Cowlitz Falls Final Environmental Impact Statement

Attachment

DOE/EIS-0156

Bonneville
POWER ADMINISTRATION

December 1990

COWLITZ FALLS

FINAL ENVIRONMENTAL IMPACT STATEMENT - ATTACHMENT

Bonneville Power Administration

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RESPONSIBLE AGENCY: U.S. Department of Energy (DOE), Bonneville Power Administration (BPA).

TITLE OF PROPOSED PROJECT: Cowlitz Falls Project FERC No. 2833.

COOPERATING AGENCIES: None.

STATES INVOLVED: Washington.

ABSTRACT: The Public Utility District No. 1 of Lewis County (District), with headquarters in Chehalis, Washington, proposes to construct a hydroelectric project with an installed capacity of 70 MW on the Cowlitz River in the vicinity of Morton and Randle, Washington. The project would inundate 10 miles of the Cowlitz River and 1.5 miles of the Cispus River, and would consist of: (1) a concrete-gravity dam at River Mile (RM) 88.5, extending 145 feet above the streambed, with a 15-foot-wide, 700-foot-long crest, and containing an ogee spillway with four radial gates and one ungated section; (2) two sediment sluices; (3) a reservoir covering 610 acres, with a total volume of about 11,000 acre-feet; (4) an indoor powerhouse integrated with the dam, power intakes, and spillway; (5) a switchyard located atop the dam; (6) a tailrace and modified channel, extending approximately ½ mile downstream from the powerhouse; (7) a 230-kV transmission line, extending approximately 5.2 miles to a new substation at Glenoma; and (8) appurtenant facilities.

In 1981, the State of Washington completed a Final Environmental Impact Statement (FEIS) for the proposed construction and operation of the Cowlitz Falls dam in accordance with the State Environmental Policy Act (SEPA). In 1983, the Federal Energy Regulatory Commission (FERC) prepared, distributed for public review, and filed with the Environmental Protection Agency (EPA), a FEIS for the Project in compliance with the National Environmental Policy Act (NEPA). Additional environmental requirements, such as permits, licenses, and mitigation agreements, have been completed since the FERC FEIS.

BPA is adopting the FERC FEIS No. 2833-0032 as a final EIS for its proposed action to acquire the power output from the Cowlitz Falls Hydroelectric Project in accordance with the Council on Environmental Quality (CEQ) procedures set forth in 40 CFR 1506.3(b).

The analysis contained in this Attachment was prepared in accordance with DOE's Federal Register notice of December 15, 1987, Amendments to the DOE NEPA Guidelines on Section C analysis, and 40 CFR 1502.9(c)(i) and (ii) of the CEQ regulation.

BPA has determined that a supplemental EIS is not necessary for its proposed action. BPA's conclusions corroborate FERC's findings issued in August 1989 when it reviewed the Project for relicensing. FERC found that the environmental effects of the Project's redesign and relocation are substantially the same as those described in the 1983 FEIS for the Project.

The 1983 Final EIS and this Attachment are being mailed to agencies, groups, and individuals (see attachment).

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ATTACHMENT
COWLITZ FALLS PROJECT NO. 2833-WASHINGTON

BACKGROUND AND NEED FOR ACTION

The large surplus of federal power that the Pacific Northwest Region (Region) relied upon during the 1980's is almost gone. Current forecasts indicate that the Bonneville Power Administration (BPA) will essentially remain in load/resource balance through 2001 under medium growth rates. If utility loads continue to grow at the current rates, however, or if the direct service industrial loads remain high, BPA would need additional power supplies in the early 1990's.

To address this need, BPA has commenced a dynamic and multifaceted pilot resource acquisition effort: to test the mechanisms of acquiring a lost opportunity resource; to acquire cost-effective resources; to be consistent with BPA's Resource program; to be consistent with the Northwest Power Planning Council's Plan; and to minimize environmental cost. Acquisition of power output, but not the generating facilities themselves, was authorized by the 1980 Pacific Northwest Electric Power and Conservation Act.

One resource, which has been available in the Pacific Northwest Region for acquisition, is the Cowlitz Falls Hydroelectric Project (Project) which was sponsored by the Public Utility District No. 1 of Lewis County, Washington (District). Since completing the permitting, licensing, and environmental review processes, and prior to construction, the District has actively marketed the Project's energy output to utilities inside and outside the Region, including BPA.

BPA's draft 1990 Resource Program recommends that BPA's acquisition efforts focus on cost-effective, lost opportunity resources in order to minimize total system costs. The Cowlitz Falls project fits into a block of new small hydro and cost-effective resources which might be lost to BPA and the Region if it were purchased by an entity outside the Region.

Because of its strong interest in this resource, BPA has entered into an Option Agreement with the District to hold the resource until BPA can evaluate the environmental impacts associated with the possible purchase of the Project's power output. BPA is not obligated to acquire this Project but should it decide to do so, it has until June 30, 1991 to exercise the purchase option.

This Project has undergone extensive environmental reviews at both the state and federal levels. Washington state completed a final Environmental Impact Statement (EIS) in 1981; the Federal Energy Regulatory Commission (FERC) prepared, distributed for public review and filed with the Environmental Protection Agency (EPA) in 1983 the Cowlitz Falls Project No. 2833-Washington Final Environmental Impact Statement (FERC FEIS). BPA has thoroughly reviewed these and other project-related documents, and has concluded that the FERC FEIS is adequate and that the proposed action is substantially the same as that evaluated in the FERC FEIS. Additional environmental requirements have been completed since the FERC FEIS such as permits and FERC license plans. BPA has reviewed these items and included them in this discussion.

BPA is pursuing the proposed action to acquire the output of Cowlitz Falls Project, as an action independent of its larger Resource Acquisition Program. This action meets the standards in 40 CFR 1506.1(c) of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA). BPA, therefore, intends to adopt the FERC FEIS in accordance with 40 CFR 1506.3(b) and prepare a NEPA Record of Decision (ROD).

As a separate action, BPA is preparing a programmatic Resource Program Environmental Impact Statement (RPEIS) for its larger resource acquisition program. The RPEIS will evaluate the environmental impacts of various resource types and the environmental impacts of a range of alternative plans for meeting future demands for electricity. The RPEIS will include environmental trade-offs among the various resources and among alternative resource plans. The environmental discussion in the RPEIS will be generic in nature. BPA expects that separate environmental documents will be prepared for site-specific resources, such as the proposed Cowlitz Falls Project, when those resources are identified for potential acquisition.

SUMMARY

The environmental effects of the proposed action pertaining to construction and operation of the Cowlitz Falls hydroelectric dam, and BPA's proposed action to purchase the power output are substantially the same as those described in the FERC FEIS. In fact, the numerous mitigation agreements signed since the completion of the FERC FEIS provide additional environmental protection and enhancement beyond that described in the FERC FEIS. This environmental analysis does not present significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

Because BPA's action to acquire the power output would not affect the quality of the human environment in a significant manner or to a significant extent not already considered, preparation of a supplemental EIS is not required.

PROJECT DESCRIPTION

REDESIGN. The design of the proposed Cowlitz Falls Project includes a run-of-river concrete gravity dam and integral powerhouse at river mile 88.5 on the Cowlitz River. The dam will include four gated spillway bays, one ungated spillway bay and two sediment sluices. The dam has been designed to safely pass the probable maximum flood of 360,000 cubic-feet-per-second (cfs).

The integral indoor powerhouse will contain two adjustable-blade Kaplan turbine generation units with rated capacities of 35 megawatts each and both will generate 30.8 average Megawatts (aMW). The rated head on the turbine units will be 87.5 feet. These turbines operate over a wide flow range from 1,500 cfs to 10,000 cfs with a peak efficiency level of approximately 3,500 cfs.

The water intake structure has been designed to allow the future installation of a downstream migrant fish collection facility. The spillway has been designed to minimize entrapment of atmospheric gases, such as nitrogen, which are harmful to fish.

In the FERC FEIS the District proposed an elevation of 866 feet. The FERC permit, however, required that the dam be operated at elevation 862 feet to minimize flooding of the Big Bottom area, and to avoid or reduce other potential environmental impacts.

The Cowlitz Falls reservoir will inundate the existing channel and portions of the Cowlitz and Cispus flood plains to a normal elevation of 862 feet. The pool level will be approximately 23 feet below the top deck of the powerhouse. The reservoir will extend upstream toward the town of Randle and will cover about 610 acres with a total volume of about 11,000 acre-feet.

The proposed Project will have ancillary features such as access roads, an electrical substation, transmission lines and developed recreational facilities.

As a separate action, the District has proposed to upgrade their 69-kV line to 230 kV between the Mossyrock Substation and proposed Glenoma Substation. The purpose of this upgrade is to improve electrical service in Lewis County through reduced outages and voltage fluctuations. The improvement will also provide a more reliable transmission system (with reduced line losses) to the towns of Morton, Glenoma, Randle, and Packwood. This upgrade is needed by the District to improve service, and is not an interdependent part of the proposed Cowlitz Falls Project. It would, however, also provide an interconnection point for the Project. The District has completed an assessment of the environmental impacts of this independent action in compliance with Washington state environmental requirements.

RELOCATION. The site of the proposed Cowlitz Falls Project is about 72 miles from Tacoma, Washington, and 45 miles from Chehalis, Washington. The dam and powerhouse site is located in the upper Cowlitz River basin in a deeply incised reach of the Cowlitz River at river mile 88.5 (instead of 88.6 as stated in the FERC FEIS). The new proposed site is approximately 800 feet downstream. The site is located upstream from Tacoma City Light's Mayfield and Mossyrock dams. (See Appendix B for a location map.)

The powerhouse as originally located would have required deep hillside excavation, daylighting about 100 feet above the top of the dam. The relocation eliminates this impact.

The Project redesign and relocation will improve its functional operation, reduce potential environmental impacts, and lower the Project cost. These project refinements have been coordinated with the resource agencies and FERC.

ENVIRONMENTAL IMPACTS

The FERC FEIS did not clearly address the question of "unresolved conflicts", but some disagreement is evident in letters of comment and staff responses in Appendix B of that document. As part of the FERC license issued in June 1986, the District was required to prepare several plans regarding environmental protection and Project operation. The plans the District prepared appear to have resolved most of the conflicts raised through the FERC licensing process, and have been approved by the FERC. Many of these plans are discussed in this Attachment. For convenience, Appendix C is a summary of the 1986 FERC required plans.

Also discussed in this Attachment are several additional agreements that the District entered into after the FERC FEIS was published. These agreements would enhance the proposed Project mitigation or provide additional environmental protection. Appendix D summarizes these additional agreements. The District has conducted an extensive public discussion of the issues that have been raised in an attempt to address public concerns and resolve controversies. Subsequent to signing the Options Agreement, BPA held a public meeting and solicited comments to assist in the preparation of this Attachment, and to assist in the resolution of any remaining issues. Appendix E outlines the public involvement activities and agency consultations.

UPDATE OF ENVIRONMENTAL PERMITS, LICENSES, CONSULTATIONS, AND MITIGATION AGREEMENTS

Following are further discussions of environmental protection and mitigation responsibilities that BPA is required to meet in acquiring electric power and which it believes are met by the District's plans. These plans were prepared and agreements made subsequent to the FERC FEIS.

FISH AND WILDLIFE RESOURCES

FISH. Issues related to anadromous and resident fisheries in the Cowlitz River include:

(1) Reintroduction of anadromous fish into the upper watershed;
(2) Capture of downstream migrants and transport to release sites;
(3) Transmission of fish disease to the water supply by upstream migrants;
(4) Protection of native trout in the upper watershed; and
(5) Provision for upstream spawners from Riffe Lake.

There has been much public debate of all these issues since the completion of the Mossyrock Dam on the Cowlitz River in 1968. In February 1986, the District and the Washington Department of Game (now the Department of Wildlife) signed a Fish and Wildlife Mitigation Plan to mitigate, protect and enhance the fishery and wildlife. The U.S. Fish and Wildlife Service and the Washington State Department of Fisheries agreed in writing to this Plan.

The key components of the Fish and Wildlife Mitigation Plan are:

- A trout stocking program for both the construction and operation periods of the proposed Project;
- Construction of sub-impoundments within the reservoir to provide habitat for certain fish species (largemouth bass and black crappie);
- Enhance fish habitat on Siler and Kiona Creeks;
- Spillway design to minimize nitrogen supersaturation; and
- Monitoring program to assess the success of fish stocking and mitigation measures.

The proposed Project is designed for the future construction of downstream migrant fish collection facilities. These facilities may present the only currently feasible means of restoring anadromous fish (salmon and steelhead) to the upper Cowlitz River Basin. The Washington Department of Fisheries, the U.S. Fish and Wildlife Service and National Marine Fisheries Service have all supported the licensing of the Project.

