ENVIRONMENTAL ASSESSMENT [9]
Division of Environmental Analysis,
Office of Hydropower Licensing Federal Energy Regulatory Commission
Ashton-St. Anthony Hydroelectric Project
FERC No. 2381-001 Idaho
June 27, 1986

I. APPLICATION

Utah Power and Light Company (applicant or UP&L) filed on December 31, 1984, and supplemented on July 24, 1985, an application to relicense with additional capacity the existing Ashton-St. Anthony Hydroelectric Project. The project, which occupies 0.39 acres of U.S. land administered by the Bureau of Land Management (BLM), consists of two developments, the Ashton Development and the St. Anthony Development.

The Ashton Development is located on Henry's Fork of the Snake River, approximately 2.5 miles northwest of Ashton, in Fremont County, Idaho (figures 1 and 2). The St. Anthony Development is located on the Egin Irrigation Canal (EIC), a diversion of the Henry's Fork, in the City of St. Anthony, Fremont County, Idaho (figures 1 and 3).

On December 19, 1977, the Commission issued a major license to the Utah Power and Light Company for the continued operation of the constructed Ashton-St. Anthony Project. The license's expiration date is December 31, 1987.

II. RESOURCE DEVELOPMENT

A. Purpose

The proposed project would provide an estimated average of 10 million kilowatt hours (kWh) of additional electrical energy and 46 million KWh of total energy per year for Utah Power and Light Company, the owner utility.

B. Need for Power

Because of the small size of the proposed increase in the project capability in relation to the total generating capability of the applicant's system, the traditional approach of linking project development with a forecasted need for a specific project is inapplicable to assessing need for the proposed project upgrading.

The project is currently being used to meet load requirements on the applicant's electric power system. The additional power and energy that is made available through the proposed project upgrading would be useful in meeting load growth projected for the UP&L system and for adjacent areas. Use of the additional hydroelectric energy to displace fossil-fueled thermal generation would conserve nonrenewable fossil fuels and reduce the emission of noxious byproducts caused by the combustion of fossil fuels.

[9] Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

C. Economic Analysis

Additional power generated by the project would be utilized by UP&L in its system. The applicant based the economic feasibility of the project on its levelized avoided cost rates. The project's levelized cost would be 53.4 mills/kWh while the levelized avoided cost rate would be 54.5 mills/kWh.

D. Comprehensive Development

The existing hydraulic capacity at the project would be increased by replacing one of the units at the Ashton Development. This unit has a hydraulic capacity of 567 cubic feet per second (cfs), which would be increased to 1,000 cfs. The total hydraulic capacity of the Ashton plant would be increased from 2,079 cfs to 2,512 cfs, which corresponds to the flow equaled or exceeded 25 percent and 12 percent, respectively, on the flow—duration curve for Henry's Fork near Ashton. The new unit would generate an additional 10,000,000 kWh annually, which would increase the average annual generation from 36,000,000 kWh to 46,000,000 kWh at the project. The proposed capacity is reasonable, based on the limited operation that would be possible at higher flows.

The project is operated in a run-of-river mode. According to a current agreement, UP&L operations are secondary to irrigation releases for downstream farms. When the hydraulic capacity of the Ashton power plant is increased, it would reduce the average annual spill period from 4 months to 1 month.

The flow-duration curve for Henry's Fork is based on the period of 1961 to 1983 from USGS Gage No. 13046023 near Ashton, Idaho, located 0.3-mile below the plant. The gage was subsequently relocated. The period of flow is considered representative of future flows anticipated at the site. Based on this gaged record, the applicant's estimate of 10,000,000 kWh of additional average annual energy is reasonable. There .are no minimum flow requirements imposed by the resource agencies that would cause reduction in generation.

The Commission's Planning Status Report for the Upper Snake River Basin discusses the existing water resource developments and reconnaissance level plans of possible future development within the basin. The project does not conflict with any existing or planned development or any pending applications for exemption, license or preliminary permit. The intake and powerhouse are considered properly located, given the existing site conditions.

In summary, the staff's analysis shows that the proposed project is properly designed to develop comprehensively the hydropower potential of the Snake River.

D. Alternatives to the Proposed Action

The applicant's proposal to upgrade the project is made in conjunction with UP&L's application for relicensing the project and in compliance with a letter of agreement between the applicant, the United States, the City of Idaho Falls, and the Fremont-Madison Irrigation District, relating to operation of the Island Park reservoir. Among other things, the agreement requires that water spills past the Ashton plant be minimized to the greatest extent possible. The proposed project modification would address this requirement while other alternative generating facilities or load reduction measures would not.

III. EXISTING FACILITIES, PROPOSED ACTION, AND ALTERNATIVES

A. Existing Facilities

The Ashton Development currently includes: (a) a 65-foot-high, 252-foot-long, earth and rock-filled dam that impounds a reservoir having a surface area of 404 acres at a normal maximum water surface elevation (figure 2); (b) a reinforced concrete powerhouse containing three turbine-generator units with

a combined rated capacity of 5,800 kW; (c) a tailrace; (d) a 133-foot-long, 46-kilovolt (kV) transmission line; and (e) a 2,160-foot-long access road.

