Kootenai traditions and the Salish of Idaho, Washington and Montana are acting as representatives of Salish cultural traditions.

Salish Peoples. For thousands of years Salish tribal elders have passed down Coyote stories that tell of the creation of the world and its preparation for the coming of human beings. These stories reflect the length of Salish occupancy in the Clark Fork drainage. The history of Salish people in the Clark Fork reaches back to the very beginning of human time.

Tribal elders have told of how all the Salish-speaking people were once one great tribe. In 1975, Pete Beaverhead detailed Salish history:

The Indians who were told this story by our elders before them would tell this.... There were about seven or eight different tribes who spoke one language.... The elders said when the Indians increased in population a long time ago, they became hungry. Food became scarce--there were too many Indians. The young boys and men were told to go out to search for a place where there was plenty food for everyone. Some of the men would return and say, "This certain place is good. There is plenty of food." Then the Indians would separate. Some of the people with children, relatives and friends of one of the men would go with him to a certain area. A lot of Indians went down where there was plenty of salmon. The Indians all separated. This is when the Indians divided into different tribes.... The western Indians did not battle with us along time ago. We were always on friendly terms with each other" (Salish Culture Committee Oral History and Culture Archives, Tape 44, side 2. Translated by Clarence Woodcock).

** terms defined in the glossary*

The Salish-speaking people of the region lived by the ways shown by Coyote--gathering, fishing and hunting in a land blessed with rich abundance. The tribal way of life was based on a regular movement with the seasons, which respected the limits of the environment while providing the people with a comfortable life and often plentiful sustenance.

The elders have said that the Clark Fork River was the people's road. By foot, canoe and later by horseback, train and automobile people have traveled this route to their relations and friends to the west. The various Salish-speaking tribes and others such as the Nez Perce and Kootenai have always visited with each other and traded the fine or plentiful things from their areas. The Clark Fork was, and, despite the recent modifications of the river in the 1900s, continues to be of central importance in the tribal and inter-tribal life in the region.

Bitterroot Salish. According to tribal elders and other sources (e.g., Teit 1930), the territory of the people known as the Bitterroot Salish originally extended from the Bitterroot Mountains in the west to the buffalo plains far to the east. Centers of population included Three Forks, Helena, Butte and the Bitterroot Valley. The Clark Fork coursed through the heart of this vast territory. In the 1930s, Elder Paul Antoine told in detail of the Salish route to buffalo which flowed the Clark Fork from N?ayccstm (Place of Many Bull Trout or Bonner) to Snx^{w}q^{w}pu?sáqs (Road Divides or Garrison Junction) and then east across the mountains. Salish trails and associated places names downstream of the Bitterroot include:

Salish Name	**Translation**	**English Name**
N†?ay	place of Bull Trout	Missoula
Npcce´(tk^{w})	something in the water/ beaver dams scattered around	Fish Creek
Nmesulé(tk^{w})	cold water	Clark Fork River and a place near St. Regis
Ncck^{w}i	place of Elderberries	Plains
Sqey!k^{w}um	Small Waterfall	Thompson Falls
Neslé(tk^{w})	two small creeks	Clark Fork Idaho
Ncmmcí	place where they gather edible bark of cotton-woods or ponderosas	Lake Pend 'Oreille
Qpqpé	sandy ground	Sandpoint
Sx^{w}e?ewí	portage	Albeni Falls
S¥'xé(tk^{w})	fast white water	Spokane

** terms defined in the glossary*

In the 1700s the Bitterroot Salish concentrated in the Bitterroot Valley. They continued to make frequent trips to their buffalo hunting grounds to the east, and to see friends and relations in the west. Following the Hellgate Treaty of 1855, the government and others sought to prevent tribal people from using their off reservation lands and resources. However, these places and resources were so important to the Salish's physical and spiritual sustenance and well-being, that they continued to use them. Until 1891, some of the Bitterroot Salish resisted the efforts of the US Government and other parties to remove them from the Bitterroot Valley to the Flathead Reservation. Even after forced removal, the people continued to use much of the aboriginal territory in the practice of their traditional way of life.

Upper Pend d'Oreille. Elders and other sources (e.g., Teit 1930) have said that he Qlispe or Pend d'Oreille people traditionally held a vast area of western Montana, including the area now encompassed by the Flathead Reservation, the Flathead Valley to the north, the Swan Valley and the South Fork of the Flathead River (the Bob Marshall Wilderness). Some major Pend d'Oreille camps were located along the Sun River on the eastern front of the Rocky Mountains. Pend d'Oreille hunting grounds included the Sweetgrass Hills. Some of the largest Pend d'Oreille population centers were located on the Clark Fork River at St. Regis, Paradise and Plains. Much of the Clark Fork basin was and continues to be important for hunting, fishing and gathering plants. Areas of continuing importance include the Thompson River country and the area around Neslé (Clark Fork, ID). One of the current members of the Elders Advisory Council was born in 1932 at Neslé while his family was camped there picking huckleberries.

The Road to the West, the Clark Fork, has tied together Salish-speaking people throughout history. In the 1890s, the government removed some members of the Lower Pend d'Oreille bands to the Flathead Reservation where they were welcomed by their relations. Some members of the Spokane and Coeur d'Alene tribes also opted to move to the Flathead Reservation.

Even within the Flathead Reservation, the Clark Fork River and its transformations over time have played and important role in the traditional way of life. Elders have noted that the once abundant fisheries in the Flathead River and its tributaries first began to decline after construction of the Thompson Falls Dam around 1908.

Kalispel. The Kalispel, "the people of the Pend d'Oreille," are Salish speakers who are also referred to as the Lower Pend d'Oreille. As descendants of some of the original inhabitants of the Clark Fork area, the Kalispel have an ongoing and abiding interest in the respectful treatment of the area and its resources. Today, Kalispel live on the Flathead Reservation in Montana, and the Kalispel, Spokane and Colville Reservations in Washington.

** terms defined in the glossary*

The project area contains lands formally ceded to the US government by the Kalispel tribe (ICC Docket 94). Members of the tribe may continue to use the area in a traditional cultural fashion. As participants in the Clark Fork Heritage Resource Program, tribal representatives may participate in ethnographic and archaeological data collection, analysis and site and area evaluations either as individuals or as a tribe. Kalispel tribal representatives participated in the CRMG and the drafting of the Clark Fork Heritage Resource Program. Kalispel responsibilities include the obligation to preserve and protect the area and its resources for future generations.

Coeur d'Alene. The Coeur d'Alene Tribe includes the Coeur d'Alene, Spokane and Saint Joe River bands. As descendants of some of the original inhabitants of the Clark Fork area, the Coeur d'Alene have an ongoing and abiding interest in the respectful treatment of the area and its resources. Members of the tribe continue to use the area in a traditional cultural fashion including the gathering of traditional plants. As participants in the Clark Fork Heritage Resource Program, tribal representatives may participate in ethnographic and archaeological data collection, analysis and site and area evaluations either as individuals or as a tribe. Coeur d'Alene tribal representatives participated in the CRMG and the drafting of the Clark Fork Heritage Resource Program. Coeur d'Alene responsibilities include the obligation to preserve and protect the area and its resources for future generations.

Kootenai. The name given to the Kootenai people by the creator is Aqfsmakni k' which translates as "the people". The term Kootenai is a derivative of a Blackfoot word meaning "water people." The Kootenai's aboriginal name is Ktunaxa. This term describes their political sovereignty as a Nation and all the citizens who identify themselves as Kootenai. Ksanka (Standing Arrow) is the name of the band that currently resides in the communities of Dayton, Elmo, Niarada and Big Arm on the Flathead Reservation in Montana. "For thousands of years, the Ktunaxa have honored a covenant with the creator to protect their massive homelands by serving as the true guardians of the region. In exchange for this service, we were granted sustenance through the use of abundant resources" (KB:np).

The Ktunaxa once numbered over 10,000 people. They fished, hunted and harvested seasonally available plants in eastern British Columbia, southern Alberta, northern Idaho and Montana. Today there are seven bands living in Canada and Idaho and Montana. The Ksanka of Montana are the Akidquanik or Fish Trap People (KB: np). They were signatories of the Hellgate Treaty of 1855.

Some of the Kootenai centered in Idaho did not move to the Flathead Reservation in Montana as directed by the Hellgate Treaty of 1855. The Kootenai Tribe of Idaho was a small group of less than one hundred individuals in 1855. The Idaho Kootenai were convinced that if they attended the treaty negotiation, they would

be removed from their central base near Bonners Ferry, Idaho, and forced to move with other tribes and bands in Montana. The current chief of the Idaho Kootenai, Raymond Abraham, has publicly stated that the oral history of his people is clear. The Idaho Kootenai did not want to exist on the "bitterroot" available in Montana but were determine to remain in the Bonners Ferry area where his people could continue to hunt, fish and gather from the natural resources of the area as his people had always done. In an Idaho Department of Fish and Game case, State v. Coffee (97 Idaho 905) the court ruled that the Kootenai of Idaho are beneficiaries of the Hellgate Treaty even though they are not signatories.