A discussion of the fishery issues above follows:

(1) Reintroduction of Anadromous Fish to the Upper Watershed. The FERC FEIS discusses the restoration issue (pp.3-20 - 3-22) and outlines possible stocking programs under consideration by Washington Department of Fisheries. Fish passage facilities do not currently exist at one of the downstream dams. Stocking would subsequently require smolt collection and transportation to the lower river. Friends of the Cowlitz (FOC), a fishing public interest group, has strongly advocated the return of anadromous fish to the upper basin. FOC is particularly concerned with provisions for passage of wild fish. Trout Unlimited, also a fishing public interest group, generally concurs with FOC on restoration efforts. In the Stober Report of January 1986, prepared by the University of Washington Fisheries Research Institute under contract from the Washington Department of Fisheries and Washington Department of Game (now Wildlife), one conclusion was that a smolt collection facility in connection with the proposed Project might allow the rearing of spring chinook salmon once again in the upper watershed. The Washington Department of Fisheries' position is that anadromous fish runs should not be reestablished in the upper river at this time. Washington state is concerned about reintroducing disease into downstream hatcheries, squawfish predation in Mayfield Lake and the potential effects on trout populations in the upper watershed. Tacoma City Light, which operates the two downstream reservoirs, concurs with the Washington state position. The Northwest Power Planning Council which is preparing a Sub-basin Plan for the Cowlitz Watershed has not yet made any recommendations. The District's agreement with the Department of Ecology provides for participation in restoration efforts.

BPA is awaiting the completion of the Northwest Power Planning Council's Sub-basin Plan and its recommendations. This Sub-basin Plan, expected to be completed in 12 months, will contain mitigation measures to increase fish runs in the basin. It will also suggest responsibility for participants who will bear the cost. Following review of these recommendations and additional investigations and recommendations by fishery biologists working for BPA, a revised Fishery Enhancement Plan for the Cowlitz area will be prepared by Lewis County Public Utility District in concert with the Washington Department of Fisheries, the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Tacoma City Light, public fishery interest groups and other interested publics.

(2) Capture of Downstream Migrants and Transport to Release Sites. The FERC FEIS addresses capture of downstream migrants and transport to release sites. Periodic stocking of anadromous fish has occurred on an irregular basis. Past experience of Tacoma City Light has shown that many of the juvenile salmon find it impossible to pass through the two downstream reservoirs due to water temperature, extensive predation by squawfish and other predators, and their inability to navigate through the slack water pool. The District has designed the Cowlitz Falls Dam to allow for installation of fish collection facilities that could be used to capture smolts going downstream. These smolts would then be trucked downstream around all three dams: Cowlitz, Mayfield, and Mossyrock. Until the Washington Department of Fisheries determines that the runs should be restored to the upper watershed, these collection facilities will not be installed.

Should the Washington Department of Fisheries decide to restore the runs, the District would pay its share of the costs. The total costs would be shared by the District, Tacoma City Light and Washington Department of Fisheries as appropriate mitigation for downstream fish losses. BPA would reimburse the District for its share of the cost as part of the Project costs.

(3) Transmission of Fish Disease to the Water Supply by Upstream Migrants. Fish disease caused by the virus Infectious Hematopoietic Necrosis (IHN) has occurred at the downstream hatcheries for many years. In an effort to prevent its spread, all fish have been intercepted downstream of Mayfield Dam. A concern that fish disease could spread to resident stocks and the hatchery water supply has been the primary obstacles to Washington Department of Fisheries' approval of restocking efforts for the upper watershed.

Research on ways to control IHN continue. Structural changes to the hatchery may assist in preventing future outbreaks of the disease due to overcrowding of fry. Washington Department of Fisheries may also relax its policy on addressing IHN. BPA is investigating ways to minimize or control the effects of IHN through its fishery research efforts, and will share its findings with Washington Department of Fisheries.

(4) Protection of Native Trout in the Upper Watershed. The native trout in the upper watershed consist of both rainbow and cutthroat trout. A small number of these native trout migrate through the reservoir site (Stober et al). Washington Department of Wildlife periodically stocks hatchery-reared rainbow. The FOC has indicated that a hybrid trout occurs only in the upper watershed: a cross between a Rainbow and a Red-stripe trout. All spawning occurs above the Cowlitz Falls dam site. FOC contends that the proposed Cowlitz Falls Project must have fish passage facilities to allow movement of spawners downstream or upstream. Local citizens have contended that due to turbines, mortality will decimate resident trout stocks as well as downstream migrations of anadromous smolts.

The experience of federal and state fishery agencies in the Pacific Northwest with mortalities due to turbines suggests that the highest losses would occur during lower flow periods when juveniles cannot move over the spillway. Such periods occur during the late summer and fall when power production would be at a minimum for the run-of-the-river dam. Upstream migrants from Riffe Lake would be unable to pass the dam unless fish passage facilities are added.

Stocking programs for up to 50.000 legal size trout (10 inches) would be limited to the reservoir behind the Cowlitz Falls Dam. Native trout in the upper watershed are not expected to be significantly affected by the seasonal "put and take" fishery in the reservoir. The District has agreed to employ a fishery biologist to monitor the impact of the stocking program on upstream native trout. to assure improved trout habitat. and to work with the federal and state agencies to evaluate the success of "put-and-take" fish. Appropriate state and federal agencies would take corrective action if any were required.

(5) Provision for Upstream Spawners from Riffe Lake. The District's stocking program would include trout to offset losses of upstream spawners from Riffe Lake. Fish blockage by the dam was recognized as an impact early in the pre-license study period. During a two-year study, concluded in 1983, the Washington Department of Game (now Wildlife) investigated the movement and the spawning of fish. Salmon, which are planted in the upper watershed and Riffe Lake, tend to move downstream. Land-locked coho from Riffe Lake were found not to mature and, therefore, did not spawn. Trout spawning activity within the reservoir boundary was observed in one tributary stream, although some adjacent streams most likely also supported spawning. The Fish and Wildlife Mitigation Plan recognized fish losses due to blockage. The Mitigation Plan set as a goal no net losses of fisheries resources. Additional measures such as limitations on planting have also been added through other agreements which will enhance the trout production (Super Trout Program) and protect the cutthroat trout gene pool.

"Landlocked salmon" comprise only a small number of the upstream migrants and were found to be unable to spawn (Stober, p. 56). Maintaining stream access for adfluvial cutthroat trout and rainbow trout has been shown by Washington Department of Wildlife to be an important requirement for natural production of wild stocks in other parts of the Columbia River watershed. It is uncertain whether significant populations of these fish are involved in upstream migrations from Riffe Lake. To the extent natural production declines in Riffe Lake, future reliance would be on hatchery plants of rainbow and cutthroat trout to maintain the Riffe Lake sport fishery.

WILDLIFE. The wildlife components of the 1986 Fish and Wildlife Mitigation Plan agreed to by the District and the Washington Department of Game (now Wildlife) preserve total habitat values by the implementation of mitigation, more specifically consisting of the following:

- Purchase and intensive management of approximately 330 acres of land; management to include canopy thinning, fertilization and special plantings of trees, shrubs and grasses;
- Establishment of a shoreline/riparian zone around the reservoir;
- Creation of sub-impoundments and/or shallows for water fowl; and
- Periodic monitoring of wildlife measures.

THREATENED OR ENDANGERED SPECIES AND CRITICAL HABITAT

BALD EAGLE. The FERC FEIS addressed potential impacts to bald eagles. The District conducted a 1989-90 wintering survey of Bald Eagles as requested by the U.S. Fish and Wildlife Service and Washington Department of Wildlife. The survey confirmed winter eagle usage upstream of the confluence with the Cispus River. Section 3 of the 1986 Fish and Wildlife Mitigation Plan includes measures for the protection and enhancement of the Bald Eagle:

- Preservation of perch trees along the proposed reservoir shoreline;
- Planting of cottonwood trees along the shoreline;
- Construction of artificial perch sites;

- Avoidance of reservoir clearing operation during the period between January 1 and March 31; and
- Design of transmission line to minimize the electrocution hazards to eagles.

Surveys carried out in 1990 indicate that the proposed Cowlitz Falls Project is within the winter range of the bald eagle and that food supply is clearly limiting usage of the area by eagles. Fish stocking and wetlands development now planned as part of the Project mitigation program could potentially significantly improve the food supply and carrying capacity of the Project area for wintering eagles.

The District has made a commitment to work closely with the Washington Department of Wildlife and U.S. Fish and Wildlife Service to develop wetlands and waterfowl habitat and fish stocking programs in accordance with FERC license Article 40, the Bald Eagle Protection Plan, and the Fish and Wildlife Mitigation Program. The complete 1989-1990 Bald Eagle Perch and Winter Survey Report is included in this Attachment as Appendix F.

NORTHERN SPOTTED OWL. U.S. Fish and Wildlife Service (USFWS) procedures for addressing the northern spotted owl are not final. A study conducted by the District as suggested by the USFWS showed there are no spotted owls or habitat suitable for spotted owls in the Project area. The District will continue communication with the USFWS on endangered species, including the spotted owl. See Appendix G for a summary of the northern spotted owl survey report.

CRITICAL HABITAT. No critical habitat has been officially listed by the U.S. Fish & Wildlife Service for bald eagles or spotted owls. Old growth forests are important habitat for spotted owls, but there are no stands within the area of the proposed Project that meet the current standards for old growth as defined by the U.S. Forest Service. The FERC FEIS incorrectly referred to a 60-70 acre stand of older second growth timber located at a campground site as "old growth" even as "old growth" was defined by the U.S. Forest Service at that time. This stand was logged in 1988. Most of the timberlands in the area of the proposed Project are privately owned, third growth stands. Individual older growth trees may remain within the Project area.

RARE PLANTS. Exhibit W in the Project's FERC license application indicates that no rare plants were found on the Project site. Plant species surveys, including an extensive botanical survey in various habitat types throughout the Project area in 1980, and consultations completed for the Project showed no threatened or endangered species. In August 1990, the U.S. Fish & Wildlife Service was contacted and it stated that no rare plant species are listed for Lewis County.

STATE, AREAWIDE, AND LOCAL PLAN AND PROGRAM CONSISTENCY

WASHINGTON STATE WETLANDS. While the Project license preceded all state plans, the proposed Project is nonetheless consistent with the State of Washington 1987 Wetlands Priority Plan. The Fish and Wildlife Mitigation Plan provides for the construction of subimpoundments, shallows and riparian zones. Under this plan the proposed Project would create a net gain in wetland areas.

WASHINGTON STATE NATURAL HERITAGE. In consultation with the SHPO (State Historical Preservation Officer), Cowlitz Indian Tribe and National Advisory Council on Historic Preservation, the District completed a Cultural Resources Mitigation Plan in September 1983 to mitigate and protect cultural resources throughout the Project license period. The plan was agreed to by the Cowlitz Indian Tribe and endorsed by the State Historic Preservation Officer.

One property eligible for listing on the National Register of Historic Places (Cowlitz Falls South Site - Koapk) is within the boundary of the proposed Project and

would be adversely affected by the Project. In conjunction with the recovery effort at the site, the Cowlitz Indian Tribe and the District have negotiated a reburial and disinterment agreement for the handling of human remains should any be discovered at the site. An archaeological data recovery program at the Koapk site has been completed. It will fully mitigate the disturbance caused by the Project. For a detailed chronology of events and reports on cultural resources see Appendix H.

WASHINGTON STATE SHORELINES. The District and Washington Department of Ecology (WDOE) entered into an agreement in April 1989 resolving all outstanding shoreline issues. WDOE agreed to a timetable for the review and issuance of all WDOE outstanding permits to allow for the timely start of construction. WDOE approved the District's conditional use permit in a settlement agreement dated June 6, 1989.

WASHINGTON STATE SCENIC RIVER ASSESSMENT. In both 1989 and 1990 legislative sessions the state Parks and Recreation Commission submitted legislation recommending that six rivers be considered for the state's scenic river program. The 1990 bill, ESHB 1291, included the Cispus River from its headwaters to a point two and one-half miles upstream from its confluence with the Cowlitz River. This bill does not affect the Cowlitz Fall development. Additions to the state scenic river programs were not approved in 1989 or 1990. Appendix I is a summary of ESHB 1291. (See discussion on federal wild and scenic river values below.)

FEDERAL WILD AND SCENIC RIVER VALUES

On the national level, the Cowlitz and Cispus rivers have not been designated as wild and scenic, but they have been recognized in the Nationwide Rivers Inventory, prepared by the National Park Service, as having the potential to be designated. They are, therefore, protected by the 1980 Executive Order on the Protection of Rivers in the Nationwide Rivers Inventory.