The St. Anthony Development currently includes: (a) a 9.5-foot-high, 863-foot-long, concrete diversion dam having a 206-foot-long spillway surmounted by 2.5-foot-high flashboards, and an 81.5-foot-long wasteway surmounted by 4.5-foot-high flashboards; (b) a 35-foot-wide, 1,350-foot-long power and irrigation canal; (c) a 16-foot-wide, 110-foot-long, screened and lined wooden flume; (d) a reinforced concrete powerhouse containing one turbine-generator unit with a rated capacity of 500 kW; (e) a tailrace; and (f) a 150-foot-long, 24-kV, underground transmission line.

B. Proposed Action

The applicant proposes to relicense and continue operation of the existing hydroelectric facilities at the Ashton and St. Anthony Developments. By replacing the existing l,800-kW turbine generator unit with a new 3,400-kW unit, the applicant would increase the generating capacity of the Ashton Development from 5,800 to 7,400 kW. The applicant also proposes to implement fish and wildlife mitigative plans at the Ashton Development, to upgrade existing day-use recreational facilities at Ashton Reservoir, and to construct an upstream fish facility at the St. Anthony Development.

C. Federal Land Management Conditions

BLM did not provide conditions for the project.

D. Alternative of No Action

No action would involve denial of the relicense and abandonment of the existing facilities or the issuance of an annual license until the facilities are taken over by another entity for a non-power use.

IV. CONSULTATION AND COMPLIANCE

A. Agency Consultation

Commission regulations require prospective applicants to consult with the appropriate resource agencies before filing an application for license. This consultation constitutes an initial step in compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, and other federal statues. Pre-filing consultation must be complete and documented in accordance with the Commission's regulations.

After the Commission accepts the application, formal comments may be submitted by concerned entities during the public notice period. In addition, organizations and individuals may petition to intervene and become a party to any subsequent proceedings. The comments provided by concerned entities are made part of the record and are considered during the review of the proposed project. The following entities commented on the application subsequent to the public notice, which was issued on May 15, 1985.

Commenting Entity	Date of Letter
Forest Service, Targhee National Forest	June 12, 1985
City of St. Anthony	July 12, 1985
Department of the Interior	July 29, 1985

The Idaho Department of Water Resources (IDWR) filed a timely Motion to Intervene on July 12, 1985. The Idaho Department of Fish and Game (IDFG) filed an untimely Motion to Intervene on July 19, 1985, but was granted late intervention on November 6, 1985.

B. Water Quality Certification

On May 10, 1985, the State of Idaho Department of Health and Welfare (IDHW) granted §401 water quality certification as required by the Clean Water Act.

C. Pacific Northwest Power Planning and Conservation Act

Under Section 4(h) of the Pacific Northwest Power Planning and Conservation Act, the Northwest Power Planning Council (Council) developed the Columbia River Basin Fish and Wildlife Program (Program) to protect, mitigate, and enhance fish and wildlife resources associated with the development of hydroelectric projects. The Program contains a framework for assessing the impacts of new hydroelectric development on fish and wildlife resources and lists a number of general mitigative measures that should be implemented for any new development.

The Program requires that fish and wildlife agencies, Indian tribes, and the Council be consulted during the study, design, construction, and operation of new hydroelectric projects. The Commission's regulations currently require applicants to initiate pre-filing consultation with these entities and to give these entities the post-filing opportunity to review and comment on the license application. This consultation process has occurred.

The Program states that authorization for new hydroelectric projects should include conditions of development that would mitigate the impacts of the project on fish and wildlife resources.

The applicant proposes to satisfy the intent of the Program by providing adequate mitigative measures. Moreover, the Commission has the authority to order, where practical, alterations of project structures and operations in order to take into accour$_1$t the Council's Program. Accordingly, the staff concludes that the Proposed project does not conflict with the applicable provisions of the Council's Program.

V. ENVIRONMENTAL ANALYSIS

A. Proposed Action

The removal of the existing 1,800-kW turbine-generator unit and the installation of the proposed new unit would require the alteration of the powerhouse interior, but would not involve any excavation or new construction at the Ashton Development, nor would the proposed action involve an increase in the normal maximum surface area of the Ashton Reservoir. Consequently, the proposed action would not affect the visual quality of the project area. Moreover, manufacturing of the new turbine-generator unit and other equipment would not occur in the Ashton-St. Anthony vicinity, and the replacement of the existing turbine at the Ashton powerhouse would require relatively few onsite workers. As a result, the proposed action would not generate any discernable socioeconomic impacts in Fremont County, Idaho.

1. General Description of the Locale

Ashton Dam and powerhouse are situated in northeast Idaho, a sparsely populated, semi-arid area in which the dominant land uses are irrigated agriculture and outdoor recreation, particularly trout angling and hunting. The area's topography is flat to gently rolling, and its climate is characterized by warm, dry summers and cold, snowy winters. The area's average annual precipitation is approximately 14 inches.