As descendants of the original inhabitants of the area, the Kootenai have an ongoing and abiding interest in the respectful treatment of the area and its resources. The Kootenai of Idaho as beneficiaries and the Montana Kootenai as signatories to the Hellgate Treaty retain treaty rights on the federal lands within the project area. Members of the tribe may continue to use the area in a traditional cultural fashion. As participants in the Clark Fork Heritage Resource Program, tribal representatives may participate in ethnographic and archaeological data collection, analysis and site and area evaluations either as individuals or as a tribe. Kootenai tribal representatives participated in the CRMG and the drafting of the Clark Fork Heritage Resource Program. Kootenai responsibilities include the obligation to preserve and protect the area and its resources for future generations.

FERC. The FERC issues licenses for up to 50 years for the construction, operation and maintenance of a non-federal water power. On expiration of licensed non-federal water power projects where those projects require licensing under the Federal Power Act, the federal government can take over the project, or FERC can issue a new license to either the existing licensee or a new licensee. Part of the licensing or relicensing of a project involves complying with section 106 of the NHPA. As the lead federal agency in the 106 process, it is FERC's responsibility to provide other regulatory agencies (FS) and advisory agencies (Montana and Idaho SHPOs and the Advisory Council on Historic Preservation [ACHP]) the opportunity to review and comment on the reports regarding the inventory and evaluation of cultural properties. The FERC may delegate its section 106 coordination responsibilities to the licensee or relicense applicant in appropriate cases.

All US agencies have trust responsibilities toward Indian tribes. FERC fulfills its fiduciary responsibility to Indian tribes in the context of the Federal Power Act and its implementing regulations. FERC solicits and considers Indian tribes' recommendations when a hydroelectric project has the potential to affect tribal legal rights. Affected legal rights include off reservation rights such as those defined by the Hellgate Treaty of 1855. In addition, FERC licenses must include

unmodified conditions required by the Secretary of the Interior to protect and use reservation lands if project works are located on those lands.

In the Clark Fork relicensing process, the technical working groups are incorporating suggestions related to trust responsibilities for various resources. Tribal recommendations are an integral part of the Heritage Resource Program developed by the CRMG. This program will become a license stipulation. In essence this creates a long term contract (approximately 40 years) to protect and manage cultural resources in a respectful way.

FS. The Forest Service has the responsibility to manage lands under its stewardship. The legal mandates for cultural resource management include NHPA, AIRFA, NAGPRA and ARPA. They also have trust responsibilities to American Indian tribes through a government-to-government relationship as outlined for Region 1 in the Northern Region Strategy for Forest Service American Indian/Alaska Native Policy.

Idaho SHPO. The Idaho State Historic Preservation Office is the steward of cultural resources in Idaho. They review and comment on all federally mandated cultural resource work in the state. They may concur or not concur with site eligibility recommendations, determinations of effect and treatment plans. The Idaho SHPO is the state official who consults with the ACHP during the routine Section 106 review process.

Montana SHPO. The Montana State Historic Preservation Office is the steward of cultural resources in Montana with the exception of the Flathead reservation where the TPO and the SHPO work together. The SHPO defers to the TPO except where the TPO requests their expertise to handle historical architectural structures. The SHPO is required by law to intervene in a private landowner within the exterior boundaries of the reservation requests the SHPO to consult. They may review and comment on all federally mandated cultural resource work in the state. They may concur or not concur with site eligibility recommendations, determinations of effect and treatment plans. The Montana SHPO is the state official who participates in consultation with the ACHP during the routine Section 106 review process.

TPO. According to the Cultural Resource Protection Ordinance enacted by the tribal council of the CSKT in September of 1995, the role of the CSKT Tribal Cultural Preservation Office is to preserve and protect the cultural resources of the Salish, Kootenai and Pend d' Oreille. These resources are considered "essential to the continued well-being of Salish, Pend d'Oreille and Kootenai people" both now and in the future (Ordinance 95:4). The TPO is responsible for cooperating with the ACHP, SHPOs and other agencies to ensure that cultural and historic properties are taken into consideration at all levels of planning and development. Cultural resources as defined by Ordinance 95 include not only archaeological

properties, all materials covered by NAGPRA but also "native plant materials, objects, or cultural or religious sites which are nominated or determined eligible for the Salish Pend d' Oreille, and Kootenai Register as having cultural significance. Cultural materials may include, but are not limited to, such things as roots, berries, cedar bark and Indian medicines" (Ordinance 95:6)

ACHP. The Advisory Council on Historic Preservation is the advisor to the federal government about historic preservation. They may be asked to intervene in or comment on site eligibility or effect determinations and treatment options when the federal regulatory agencies and the state SHPOs cannot come to consensus. The tribes may also ask the ACHP to enter into dispute resolution. They have been included in the Clark Fork Heritage Program as an arbitrator among the parties of the Programmatic Agreement.

WWP. Washington Water Power as the applicant for the new license (the undertaking) must meet the conditions stipulated by FERC to satisfy the requirements of section 106 of the National Historic Preservation Act, as well as its self-imposed responsibilities to peoples with cultural ties to the valley. These include identifying, recording and evaluating cultural resources in the area and providing data on the undertaking's potential to have an effect on these resources. They must also develop a program to provide for protection, mitigation and enhancement of the resources over the term of the new license.

CRMG. The Cultural Resources Management Group includes representatives of the tribes, the federal agencies other than FERC, state advisory agencies and the applicant. The CRMG formulated the Clark Fork Heritage Resource Program, will coordinate its implementation, will re-evaluate it every 5 years and modify it as conditions warrant and will generate and carry out the Heritage Resource Management Plan.

The Public. Compliance with section 106 of NHPA is an adjunct to the general NEPA process. Primarily the public's role in the Clark Fork Heritage Protection Program will involve being interviewed to document different aspects of the oral history of the project. This may include but is not necessarily limited to interviewing WWP personnel to document the history of the dams, tribal peoples to document Indian historic land use patterns and so on. Further, the general public will participate in the Clark Fork Heritage Resource Program as participants in public presentations and education projects concerning the history and the significance of the Clark Fork Valley.

Qualifications of Archaeological and Ethnographic Researchers

Individuals in direct field charge of collection of archaeological data shall meet the Secretary of Interior's guidelines, a graduate degree in anthropology and one years experience in fieldwork. Further, they shall have the demonstrated ability to

** terms defined in the glossary*

work in a multicultural setting. Field surveyors shall have an undergraduate degree or 40 hours of course work in anthropology or a related field or a minimum of 3 months field experience in archaeological survey in the Rocky Mountains, Plains or Plateau and a willingness to work in a multicultural setting. Field surveyors must demonstrate the ability to use topographic quadrangles and fill out site forms. Trainees, individuals who do not meet the field surveyors qualifications, must always work in conjunction with a field surveyor.

Individuals in direct charge of collecting the ethnographic data shall have a graduate degree in cultural anthropology or a related field and/or 2 years experience working in cultural archives, tribal education programs or with culture committee or tribal oral history projects. Ethnographic research assistants shall have a minimum of 3 months experience in collection of oral or written ethnographic materials. Ethnographic research assistants shall demonstrate the ability to formulate a culturally appropriate interview protocol and record the resultant information. Trainees, those who do not meet the ethnographic research assistant requirements in all or part, must always be supervised by ethnographic research assistants. Further, they must be provided with explicit direction about confidentiality of data, the culturally appropriate way to approach individuals, the culturally appropriate way to offer recognition and their continuing responsibility to the community. This direction will be provided by both a trained cultural anthropologist and tribal cultural experts.

The project historic archaeologist/historian shall have a graduate degree in history or anthropology and one year of experience at a supervisory level in the study of historic archaeological resources. They shall also have demonstrated ability to use oral historical data and record and evaluate historic hydro-electric facilities.

** terms defined in the glossary*

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** terms defined in the glossary*

Glossary

Confidential information: means private data. The different cultural groups involved in this project have different cultural definitions of private information. Further, each group has rules governing how, when and with whom to share information. Consequently, each group has different rules about safeguarding such information. On this project we explicitly recognize this diversity and chose to honor those rules by treating the information as the culture that generates or shares it indicates is appropriate. For example, following both informal and formal (legal) rules of the US, access to all site locational data will be restricted to qualified specialists (scientists and officially recognized tribal representatives). The identity of any interviewee requesting anonymity will be protected. If a tribal elder indicates he can share information only in a particular season, arrangements will be made to interview him at the culturally appropriate time. If he allows the storage of that information, it will be stored in a format that assures it is viewed at a culturally appropriate time.