In recognition of the potential for loss of wild and scenic river values on the Nationwide Rivers Inventory segments of the Cowlitz and Cispus rivers, the National Park Service (NPS) and the District negotiated a mitigation agreement in April 1990.

Terms in the District-NPS settlement include:

1. The District-Washington Department of Ecology settlement agreement (District-WDOE settlement) should be amended to ensure that development rights within the specified corridor along the 5.6 miles of the Cispus River between the project boundary and the U.S. Forest Service boundary are acquired and held in perpetuity. The District would buy all rights to seasonal and permanent residential or commercial development within a corridor averaging 200 feet from the ordinary high water line on each bank, except in those cases where condemnation is necessary to complete acquisition. The National Park Service would be willing to relinquish control on timber harvest within the corridor.

2. Initiation of a conservation easement program on the Cowlitz River. Any funds remaining from the District-WDOE settlement after acquisition of development rights on the Cispus River would be reallocated to purchase of development rights on undeveloped lands along the upper Cowlitz River, subject to WDOE concurrence, to be supplemented by an additional amount limited to, but not less than, $75 thousand from the PUD. Terms of the acquisition should be similar, with the District buying all rights to seasonal and permanent residential or commercial development within a corridor averaging 200 feet from the ordinary high water line on each bank, except in those cases where condemnation is necessary to complete acquisition.

3. Completion of the acquisition program by a third party, if necessary. The acquisition program would be completed prior to the completion of Project construction. The District should pay $125 thousand, less any funds expended to acquire rights under 2.

above, for acquisition by a third party in the event that they are unable, short of condemnation, to expend the full $75 thousand.

In return for this settlement, the National Park Service waived additional challenges to the issuance of the Section 404 (Clean Water Act) permit or other permits or governmental actions required for construction of the Project, and any government actions for sale or purchase of project power prior to construction completion. (See U.S. Department of Interior, National Park Service letter, Appendix J.)

The Cispus River will be proposed for National Wild and Scenic River status, but 1.5 miles of backflow into the Cowlitz is exempted for the proposed Project in the U.S. Forest Service Land Resource Management Plan - Gifford Pinchot National Forest, FEIS, June 1990.

CONSISTENCY WITH NORTHWEST CONSERVATION & ELECTRIC POWER PLAN

The proposed Project is consistent with the Northwest Power Planning Council's Northwest Conservation and Electric Power Plan, including the Columbia River Basin Fish and Wildlife Program. (See Appendix K, Letter from Tom Trulove, Chairman, Northwest Power Planning Council, to Rodney Sakrison, Washington Department of Ecology, January 27, 1989.) See information in this Attachment under FISH AND WILDLIFE RESOURCES, pp. 3-8.

RECREATION RESOURCES. A study of recreational needs in the vicinity of the proposed Project and consultation with the Lewis County Parks and Recreation Department has resulted in the selection of a number of recreational facilities to be developed in conjunction with the Project. These facilities include an overnight campground with boat launch and a day use area with boat launch on the reservoir, a day-use park with ball fields along U.S. Highway 12 and land held in reserve for future development. The District would also replace a raft takeout facility on the Cispus River that would be inundated by the Project.

The proposed Project is not expected to affect any element of the National Trails System; wilderness areas; BLM areas of critical environmental concern; areas of ecological, scenic, recreational, or aesthetic importance; or properties acquired or developed with assistance under the Land and Water Conservation Fund.

COASTAL MANAGEMENT PROGRAM CONSISTENCY

The proposed Project is not affected by the Washington state coastal zone management program since it is not located within one of the 13 counties affected by the program.

FLOODPLAINS

The proposed Project would affect the floodplain due to creation of the reservoir behind the dam. Sediment deposition in the reservoir over a period of time could aggravate flooding elsewhere upstream. Several mitigation plans prepared subsequent to the FERC FEIS, including the Debris Removal Plan (4/6/88), the Sediment Monitoring Program (12/30/87) and the Sediment Operations Plan (4/15/88) should be sufficient to avoid causing any additional flooding upstream. The three plans are briefly described in Appendix C.

FLOODING AND SEDIMENTATION. A major concern of the local residents in the Randle area is that the Project would cause increased water levels by the presence of sedimentation and debris during flood situations. The District, an independent consultant (Simon, Li and Associates), and FERC all have extensively studied the flooding and sedimentation situation of the reservoir area. These studies indicate that by restoring the portion of the river located in the Big Bottom area (above river mile 94) to a free-flowing state by opening the spillway gate(s) for flows greater than 15,000 cfs, most of the sediment deposited in the headwaters of the reservoir would be scoured out of the Project area. According to a Bechtel study, between river mile 91.4 and river mile 96, it would take 25 years before the river would accumulate approximately 5 feet of sediment. However, this sediment will fill less than 1 percent of the area of the channel and will have no significant effect on the change in the depth of the flow. The 1988 report to FERC "Plan of Operation to Limit Sediment Accumulation in the Reservoir" states that if the reservoir is operated in accordance with the operating rules developed in that report, the Cowlitz River above river mile 94 will behave just as it would have without the construction of the Cowlitz Falls dam. Flood levels at Randle will not be affected by the dam. Finally, in accordance with the Sediment Monitoring Program approved by FERC, sediment monitoring would be a continuing effort throughout the Project life and operation of the Project would be adjusted if necessary. In October 1990, Gronning Engineering (an engineering firm) reviewed the above results and confirmed for BPA the absence of significant environmental impacts.

Local residents of the Randle area are also concerned about the ability of the Cowlitz Falls dam to draw down water in the Randle area in advance of a flooding situation. The spillway for the Project has the capacity to discharge over 150,000 cfs at elevation 862. The reservoir will begin dropping when the Randle gauge reaches 15,000 cfs. This corresponds to a level which is within the existing channel from one bank to the other, and does not cause the river to flow outside of the present channel. The impact of drawing down the project on Riffe Lake is negligible because the lake is so large in comparison with the Cowlitz Falls reservoir. If all 4,400 acre feet were dumped instantaneously into Riffe Lake, the water level would rise approximately four inches.

DEBRIS. During high flow periods, the Cowlitz and Cispus rivers can transport substantial quantities of logs and floating debris. It has been theorized that floating debris accumulated across the spillway could reduce the flow capacity. To minimize the likelihood of spillway blockage, the design of the proposed Project has been modified to include two 65-foot-wide spillway gates and a "ship's bow" type debris deflector. Both features were successfully tested in the hydraulic model of the Project. The preliminary results indicate that the deflector aligns the floating material with the flow resulting in efficient passage of debris by the structure.

GROUND WATER. The water level in the reservoir could cause the ground water table to rise immediately adjacent to the reservoir. With the reservoir at elevation 862 feet, approximately 10 acres of agricultural land would be affected by inundation or ground water levels. It also has been suggested that some wells or septic fields may be adversely affected.

The District has developed a plan for monitoring, evaluating and mitigating potential impacts in the reservoir area from Project-related groundwater level increases. The plan proposed to monitor groundwater levels during construction of the Project and for at least one year after reservoir fill in order to better assess the amount of farmland that would be affected by ground water impacts. If the affected landowners have not been previously compensated, the impacted area would be purchased or mitigated.

The District proposes to characterize wells and septic systems in the impacted area before the filling of the reservoir. That data will be used for evaluating any impacts at the site and for determining appropriate corrective measures.

LAND USE. The District proposes to purchase an adequate buffer zone as required by the FERC. To minimize the impact on current adjacent land owners (farmers), the District has also proposed to lease back on permit the use of these lands for specified purposes. A Buffer Zone Management Plan (Appendix C) has been developed to more clearly describe the allowable uses of all Project lands. The Plan briefly describes the existing land uses in the area, and the proposed Project improvements to be located within the Buffer Zone. The goal of the Plan is to balance Project-related uses and other potential uses and to avoid conflict over usage of the Buffer Zone.

FARMLANDS

The proposed Project would not affect any Prime and Unique farmland. However, it would convert some farmland to other uses and would cause some reduction in productivity due to the projected rise in the water table. These effects are adequately discussed in the FERC FEIS. The District proposes to monitor groundwater levels before construction and for at least one year after reservoir filling in order to determine the precise amount of farmland that would be affected by the proposed Project induced groundwater impacts, and to purchase land or install drainage works in the adversely affected areas.

PERMIT FOR STRUCTURES IN NAVIGABLE WATERS

According to the U.S. Army Corps of Engineers, no permit under Section 10 of the Rivers and Harbors Act is required for the proposed Project.

PERMIT FOR DISCHARGES INTO WATERS OF THE UNITED STATES

The District has received a Section 404 (Clean Water Act) permit from the U.S. Army Corps of Engineers for the proposed Project and a Water Quality Certification from the Washington Department of Energy.

PERMIT FOR RIGHT-OF-WAY ON PUBLIC LAND

No right-of-way permits are required. The District will purchase Department of Natural Resources land and river bed from the State of Washington. Transmission line right-of-way-to cross county roads is included in the District's county-wide franchise to operate electrical facilities.

ENERGY CONSERVATION AT FEDERAL FACILITIES

This is not applicable to the proposed Project or its alternatives.

POLLUTION CONTROL AT FEDERAL FACILITIES

CONTRACT COMPLIANCE WITH THE CLEAN AIR AND CLEAN WATER ACTS. The proposed Project would not involve the procurement of goods, services, or

materials from a facility on the EPA's List of Violating Facilities.

AIR QUALITY. The proposed Project is not affected by most air quality standards, except during the construction period when there are concerns about fugitive dust emissions, vehicle exhaust emissions, and open burning of clearing debris. The Reservoir Clearing Plan, prepared as part of FERC license requirements, makes it clear that slash and burn forest debris burning will be conducted under the conditions of a burning permit from the Department of Natural Resources (DNR) and that the permit may require compliance with the State Smoke Management Plan administered by DNR.

A potential impact not mentioned in the FERC FEIS is that smoke from open burning could be visible from Class I areas such as Mt. Rainier National Park and the Goat Rocks Wilderness Area. Compliance with the State Smoke Management Plan should be sufficient to minimize this impact. The District has prepared a comprehensive Erosion Control Plan and Attachment which should substantially reduce dust emission from construction.

WATER QUALITY. Potential temperature changes in the proposed Project reservoir were calculated as part of the pre-license studies. The entire reservoir would be replaced in a little over one day, and stratification does not have a chance to develop in this short detention time. Most of the time the reservoir would remain riverine and well mixed. The Cowlitz Falls reservoir would be so small in relation to the mean annual inflow that the water would not have time to warm up significantly since temperature changes are projected to be less than 1° C.

A possibility not addressed in the FERC FEIS is that oil or other hazardous substances could be spilled into the water or onto the shoreline from construction machinery. A Spill Prevention and Control and Countermeasures (SPCC) Plan would be prepared by the District and followed during Project construction and operation.

The National Pollutant Discharge Elimination System (NPDES) permit was issued in April 1990. The permit covers the conditions for operating facilities such as a concrete batching plant during construction.

The Washington Department of Ecology issued a water quality certificate for the proposed Project in July 1984 pursuant to Section 401 of the Clean Water Act.

Regarding potential effects on water quality and temperature of both the proposed Project reservoir and Riffe Lake, addressed in the Washington state EIS and Project license application, it is important to note the relationship of reservoir size between Cowlitz Falls and Riffe Lake, and the Cowlitz Falls reservoir's effect on water quality. A comparison of reservoirs follows:

	Cowlitz Falls Reservoir	Mossyrock Reservoir
Average Annual Flow (cfs)	4,600	5,057
Storage (acre-feet)	11,000	1,685,100
Area (acres)	610	11,830
Average Water Retention (days)	1	168
Yearly Inflow to Volume Ratio	332:1	2.2:1
Reservoir Characteristic	Well Mixed Riverine	Stratified Lacustrine

Water quality impact of Cowlitz Falls on Riffe Lake would be insignificant. A temperature change less than 1° C would occur with the reservoir when compared with the existing natural river conditions.

SOLID WASTE. The primary solid waste disposal issue associated with the proposed Project is the disposal of slash and burn forest debris during clearing. Disposal by open burning is discussed earlier.

HAZARDOUS WASTE. The proposed Project would be subject to the same EPA and state hazardous waste regulations as any individual or business enterprise that uses hazardous substances such as oils, fuels and solvents. For the most part, the District will avoid the use of hazardous materials as much as possible. A hazardous materials control plan would be prepared to document planned procedures for using, storing and disposing of hazardous materials.

HAZARDOUS WASTE TRANSPORT. The hazardous materials control plan would outline methods of disposing of any hazardous wastes, including perhaps disposal through a commercial waste hauler.

SAFE DRINKING WATER. The FERC FEIS adequately addresses drinking water standards, existing water quality, and potential Project effects on water quality. The effect on turbidity is an implicit topic in the Erosion Control Plan.