As of July 1, 1984, the City of Ashton, located approximately 2.5 miles southeast of the dam, had a total population of 1,226 persons, and the City of St. Anthony had 3,155 permanent residents (personal communication, Audrey Primas, Statistical Information Assistant, Bureau of the Census, Suitland, Maryland, April 16, 1986).

The area's dominant economic activities are irrigated farming, lumbering, and wood processing. In 1982, the 547 farms in Fremont County received $64,170,000 from the sale of potatoes, cattle and calves, barley, wheat, dairy products, and other agricultural products (personal communication, Douglas Miller, Statistician, Bureau of the Census, Suitland, Maryland, April 16, 1986). Data for 1984 indicate that 189 workers were employed by sawmills and other manufacturers of wood products in Fremont County (personal communication, Gerald Foyer, Statistician, Bureau of the Census, Suitland, Maryland, April 16, 1986).

2. Geology, Soils and Sedimentation

Affected Environment: The project area, located in the Eastern Snake River Plain Section of the Columbia Intermontane Physiographic Province, is in Seismic Zone 3, which has a potential for major damage. Nevertheless, geologic maps of Idaho do not show any faults in the immediate project vicinity.

Bedrock in the project area consists of massive basalt. Alluvial deposits at the Ashton Dam include loose cobbles and boulders, and compacted, cemented gravels. Finer sediments, such as sand and silt, become more abundant in the lower gradient reach at St. Anthony.

Environmental Impacts and Recommendations: Installation of a fish passage facility at the EIC diversion dam would cause temporary increases in turbidity, suspended sediment, and downstream sedimentation. The licensee should prepare and implement a detailed site-specific plan to contain disturbed sediments and minimize the quantity of sediment that would enter Henry's Fork as a result of these construction activities, including the filtering of any sediment-laden discharges and the disposal of any excess sediments or other spoil materials.

Unavoidable Adverse Impacts: Minor, temporary increases in turbidity and suspended sediment would be unavoidable during construction of the fish passage facility at the EIC diversion.

3. Water Resources

Affected Environment: Ashton Dam, located at river mile 45 of the Henry's Fork of the Snake River, drains approximately 1,040 square miles in eastern Idaho. Mean monthly flows of the Henry's Fork, as measured at the USGS gage located 0.8-mile below the dam, have ranged from 638 cfs in December 1962, to 4,372 cfs in May 1971. The average annual flow is 1,463 cfs. Inflow to the reservoir, which is regulated by releases from Henry's Lake and Island Park Reservoir, is greatest during periods of snowmelt and runoff. Ashton Reservoir extends approximately 4 miles upstream from the dam and has a normal maximum water surface area of 404 acres.

IDHW has classified the reach of the Henry's Fork in the project area as a special resource water. Designated uses of this river segment include primary and secondary contact recreation, maintenance of cold water biota, and salmonid spawning habitat.

The water quality of Henry's Fork below Ashton Dam is generally good. Water temperature ranges from 0 degrees Centigrade (°C) in February to 16.5°C in August, pH levels of 8.4 and 8.1 were recorded in summer and fall, respectively, and dissolved oxygen (DO) levels (measured about 35 miles downstream of Ashton Dam) vary between 6.5 and 13.2 milligrams per liter (mg/l) (Idaho Department of Health and Welfare, 1984).

Water sampling conducted by the applicant in the summer of 1984 indicates that in Ashton Reservoir values for both DO and water temperature decrease with reservoir depth. Water temperature ranged from 17.6°C at the surface to 15.2°C at the bottom in June, and from 20.1°C to 17.2°C in August; while DO levels ranged from 8.3 to 7.2 mg/l in June, and from 8.7 to 7.3 mg/l in August.

The St. Anthony Development is located on a diversion of the EIC. The EIC diversion dam, where there is no reservoir and only negligible storage capacity, diverts water directly into the EIC. Water is available for generation only when irrigation needs are being satisfied.. Flows not used for irrigation and generation spill over the EIC diversion dam. Diversion of water into the St. Anthony powerhouse from the EIC averages 406 cfs during the irrigation season and 432 cfs during the non-irrigation season. The average annual flow of water through the facility is 410 cfs. Water available for generation is subject to the Egin Irrigation Company's water requirements as well as available flows in the Henry's Fork. Mean monthly flows for the Henry's Fork, as measured at a USGS gage upstream of the diversion dam, have ranged from 668 cfs in October 1966, to 6,055 cfs in May 1976. The average annual flow is 2,950 cfs.

The water quality of the Henry's Fork above the EIC diversion dam is similar to that of the river below Ashton Dam. The water quality of the Henry's Fork below St. Anthony, however, is degraded by irrigation return flows and low flows related to irrigation diversion (Rohrer, 1981).

Environmental Impacts and Recommendations: Construction of a fish passage facility at the EIC diversion dam would cause temporary increases in sedimentation and turbidity. The implementation of a sediment control plan would minimize the amount of sediment introduced to the Henry's Fork.