Consultation: means face to face good faith negotiations except for consultations involving FERC, which will be conducted primarily in writing. They must include giving participants a reasonable amount of time to prepare and participate in the discussions. Specifically, there will always be an oral component to the consultation in addition to any written segment.

Intensive cultural resource investigations: means employing the research methods currently available which have the greatest probability of producing reliable and replicable data on all sites in the area.

Intellectual property: for the specific purposes of this document intellectual property refers to the ownership/control of traditional knowledge. It covers cultural information that is traditionally shared only in limited circumstances with particular individuals. The types of intellectual property recognized by a group may include traditional knowledge of art designs and motifs, stories, sacred texts, oral histories, ethnobiological data, dances, plant gathering techniques, songs etc.

Natural Resource Management Groups: means those study groups sponsored by WWP in connection with the FERC relicensing of Cabinet Gorge and Noxon Rapids dam that make recommendations and plans concerning vegetation, wildlife and fish.

Natural Resource Management Strategies: means those tactics recommended by the Natural Resource Management Groups that will affect the density and distribution of plants, animals and fish. Some of these may be positive from the cultural resource point of view, e.g., using a traditionally significant plant species for erosion control thereby increasing its availability to traditional harvesters.

** terms defined in the glossary*

Others may be negative, e.g. such as using heavy equipment in stream channels which may destroy cultural resources.

Project Lands: these are lands included in the area of potential effect.

Spiritual Environment: means all aspects of the environment, physical or non-physical. From the tribal perspective there is no way to separate the sacred from the profane/mundane, the physical from the non-physical and consequently all environmental conditions are indivisably spiritual and physical. Neither aspect can be separated from the other.

Treatment: means any action take to enhance a site or mitigate or minimize effects to a cultural resource (including ethno-habitats, rural historic landscapes, TCPs and sites). Treatment options include but are not limited to photo-recordation, consultation, collection of extensive oral histories, excavation of a site, burying a site, site protection through erosion control and sediment stabilization etc.

Tribal Repositories/Accredited Curational Facilities: means the Peoples Center of Confederated Salish and Kootenai Tribes and others developed by the Kootenai of Idaho, Coeur d' Alene or Kalispel over the term of the license that meet federal guidelines for paper repositories and/or curational facilities.

Tribally affiliated sites: means any cultural resource generated by Indian peoples**.**

** terms defined in the glossary*

Programmatic Agreement
Among the Kootenai Tribe of Idaho, Confederated Salish and Kootenai Tribes of the Flathead Reservation, Coeur d'Alene Tribe, Kalispel Tribe, the Federal Energy Regulatory Commission, the Forest Service, Washington Water Power, the Advisory Council on Historic Preservation, Idaho State Historic Preservation Office and Montana State Historic Preservation Office
for the Clark Fork Heritage Resource Program

Whereas, Washington Water Power Company (WWP) owns and operates the Cabinet Gorge (FERC No. 2058) and Noxon Rapids (FERC No. 2075) Projects located on the Clark Fork River in Sanders County, MT and Bonner County, ID (Figure 1); and

Whereas this area contains cultural resources recognized by multiple groups as important to their history and continuing relationship to this landscape as defined by NPS Bulletins 30 and 38 and the treatment of which is governed by the National Historic Preservation Act, the Archaeological Resources Protection Act, the American Indian Religious Freedom Act, the Native American Graves Protection and Repatriation Act, Interior Secretarial Order No. 3175, the Hellgate Treaty of 1855 and the Federal Land Policy and Management Act; and

Whereas these projects are subject to relicensing by the Federal Energy Regulatory Commission (FERC) pursuant to Part 1 of the Federal Power Act, 16 USC 791 (a) through 825(r), as amended; and

Whereas continued operation of the projects under new FERC licenses may affect properties included in or eligible for the National Register of Historic Places (NRHP) and/or Tribal Registers of Historic Places (TRHP); and

Whereas the Cultural Resources Management Group (CRMG) is made up of representatives of the Kootenai, Salish, Coeur d'Alene, and Kalispel Tribes, the Forest Service (FS), Idaho State Historic Preservation Office (SHPO), Montana SHPO and WWP. The tribes chose to act in concert and by consensus for the purposes of this agreement. The CRMG has prepared a comprehensive Clark Fork Heritage Resource Program (Program) which focuses on: 1.) setting up a continuing relationship with all parties (Tribes, FS, SHPOs, Advisory Council on Historic Preservation [ACHP], FERC and other interested parties) with concerns about and a responsibility for the cultural resources in the valley; 2.) treating the whole valley as a culturally sensitive landscape; 3.) the dynamic management of that landscape over the term of the license (up to 50 years); 4.) giving priority to the immediate remediation of ongoing project effects; and,

Whereas the CRMG and the FERC have consulted with the ACHP pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (916 U.S.C. 470f); and

Whereas the FS has participated in meetings of the CRMG and desires to continue this participation but, by signing this Programmatic Agreement, cannot waive any of its authority or responsibilities under federal laws addressing cultural resources; and

Now Therefore, the CRMG makes recommendations on cultural resource issues in accordance ~~with the~~ with the Clark Fork Heritage Resource Program. The tribes acting together and by consensus, the FERC, the FS, WWP, the SHPOs and the ACHP do agree and affirm that the projects should be operated and maintained in accordance with these stipulations in order to satisfy the FERC's Section 106 responsibilities for project effects during the new licenses for the term of the Cabinet Gorge and Noxon Rapids projects.

Stipulations

FERC shall ensure that the following stipulations are carried out on project lands through their inclusion as conditions to the license(s) for the Cabinet Gorge and Noxon Rapids Projects:

1. **Coordination.** The CRMG will designate a project manager funded by WWP to coordinate all of the actions taken under the Program. The project manager will provide concise bi-annual (May 1 and February 1) summaries of all ongoing Clark Fork Heritage Resource Program activities to all members of the CRMG and FERC. The project manager has the discretion to initiate telephone contact with CRMG members in emergency situations to ensure that all parties are alerted to any emergency action related effects to properties or unanticipated cultural resource discoveries or the discovery of human remains. The project manager will keep a written record of these contacts. The first project manager will be Toni Pessemier of WWP.

2. **WWP's Commitment to the Program.** WWP affirms that they will ensure that the Program (Attachment 1) is implemented in a timely fashion as per the schedule in Attachment 2. Revisions to this schedule may be negotiated as needed by the CRMG and implemented upon approval by FERC.

3. **Project Planning.** For the duration of the license(s) WWP will notify the CRMG (through the project manager) of any planned ground disturbing activities for the Cabinet Gorge and Noxon Rapids Project. This notification will be during the initial stages of planning. The members of the CRMG will have 30 days to respond to the notification from WWP, indicating that they either have no concerns with a proposed action or that they recommend actions to identify

historic properties and/or address the effects of the proposed action on such properties. The SHPOs will coordinate their review with other members of the CRMG. WWP will take into account the concerns of the CRMG about all proposed ground disturbing activities by addressing the CRMG recommendations in plans for the identification and treatment of historic properties, through the inclusion of the CRMG's recommendations in the Heritage Resource Management Plan, and/or through implementation of the dispute resolution procedures in Stipulation 5 of this agreement.

4. Meetings and Re-evaluation. The CRMG will meet at least once each quarter over the term of the license. These meetings will be scheduled and organized by WWP. If all members of the CRMG agree that there is insufficient cause to hold a quarterly meeting, or that it would be preferable to meet less frequently, WWP may cancel or reschedule meetings, and will notify the other members of the CRMG and FERC as to the revised meeting schedule. The CRMG will periodically (every 5 years) re-evaluate the effectiveness of the Clark Fork Heritage Resource Program (Attachment 1) and, in consultation with FERC will modify the Program as conditions warrant. Changes to the Clark Fork Heritage Resource Program will be implemented upon the written approval of FERC.

5. Dispute Resolution For Section 106 Issues. Timeliness in dispute resolution is essential. Timeliness and local consensus in dispute resolution is essential. All CRMG members are committed to resolving cultural resource issues at the local level. The CRMG members agree to resolve conflicts so that all CRMG members can accept the group's solution. All recognize that consensus requires a willingness to accept solutions that may not be ideal from the individual's point of view but are acceptable to all parties. Further, CRMG members recognize that there are diverse interests and responsibilities represented in the CRMG. All agree that it is best to resolve any internal conflicts resulting from this diversity at the local level. Local dispute resolution is critical since the CRMG members will have the most complete and up to date understanding of the local resource issues.

Should any party to this Programmatic Agreement (PA) object within 30 days to any action proposed pursuant to the PA, WWP will consult with the objecting party, or call a meeting of the CRMG, to resolve the objection. FERC will be notified of any meeting and be invited to attend. If neither WWP or the CRMG are able to resolve the dispute they will so notify FERC within ten days of the meeting.