With regard to effects on groundwater, the Upper Reservoir/Groundwater Plan and the Ancestral Valley Groundwater Plan (Appendix C) provide important information to augment the information provided in the FERC FEIS.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA). There is no reason to believe that the proposed Project involves any liability for clean-up of past, present or future hazardous wastes at the site or involves selling or transferring real property where any type of activity relating to hazardous substances has ever occurred. The District routinely conducts site assessments for hazardous wastes prior to property purchases.

GLOBAL WARMING

The proposed Cowlitz Falls Project would not affect global warming because hydroelectric projects do not emit any greenhouse gases. The other alternatives discussed in the FERC FEIS, such as wood-waste or coal-fired generation, would emit some greenhouse gases and add only slightly to any existing global warming trend.

TRANSMISSION INTERCONNECTION

In general, the FERC FEIS adequately discusses actions needed to integrate the proposed Project with the District's transmission system. The District's system is currently interconnected to Tacoma's system at the Mossyrock switchstation, thus Tacoma would wheel power a short distance between the District's and BPA's system. The point of delivery is the location at which the District will deliver and BPA will receive the Project's output. It is at the point which is approximately 6 miles west of Tacoma City Light's Mossyrock dam, where the 230 kV facilities of Tacoma and BPA are connected. As a separate action, the District has proposed to increase the voltage of the proposed transmission line. The FERC FEIS evaluated the potential impacts of a 115-kV line, and the present proposal is to construct a 230-kV line instead. The proposed route for this line appears to be the same as was evaluated in the FERC FEIS (Route B). On forest land, as

with the proposed route, the environmental impacts of a 230-kV line are substantially similar to a 115-kV line. Potential impacts of a transmission line on forest land are:

- Access road construction, which would be identical for either voltage of line. It appears that existing logging roads would provide primary access to the line.
- Tree clearing, which would be substantially the same for either voltage of line. The proposed route is mostly on private forest land where clearcutting is a common logging method. The transmission line route is probably more clearcut now than when the FERC FEIS was written, so less tree clearing may be needed. This would mean less environmental impact for the proposed transmission line than evaluated in the FERC FEIS.

The transmission system upgrade by Lewis County Public Utility District is needed to improve customer service, and is not an interdependent part of the Cowlitz Falls Hydroelectric Project. Because the upgrade has independent utility and is not a BPA proposal, a NEPA review is not required on BPA's part for the transmission line upgrade.

APPENDIX A

FERC APPROVAL OF REDESIGN AND RELOCATION OF PROJECT

APPENDIX A

48 FERC ¶ 62,137

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Public Utility District No. 1 of Lewis County, Washington — Project No. 2833-017 Washington

ORDER APPROVING REVISED EXHIBIT F DRAWINGS AND REQUIRING CONSTRUCTION MAPPING AND PIEZOMETER MONITORING PROGRAMS

(Issued August 18, 1989)

On September 16, 1988, Public Utility District No. 1 of Lewis County, Washington filed a supporting design report and revised exhibit F drawings showing redesign and relocation of the Cowlitz Falls hydroelectric project.

The environmental impacts of constructing and operating the redesigned and relocated project will be similar in type and magnitude to those of the licensed project. Those environmental impacts were fully described in the Commission's 1983 final Environmental Impact Statement for the project.1/

Staff review of the supporting design report shows the foundation tuff will be of low strength (PHI=15° and C=10 psi), therefore, the foundation should be carefully mapped and inspected during construction to verify design strengths. Additionally, the dam design assumes a two-thirds reduction in uplift due to drain efficiency. Piezometers should be included in the project instrumentation to verify the drain efficiency assumption.

The Director orders:

(A) The following exhibit F drawings are approved and made a part of the license:

Exhibit	FERC No.	Title	Superseding
F-25	2833-25	Project Arrangement	2833-8
F-26	2833-26	Reservoir Map	2833-9
F-27	2833-27	Project Plan	2833-11
F-28	2833-28	Dam and Spillway Elevation and Sections	2833-12
F-29	2833-29	Powerhouse Plans	2833-13
F-30	2833-30	Powerhouse Sections	2833-14
F-31	2833-31	River Diversion	2833-15
F-32	2833-32	Switchyard Layout	2833-16
F-33	2833-33	Main Single Line Diagram	2833-17
F-34	2833-34	Geologic Sections Sheet 1 of 2	2833-19
F-35	2833-35	Geologic Sections Sheet 2 of 2	-
F-36	2833-36	Geology Exploration Plan	2833-20
F-37	2833-37	Site Geology	-

(B) The superseded exhibits are removed from the license.

(C) The following programs shall be included in the plans and specifications filed pursuant to article 30 of the license and both programs shall be approved prior to the commencement of any ground disturbing activities.

A program of inspection and mapping shall be provided during construction, that can verify the strength of the foundation Tuff. The program should outline procedures to be implemented if any foundation material is uncovered that can adversely impact project safety.

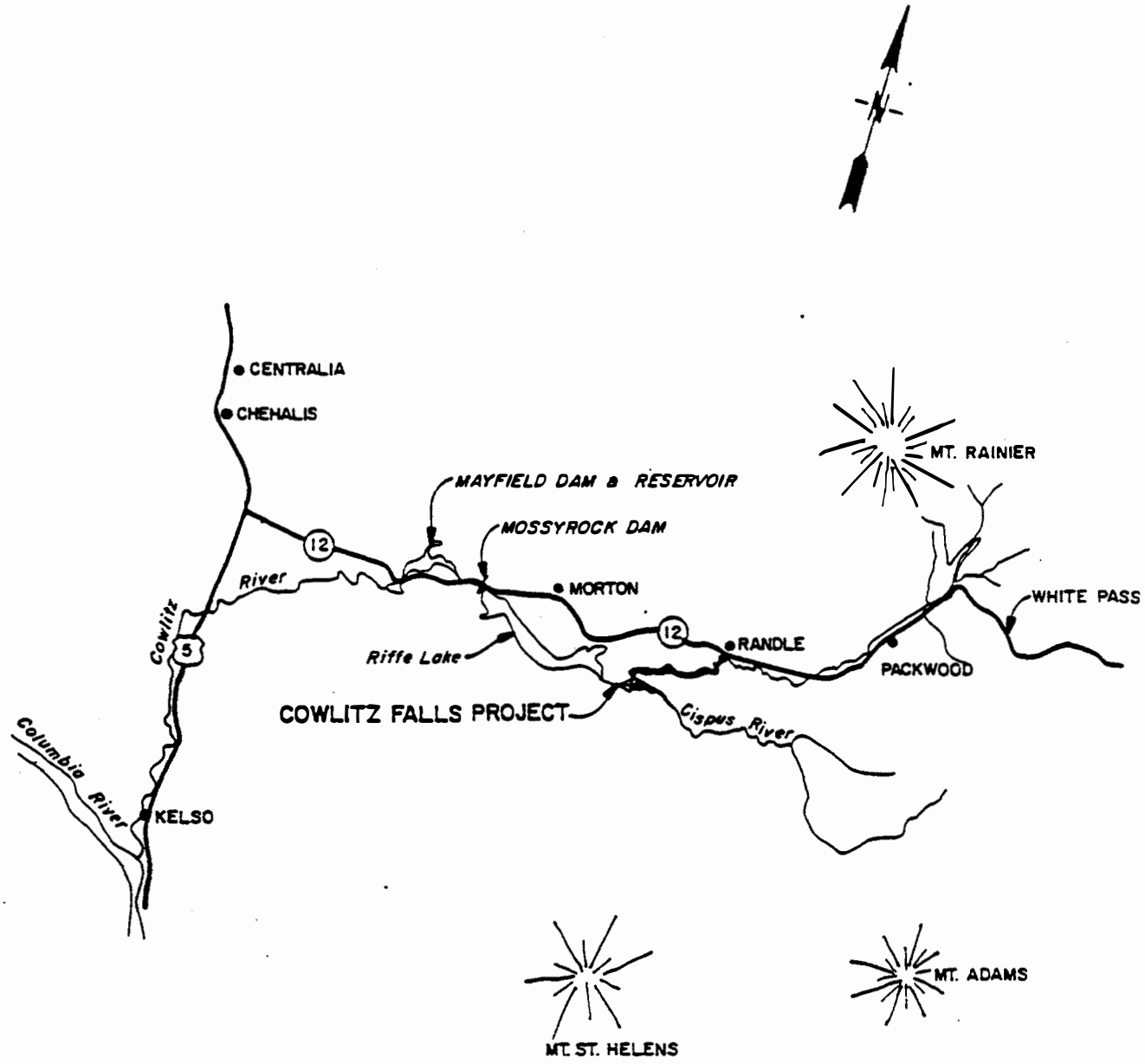
A program for installation and monitoring of piezometers, both parallel and perpendicular to the axis of the proposed dam. The program should provide procedures to be implemented if uplift pressures are found to exceed the consultant's design assumptions.

(D) Within 90 days of the date of this order, the licensee shall file an original of the approved exhibit F drawings

1/ Final Environmental Impact Statement Cowlitz Falls, Project No. 2833 - Washington, Federal Energy Regulatory Commission, dated April 1983. This document is available in the Commission's public files associated with the Cowlitz Falls Project.

APPENDIX B

COWLITZ FALLS PROJECT LOCATION MAP



Cowlitz Falls Project

FERC NO. 2833

PUBLIC UTILITY DISTRICT NO. 1
OF LEWIS COUNTY, WASHINGTON

LOCATION MAP

APPENDIX C

PLANS REQUIRED BY THE FERC LICENSE

As part of the proposed Project's FERC license requirements, the District prepared several plans regarding environmental protection and Project operation. These license compliance plans were coordinated with various resource agencies and have been approved by the FERC. Following are brief summaries of the plans.

ARTICLE 20, RESERVOIR CLEARING PLAN

Sets forth guidelines for removal of existing vegetation on approximately 350 acres of land that would be inundated. Reservoir clearing activities would include: obtaining reservoir area access, clearing merchantable timber and slash, performing yarding activities and disposing/burning of slash material.

This plan is coordinated with other mitigation plans for the proposed Cowlitz Falls Project to minimize environmental impact, including plans for buffer zone management, fish and wildlife mitigation, bald eagle protection, debris removal and erosion control.

ARTICLE 34, EROSION CONTROL PLAN

Specifies procedures to minimize erosion, dust and sediment, and to maintain slope stability during construction and operation of the proposed Project. Erosion control measures would continue into Project operation.

ARTICLE 35, ANCESTRAL VALLEY/GROUND WATER PLAN

Outlines procedure to evaluate, monitor and, if necessary, mitigate effects of Project-induced seepage and raised ground water levels in the ancestral valley of the Cowlitz River.

To collect the date required to evaluate seepage, seismic refraction surveys, exploratory borings (ground water monitoring wells), and permeability tests would be conducted. The ground water monitoring program would relate preconstruction recharge/discharge rates with post-construction related rates. An evaluation of potential impacts from increased seepage would then be performed, including recommendations for application of various remedial measures where appropriate.

ARTICLE 36, RESERVOIR/GROUND WATER PLAN

Sets forth a commitment to identify, monitor, evaluate and mitigate impacts to agricultural lands, agricultural production, wells and septic systems resulting from Project-related ground water level increases in the Big Bottom area.

The first two of four phases would be completed at least one year prior to the initial reservoir filling. Phase one work would identify potentially affected lands and facilities by conducting a preliminary field canvas. Phase two studies would include constructing wells and monitoring ground water levels and water quality in those wells. Phase three work would evaluate the data obtained one year prior to and one year after the initial reservoir filling and, if required, appropriate mitigation measures would be selected. During phase four, mitigation measures would be implemented and monitored to determine their effectiveness or the District would acquire the affected lands.

ARTICLE 37, DEBRIS REMOVAL PLAN

Addresses debris removal and management within the reservoir of the proposed Project.

The plan consists of removal and control of the debris which could enter the reservoir. Prior to filling, the reservoir area would be cleared except in those zones designated as the fish and wildlife habitat areas. Trees over 60 feet high which are judged to present a hazards and are both within 20 feet horizontally of the reservoir or river banks when the pool elevation is elevation 862 and within the Project boundaries would be topped or removed. Trees within the 20 foot zone that are undercut by bank erosion or in obvious danger of falling into the reservoir would also be removed. Banks of the reservoir would be inspected on a yearly basis to remove any hazardous trees.

Since there are areas upstream from Randle which are outside the proposed Project boundaries and which may contribute floating debris, the District has designed the Project to control floating debris. The spillway has been designed with two 65-foot wide spillway bays and a debris control barrier. The debris control barrier is a wedge-shaped deflector designed to prevent material from jamming across a gate and to guide floating debris to the 65-foot wide bays.