After installation of the new turbine, operation of the Ashton powerhouse would result in the increased diversion of 433 cfs through the power-generating facility, and a reduction of the average spill period from 4 months to 1 month. As a result, DO concentration of the river below the project could be reduced somewhat. Consequently, the Bureau of Reclamation requested that DO concentration of the powerhouse discharge be assessed periodically. The applicant replied that monitoring of tailrace flows would not be necessary because DO concentration of the reservoir at the depth of water withdrawal is suitable for salmonids, and the presence of a healthy trout fishery downstream of the Ashton Dam suggests that DO levels are not detrimental to the fishery.

Reducing the magnitude and duration of spill at the Ashton Dam would not appreciably alter the existing DO concentration of the Henry's Fork downstream of the project. Although data that describe the DO concentration immediately downstream of the dam are unavailable, the aeration effect of the existing spill regime is most likely insignificant because the water at all depths in the reservoir has a DO saturation of at least 90 percent. The DO concentration of the powerhouse discharge would reflect that of the reservoir in the vicinity of the intake. Monitoring of the powerhouse discharge is unnecessary because DO concentration of the reservoir at the depth of water withdrawal would maintain state water quality standards for the Henry's Fork. The continued operation of the St. Anthony Development would not impact the existing water quality of the Henry's Fork.

Unavoidable Adverse Impacts: Minor, short-term increases in sedimentation and turbidity would occur during construction of a fish passage facility at the EIC diversion dam.

4. Fishery Resources

Affected Environment: The fishery resource of the Henry's Fork is comprised of coldwater species, including wild and hatchery rainbow trout (Salmo gairdneri), cutthroat trout (S. clarki), brown trout (S. trutta), brook trout (Salvelinus fontinalis), kokanee salmon (Oncorhynchus nerka), and mountain

whitefish (Prosopium williamsoni). The Henry's Fork provides habitat for a major resident trout fishery that is an extremely popular recreational resource in the vicinity of Ashton Dam and the St. Anthony Development. IDFG lists the Henry's Fork as Value Class I, the highest class possible for fishery resources.

IDFG studies indicate that the fishery within Ashton Reservoir is not as productive as the free-flowing river reaches downstream of the Ashton Dam and upstream of the Ashton Reservoir. Although little quantitative information exists on the fishery resource downstream of the EIC diversion dam at St. Anthony, reduced water quality could limit fish production. No federally listed threatened or endangered aquatic species are found in either area (letters from John Wolfin, Field Supervisor, U.S. Fish and Wildlife Service, Boise, Idaho, August 10, 1984, and September 18, 1984).

Environmental Impacts and Recommendations: Increased sedimentation and turbidity levels resulting from the installation and start-up of the turbine at Ashton Dam and during the construction of a fish passage facility at the EIC diversion dam would cause a short-term, adverse impact to the fishery resource by resulting in the avoidance of these areas by resident fish. The implementation of sediment control measures would protect the area's fishery resource.

Flow fluctuations during construction at or operation of the Ashton Development could adversely affect resident fish and fishing opportunities by drawing down the reservoir and stranding fish. The applicant, however, states that Ashton Reservoir's water levels would be unaffected by the installation of the new turbine.

IDFG recommends ramping rates and fishery resource maintenance flows at the Ashton Dam. The applicant states that these mitigative measures are not necessary because the Ashton Development would continue to be operated in a run-of-river mode.

Hydroelectric projects that operate in an instantaneous run-of-river mode and discharge flows at the dam do not require the establishment of either a ramping rate or a minimum flow. As proposed, the Ashton powerhouse would continue to discharge water immediately below the existing dam. Requiring the applicant to operate the project in a strict run-of-river mode would adequately protect the fishery resource of the Henry's Fork below Ashton Dam. The licensee, therefore, should operate the project in an instantaneous run-of- river mode.

IDFG indicates that fish population, fish harvest, and recreational fishery use of Ashton Reservoir are substantially less than the comparable values for adjacent upstream and downstream reaches of the Henry's Fork. IDFG believes that the production of fish in the river reach that was inundated by Ashton Reservoir was similar to that of surrounding free-flowing river reaches before constructing the Ashton Dam. To mitigate for this loss in production, IDFG recommends and the applicant concurs that the applicant must conduct a study to discover those measures that would increase the reservoir's fish populations, fish harvest, and recreational fishery use. Based on recent catch rates and sizes of fish caught, IDFG and the applicant agree on reservoir enhancement catch rate goals of 1 fish per angler hour and a mean size of 10 to 12 inches for creeled fish. Failure to achieve these goals would require the applicant to enhance the fishery at an offsite area.

The applicant's detailed fishery mitigative plan for the Ashton Reservoir, which includes a study to assess the productivity of the fishery and a fish stocking program, has been accepted by IDFG. The applicant's proposed fishery mitigative plan, included in the Report on Fish, Wildlife, and Botantical Resources, filed December 31, 1984, as Section 3 of the Exhibit E (Environmental Report), pages E-26 through E-37 (following), should provide for adequate mitigation of major project impacts to the fishery resource of the Henry's Fork in Ashton Reservoir.