If after reviewing the parties' positions, the FERC determines that the objection cannot be resolved, the FERC will request further arbitration by the Advisory Council on Historic Preservation (ACHP). The FERC will forward all documentation (provided by the CRMG) relevant to the dispute to the ACHP. Within 30 days after receipt of all pertinent documentation, the ACHP will either:

a. Provide the FERC with recommendations, which the FERC will take into account in reaching a final decision regarding the dispute; or

b. Notify the FERC that it will comment pursuant to 36 CFR 800.6, and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by the FERC in accordance with 36 CFR 800.5(c) (2) with reference to the subject of the dispute.

Any recommendation or comment provided by the ACHP will be understood to pertain only to the subject of the dispute; the FERC's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

6. Amendments. Any party to this PA may request that it be amended, whereupon the parties will consult in writing over a period of 60 days to consider such an amendment. All parties must agree to the amendment for it to be incorporated in the redrafted PA.

7. Termination. Any Party to the PA may terminate it by providing 60 days written notice to the other parties, provided that the parties consult during the 60-day period to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FERC will comply with the requirements of 36 CFR 800.4 through 800.6 with regard to individual actions covered by this PA.

Confederated Salish and Kootenai Tribes

Michael T Pablo date 5/4/98
signature

Michael T Pablo Tribal council chairman
please print name and title

Kootenai Tribe of Idaho

_____ date 5/12/98
signature

Velma Bahe, Chairperson
please print name and title

Kalispel Tribe

Glen Nenema date 5-12-98
signature

Glen Nenema Chairman
please print name and title

Coeur d'Alene Tribe

Ernest L Stensgar date 3-20-98
signature

Ernest L. Stensgar Chairman
please print name and title

Forest Service, Northern Region

Kathleen A. McAllister date 4.21.98
signature

Kathleen A. McAllister Deputy Regional Forester
please print name and title NOT PRESENT 4/21

Federal Energy Regulatory Commission

J. Mark Robinson date 11/18/98
signature

J. Mark Robinson Dir. Licensing and Compliance
please print name and title

Advisory Council on Historic Preservation

John M. Fowler date 12/30/98
signature

JOHN M. FOWLER EXECUTIVE DIRECTOR
please print name and title

Montana State Historic Preservation Office

date 3-24-98
signature

Paul Putz, MTSHPO
please print name and title

Idaho State Historic Preservation Office

Robert M. Yohe II date 3/31/98

signature

Robert M. Yohe II, SHPO

please print name and title

Washington Water Power

Toni E. Pessemier date 3/23/98

signature

Toni E. Pessemier Advisor, Office of the President

please print name and title

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Erosion Fund and Shoreline Stabilization Guidelines Program

II. PURPOSE AND GOAL: The primary purpose and goal of this protection, mitigation, and enhancement measure (PM&E) is to provide funds to ameliorate erosion caused by the continued operation of the Clark Fork Projects. Resources of interest include important cultural or natural resources (in the event of erosion impacts to cultural resources, relationship to Project operations need not be present), and private or public property not covered by applicable easement. In addition, this PM&E measure also provides for the development of informational materials and guidelines that may be used by persons or groups other than Washington Water Power (WWP) to implement shoreline stabilization projects on WWP property or their own.

III. CONCERNS TO BE ADDRESSED: Comments on the Initial Stage Consultation Document and from participants in the relicensing process expressed concern over the influence that the Projects and project operations were having on shoreline stability and erosion rates around the reservoirs and along the river downstream of Cabinet Gorge Dam. The Clark Fork Delta Habitat Protection and Mitigation Program (see Appendix O) addresses the concern of Project related habitat losses due to erosion in the Clark Fork River Delta (the river mouth area at Lake Pend Oreille). This PM&E measure addresses the concern about existing or potential impacts to significant resources or private and public property due to Project induced erosion occurring upstream of the Delta, and also addresses the interest of local stakeholders for assistance in designing and permitting shoreline stabilization projects that they may wish to undertake.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE: Available studies and analysis specific to erosion and the geomorphic processes associated with the Clark Fork Projects include the Clark Fork River 1993 Shoreline Erosion Study conducted for WWP in preparation for the relicensing consultation process (ND&T 1995), and the Assessment of Geomorphic Processes - Clark Fork Hydroelectric Projects Relicensing study (Parametrix 1998). The latter was conducted under the direction of the technical work groups for the relicensing. A number of resource specific studies and inventories (e.g. wildlife and botanical resource inventories, cultural resource studies, aquatic habitat characterizations, etc.) are also available that provide information on the occurrence of important resource sites or areas. The information has, or can be used, in conjunction with the erosion and geomorphic studies, to assess the existing or potential for adverse impacts to these resources due to erosion.

The 1993 study (ND&T 1995) included a literature review and extensive field work and site analysis to map and characterize erosion and slope instability along the Project reservoirs and downstream river. That study found that ongoing erosion is occurring primarily as a result of wind and/or boat related wave action and river current in the littoral areas during severe storm or runoff events. Other site specific contributing factors included surface runoff and precipitation, groundwater seepage, recreation and other land use activity, freeze-thaw action, and ice action. Important determining physical features found to be affecting bank erosion and stability included soil type, vegetation coverage or lack thereof, beach and/or bank slope, wind fetch exposure, and groundwater condition. The study concluded that because of the age of the Projects (40 plus years), and the fact that large seasonal drawdowns (i.e. 36 feet in Noxon Reservoir) are now avoided, the effects of inundation and the raised water levels have largely subsided. The report also notes the fact that much of the currently ongoing instability and erosion is occurring at or above the water line which is further evidence that bank instability and erosion due to Project construction and operation has largely subsided.

The 1998 study (Parametrix 1998) provided a more detailed assessment of how the Projects are affecting sediment bedload transport and aggradation/degradation patterns in the lower Clark Fork River, and particularly in and along the river downstream of Cabinet Gorge Dam. This study concluded that the main factors affecting erosion between Cabinet Gorge Dam and Lightning Creek (i.e. the lower river exclusive of the Delta area) included flooding and other natural factors, loss of streambank vegetation, daily flow cycling due to Cabinet Gorge's operation, and the nature of the streambank material (e.g. soil type, substrate particle size or bedrock). The study goes on to conclude that the bedrock, large substrate particle size (i.e. rip rap, boulder or cobble), and/or armored nature of the shoreline in the reach of river immediately below Cabinet Gorge Dam (river mile [RM] 150+ to RM 147) largely precludes shoreline erosion effects due to peaking operations; the Project operations have their greatest effects on the sandy, poorly vegetated shorelines in the reach between RM 147 and 144 where riparian vegetation has been removed by historical land management activities; and that between RM 144 and Lightning Creek the river bank, channel characteristics, and diminished water level fluctuations compared to upstream areas reduce the Project related effects on bank stability and erosion rates.

The Project-specific studies (ND&T 1993; Parametrix 1998), as well as other general information about erosion processes (e.g. ACOE 1984), document that erosion is a natural and dynamic process in both free-flowing and impounded river systems, influenced by a variety of interrelated factors. While the available studies and assessments have identified a number of sites where bank erosion has occurred in the past and may or is continuing to occur, the relative influence of the Projects on the erosion

processes has either largely subsided (e.g. previous erosion has already established a new beach and/or more stable shoreline slope), is overshadowed or driven by other factors (e.g. flood events and/or vegetation removal), or is one of a combination of factors affecting streambank stability (e.g. soil type, groundwater inflow/seepage, vegetation removal, and Project related water level fluctuation). The precise influence of each factor is highly variable over time and difficult to quantify.

In addition, with rare exception WWP owns in fee simple or has easements along the entire reservoir shorelines and most of the river reach downstream of Cabinet Gorge Dam (exclusive of the delta area, however, which is specifically addressed in the PM&E measure specific to erosion and habitat loss in that area - see Appendix O).

Based on the above information and discussions within the work groups and individually with relicensing participants and other interested parties, the PM&E program outlined below was developed by WWP and reviewed by the various work groups prior to presentation to the Clark Fork Relicensing Team for inclusion in the Settlement Agreement. This program is based on a desire to protect important resources where it is determined they are adversely affected or threatened by Project caused erosion. In the case of cultural resources affected or threatened by erosion, the program will seek to develop and implement remedial measures regardless of the relationship to Project operations. The PM&E also recognizes WWP's immediate and ongoing development and implementation of erosion control measures (beginning in 1998) at Pilgrim Creek Park in response to existing and ongoing erosion and sensitive resource concerns.

Furthermore, where erosion due to Project operations is affecting or threatens private or public property not owned by WWP or covered by flowage or other applicable easements or rights, the program also provides for the purchase of easements or implementation of erosion control measures commensurate with the relative influence of Project operations. Finally, this PM&E program provides for an assessment of selected erosion sites along the river shorelines and the development of techniques and guidelines, including the potentially applicable permitting and regulatory processes, in an "Erosion Control Guidelines Manual". Development of this manual represents a Project related enhancement measure that will assist adjoining landowners who may wish to implement erosion control measures that fall outside the scope of the other components of this program (e.g. adjacent landowners who wish to stabilize the river bank on WWP owned or easement covered shoreline property where no significant resource or private property is threatened or the erosion is not related to Project operations, but where the landowner desires to stabilize the river or reservoir bank for their own personal reasons).