A 35 x 4 foot flap gate has also been provided in each spillway gate to pass small debris over the gate for normal operation with all flows passing through the powerhouse. During high flow periods, debris would be bypassed through the 65-foot wide spillway bays.

ARTICLE 38, SEDIMENT MONITORING PLAN

Proposes operational procedures that would minimize the accumulation of sedimentation in the headwaters of the proposed Project reservoir. To effectively facilitate passage of sediment through the reservoir, the water level would be reduced as much as 20 feet prior to a major flood. In this way sediments would be scoured out to prevent accumulation. Flood levels, even during a 100-year flood, in the Big Bottom area would not be increased by the proposed Project's operation.

ARTICLE 40, BALD EAGLE PROTECTION PLAN

Measures are identified which would be implemented throughout project development. The plan addresses the need for identification and development of adequate diurnal perches for eagles, particularly in key foraging areas. Because food availability is essentially the limiting factor in eagle use of the project area, fishery mitigation measures under the proposed Project's Fish and Wildlife Mitigation Plan are expected to enhance existing bald eagle habitat. A monitoring effort is proposed to determine eagle density and distribution, key foraging areas and perching sites, possible conflicts with recreation and other land/water uses, and the need for adjustment and continuation of protection measures and monitoring.

ARTICLE 43, BUFFER ZONE MANAGEMENT PLAN

Briefly describes the existing land uses in the project area and the proposed Project improvements to be located in the buffer zone. (The buffer zone is identified as the land around the reservoir located within the FERC project boundary, other than that dedicated to project features.) The goal of the plan is to balance project related uses and other potential uses and to avoid conflicts over usage of the buffer zone.

Establishes land use designations. Uses of the proposed Project include lands dedicated for wildlife mitigation, recreation and Project operation and maintenance; present uses include lands classified for agriculture and forest/timber and rural. The plan also establishes a permitting system whereby other agencies or individuals can use buffer zone lands on a controlled basis. Permits would be evaluated on a case-by-case analysis and approved by the District. As appropriate, agency and FERC comments would be solicited.

APPENDIX D
ADDITIONAL PROJECT AGREEMENTS

As part of the process for project development and in response to requirements of the FERC license, the District has developed plans to mitigate fish and wildlife impacts, provide recreation facilities and address operational concerns. During the past two years, the District has entered into several additional agreements that would enhance mitigation for the proposed Project or provide extra environmental protection. A summary of the key points and extra mitigation to be provided under these agreements follow.

I. ECOLOGY AGREEMENT

1. Limit rate impacts to less than 14% plus taxes.

2. Participate in restoration of anadromous fish runs to the upper Cowlitz River (contribute proportionate share of the cost).

3. Provide additional recreational amenities.
   a. Two additional fishing access areas.
   b. One additional scenic viewpoint.
   c. Fifteen additional campsites.
   d. Fifteen additional picnic tables.

4. Retain a landscape architect to assess the project site's visual character to blend project features into the natural environment.

5. Support Shoreline Master Program revisions relating to siting of hydropower projects.

6. Preserve the natural character of Cowlitz and Cispus rivers. Provide $150,000 to obtain development rights (conservation easements) outside project boundary.

II. ROGER HARPEL AGREEMENT

1. Cooperate in the Friends of the Cowlitz Trophy Trout Program.
   a. Contract with FOC to provide trout for project waters.
   b. Provide $5,000 to FOC to develop Trophy Trout Program.
   c. Provide $100,000 for construction of fish facilities.
   d. Provide $35,000 per year for operation and maintenance expenses.

2. Retain an independent consultant to conduct a review of the debris management plan. Develop communication program to inform public and landowners concerned by potential project impacts.

3. Coordinate with the City of Tacoma and Lewis County Parks to minimize potential seepage problems at the proposed 108 bridge campgrounds on the east end of Riffe Lake. If problems develop, remedy as necessary.

III. PITTSBURGH PLATE GLASS AGREEMENT

Option to limit rate increases from project to 14% plus taxes.

IV. NATIONAL PARK SERVICE AGREEMENT

1. Purchase 200-foot wide conservation easements on each bank along the Cispus River with $150,000 provided in the Ecology Agreement.

2. Provide an additional $75,000 to obtain development rights along the upper Cowlitz River.

V. BPA OPTION AGREEMENT

1. Grants option until 6/30/91 to purchase power output of project for 35 years.
2. Provides option payment to the PUD up to $1,000,000.
3. Agrees to develop power purchase contract during option period.
4. Provides for the PUD to recover costs during power purchase contract.
5. Provides for the cooperative operation of the project between BPA and the PUD.
6. Keeps ownership of project for the PUD and output after 35 years.

APPENDIX E

COWLITZ FALLS PROJECT
AGENCY CONSULTATION AND PUBLIC INVOLVEMENT

November 3, 1977	Public Meeting-Randle	Discussion of Appraisal Study Discussed Project economics, environmental impacts, design considerations. Attendance 30.
November 17, 1977	Public Meeting-Morton	Same as above. Attendance 35.
June 11, 1979	Public Meeting-Randle	Discussion of FERC permit, SEPA and planned engineering/environmental studies. Attendance 57.
August 6, 1979	SEPA pre-draft consultation meeting-Olympia	Discussion of SEPA environmental checklist. Outline for EIS, permits and schedule. Attendance: WDG, SEO, DOE, NMFS, CURE, Lewis Co. Planning, CFDPC, Menasha Corp. Mailing of approx. 50.
July 31, 1980	Public Meeting-Randle	Selection of El.866 reservoir level. Discussed 3 reservoir level alternatives. Attendance 30.
Jan 1979-Oct 1980	Agency consultations	Solicited input for Draft SEPA EIS. Contracted with Wa. Dept. of Game to conduct 2-yr study of fish and wildlife resources. Contracted with Fisheries to study salmon potential in upper watershed. Coordinated studies with approx. 30 agencies.
October 8, 1980	Agency meeting-Olympia	Discussed rough draft of SEPA draft EIS. Attendance: DOE, WDF, R.W. Beck, WDG, DOE-Dam Study.
November 21, 1980	Agency distribution	Published SEPA draft EIS. Sent to involved agencies, organizations and individuals. (Approx. 30 agencies & 15 organizations and individuals.)
December 16, 1980	Public Hearing-Morton	DOE conducted hearing to solicit comments to SEPA draft EIS. Attendance 100.
February 1981	Agency comments	Issued SEPA final EIS Comments and Replies on EIS. Incorporated comments in final EIS. 11 agencies and 12 corporate, individual or pvt. orgns. submitted written comments.
April 1981		FERC License Application

September 30, 1981	Agency Scoping Hearing-Morton	Scoping of NEPA EIS (FERC). Attendance 30. Speakers incl. WDG, Lewis Co., Gifford Pinchot N.F., White Pass School Dist., DOE, WDF, Champion International.
September 30, 1981	Public Scoping Hearing-Randle	Scoping of NEPA EIS (FERC). Attendance 50, 9 with oral comment.
April 1982	Request for Comments	Published NEPA draft EIS. 20 agencies & 27 others received copies.
April 1983	Agency comment letters and responses	FERC published NEPA final EIS. Agencies commenting included COE, Dept. of Interior, EPA, DOE, State Parks, WDG and Tacoma
April 1986	Agency & other letters	Petition for expedited Proceeding. District coordinated petition to receive FERC license with Senators Evans and Gorton, U.S. Rep. Bonker, WDE, DNR, NWPPC, City of Tacoma, Lewis Co. Commission, Cowlitz Indians, Champion International, Friends of White Water, CFDPC and individual intervenors. Purpose of petition was to assure that all issues had been satisfactorily addressed.
June 1986	Consultation required 12 operational/environmental plans	FERC Project License issued. A requirement of the license was continued consultation with various resource agencies to develop plans dealing with sediment, debris, ground water, erosion, bald eagles, etc. Major plans completed as of January 1990.
April-Dec 1987	39 public meetings throughout County with service organizations	Presentation on CFP, economics, resource needs & impacts. Attendance over 650.
Jan-Feb 1988	Public Hearings-Packwood, Morton, Onalaska, Winlock, PeEll & Chehalis	Draft Least Cost Resource Study. Attendance over 120, comments from 25.
March 7, 1988	Public Hearing-Chehalis	Shoreline Substantial Development Permit. Attendance 25. Agreements with Ecology and Pittsburgh Plate Glass on Project development were subsequently negotiated.

October 10, 1988	Public Meeting-Chehalis	Revised Draft Least Cost Resource Study. Attendance 15, comments from 7.
October 17, 1988	Weekly Board meeting	Resource program adopted by Commission. Concluding Least Cost Resource Study process.
December 13, 1988	Public Meeting-Chehalis	Water Rights. Discussion on all aspects of Project development. Attendance 250.
December 14, 1988	Public Hearing-Morton	Water Rights. Discussion on all aspects of Project development. Attendance 200.
January 1988-Present	Agency comments	Project permits. Agency consultation required to receive Project development permits.
Weekly	Commission Meetings Chehalis-Morton	Weekly meeting allows period for public comment on Project and other District matters. Since 1977 over 500 meetings.
May 1990	BPA's customers/interest groups	BPA solicited their views on its interest to acquire the Project output.
August 20, 1990	Public Meeting-Chehalis	BPA staff informed public of its intent to update and adopt FERC FEIS, and to take comments. BPA staff responded to issues raised at the meeting and later in individual letters to commenters.
August 20, 1990-October 19, 1990	Open comment period	Public invited to submit additional comments that would assist in preparation of the FERC FEIS update and adoption effort. Eight comment letters were received, and were considered in preparation of this attachment. Almost all the concerns raised were the same as those expressed earlier and are addressed either in the FERC FEIS or in this attachment.

APPENDIX F

1989-1990 BALD EAGLE PERCH AND WINTER SURVEY REPORT

OCTOBER 16, 1989 PERCH SURVEY

A ground and aerial bald eagle survey of the main reservoir area of the proposed Cowlitz Falls Project was performed October 16, 1989 by Dave Cornman, a raptor biologist with Bechtel Environmental, Inc. representing the Lewis County Public Utility District No.1 (District). Dave Anderson from the Washington Department of Wildlife (DOW) attended the survey; representatives of the U.S. Fish and Wildlife Service in Olympia were not available to participate. The survey was completed in accordance with the requirements agreed to by the District in the approved Bald Eagle Protection Plan and Fish and Wildlife Mitigation Plan. Delays in project permitting and the survey of the reservoir rim postponed the eagle perch survey from the originally planned August 1988 period.

Tentative locations for snags and old trees to be saved, and for artificial perches around the reservoir are identified in the Bald Eagle Protection Plan. The purpose of the perch survey was to identify the presence and locations of possible perch sites in relation to the 862-foot elevation survey, potential eagle-use areas and planned recreational facilities.

The proposed reservoir was flown by helicopter at mid-day under clear skies to verify previously identified potential perch sites and to locate any new sites. The area surveyed was from river mile 86 (head of Riffe Lake) on the Cowlitz River downstream of the proposed dam site, up the Cowlitz to river mile 93, above which the proposed reservoir stays almost exclusively within the existing river banks; and from the confluence of the cispus River up the Cispus to beyond the project boundary (approximately 2 miles).

As a result of this survey, some of the original perch sites were judged inadequate and were deleted due to their locations, the size of the tree, or other factors. Some new existing old tree sites were located on the reservoir boundary and were added as well.

Figure 1 shows the locations and numbers of snags and old trees located along the reservoir boundary which the District and DOW have agreed should be saved and girdled, topped or otherwise treated to promote eagle use.

The District has agreed that within one month of the clearing of each section of the reservoir, representatives of the District and the DOW will revisit these perch sites to make final determinations on which trees can and should be saved, the treatments to be carried out if any, and to mark the trees to be saved. It has also been decided that the final determinations on numbers of artificial perch sites and nesting platforms would be made 2 to 3 years into project operations in order to first identify the areas of greatest eagle use. Once established, eagle perches would be protected by a 200-foot buffer zone, where feasible, and marked in the field accordingly.

1990 WINTERING EAGLE SURVEY

The purpose of the wintering eagle survey was to locate and count the numbers of bald eagles present in the project area prior to construction to supplement data collected by DOW during the licensing process for the project. The District agreed to perform this survey and FERC required it under approval of the Bald Eagle Protection Plan as long as the survey did not cause a delay in the start of construction.

Helicopter surveys of the entire project area were performed on 2/23/90 and 3/12/90, from Riffe Lake to Randle and along the lower two miles of the Cispus River. A representative of DOW attended the 2/23 survey flight; representatives from the U.S. Fish and Wildlife Service were not available to participate. Weather was clear for both flights with approximately 30% snow cover on the first flight and no snow cover for the second flight. The flights were both operated just above tree top height and at approximately 25 to 35 m.p.h.