Because the EIC diversion dam currently is a barrier to the upstream migration of resident trout, IDFG recommends that the applicant install and operate a fish passage facility at the diversion dam. The

applicant agrees to construct and operate a fish passage facility at the diversion dam. A fish passage facility would allow the fishery resource downstream of the development to have access to areas with superior water quality and spawning habitat. The licensee, therefore, should install and operate a fish passage facility at the EIC diversion dam.

Continued operation of the St. Anthony Development could result in the entrainment and turbine-related mortality of fish. IDFG recommends screening either the project intake or the headgate of the irrigation canal in order to minimize turbine-related mortality of fish. The applicant does not agree to screening the intake or canal headgate because of the high cost of installing, operating, and maintaining a fish screen, and because the amounts of entrainment and turbine-related mortality are unknown. The magnitude of entrainment mortality should be assessed by post-operational monitoring studies. The applicant, therefore, should conduct such monitoring studies to fully assess fish entrainment mortality and, if necessary, mitigate for fish entrainment mortality. The studies should include a determination of appropriate mitigative measures, such as supplemental stocking of upstream reservoirs to compensate for any fish losses.

Unavoidable Adverse Impacts: Increased sedimentation resulting from the installation and start-up of a new turbine at the Ashton powerhouse and the construction of a fish passage facility at the St. Anthony Development would temporarily impact the fishery resource. The continued operation of the St. Anthony powerhouse could cause some losses to the area's fishery as a result of entrainment-related mortality.

5. Terrestrial Resources

Affected Environment: The project is located within the sagebrush- wheatgrass province of the Intermountain Sagebrush Ecoregion (Bailey, 1980). Vegetation typical to this area includes big sagebrush (Artemsia tridentata), wheatgrass (.Agropyron spp.), and Rocky Mountain juniper (Juniperus scopulorum). Riparian vegetation around the Ashton Reservoir is dominated by willows (Salix spp.), black cottonwood (Populus trichocarpa), water birch (Betula occidentials), and bigtooth maple (Acer grandidentatum). Vegetation in the vicinity of the St. Anthony Development is scattered because of past disturbance from commercial and residential development (Utah Power and Light Company, 1984).

The project vicinity supports populations of elk (Cervus canadensis), mule deer (Odocoileus hemionus), beaver (Castor canadensis), mink (Mustela vison), river otter (Lutra canadensis), and bobcat (Lynx rufus). When unfrozen during fall and winter, the reservoir receives moderate use by waterfowl. Common waterfowl include Canada geese (Branta canadensis), mallard (Anas platyrhynchos), common goldeneye (Bucephalus clangula), and common merganser (Mergus merganser). The trumpeter swan (Cygnus Cygnus buccinator), a National Species of Special Emphasis, occasionally use the Ashton Reservoir (Utah Power and Light Company, 1984).

A small number of ospreys (Pandion haliaetus) and bald eagles (Haliaeetus leucocephalus) have been observed at Ashton Reservoir during midwinter surveys. There is evidence that eagles nested at the reservoir during 1982 and 1983 (Utah Power and Light Company 1984). The peregrine falcon (Falco peregrinus) is an occasional migrant in the project area during the fall and winter. The bald eagle and peregrine falcon are federally listed endangered species.

Environmental Impacts and Recommendations: Relicensing of the project would not result in any additional impacts to wildlife or their habitats. Original construction and reservoir filling disturbed at least 400 acres of wildlife habitat (Utah Power and Light, Company, 1984). The applicant proposes to mitigate for the project's original and continuing impacts by implementing a wildlife enhancement plan. The plan consists of: planting 31.8 acres of overgrazed habitat with beneficial plant species; constructing 5.7 miles of fencing that would exclude cattle from portions of the Ashton Reservoir shoreline; installing 15 goose nesting structures, 10 raptor perch structures, 10 osprey nesting

platforms, and 1 bald eagle nesting platform; acquiring preservation easements for 250 acres of nearby wetland habitat; and monitoring of the program.

The measures cited above would increase 'the potential value of the project area as habitat, thereby benefiting wildlife. The proposed mitigative plan, however, currently does not include the locations, design specifications, and other details of the proposed measures. The licensee, therefore, should consult with the U.S. Fish and Wildlife Service (FWS) and IDFG to develop a final mitigative plan that identifies the locations, and provides more detailed specifications of all the proposed measures.

The proposed action would not adversely affect bald eagles (letter from Bruce Blanchard, Director, Office of Environmental Project Review, Department of the Interior, Washington, D.C., July 29, 1985).

Unavoidable Adverse Impacts: None.

6. Cultural Resources

Affecting Environment: Ashton Dam and powerhouse, which were constructed and made operational between 1914 and 1918, may be eligible for inclusion in the National Register of Historic Places. However, only the unit no. 1 turbine, which would be replaced with a more efficient unit, would be affected by the proposed action. The significance of this turbine cannot be established until it is removed and inspected. No other components of the dam and powerhouse or other eligible historic or archeological sites would be affected by the proposed action (letters from Dr. Merle W. Wells, State Historic Preservation Officer, Idaho State Historical Society, Boise, Idaho, May 1984, and Dr. Thomas J. Green, State Archeologist, Idaho State Historical Society, Boise, Idaho, December 10, 1984).