V. **PROPOSED PM&E MEASURE:** WWP will implement the Erosion Fund and Shoreline Stabilization Guidelines Program to address the effects of erosion associated with the

continued operation of the Clark Fork Projects. Resources and features potentially affected by erosion or sediment deposition caused by the operation of the Projects includes:

- cultural resources
- threatened and endangered fish and wildlife species
- private or public property
- utility structures
- important fish and wildlife habitat
- water quality
- sediment aggradation at stream mouths that would prevent fish access to the stream

Erosion Fund. In years 1-5 of the agreement, WWP will provide $50,000 annually to the Erosion Fund (Fund). Beginning in year 6, WWP will provide $40,000 annually until the Fund reaches a cap of $200,000. In years where the Fund drops below $200,000 WWP will provide up to $40,000 per year. This Erosion Fund will be administered by WWP in consultation with the Terrestrial and Aquatic Technical Advisory Committees, the Cultural Resources Management Group (CRMG) and as approved by the Management Committee. The Fund is to be used to monitor erosion, design and implement erosion control measures and pilot programs, and monitor the effectiveness of the measures in areas where erosion caused by Project operations is adversely affecting or threatens important natural resources. For sites associated with the projects where erosion is exposing or disturbing cultural artifacts, or their context, the fund will be used to design and implement erosion control measures regardless of the linkage to project operations.

Where erosion resulting from the continued operation of the Projects is causing loss of or imminent threat to private or public property not covered by flowage or other easement, the Fund can be used to acquire easements, or design and implement erosion control measures. WWP's contribution will be proportional to the impact of continued Project operations (i.e. if WWP operations are causing 50% of the erosion, the Fund would pay for 50% of the design and erosion control measures). The Fund will be used only if the control measure is actually implemented and the affected landowner or other funding source has contributed the balance of the costs.

In 1998, as an interim implementation effort, WWP will design and install erosion control measures, as agreed upon by the CRMG, on the shoreline at Pilgrim Creek Park at an estimated cost of $250,000.

Shoreline Stabilization Guidelines. WWP will provide up to $50,000 to develop shoreline stabilization guidelines. WWP will fund a geotechnical consultant to survey sites previously identified by the Noxon-Cabinet Shoreline Coalition and sites located

downstream of Cabinet Gorge Dam. Utilizing information collected during the surveys, existing conservation districts standards, existing information on control measures, and the technical expertise of the geotechnical consultant, WWP, in consultation with the Green Mountain and Bonner County Conservation Districts, will develop an "Erosion Control Guidelines Manual". The manual, which will provide information on the causes of erosion, selection of appropriate erosion control measures, the permitting process, and implementation of erosion control measures, is intended to assist adjoining landowners and WWP Private Recreation Permit holders who may wish to voluntarily implement erosion control measures at their own expense. The manual will be updated in conjunction with the periodic updating of the Land Use Management Plan.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will provide the following funding:

Interim/ongoing: Pilgrim Creek Park site - estimated cost of $250,000

Year 1 until completed: Erosion Control Guidelines Manual - WWP will develop the manual at a cost not to exceed $50,000.

Year 1 through 5: Erosion Fund - $ 50,000 annually

Year 6 and beyond: $40,000 annually until the fund reaches $200,000, or, up to $40,000 annually in years where the Erosion Fund balance drops below $200,000 (i.e. WWP contributions limited to Erosion Fund cap of $200k).

VII. **KEY REFERENCES:**

ACOE (U.S. Army Corp of Engineers) 1984. Shore Protection Manual. U.S. Army Coastal Engineering Research Center. Vicksburg, MS.

ND&T (Northrop, Devine and Tarbell, Inc.) 1995. Clark Fork River 1993 Shoreline Erosion Study. Prepared for Washington Water Power. Spokane, WA.

Parametrix, Inc. 1998. Assessment of Geomorphic Processes, Clark Fork Hydroelectric Projects Relicensing. Prepared for Washington Water Power. Spokane, WA.

RESOURCE PROTECTION, MITIGATION AND ENHANCEMENT MEASURE

I. TITLE: Project Operations Package

II. PURPOSE AND GOAL: The purpose of this PM&E package is to mitigate the effects of project operations through implementation of measures to achieve the goals of enhancing native salmonids and providing recreational fishery opportunities. This will be accomplished both through changes in the hydraulic operation of the projects and through other non-operational measures that have the greatest likelihood of individually and collectively being successful. Measures in this PM&E package have been developed principally in the Fisheries Work Group (FWG), and the Operations Sub-group, and have been unified into a program through the work of contractors and consultants supporting these Work Group efforts. Detailed descriptions of the non-operations measures included in this package are found in their respective PM&E appendices to the Settlement Agreement.

III. CONCERNS TO BE ADDRESSED: The original FERC licenses for the Cabinet Gorge and Noxon Rapids Projects were issued in 1951 and 1955, respectively. These licenses did not place operating limits on the seasonal storage, or the weekly and daily peaking operation of either project. From the time the projects were built, until the early 1970's, both were operated to most efficiently meet daily and weekly customer demand, and to provide seasonal storage for the Columbia River hydropower system under the Pacific Northwest Coordination Agreement (PNCA). During these years, for example, Noxon Reservoir was seasonally drawn down to 36 feet below full pool, and at times up to 54 feet, as called for under the PNCA.

Prompted by requests from stakeholders interested in improving fishery and other environmental conditions, Washington Water Power (WWP) instituted several operating limits to the Noxon Rapids and Cabinet Gorge Projects during the terms of the original licenses.

An agreement reached with Idaho Department of Fish and Game (IDFG) in the early 1970's, provided for a 3,000 cfs minimum flow below Cabinet Gorge Dam. The agreement was based on field assessment of the river at varying flows, WWP's generating requirements, a review of historic low-flow records, and the earlier recommendation for a minimum flow of the same amount made by the U.S. Fish and Wildlife Service.

In 1985, WWP reached agreement with the State of Montana to place limits on the draft of Noxon Reservoir. Under the agreement, notwithstanding extreme power shortages, the seasonal draft required under the PNCA was limited to ten feet. Rate-of-draft for Noxon Reservoir was to be a maximum of two feet net per day, and 10 feet net per week. In addition, from the period of May 15 to September 30, WWP agreed to begin that time period with the reservoir elevation within one foot of full pool, and to limit the maximum draft to four feet.

Within the draft and minimum flow limits, the actual daily and weekly drafts at Noxon and Cabinet Gorge Reservoirs have been the product of river inflow and energy demand. During the summer at Noxon Rapids the range is from zero to two feet net, daily, and zero to four feet net weekly. The average draft for this period is one foot net daily and three feet net weekly. Throughout the year, daily elevation changes of the Cabinet Gorge Reservoir have ranged from zero to five feet net, and have averaged two feet net. Cabinet Gorge changes within a week have ranged up to seven feet, and have averaged three feet.

Interest and concerns about the operating limits of the Projects, were first expressed by a number of relicensing participants in their comments on the Initial-Stage Consultation Document in 1996. Discussion of the issues continued in numerous technical work group and Clark Fork Relicensing Team meetings.

IV. STUDIES AND ANALYSIS WHICH PROVIDE THE BASIS FOR THE PM&E MEASURE:

During their initial meetings (September 1996), both the FWG and the Water Resources Work Group (WRWG) recognized the need to address the issue of how the projects operate (peaking related discharge and reservoir fluctuations). The WRWG was primarily concerned with the influences of project operations on limnological and water quality parameters (e.g. nutrients, water temperatures, etc.). The FWG focused it's discussions on how project operations affect the suitability of aquatic habitat for a variety of fish species (i.e. bass in Noxon Reservoir, and salmonids, particularly bull trout and westslope cutthroat trout, in the river downstream of Cabinet Gorge Dam). In particular, the group wanted to assess the potential benefits to those resources that might be realized by changing operations. Each work group identified information needs related to it's specific interests, and used technical expertise of consultants to develop information and provide expert evaluation of the operations issue. Both groups eventually selected Ken Carlson, of Beak Consultants, Inc. (Beak) to assist them with the desired studies and analysis.

At the WRWG meeting of April 10, 1997, Beak presented their report Observations on Reservoir Limnology and Water Quality Data (Beak 1997a), and the work group discussed the potential influences of project operations. Beak identified river inflow and upstream conditions as the dominant factor influencing water quality in the reservoirs.