The results of the 2/23 survey showed 13 bald eagles (6 adults and 7 juveniles) using the project area. Nine of these birds were concentrated along a small section of the Cowlitz River between river mile 99 and 100. The reason for this concentration was judged to be the immediately adjacent, low-lying flooded fields to the north of this section which harbored at least 200 waterfowl and possible a number of stranded fish. Recent heavy rains and snowmelt were likely the causes of field flooding from river overflow and high runoff. Waterfowl were extremely uncommon over the rest of the project area. Figure 2 shows the locations of the other four eagles spotted in the general vicinity of these flooded fields. Eagles were not spotted anywhere else in the project area.

On 3/12 the survey showed only one adult eagle, at river mile 102, near where two adults were spotted on 2/23. No other eagles were found in the project area during the 3/12 survey. Two likely reasons for this decline in wintering eagles are: the obvious absence of the waterfowl due to the drying/draining of the flooded fields on this date, and possible early departures of eagles and waterfowl in migration.

Although initially planned, the third flight to count wintering eagles in the project area was canceled due to the obvious departure of the birds and lost food supply. DOW (personal communication 3/13/90 with David Anderson) agreed with this change.

In general, the results of these surveys indicate that the proposed Cowlitz Falls Project is within the winter range of the bald eagle and that food supply is clearly limiting usage of the area by eagles. Eagle use of the area is probably not strictly an anomaly of human-supplied carrion feeding as indicated by earlier observations. Fish stocking and wetlands development now planned as part of the mitigation program of the proposed Project could potentially significantly improve the food supply and carrying capacity of the Project area for wintering eagles.

The District plans to work closely with DOW and U.S. Fish and Wildlife Service to develop wetlands and waterfowl habitat and fish stocking programs in accordance with the Bald Eagle Protection Plan and the Fish and Wildlife Mitigation Program.

APPENDIX G

SUMMARY OF NORTHERN SPOTTED OWL SURVEY

The District consultants contacted the U.S. Fish and Wildlife Service (USFWS) to request any information on procedures to address possible effects of the proposed Project on the spotted owl. In initial discussions, the District was informed that procedures or guidelines addressing the spotted owl are still being developed. Interim guidelines were obtained from USFWS. It was suggested that previous wildlife studies be reviewed for the presence of spotted owls and habitat types within the Project area.

Review of the Fish and Wildlife Study for Cowlitz Falls conducted by the Washington Department of Game indicated that no spotted owls were observed during the two-year study. Owl calling stations also failed to locate any owls.

Project studies and a current survey of timber age and type within the Project boundary found no suitable habitat exists. The seventy acres of older second growth (listed as old growth in the Fish and Wildlife Study) was logged by the Washington Department of Natural Resources in 1988.

The District's consultant also contacted the Gifford Pinchot National Forest to inquire about the location of spotted owls near the Cowlitz Falls Project. In a review of their database, two sites which might be within 1.8 miles of the Project's boundary were noted. In August 1990, the Forest Service conducted habitat analysis for every known owl activity center. Their analyses were based on field reconnaissance and intense aerial photo interpretation of habitat types. No suitable spotted owl habitat (as described in the Interagency Scientific Committee's report) was found on private lands within 1.8 miles of the two owl sites. The Forest Service stated that since no federal land will be lost to the Project, no suitable habitat that can potentially be used by spotted owls should be lost. The District's field reconnaissance of these areas also indicated the lack of suitable spotted owl habitat within the Project boundary.

The Forest Service also stated that since nesting sites do not fall within one-half mile of the Project (closest pair approximately 1.5 miles) that according to present USFWS guidelines, no Project restrictions should apply.

The Project should have a net positive effect on endangered species by protection of shoreline habitat and the management of wildlife areas. However, the District believes it is important to continue communication with the USFWS on endangered species, both bald eagle and spotted owl.

APPENDIX H

CULTURAL RESOURCES - ARCHAEOLOGY
SUMMARY CHRONOLOGY OF EVENTS AND REPORTS

JUNE 1980 - CULTURAL RESOURCES ASSESSMENT FOR THE COWLITZ FALLS HYDROELECTRIC PROJECT

Identified six potential archaeological sites and 15 historical sites and structures throughout the Randle Valley, Washington.

During the proposed Project environmental study phase (SEPA EIS) the District performed extensive archaeological and historical investigations between Riffe Lake and the town of Randle, Washington. Study methods included literature and record searches, interviews of long-time area residents and field sampling of the project area. Construction is expected to have an adverse effect on the Cowlitz Falls South Site (Koapk).

Recommended additional data recovery work to confirm the National Register eligibility of the site.

DECEMBER 1981 - TEST EXCAVATIONS AT THE COWLITZ FALLS ARCHAEOLOGICAL SITES

Presented results of test excavations at the Cowlitz Falls South site (Koapk).

Approximately a three and one-half week field study program was conducted to determine the site's significance. In accordance with federal rules and regulations (36 CFR Part 800), sites that are eligible for the National Register of Historic Places should be evaluated to determine whether the proposed Project would have any effects, as well as to determine whether or not the effects would be adverse. At Koapk, the proposed Project plans call for extensive construction disturbances.

If Koapk is determined eligible for the National Register, measures to mitigate adverse effects would be proposed in the form of avoidance of disturbance or scientific data recovery.

Recommended that if Koapk is eligible for the National Register, then a mitigation plan would be prepared which focuses on a scientific data recovery (excavation) program to avoid adverse effects to the site.

Other sites in the project area do not call for disturbance by construction or operation, therefore no action is necessary at these sites.

FEBRUARY 1982 - REQUEST FOR DETERMINATION OF ELIGIBILITY

District filed a "Determination of Eligibility" form with the State Historic Preservation Officer (SHPO) to evaluate the significance of the Cowlitz Falls South (Koapk) site.

The SHPO indicated Koapk site eligibility for inclusion in the National Register of Historic Places. SHPO also agreed that other cultural resource sites identified in the project area would not be affected.

SEPTEMBER 1982 - CULTURAL RESOURCES MITIGATION PLAN (CRMP)

Plan to mitigate the potential effects that development of the proposed Cowlitz Falls Hydroelectric Project could have on archaeological and historical sites included in, or eligible for, the National Register of Historic Places.

The CRMP focuses on data recovery at Koapk because it is the only site within the Project area that would be directly affected by the Project and that impact would be significant. To assure that other sites are not impacted by Project activities a monitoring program was also developed.

The mitigation plan discusses previous investigations and the site significance, in the regional context of archaeology and to the Cowlitz Indian Tribe. From this background information, research questions and study priorities were developed to guide the field and laboratory work to follow.

The mitigation plan assumes that avoidance of the Koapk site is not possible. The data recovery program proposed was designed to collect a representative sample of the data available at the Koapk site.

The CRMP discusses field method (sampling strategy, excavation methods, recording procedures and field analysis); laboratory analysis (artifact analysis, stratigraphic studies, fauna/flora analysis and radiocarbon dating); and report preparation. The Plan commits to a Project construction monitoring program and a long-term Project operation monitoring program to survey and protect other cultural resources.

To accommodate the Cowlitz Indian Tribe's interest in the recovery of information on the prehistory and early history of the Tribe, the District designed the mitigation plan to (1) have a member of the Cowlitz tribe participate in field data recovery; (2) monument the Koapk site; (3) upon request give cultural materials to the Tribe; (4) enter into a disinterment and reburial agreement; and (5) give five acres of land to the Tribe for reburial.

The SHPO on September 29, 1983, stated that the proposed Project would have "no adverse effect" based upon the implementation of a CRMP. The Cowlitz Indian Tribe and the Advisory Council on Historic Preservation also supported the plan.

JUNE 1986 - FERC PROJECT LICENSE

Article #41 of the FERC license for the construction and operation of Cowlitz Falls Hydroelectric Project #2833 incorporated the CRMP by reference into the proposed Project's requirements.

JULY 1987 - CHANGES IN PROJECT ARRANGEMENT AND ALIGNMENT

District proposal to change the proposed Project arrangement and to shift the dam axis downstream.

The Cowlitz Indian Tribe requested that additional archaeological testing be performed in the "Terrace Area" immediately downstream of the licensed dam axis. Even though this area (the original substation location) was previously surveyed, the District agreed to further testing.

DECEMBER 1987 - ARCHEOLOGICAL TESTING PLAN FOR THE TERRACE AREA

Outline of a data recovery plan between the upstream data axis (licensed) and the downstream dam axis (proposed).

Field work was conducted February 18-25, 1988.

JUNE 1988 - DISINTERMENT AND REBURIAL AGREEMENT

Agreement between the District and the Cowlitz Indian Tribe setting forth a procedure in the event of discovery of human remains at the location of the proposed Project.

The procedure requires two-hour notification of the Tribe upon discovery and special treatment of remains with tribal access to any discovered remains or artifacts. The agreement also provides up to $50,000 for reburial land and up to $1,000 for reburial cost.

JULY 1988 - REPORT ON ARCHAEOLOGICAL TESTING IN THE TERRACE AREA

Summary of cultural findings in the Terrace Area.

The Terrace Area site was divided into four components: subpumice, eastern, central and western. Each component had its own chronological indicators and functional artifact types. Some deposits, below the Yn tephra, are believed to date back 3,300 years B.P.

Recommends further data recovery in the Terrace Area coordinated with the work at the original site. Suggests that the original Koapk site boundaries be expanded to include the Terrace Area.

SEPTEMBER 1988 - IMPLEMENTATION PLAN FOR ARCHAEOLOGICAL DATA RECOVERY

A plan to implement the Cultural Resource Mitigation Plan. The purpose of the implementation plan is to guide the performance of scientific data recovery at Koapk. Also guides the size and location of field samples and outlines a decision making process about the work in the field. This plan includes strategies for excavation of each component of the expanded Koapk site to collect a representative sample of cultural resource data available.

MAY 1989 - PRELIMINARY REPORT ON PHASE I ARCHAEOLOGICAL MITIGATION FIELD WORK AT THE KOAPK SITE

Summarizes, in a letter, the methods and results of Phase I mitigation field work at Koapk undertaken between October 9 and November 20, 1988.

During Phase I, 304 linear meters of control trenches were excavated with stratigraphic analysis performed. Also, approximately 43 cubic meters of block excavations and documentation were completed.

Preliminary conclusions indicate some occupation below the Yn pumice layer predating 3,500 years ago. The western end of the site may have served as a camp or possibly as a primary habitat site. The upper terrace occupation consisted of scattered camps, bivouacs and special activity areas. Use appears to have been directed toward plant products and game. There was no evidence of fishing. The lower terrace/lower bench zones appear to have been more extensively occupied, and may have consisted of camps and base camps. No direct evidence of structures was found. Archaeologists did not record any significant evidence of fishing.

The letter states "The archaeological investigations conducted on data at 45LE209 have yet to produce any substantial evidence that fishing was an important aboriginal activity at Cowlitz Falls. Gathering of plant foods and hunting appear to have been the focus of subsistence activities. Given that Cowlitz Falls was known as a fishing site for the ethnohistoric Cowlitz people, the archaeological data have been unexpected. It is possible that much of the material evidence for fishing (fish remains, wood/bone tools) has not been preserved at the site. An alternative hypothesis is that Cowlitz Falls was not an important fishing location for the prehistoric residents of the Cowlitz drainage. Only with displacement from other traditional fishing stations by Euroamerican settlement in the nineteenth century did fishing become an important activity at Koapk. A third hypothesis is that the processing of fish taken at Cowlitz Falls occurred at other locations perhaps eroded by river action."

The letter recommended that a total of 100 cubic meters in Phase II excavation be conducted to complete field work to mitigate Koapk and fulfill CRMP requirements.

SEPTEMBER 1989 - START OF PHASE II ARCHAEOLOGICAL MITIGATION FIELD WORK AT THE KOAPK SITE

The District commenced Phase II field work in September 1989. The Final Plan has not yet been released. Preliminary results were released in a March 1990 report. The report summarizes methods and results of the Phase II Mitigation field work at the Koapk site conducted from September 14 through November 10, 1989. The fieldwork completes the mitigation/data recovery at the Koapk site in accordance with the Cultural Resources Mitigation Plan and the Implementation Plan. Approximately 125 cubic meters were excavated in 1989 to recover a broad-based sample of cultural materials to reach redundancy, and to answer research questions. Fieldwork at the Koapk site is now considered complete.