Environmental Impacts and Recommendations: The Idaho State Historic Preservation Officer (SHPO) indicates that the removal of the turbine from its historic context would be mitigated by its historical documentation or preservation for public display or further study. The applicant has agreed to assess the historical significance of the turbine upon its removal, and to implement procedures to document or preserve the turbine. This work should be undertaken in a manner satisfactory to the SHPO and the National Park Service (letters from Dr. Thomas J. Green, State Archeologist, Idaho State Historical Society, Boise, Idaho, May 31, 1985, and Jody Williams, Attorney, Utah Power and Light Company, Salt Lake City, Utah, July 22, 1985).

Unavoidable Adverse Impacts: The unit no. 1 turbine would be removed from its historical context.

7. Recreation and Other Land Uses

Affected Environment: Henry's Fork in the vicinity of the Ashton Development provides a quality trout fishery, which is intensively used by anglers. In addition to fishing, Ashton Reservior provides opportunities for boating and waterfowl hunting. Public recreational facilities at the Ashton Development currently include a boat ramp and pier at the north end of the reservoir and 12 floating boat docks around the reservoir perimeter. The Targhee National Forest, located about 2 miles north of the reservoir, also provides various recreational opportunities, including fishing, hunting, boating, camping, skiing, hiking, and sight-seeing.

Recreational uses in the vicinity of the St. Anthony Development include picnicking, fishing, swimming, and team sports. There are two developed recreation areas in the vicinity of the development, both owned by the City of St. Anthony. They include a 1-acre playground, which is located west of the project, and Island Park, recently renamed Keefer Park, a 5-acre facility with picnic

tables, two barbeque grills, and an athletic field. A supervised swimming area is located across the river from the park.

Besides recreation, land use in the vicinity of the Ashton Development consists primarily of irrigated farming. In the vicinity of the St. Anthony Development, land use comprises commercial and industrial development.

Because of its outstanding sight-seeing qualities and recreational fishing opportunities, a 42-mile-long section of the Henry's Fork upstream of its confluence with the Warm River has been listed on the Nationwide Rivers Inventory. Legislation to convert this portion of the river to a study river has been introduced to Congress. The project site, however, is approximately 10 miles downstream of the boundary of this river segment.

Environmental Impacts and Recommendations: Because of the poor condition of the boat ramp and dock area at .Ashton Reservoir, upgrading and routine maintenance are needed. The Idaho Department of Parks and Recreation (IDPR) and the National Park Service (NPS) recommend measures to improve recreational facilities at the Ashton Reservoir. The applicant has incorporated these recommendations in its Recreation Area Improvement Plan, and included the plan in its Report on Recreational Resources (Report). The Report indicates that the applicant would implement the following measures: (1) acquire lands at the reservoir that are currently owned by other entities; (2) upgrade the existing concrete boat ramp and access to the fishing-observation pier; (3) add new facilities, including picnic tables, grills, trash receptacles, and a portable restroom; (4) improve traffic circulation patterns and separate vehicular movement from pedestrian activity; (5) negotiate an agreement with Fremont County that would shift the responsibility for facility operation and maintenance from the County to the applicant; and (6) reevaluate the need for additional recreational facilities at the reservoir within 5 years from the date of issuance of the license.

Applicant's proposed plan to improve recreational facilities and their operation and maintenance would enhance day-use recreation in the project area. Therefore, the Report on Recreational Resources, filed December 31, 1984, as Section 5 of the Exhibit E (Environmental Report), pages E-19 through E-59, should be implemented and all proposed recreational improvements should be completed within 1 year from the date of issuance of any license for the project.

The City of St. Anthony is concerned about the deteriorating condition of the diversion structure and the retaining wall that protects Keefer Park. Because of the poor condition of these two structures, flooding occasionally occurs in Keefer Park. The City recommends that these structures be replaced or rebuilt so that they protect the park from flooding. The applicant has agreed to repair and maintain the diversion structure and retaining wall at Keefer Park (personal communication, Jody Williams, Attorney, Utah Power and Light Company, Salt Lake City, Utah, May 9, 1986).

Maintenance of the diversion structure and retaining wall would protect the recreational resources at the development. The licensee, after consultation with the City of St. Anthony, should repair or replace those portions of the diversion structure and retaining wall needed to prevent flooding at Keefer Park.

Unavoidable Adverse Impacts: None.

B. Cumulative Impacts

Henry's Fork River Basin: The Henry's Fork of the Snake River drains 2,733 square miles in the eastern portion of Idaho. The stream originates from the outlet of Henry's Lake, located in the Continental Divide Mountains. The stream drains southwest and flows 124 miles to the Snake River. Major tributaries in the Henry's Fork Basin include the Buffalo River, Warm River, Falls River, and Teton River (figure 4).