Work group members noted that project operations were having an affect on aquatic habitat in littoral areas (or, "varial zone"), specifically identifying effects on macrophyte growth due to water level fluctuations. Beak noted that variation in pool levels could also have beneficial effects on aquatic habitat and water quality.

At the WRWG meeting of June 12, 1997, Beak presented a report on phytoplankton data and productivity in the reservoirs (Beak 1997b), and was asked to provide some analysis of the effect project operations might be having on nutrient levels and productivity (plankton). Subsequent discussions by Beak and the work group concluded that while project operations were certainly having a physical effect on aquatic habitat in the varial zones, principally affecting the macroinvertebrate communities and macrophyte growth in the affected areas, operations had little if any effect on nutrient or other water quality parameters.

The WRWG also reviewed a report on metals contamination and the potential for metals mobilization (Moore 1997), and additional metals information compiled by Beak (Beak 1997c). At the December 9, 1997 WRWG meeting the group discussed the issue of metals contamination and/or mobilization, and specifically the influence of existing and possible changes in project operations; Beak explained that the reservoirs are relatively fast flushing systems and that operations, either current or as might be changed, likely have little if any effect on metals contamination and system toxicology. It was acknowledged that the reservoirs do serve as settling basins of variable efficiency for transported nutrients and metals in the Clark Fork River, but that function is essentially unaffected by the operational regime. The group later concluded that ongoing monitoring and more intensive sampling during periods of Noxon Reservoir stratification were sufficient for addressing the nutrients and metals issues at this time.

The WRWG also selected Dr. Bruce Lang, Eastern Washington University, to provide information concerning mollusc occurrence in project associated waters, and specifically requested he identify any concerns related to project operations. Dr. Lang presented and discussed his report (Lang 1997) with the group at their January 21, 1998 meeting. He noted that no threatened or endangered mollusc species were found in waters influenced by the projects, that the existing mollusc community appears to have adapted to the current conditions, and that species occurrence and diversity remains relatively healthy. He expressed no concerns about current project operations, although he did suggest that increases in water level fluctuations or reservoir drawdowns could have a detrimental effect on molluscs.

The WRWG has not proposed any changes to project operations based on water quality issues (concerns for aquatic habitat and the potential for fisheries enhancement to be

addressed by the FWG). The project operation requirements being developed by the FWG, in consultation with the WRWG, are presented below.

The FWG focused it's evaluation of project operations on the effect on aquatic habitat and associated fish resources, and specifically on the benefits that might be realized through changes to the existing operations pattern(s). The relationship of project operations to salmonid populations in the river below Cabinet Gorge Dam, and to the bass fishery in Noxon Reservoir, and the potential to enhance those resources through changes in operations (e.g. more stable reservoir water levels, increased minimum flows, etc.) were the key topics of discussion and interest. Beak was requested to conduct a literature review concerning information on the effects of water level and flow fluctuations, methods and options for studying and determining minimum flow needs, and to provide the FWG with recommendations concerning water level fluctuations and project discharge.

Beak began presenting information and the results of their minimum flow, peaking operations, and reservoir fluctuation literature review and analyses to the FWG at their October 21, 1997 meeting. Information on a variety of study methods was identified and discussed, and Beak and the group worked to identify specific fisheries management objectives in order to better focus Beak's analyses and recommendations. Beak also presented photo documentation (more than 140 photographs taken at various key sites e.g. Whitehorse and Foster Rapids, the side channel around Olsen Island, etc.) and video of river conditions under various Cabinet Gorge discharges (3,000; 5,500; 8,000; and 11,000 cfs). The group discussed the option of using these demonstration flows and photo documentation to determine habitat conditions and the potential for improvement with increased minimum flows (i.e. > 3,000 cfs). A Operations Subgroup was established to work with Beak on the issue of reservoir fluctuations and flows below Cabinet Gorge Dam.

The Operations Subgroup first met on November 24, 1997 to discuss and interpret the video and photo-documentation (note: minutes of this subgroup's meetings were not recorded, since their efforts were advisory only to the FWG, and the direction and recommendations provided by the subgroup are reflected in Beak's work effort and reports and in subsequent FWG actions). Following that initial meeting, the subgroup continued to work with Beak to further define target species and life stages, study effort and methodology, and generally assist Beak with developing the needed information, analyses, and recommendations for the FWG.

Beak subsequently collected hydraulic data (water velocity and depths) in the lower river, conducted hydraulic modeling in the river and reservoirs, and developed habitat suitability analyses for the target species and life stages. They evaluated the potential for

fish stranding as a result of peaking operations. They also evaluated the effects of reservoir fluctuations on various bass life stages and key habitats (e.g. spawning/incubation, fry, juveniles, over-winter habitat, etc.) in Noxon Reservoir. Beak was also asked to evaluate the potential for flow and habitat enhancement in the Olson Island side channel, and subsequently provided the results of all their assessments to the subgroup (Beak 1998a, 1998b, 1998c). The Operations Subgroup discussed the results of Beaks additional data collection and analyses at several meetings, including one focused almost exclusively on reservoir fluctuations, and two on flows in the lower river and the side channel.

Individual group members continued to work with Beak throughout the spring and summer of 1998, reviewing the available information and discussing the potential for fisheries enhancement through changes to project operations and/or flow enhancement into the Olson Island side channel. As requested by the group, Beak prepared a comparison of the potential benefits from stabilized flows in the mainstem lower river, versus a program of some flow modification, flow enhancement in the side channel, and implementation of a watershed restoration program. Beak was also asked by the group to make a recommendation from the comparison. Of the two, Beak recommended the latter approach as likely having the greater potential fishery benefit, and as the one with greater certainty of success over time (Beak 1998d). The minimum flows below Cabinet Gorge and the other programs in the Operations package will be monitored to ensure that sufficient information is available in the future to evaluate their effectiveness and adjust them accordingly, consistent with the underlying concept of adaptive management in the Living License™.

V. **PROPOSED PM&E MEASURE:** WWP will implement the following programs to mitigate the effects of the peaking operations of the projects, both through changes in project operations and by supporting the other programs recommended by the FWG intended to benefit affected resources. These programs are believed to have the highest likelihood of meeting the recreational fishery and native salmonid restoration goals established through consultation. Although these PM&E measures target important fish populations and their habitats, actions taken will also benefit wildlife resources, and likely recreation, aesthetic and cultural resources as well.

Cabinet Gorge Minimum Flow. WWP will increase the instantaneous minimum flow below the Cabinet Gorge Project to 5,000 cfs. Combined with the accretion of approximately 800 cfs of spring flow below the project, the resultant 5,800 cfs will help reduce the range of depth and velocity fluctuations in the river, and reduce varial zone and bar de-watering, primarily at Whitehorse Rapids and Foster Bar (Beak, 1998a, 1998d). The primary benefit will likely be more stable and suitable shoreline rearing areas for fish, principally fry, and enhanced macroinvertebrate production.

Increasing the minimum flow proposed below Cabinet Gorge Dam will cause changes in the drawdown patterns in the reservoir. The overall draft limit on Cabinet Gorge Reservoir of 2,168 feet elevation (seven feet) will remain the same, but the average weekly maximum draft is projected to change from 2.3 to 3.5 feet.

Monitoring the Benefits

The benefit of providing an increased minimum flow will be evaluated over the first ten years of the agreement, using funds from lower Clark Fork River and Lake Pend Oreille management and research programs, provided for in this PM&E package. The Water Resources Technical Advisory Committee (WRTAC) will annually prepare a monitoring plan for approval by the Management Committee, and will report to the same on results of each years' work.

Accommodating Change

At the conclusion of year ten, or at any point earlier if agreed to, the WRTAC and the Management Committee may conclude that a change in the Cabinet Gorge minimum flow is warranted. In this case, the group will review and compare the likely benefits of the existing Cabinet Gorge operations limits, and possible changes, with those provided by the other PM&E's in the operations package (listed below). The Management Committee may then reconfigure the mix of PM&E's in the operations package at a cost that is within the financial commitment of this PM&E (non-operations mitigation funds, plus the market value of peaking power between the minimum flows of 3,000 cfs and 5,000 cfs), or commence a new negotiation process if the warranted changes exceed these bounds.

General Operating Limits Noxon Rapids

Limit[1] (feet)	Present	Proposed
Maximum Forebay Elevation	2331.0	Maintain
Minimum Forebay Elevation (May 15 – Sept 30)	2327.0; must be above 2330.0 on May 15	2327.0
Minimum Forebay Elevation (Oct. 1 – May 14)	2295.0 for abnormal conditions, otherwise 2321.0	2321.0
Maximum Forebay Draft Rate	2 feet per day (net)[2]; 5 feet per week (net)	Maintain

[1] The projects may be operated beyond these limits if approved by WWP and the operation is consistent with the policies of the Water Quality Protection and Monitoring Plan for Maintenance, Construction, and Emergency Actions as described in Appendix F4 of this document, and in Section 2.2.2.5 of the Collaboratively Prepared Environmental Assessment.