The 1989 excavation produced more than 31,000 artifacts, which exceeds that needed to characterize past occupation at the site. Archaeologists are preparing plans to sample the collection for analysis. Categories with large numbers of similar items, particularly debitage and perhaps stone tools, bone tools, and historical materials, will be sampled according to their geographic and stratigraphic position within the site. The data analysis is expected to be completed by mid-year, followed by a final report. The report will address the research questions posed in the Cultural Resources Mitigation Plan and revised in the Implementation Plan.

JANUARY 1991 - FINAL REPORT, ARCHAEOLOGICAL EXCAVATIONS AT COWLITZ FALLS

This report will conclude archaeological investigation work at the Cowlitz Falls site called Koapk. The report will summarize the findings relating to environment, prehistory, ethnography, and history of the upper Cowlitz River Valley. The report will also include a discussion of artifacts found at the site, including their classification and use. The final report is scheduled to be completed in January 1991.

Project Construction and Operation

As part of the Cultural Mitigation Plan, initial Project excavation will be monitored for unique archaeological and cultural artifacts. Periodic monitoring during Project operation will also be conducted to assess the presence of cultural materials.

APPENDIX I

SUMMARY OF ESHB 1291

The Washington State Parks and Recreation Commission submitted legislation recommending that six rivers be considered for the state's scenic river program. Their recommendations were amended and the Senate Bill (ESHB 1291) and House substitute (HB1291) now include the following river reaches: (1) the Carbon River from its headwaters to its confluence with the Puyallup River; (2) the Cispus River from its headwaters to a point two and one-half miles upstream from its confluence with the Cowlitz River; (3) the Green River downstream from the headwork, City of Tacoma pumping station to the crossing of highway 18 bridge.

APPENDIX J

U.S. DEPARTMENT OF INTERIOR
NATIONAL PARK SERVICE LETTER

United States Department of the Interior

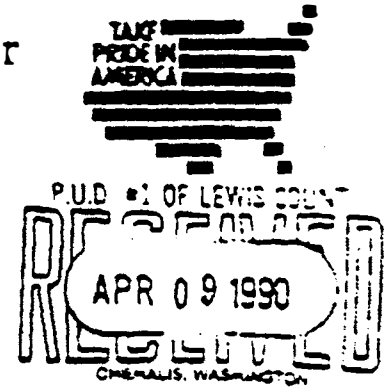
NATIONAL PARK SERVICE

Pacific Northwest Region
83 South King Street, Suite 212
Seattle, Washington 98104

IN REPLY REFER TO

FERC #2833

APR 05 1990



Mr. Gary Kalich
Manager
Lewis County Public Utility District
P.O. Box 330
Chehalis, Washington 98532

Dear Mr. Kalich,

Pursuant to the March 28 telephone conversation with you, your attorney, Senator Gorton's staff, and myself and subsequent correspondence and conversations, I offer the following for your consideration.

I appreciate the PUD's willingness to perform valuable mitigation for loss of wild and scenic river values on the Nationwide Rivers Inventory segments of the Cowlitz and Cispus Rivers. In the interests of a timely settlement, we are willing to accept less than full mitigation for lost values. It must be clearly understood that our making this offer is contingent on a 100% acceptance by the PUD of the settlement terms set forth in paragraphs 1, 2, and 3 below.

Since our conference with Colonel Hunter on March 22, our Lands Division has recalculated their land value estimates on the Cispus and Cowlitz Rivers. I specifically requested that segment lengths be readjusted to reflect the 10.7 mile total we discussed in the meeting and that the costs of prohibiting timber harvest within the 200 foot corridor along both rivers be incorporated. I believe this combination of segment length and corridor controls would constitute full mitigation for loss of wild and scenic river values on the two rivers. As I anticipated in our discussions at the Corps meeting, the addition of timber values does have a dramatic impact on the total cost of the acquisition program on the two rivers, increasing the preliminary estimate to $1.5 million for the full program.

Recognizing that the environmental review process for this project has been lengthy and in the interests of a timely conclusion, I am willing to agree to a settlement as follows:

1. More explicit terms in the PUD-DOE settlement: Subject to DOE concurrence, the settlement agreement should be amended to ensure that development rights within the specified corridor along the 5.6 miles of the Cispus River between the project boundary and the USFS boundary are acquired and held in perpetuity. Subject to paragraph 6 of the PUD-DOE agreement, the PUD should buy all rights to seasonal and permanent residential or commercial development within a corridor averaging 200 feet from the ordinary high water line on each bank, except in those cases where condemnation is necessary to complete acquisition. We would be willing to relinquish control on timber harvest within the corridor. Our preliminary estimates indicate that these development rights alone could be acquired for less than $25 thousand dollars, as compared to the $900 to $950 thousand estimated by our Lands Division for purchase of all development and timber rights.

2. Initiation of a conservation easement program on the Cowlitz River: Our Lands Division estimate for development and timber rights for the upper 5.1 miles of the Cowlitz River is $475 to $550 thousand. In the interests of a timely settlement, we recommend that any funds remaining from the PUD-DOE settlement after acquisition of development rights on the Cispus River be reallocated to purchase of development rights on undeveloped lands along the upper Cowlitz River, subject to DOE concurrence, to be supplemented by an additional amount limited to, but not less than, $75 thousand from the PUD. Terms of the acquisition should be similar, with the PUD buying all rights to seasonal and permanent residential or commercial development within a corridor averaging 200 feet from the ordinary high water line on each bank, except in those cases where condemnation is necessary to complete acquisition.

3. Completion of the acquisition program by a third party, if necessary: The acquisition program should be completed prior to the completion of project construction. The PUD should pay $125 thousand, less any funds expended to acquire rights under paragraph 2, for acquisition by a third party in the event that they are unable, short of condemnation, to expend the full $75 thousand.

In return for this settlement, the National Park Service will waive additional challenges to the issuance of the Section 404 permit or other permits or governmental actions required for construction of the project, and any government actions for sale or purchase of project power prior to the completion of project construction.

For my record, please return one copy noting the District's acceptance of these terms. Thank you again for your commitment to wild and scenic river issues on the Cowlitz Falls Project.

Sincerely,

Charles H. Odegaard
Regional Director

cc: Colonel Milton Hunter, Seattle District, U.S. Army Corps of Engineers, P.O. Box C-3755, Seattle, WA 98124-2255
Honorable Slade Gorton, 730 Hart Senate Office Building, Washington, D.C. 20510
Ms. Chris Smith Towne, Gordon, Thomas, Honeywell, 2101 One Union Square, Seattle, WA 98101

Acceptance:

Gary Kalich, Manager, Lewis County PUD

APPENDIX K

LETTER FROM TOM TRULOVE, CHAIRMAN, NPPC REGARDING PROPOSED COWLITZ PROJECT CONSISTENCY WITH NORTHWEST CONSERVATION AND ELECTRIC POWER PLAN

NORTHWEST POWER PLANNING COUNCIL

851 S.W. SIXTH AVENUE • SUITE 1100
PORTLAND, OREGON 97204-1348 • (503) 222-5161

Toll free number for Idaho, Montana & Washington: 1-800-222-3355
Toll free number for Oregon: 1-800-452-2324

January 27, 1989

Mr. Rodney G. Sakrison
Hydropower Coordinator, Water Resources Program
State of Washington Department of Ecology (PV-11)
Olympia, Washington 98504-8711

Dear Mr. Sakrison:

This letter is in response to your request for comments regarding the timing and cost-effectiveness of the proposed Cowlitz Falls hydropower project (FERC project no. 2833). The Northwest Power Planning Council staff has performed an analysis of the revenue requirements, cost-effectiveness and associated timing of the Cowlitz Falls project. The study assumptions were consistent with the Draft 1988 Supplement to the 1986 Power Plan. Technical and cost information for Cowlitz Falls were provided by Lewis County PUD.

SUMMARY

Based on these studies, Cowlitz Falls appears to be a cost-effective resource. Of concern, however, is the potential for substantial rate impacts to Lewis County ratepayers if the project is developed solely by Lewis County PUD. These impacts could be mitigated if the costs, risks and benefits of the project are shared with other utilities. Although, deferral of completion past 1993 may be difficult because of constraints imposed by the FERC license, greater benefit would accrue if construction could be scheduled to be consistent with the need for power. Depending on load growth, the project may be needed to serve regional load as early as 1993, but on average, the project would show more value if completed beyond 1993. The Council is not prepared to assess the environmental acceptability of the project, however, the project could contribute to restoration of anadromous fish runs in the upper Cowlitz basin.

ANALYSIS

Stand-alone project levelized revenue requirements were calculated to establish the position of Cowlitz Falls in the Council's resource portfolio. A base case was first run, using the Council's standard publically-owned utility financing assumptions, "real" dollars, a 1988 inservice date and the cost components normally considered by the Council in comparing resource cost-effectiveness. The base case levelized revenue requirement was estimated to be 25.3 mills per kilowatt-hour (1988 dollars). This number is consistent with the new resource costs appearing in Chapters 3 and 4 of the 1988 Supplement to the 1986 Power Plan.

It indicates that the project is potentially cost-effective, generally comparable to the high end of the "Low Cost Hydro 1" block of the 1988 Supplement.

The actual costs that would be experienced by Lewis County PUD if the project were to be developed would differ somewhat from the base case revenue requirements, for several reasons. First, the financing expected for the project (8.5 percent) is more favorable than the Council's standard financial assumptions for publically-owned utilities (9.2 percent). Second, the project is expected to come into service in 1993, in lieu of the 1988 inservice date used in calculating benchmark resource revenue requirements. Escalation of project costs in the intervening years will raise revenue requirements. Third, Lewis County PUD will pay legal and bond financing fees, estimated to be 2.5 percent of borrowed funds. Such fees have not normally been considered by the Council in assessing resource cost-effectiveness. Finally, the PUD will maintain reserve and working capital funds totalling approximately $20.3 million. Though these funds will be reinvested, a net interest expense of about 1 percent is expected to be incurred on these funds. This expense is also not normally considered by the Council in assessing resource cost-effectiveness. The net effect of these additional factors decreases the estimated levelized revenue requirement to 23.9 mills per kilowatt-hour.

The previous calculations were based on "real" i.e., inflation-free financial assumptions, as used in the Council's power plan. Real world ("nominal") project costs will be greater because interest rates include a forecasted rate of inflation. Using assumptions consistent with the foregoing analysis, the project levelized revenue requirement was calculated using nominal interest, inflation and discount rates. The nominal levelized revenue requirement was estimated to be 63.4 mills per kilowatt-hour.

Levelized revenue requirement calculations provide an estimate of the cost of developing and operating a project. But estimating the cost-effectiveness of a project requires in addition, consideration of factors such as the seasonality of energy production, possible displacement of other existing resources by the project, and the lesser value of the non-firm energy component (about 25 percent of the average energy output of the project would be non-firm energy). Cost-effectiveness is expressed as the net present value of a project to the region, and is estimated using the Council's Decision Model. Three cases were modeled. The base case was simply the resource portfolio for the 1988 Supplement and did not include Cowlitz Falls. The second case included Cowlitz Falls as a resource available for construction on a "floating" schedule. A floating schedule assumes that the project is available and could be built, consistent with forecast need, at any time during the Council's twenty year planning period. Comparison of this case with the base case yields an expected net present value benefit for the project of $51 million, if the costs and the benefits of the project accrue to the region as a whole. Note that this is the expected value outcome across 100 different load scenarios. The value would tend to be less in lower load conditions where the avoided cost of resources is lower. The value would tend to increase as loads increase.

A third case was run to determine what reduction to present value benefits might result if the project were brought into service at its currently scheduled in-service date, In this case the project was assumed to be brought into service in 1993, consistent with FERC license requirements, regardless of load level or need.

This case yields a present value benefit of $48 million from a regional perspective. The reduction to present value benefits for assuming that the project is brought into service early, as required by the FERC license, is only about $3 million. This is due to both the relatively low cost of the project and its high probability of need.

A second set of cost-effectiveness studies was run to estimate the cost-effectiveness of the project if it is used to serve the loads of Bonneville and its preference customers. These studies assume that Bonneville provides no service to investor-owned utility loads. Bonneville's surplus is expected to last longer than that of the region as a whole because much of the current surplus resides on Bonneville's system, and also because Bonneville's forecasted load growth is expected to be less than that of the region as a whole. For these reasons, the project is expected to be less cost-effective from the Bonneville perspective than from the perspective of the region.

These studies were performed with a newly developed decision analysis model, which has the capability for cost differentiation between the major utilities in the region. It is the only major planning tool currently available in the region with this capability. However, because it is new and relatively untested model, the results from these studies are subject to refinement. As a benchmark, this new model indicates a regional benefit of $35 million, compared to the $51 million mentioned earlier. Given the differences in model structures and real world uncertainties in power system operation, this is a reasonable result.