Topography in the southwest and western portion of the basin is relatively smooth and formed by basalt flows; the northern and southeastern portions are more mountainous with heavy timber cover. Forested land comprises 39 percent of the basin area, rangeland: 26 percent, irrigated cropland: 15 percent, dryland agriculture: 13 percent, and other uses: 7 percent (Corps, 1979).

Henry's Fork is widely known as a major resident trout fishery, which is an extremely popular recreational resource. This fishery includes cuttroat trout, considered to be a National Species of Special Emphasis by FWS and a Species of Special Concern by IDFG. Henry's Fork also provides habitat for resident and non-resident bald eagles, a federally listed endangered species, and provides for a non-migratory population of trumpeter swans, considered to be a National Species of Special Emphasis by FWS and a Species of Special Concern by IDFG.

Diversions from Henry's Fork and its tributaries are substantial, primarily for irrigation. A total annual flow rate of 1,150 cfs is diverted from 42 diversions within the basin. Although most of this volume is diverted from April to September, substantial diversions occur year-round (Corps, 1979). Cross Cut Diversion Dam is part of BR's Minidoka Project, which provides irrigation to more than 1 million acres from five reservoirs. River flows are regulated by releases from Henry's Lake and Island Park Reservoir.

Proposed and Existing Hydroelectric Development: As of May 1986, there were only three proposed projects in the Henry's Fork Basin with license applications pending before the Commission. They are the Cross Cut Diversion Project, FERC No. 3991, the Island Park Project, FERC No. 2973, and this application for a relicense for the Ashton-St. Anthony Project (figure 4).

Existing hydroelectric development on the mainstem of Henry's Fork is limited to the Ashton-St. Anthony Project. The Ashton Development is located about 9 miles north of the Cross Cut Diversion, and the St. Anthony Development is located about 4 miles south of the Cross Cut Diversion (figure 4).

The only existing hydroelectric development in the northern portion of the basin is the Pond Lodge Project, FERC No. 1413, which is located on the Buffalo River near the confluence with Henry's Fork, just downstream of the Island Park Reservoir (figure 4). There are two existing projects located on the Teton River in the southern portion of the basin. They are the Felt Project, FERC No. 5089; and the Briggs Project, FERC No. 8083 (figure 4).

All of the proposed and existing projects, except the proposed Island Park Project and the existing Pond Lodge Project, are downstream of the portion of Henry's Fork listed on the Nationwide Inventory for inclusion in the Wild and Scenic Rivers System. This 41-mile stretch extends from Big Springs near River Mile (RM) 101 downstream to the confluence of Warm River, excluding the Island Park Dam and Reservoir (figure 4).

Target Resources: The staff has determined that the target resources in the Henry's Fork are resident trout, water quality, bald eagles, and trumpeter swans. The staff identified the target resources by reviewing documents related to existing hydropower projects, applications for proposed hydropower projects in the basin, and comments from federal and state natural resource agencies and the public concerning these projects.

Henry's Fork provides habitat for a major resident trout fishery, primarily rainbow and cutthroat trout. IDFG lists Henry's Fork from Big Springs to St. Anthony as Value Class I, the highest class possible for fishery resources. Fishing pressure is particularly heavy in the 10 miles upstream from the Island Park Reservoir, while the next most productive reach is from the Ashton Reservoir downstream to the Cross Cut Diversion (figure 4). Below the confluence with Falls River, the fishery is adversely affected by irrigation diversions and return flows (Corps, 1979).

The water quality of the Henry's Fork and its major tributaries is high when sampled upstream of irrigated agricultural areas (Corps, 1979). DO concentrations measured at the Henry's Fork near Rexburg, about 22 miles downstream of the St. Anthony Development, have varied between 6.5 and 13.2 mg/l over the past 15 years (Idaho Department of Health and Welfare, 1984). The state DO standard for water released from hydroelectric projects is 5 mg/l.

Bald eagles are known to nest along Henry's Fork, and may use both reservoir areas and the river for feeding. Since bald eagles feed on fish, any reduction in the fishery may also adversely affect bald eagles.

Henry's Fork is the winter habitat for 50 to 70 percent of the 1,000 birds that make up the mid-continental trumpeter swan population (letter from John P. Wolfin, Field Supervisor, U.S. Fish and Wildlife Service, Boise, Idaho, July 3, 1985). Swans feed on submerged vegetation in the slow-moving sections of the river. Low winter flows adversely affect bald eagle and trumpeter swan habitat by increasing the amount of ice on the river, and reducing the size of feeding areas.

Cumulative Impacts on Target Resources: All of the pending projects in the basin could affect resident trout by entrainment of juvenile fish and early life history stages, direct and delayed mortality from abrasion and mutilation, predation of disoriented fish returned to the river below the powerhouse, and impingement of adult fish on the trash racks.

Although impingement and entrainment mortality may continue at the Ashton and St. Anthony powerhouses, the license application includes provisions for long-term enhancement in Ashton Reservoir, and the construction of fish passage facilities is proposed at the EIC diversion.