[2] Net draft is the decrease in elevation as measured between two times, at the beginning and end of the period.

General Operating Limits Cabinet Gorge

Limit[1] (feet)	Present	Proposed
Maximum Forebay Elevation	2175.0	Maintain
Minimum Forebay Elevation	2168.0 (informal)	2168.0
Minimum Discharge	3,000 cfs.	5,000 cfs

Cabinet Gorge Discharge Forecast Information. The original license for Cabinet Gorge did not address the subject of discharge forecast information to downstream project operators. WWP proposes the new license require them to communicate forecasts of daily discharge from the Cabinet Gorge Project. The attributes of the forecasts (timeliness, accuracy) will be satisfactory to meet the operational needs of the Albeni Falls Hydroelectric Project.

Additional Operations Mitigation Programs. The other PM&E's and programs listed below, and described in the PM&E Appendix, have been agreed to by WWP to meet the fishery goals, in lieu of changing project operations. Taken together, these programs are part of a strategy based on a broader ecosystem approach to achieving fishery goals, where realization of enhancement goals is more certain than with an approach based on operations changes alone (Beak, 1998d). The key elements of this broader-based approach are:

- Protecting and enhancing the lower river's side channel complex, to better control flow and support spawning and fry rearing;
- Protecting and enhancing tributary habitats to the lower Clark Fork River and Lake Pend Oreille that are important for supporting the complete life cycle of native adfluvial salmonids;
- Protecting and enhancing other aquatic habitats in the basin known to be vital to the basin's ecological integrity and where needs and benefits have a high certainty of success, and
- Supporting other ongoing fishery management, protection and enhancement efforts, believed to have a connected and meaningful mitigative effect for project operations.

[1] The projects may be operated beyond these limits if approved by WWP and the operation is consistent with the policies of the Water Quality Protection and Monitoring Plan for Maintenance, Construction, and Emergency Actions as described in Appendix F4 of this document, and in Section 2.2.2.5 of the Collaboratively Prepared Environmental Assessment.

Additional programs include:

Idaho Tributary and Fishery Enhancement Program (Appendix A): A program geared toward improvement of tributary habitat for native salmonids, achieved largely a through watershed restoration approach, that may include land acquisition, easements, leveraged agreements, and instream habitat improvement, including a component for fishery monitoring, enhancement and management.

Montana Tributary and Recreational Fishery Enhancement Program (Appendix B): A program geared toward improvement of tributary habitat for recreational fisheries and native salmonids, achieved largely a through watershed restoration approach, that may include land acquisition, easements, leveraged agreements, and instream habitat improvement, including components for fishery monitoring, enhancement and management, bass research and enhancement, as appropriate, and sub-impoundment fisheries development.

Bull Trout Protection and Public Education Project (Appendix D): A program focused on protecting and enhancing bull trout populations in Idaho and Montana by reducing illegal harvest of bull trout and preventing human impacts to important bull trout habitats.

Watershed Council Program (Appendix E): A program to facilitate the establishment of citizen-based Watershed Councils, to promote effective watershed management on tributaries to the lower Clark Fork and Lake Pend Oreille, and thereby conservation of important natural resources such as native salmonids.

Enhancing the Side Channel Complex: A program to improve flow conditions for fish and macroinvertebrates in the side channel, and implementing additional enhancements if they compare favorably with other watershed restoration activities to be evaluated under the Idaho Tributary and Fishery Enhancement Program.

VI. **PROPOSED OR ESTIMATED FUNDING:** WWP will agree to the operating limits stipulated in this PM&E at an estimated cost of $492,000 annually. The estimated cost to open access to the side channel is between $50,000 and $80,000; WWP will fund that activity within this cost range, separate from other PM&E funding included in the Operations Package. Funding for the additional fishery PM&E's in this operations mitigation package amounts to $975,000 annually, and is described in detail in their respective appendices.

VII. KEY REFERENCES:

Beak (Beak Consultants, Inc.) 1997a. Observations on reservoir limnology and water quality data. Prepared for Washington Water Power. Spokane, WA.

Beak. 1997b. Evaluation of Phytoplankton Community for the Noxon Rapids and Cabinet Gorge Hydroelectric Projects. Prepared for Washington Water Power. Spokane, WA.

Beak. 1997c. Summary of available information on metals contamination in the lower Clark Fork River. Presented to the Water Resources Work Group, October 23, 1997. Washington Water Power. Spokane, WA.

Beak. 1998a. Handout: Flow and Fluntuation Effrects in the lower Clark Fork River. June 22, 1998 Operations Subgroup meeting. Washington Water Power. Spokane, WA.

Beak . 1998b. Handout: Effects of Fluctuations in Noxon Reservoir on Spawning and Overwintering of Largemouth Bass. May 28, 1998 Operations Subgroup meeting. Washington Water Power. Spokane, WA.

Beak. 1998c. Handout: Potential Effects of Reservoir Drawdown on Outmigration of Juvenile Salmonids. May 28, 1998 Operations Subgroup meeting. Washington Water Power. Spokane, WA.

Lang, B.Z. 1997. Lower Clark Fork River Mollusc Community Assessment. Prepared for Washington Water Power. Spokane, WA.

Moore, J.N. 1997. Metal Contamination in the lower Clark Fork River Reservoirs. Prepared for Washington Water Power. Spokane, WA.

FUNDING SUMMARY TABLE[1]
PROTECTION, MITIGATION AND ENHANCEMENT ANNUAL COSTS AND FUNDING CATEGORIES

APPENDIX/PM&E	FUND[2]	ESTIMATED[3]	BUDGETED[4]	PERIODIC[5]
Appendix A—Idaho Tributary and Fishery Enhancement Program				
• Annual tributaries contribution	$400,000			
• Fishery monitoring and management			$35,000	
Appendix B—Montana Tributary and Recreational Fishery Enhancement Program				
• Initial year lump sum contribution	$500,000			
• Annual contribution	$475,000			
Appendix C—Fish Passage/Native Salmonid Restoration Plan				
• Annual facilities contribution	$400,000			
• Line-of-credit for initial operations costs			$584,000	
• Annual operations for fish passage			$551,000	
Appendix D—Bull Trout Protection and Public Education Project				
• Interim funding 1998-1999			$56,000	
• Enforcement/Education Plan Development 1999				$30,000
• Annual operating costs			$125,000	
Appendix E—Watershed Council Program				
• Initial start up			$20,000	
• Annual contributions			$10,000	
Appendix F1—Support of Tri-State Implementation Council				
• Interim funding			$4,000	
• Annual monitoring			$15,000	
• Intensive monitoring				$10,000
Appendix F2—Monitoring Noxon Reservoir Stratification				
• Annual monitoring		$4,000		
• Intensive monitoring		$40,000		
Appendix F3—Aquatic Organism Tissue Analysis				
• Assessment costs over each 5 years				$15,000

APPENDIX/PM&E	FUND[2]	ESTIMATED[3]	BUDGETED[4]	PERIODIC[5]
Appendix F4—Water Quality Protection and Monitoring Plan for Maintenance, Construction and Emergency Activities				
• One time plan development				$45,000
Appendix F5—Gas Supersaturation				
• Interim funding – Biological Assessment 1998		$250,000		
• Biological and engineering feasibility studies		$250,000		
• $ unknown for implementation of final mitigation plan				
Appendix G—Implementation of Land Use Management Plan				
• Annual implementation program		$75,000		
Appendix H—Implementation of Recreation Resource Management Plan				
• Annual contribution to facilities fund years 1 – 5	$187,000			
• Annual contribution to facilities fund years 6 and beyond	$150,000			
• Annual ongoing management years 1 – 5		$100,000		
• Annual ongoing management year 6 and beyond		$85,000		
Appendix I—Implementation of Aesthetics Management Plan				
• One time implementation cost		$14,000		
Appendix J—Implementation of Wildlife, Botanical and Wetland Management Plan				
• Annual maintenance cost		$5,000		
Appendix K—Wildlife Habitat Acquisition and Enhancement Fund				
• Annual contribution	$192,500			
Appendix L—Black Cottonwood Habitat on WWP Property (3 sites: Big Eddy, Hereford Slough and Noxon Slough)				
• Years 1 and 2 site planning			$6,000	
• Years 3 – 8 implement site specific plans			$5,000	
• Year 4 and beyond for monitoring and adaptive management at the 3 sites			$3,000	