A study with the new model assuming that Cowlitz Falls is built to serve only Bonneville loads, and is built on a floating schedule, results in a present value benefit to Bonneville and its customers of about $15 million. Because Bonneville has less need for the plant than the region as a whole, the reduction in present value benefits for a forced completion in 1993 will be greater. This penalty is estimated to be on the order of $10 million, reducing the value of the plant to about $5 million. Clearly, if the project is acquired to serve Bonneville loads, it is important to try to time its completion so it comes into service when needed.

Because of uncertainties associated with future loads, it is not possible to forecast a specific date by which this project, or any other project will be needed. The Decision Model, however, may be used to assess the probability that the project will be needed during the 20-year planning period. Figure 1 shows the probability of need for Cowlitz Falls if the project is used to serve regional loads. The length of the horizontal bars represent the cumulative probability of need for the project by a particular year. For example, the probability the project would be needed by 1993 is 30 percent. This probability rises to more than 50 percent by 1995, and to 98 percent by 2008.. Because the probability of need within a year or two of the currently scheduled completion date is relatively high, the reduction in present value benefits for 1993 service is relatively small, as described earlier.

Figure 2 shows the probability of need for Cowlitz Falls if the project serves Bonneville loads. As expected, the probability that the project will be needed in any given year is less than for the regional case. For example, the project is not needed to serve Bonneville's loads until 1996 at the earliest. There is a 50 percent

probability that the project will be needed by 2004, and the probability that the project would be needed by 2008 is 79 percent. Because these anticipated dates of need are further in the future than for the regional case, a greater reduction in present value benefits is seen for a forced completion in 1993. Again, this emphasizes the importance of a floating schedule if the project is used to serve Bonneville's loads.

The present value benefits and probabilities of need estimated for Bonneville acquisition are subject to the uncertainty of investor-owned utility load placement upon Bonneville. While no investor-owned utility has announced that it will be placing long-term load on Bonneville, such placement would accelerate Bonneville's need for new resources.

Though the proposed Cowlitz Falls project appears to be cost-effective from both the region's and Bonneville's perspective, the potential impact of this project on Lewis County PUD rates is of great concern to the Council. Because of the large size of Cowlitz Falls relative to Lewis County PUD loads, using the entire project to serve just the PUD's loads would have substantial near-term rate impacts. We estimate the first year cost of the project to be approximately 62 mills per kilowatt-hour, greatly in excess of the expected cost of purchases from Bonneville at that time. These rate impacts could be largely mitigated if the project were acquired by Bonneville or if the project were jointly developed in partnership with another regional entity. For this reason, the Council encourages Lewis County PUD to pursue Bonneville acquisition or partnership with another utility to facilitate cost-effective development of Cowlitz Falls without unacceptable rate impacts to the customers of Lewis County PUD.

Finally, while Cowlitz Falls appears to be cost-effective from an economic perspective, the Council is not prepared to take a position regarding the overall environmental acceptability of the project. However, it is important to note that the project is not precluded from construction by the Council's protected area criteria, and, in fact, may contribute to the restoration of anadromous fish runs in the upper Cowlitz basin. In accordance with the Lewis County PUD agreement with the Washington Department of Wildlife, the project will be designed to accommodate the future addition of facilities for the capture and collection of downstream migrant fish. This would allow restoration of anadromous fish runs in the upper Cowlitz basin via collection and transport of migrants around Cowlitz Falls and downstream dams currently blocking such runs.

The merits of such a program will be addressed in the Council's subbasin planning process, currently underway. In 1987 the Council adopted a system planning process for purposes of increasing Columbia River anadromous fish runs. The Council's goal is an increase of 2.5 million salmon and steelhead. In this process, each subbasin in the Columbia River Basin will be reviewed for anadromous fish enhancement needs, opportunities and constraints. An integrated plan will be developed to coordinate anadromous fish enhancement projects regionwide. Though it is premature to say what enhancement measures may be appropriate for the Cowlitz River system until the system planning process is complete, the ability to use the Cowlitz Falls project as a downstream migrant collection facility may be beneficial if the Council decides to return the upper Cowlitz basin to anadromous fish production.

The Council greatly appreciates the opportunity to submit testimony on the Cowlitz Falls project. I, or Ed Sheets of the Council staff are available to answer questions regarding this testimony.

Yours truly,

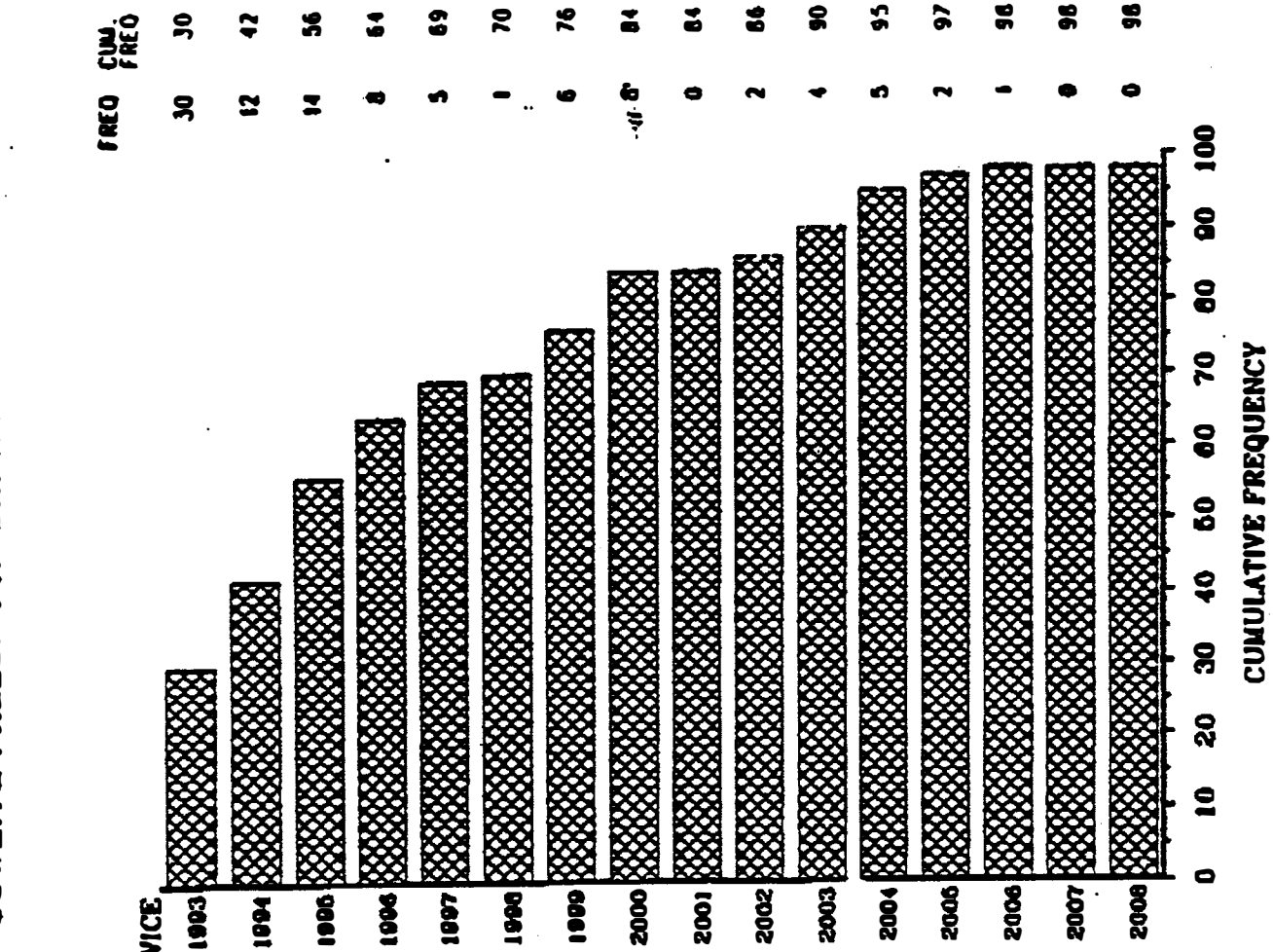
Tom Trulove
Chairman

TT/JCK/keg

cc: Ted Bottiger
Tom Foley
Wally Gibson
Jim Litchfield
Pete Swartz
Ed Sheets
Jeff King
Peter Paquet
Rick Applegate
Gary Kalich, Lewis County PUD

DANJE/LETAW1

FIGURE 1


COWLITZ FALLS: PROBABILITY OF NEED
YEAR IN SERVICE
FREQ
CUM. FREQ
1993 30 30
1994 12 42
1995 14 56
1996 8 64
1997 5 69
1998 1 70
1999 6 76
2000 8 84
2001 0 84
2002 2 86
2003 4 90
2004 5 95
2005 2 97
2006 1 98
2007 0 98
2008 0 98
0 10 20 30 40 50 60 70 80 90 100
CUMULATIVE FREQUENCY

COWLITZ FALLS: BONNEVILLE'S PROBABILITY OF NEED

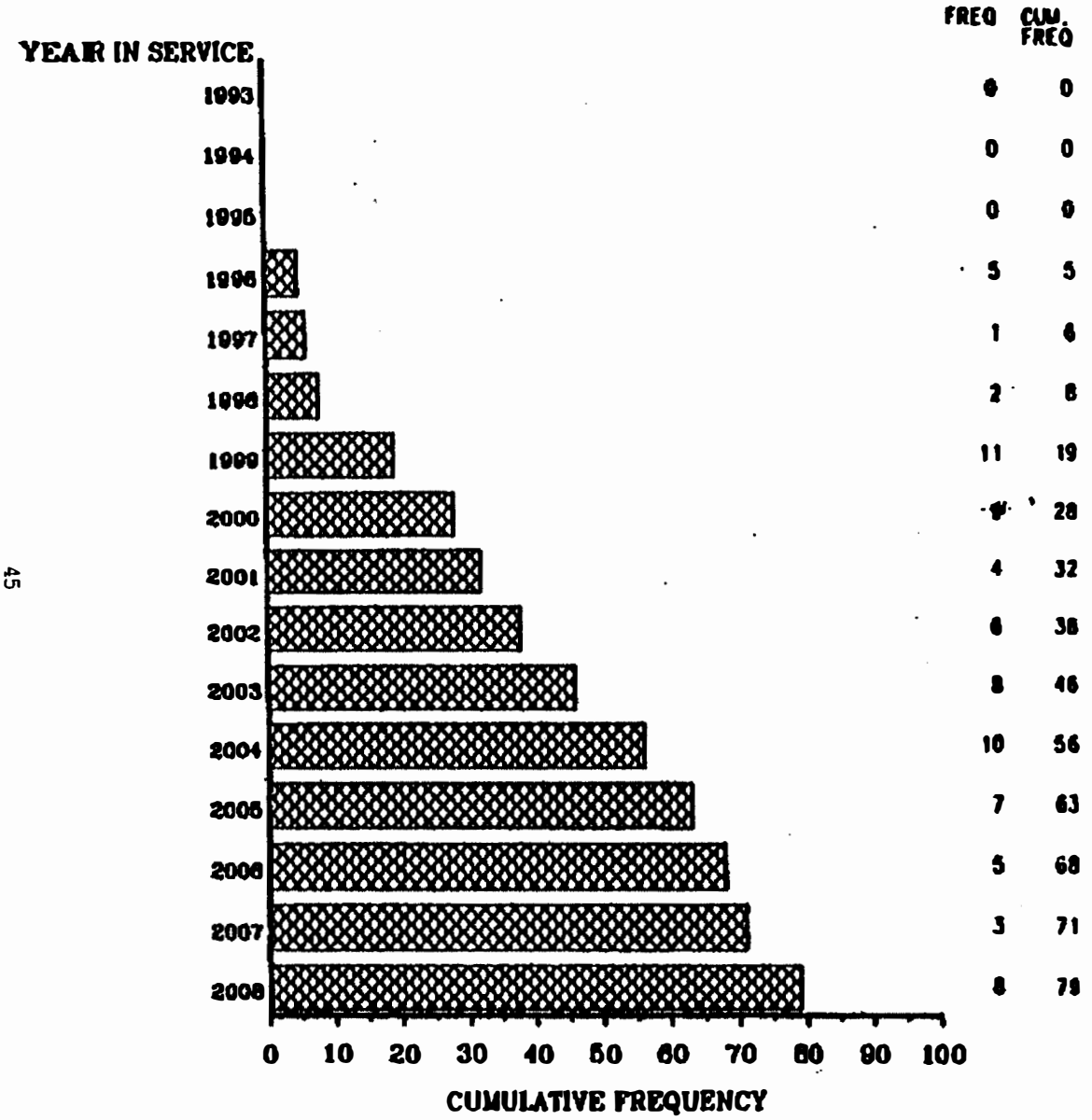


FIGURE 2