APPENDIX/PM&E	FUND[2]	ESTIMATED[3]	BUDGETED[4]	PERIODIC[5]
Appendix M—Wetlands on WWP Property				
• Year 1 site identification and evaluation			$20,000	
• Year 2 activity prioritization			$5,000	
• Years 3 – 8 program implementation	$50,000			
• Years 4 and beyond site maintenance			$15,000	
• Years 3 – 8 monitoring			$10,000	
• Year 9 and beyond long-term monitoring			$5,000	
Appendix N1—Bald Eagle				
• Annual surveys/monitoring			$3,000	
• Annual winter count			$1,000	
• Management plan per nest				$2,500
Appendix N2—Peregrine Falcon				
• Annual monitoring			$3,000	
Appendix N3—Common Loon				
• Initial start up			$10,000	
• Monitoring and public education years 2 – 9			$6,500	
• Nest site protection and enhancement				$2,500
Appendix O—Clark Fork Delta Habitat				
• Erosion remediation assessment				$50,000
• Mitigation option analysis				$5,000
• $ unknown for erosion remediation or habitat acquisition				
Appendix P—Forest Habitat for Selected WWP Lands				
• Development of area management plans for 5 years				$5,000
Appendix Q—Reservoir Islands Owned by WWP				
• $ in Land Use Management Plan				
Appendix R—Clark Fork Heritage Resource Program				
• Implementation and annual costs are not known at this time		$42,000		

APPENDIX/PM&E	FUND[2]	ESTIMATED[3]	BUDGETED[4]	PERIODIC[5]
Appendix S—Erosion Fund and Shoreline Stabilization Guidelines Program				
• Erosion fund years 1 – 5	$50,000			
• Erosion fund years 6 and beyond	$40,000			
• Develop shoreline stabilization guidelines program-one time cost				$50,000
• Interim funding-erosion control Pilgrim Creek Park		$250,000		
Appendix T—Project Operating Limits				
• Estimated annual cost of changes in project operations		$492,000		
• Opening the side channel				$80,000
Other—Administration Program for New License[6]		$1,390,000		
• Annually				

[1] Note: For any discrepancy between this Funding Table and the funding language in the PM&E's, the PM&E's take precedence. The Management Committee has the authority to change funding mechanisms and/or the amount of WWP's contribution, only upon the concurrence of WWP, subject to the approval of FERC, or by amendment of the license by FERC, if the request is brought to FERC by agreement of the Management Committee, and against the wishes of WWP.

[2] Fund refers to PM&E dollars to be made available annually by WWP in accordance with the applicable PM&E measure.

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- Pay actual costs for the PM&E as approved by the Management Committee, and in an amount not to exceed the agreed budget for that PM&E.
- On January 1 of each year beginning in the year 2001, make the unspent budgeted dollars from the previous year available to the Management Committee to support the implementation of the respective PM&E's in the current year.
- Beginning January 1, 2001, increase the amount of the unspent budgeted dollars in accordance with the interest rate adjustment procedure set forth in the Settlement Agreement.

[5] Periodic costs are periodic or one-time costs of implementing PM&E measures. For PM&E measures with periodic costs, WWP will pay the actual costs of implementing the PM&E, as approved by the Management Committee, and in the amount not to exceed the specified budget.

[6] This program is not a PM&E measure, but rather, is WWP's estimated program administration and implementation costs apart from and in addition to the costs otherwise identified in the PM&E's.

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- On January 1 of each year beginning in the year 2001, make the unspent budgeted dollars from the previous year available to the Management Committee to support the implementation of the respective PM&E's in the current year.
- Beginning January 1, 2001, increase the amount of the unspent budgeted dollars in accordance with the interest rate adjustment procedure set forth in the Settlement Agreement.

[5] Periodic costs are periodic or one-time costs of implementing PM&E measures. For PM&E measures with periodic costs, WWP will pay the actual costs of implementing the PM&E, as approved by the Management Committee, and in the amount not to exceed the specified budget.

[6] This program is not a PM&E measure, but rather, is WWP's estimated program administration and implementation costs apart from and in addition to the costs otherwise identified in the PM&E's.

LAND ACQUISITION POLICIES STATEMENT

A. Idaho Tributary Habitat Acquisition and Fishery Enhancement Program and Montana Tributary Habitat Acquisition and Recreational Fishery Enhancement Program

- Protection and restoration of high quality stream habitats (and their supporting watershed) particularly focused on native salmonids: bull trout and westslope cutthroat trout.
- Protection of tributary spawning and rearing sites and stream side riparian buffers.
- Recreational fisheries.

B. Wildlife Habitat Acquisition, Enhancement, and Management Fund

- Important wildlife habitat including black cottonwood, old-growth forest, wetlands, and other important wildlife areas identified by the TAC's
- Buffer zones to the above-named important habitat areas

C. Clark Fork Delta Habitat Protection and Mitigation Program

- Land acquisition to mitigate loss of Lower Clark Fork River Delta habitat

D. Implementation of the Recreation Resource Management Land

- Recreation trail easements and buffer zones to important recreation areas
- Acquisition to expand existing recreation facilities

E. TAC's develops and Management Committee approves ranking criteria for evaluation acquisition/disposal opportunities.

- as soon as possible, and no later than one year of settlement agreement, criteria will be developed consistent with PM&E goals and management plans
- set time lines
- it is the intent of this Habitat conservation strategy that these criteria will provide for property rights disposal only to better accomplish PM&E goals.

F. Identify Acquisition Opportunities:

a. identify priority locations based on PM&E objectives.
b. conduct ownership research in priority areas.
c. conduct general market research and develop purchase price guidelines.
d. develop policy for pro-active contact.
e. develop policy for unsolicited proposals.
f. identify alternatives for conservation ownership
g. rank and set priorities.

Land Ownership Choices for Conservation Purposes

Desired land acquisition objectives will not necessarily match with market opportunities. Acquisitions are likely to include assets that may not serve primary goals for conservation. A process of analysis, ownership refinement, and reselling of unnecessary rights is likely to be a regular part of some acquisitions. Different methods for land acquisition are described below:

1. Fee ownership is desirable when conservation goals are sufficiently complex to justify control of most or all ownership rights. Conservation objectives may be accomplished by acquisition of fee interest and then reconveyed to a federal agency, state agency, or nonprofit organization designed for resource management

that accomplishes the conservation objectives more efficiently than WWP ownership. Fee management responsibility involving ongoing protection, operation, maintenance, and enhancement activities. The need for WWP to meet these objectives may continue even if WWP does not own the property.

2. Less than fee acquisitions:

a. Conservation easements. Conservation easements target specific resource conservation objectives that can be met in partnership with another (usually private) landowner. Conservation easements best address situations where historic land use such as agriculture or forest products management are compatible with conservation objectives or can be made compatible within certain limits. Typically subdivision development is eliminated or limited by the easement. An advantage of conservation easements is that primary management duties are still the responsibility of the landowner along with the payment of property taxes. the conservation easement is designed to address only those habitat conservation needs specifically identified for a given property. Habitat enhancements can be allowed. Conservation easements may only be held by units of government or nonprofit corporations organized specifically for these purposes. Conservation easements are not typically on the market for sale. If they are made available by the private owner, they are typically over-valued by the current owner who views the easement as a substantial change in use and value. It may be more economical to purchase fee land, if available, specifically design the optimum easement desired for conservation purposes and then resell the property subject to the easement. donation of conservation easements may qualify the owner for tax deductions.

b. Easements appurtenant and restrictive covenants. Under circumstances that WWP owns property adjacent to areas desired for open space or limited conservation purposes, it may be possible to design easements or covenants that become attached to or benefit WWP's fee ownership. Typical rights might be access easements, water rights, mineral rights, and rights more often associated with conservation easements such as the right to prevent construction of buildings within a certain distance of a property line or the right to prevent the harvesting of trees within a certain proximity to the

property line. Easements and covenants are not typically available for tax deductions purposes should they be desired. The advantage of the use of this type of device is that WWP would have direct management responsibility for enforcement. Because there are no tax advantages, federal regulations and state law relating to conservation easement s are not necessary requirements for the definition of easement terms and greater flexibility may be accomplished.

c. Term agreements. Conservation easements may be taken for a term of years (minimum fifteen years in Montana) and easements appurtenant may also be for a term of years. This type of device is typically useful when conservation objectives are for a set period of time only, or when permanent easements, although desirable, may not be available immediately, and WWP desires to be in a position to have regular communication with the landowner, develop a trusting relationship and then ultimately covert the device to permanent ownership with the landowner's approval.

3. Land trades. Properties may be acquired through trade both with private parties and public agencies. If that property would be desirable for pubic agency acquisition, the agency could put up trade assets elsewhere that are equal in market value. The completed trade would result in placement of the property in permanent public ownership as well as reimbursing the appropriate PM&E fund. This device works best when land acquisition objectives are shared with public agencies.

4. Conservation buyers. There exists a limited but growing market for properties with special conservation values that are sought out by buyers for such purposes. Such buyers seek to donate easements upon purchase of the property, or may consider purchase of properties with easements already in place. Some land sellers may only be interested in selling if the land will not be developed. Special marketing efforts may be successful in identifying such buyers and sellers to compliment land acquisition activities for PM&E implementation.