Impacts to resident trout from impingement and entrainment from the Cross Cut Project would be minimized by placement of screens across the intake area. These screens would also enhance the fishery by preventing trout from escaping into the Cross Cut Canal, since annual dewatering of the canal causes stranding of fish and related mortality.

Impingement and entrainment impacts to resident trout at the proposed Island Park Project would be project-specific. Assuming that impacts to resident trout may occur at the Island Park Project, this hydropower development is more than 40 miles upstream from the proposed Ashton-St. Anthony Project; therefore, no interaction of the fishery impact would be expected.

While adverse impacts to the fishery below Island Park Reservoir could occur as a result of hydropower development, impacts from the Ashton-St. Anthony Project and the Cross Cut Project would be offset by enhancement measures proposed for these projects. Therefore, there is no potential for cumulative adverse impacts to resident trout.

Construction activities, which would introduce sediment into Henry's Fork, would occur at all of the pending projects. Although both the Cross Cut Project and the Island Park Project include construction of a powerhouse and related facilities, construction areas are limited to the vicinity of the existing dams. Construction at the Ashton Development is limited to placement of a larger turbine in the existing powerhouse and enlargement of the existing intake structure, while construction at the St. Anthony Development would be limited to a fish passage facility at the EIC diversion.

Disturbed areas resulting from construction activities, excluding the use of transmission lines, are estimated to be less than one-half of an acre for each of the proposed projects within the basin.

With proper erosion and sediment control measures, sediment input from construction activities at these projects would be minor and short-term. Since these pending projects are also separated by at least 4 miles to over 40 miles, impacts would also be localized. Therefore, there is no potential for

cumulative adverse impacts to water quality from increased sedimentation because of hydropower development.

Spillage over the dams, which contributes to aeration of river flows, is reduced when flows are diverted through hydroelectric turbines. Therefore, operation of all of the pending projects could contribute to some reduction of aeration in river flows, which would decrease DO in the river.

The larger turbine to be installed at the Ashton powerhouse would reduce the average number of months water would spill over the dam from 4 months to 1 month annually. Decreased spillage, however, is not expected to cause significant reductions in DO. Because operation of the St. Anthony powerhouse would remain unchanged, existing impacts to aeration of river flows would continue.

Hydropower development at the Cross Cut Diversion, would substantially decrease existing spillage. Nevertheless, the project includes provisions for a 100 cfs minimum spillage and DO monitoring during project operation to ensure compliance with state DO standards. The DO levels at Ashton and St. Anthony developments are expected to continue to comply with state standards, so there is no potential for cumulative adverse impacts on DO from simultaneous multiple project operations.

The proposed hydropower development at the Island Park Dam would have the greatest potential impacts on DO in the Henry's Fork. Island Park Reservoir stratifies during the summer, and profiles of DO measurements showed a minimum DO of 4.3 mg/l at a depth of 48 feet on July 7, 1985. Effects of decreased aeration would be attenuated in downstream reaches, as the Henry's Fork flows over a series of rapids in the 42 miles between Island Park Reservoir and the Ashton Reservoir. Accretion flows from the Warm River, located 12 miles upstream of Ashton Reservoir, would further reduce any downstream impacts resulting from the Island Park Project. Further, since the project would be required to meet state DO standards, there is no potential for cumulative impacts with projects in the downstream reaches.

All pending hydropower projects in the Henry's Fork Basin would be required to meet state standards for DO. This could be achieved by adding oxygen to turbine flows or ceasing project operations during summer low-flow periods. Monitoring of DO during project operations would also ensure that adequate DO is maintained. Therefore, cumulative adverse impacts to water quality would not be expected.

There is evidence that a pair of bald eagles nested near Ashton Reservoir during 1982 and 1983 (Utah Power and Light Company, 1984). Proposed enhancement for bald eagles includes construction of a nesting platform. No bald eagles are known to nest in the vicinity of St. Anthony, and no critical habitat for bald eagles has been identified.

While bald eagles occur along Henry's Fork, no nests are known to exist in the vicinity of the Cross Cut Project. FWS determined that the Cross Cut Project would not cause significant adverse effects to the bald eagle because transmission lines at that project would be constructed to minimize the potential for raptor electrocution.

Nesting bald eagle sites are known to occur in the vicinity of the Island Park Dam. Resident bald eagles use the river below the dam for year-round feeding, and they use the reservoir for feeding during the summer. Bald eagles could be affected by hydropower development at this site.

Since bald eagles would not be adversely affected by the Ashton-St. Anthony Project or the Cross Cut Project, any potential impacts at the Island Park Project would not be cumulative.

Trumpeter swans infrequently utilize the Ashton Reservoir. Construction activities, however, are limited to the dam site, winter flows would be unchanged, and submerged aquatic vegetation is not expected to be affected by construction activities and continued project operation. Therefore, there

would be no adverse effects to trumpeter swans in the vicinity of the Ashton Reservoir. Although trumpeter swans may occur in the vicinity of St. Anthony, no critical habitat has been identified.

Trumpeter swans may occur in the vicinity of the Cross Cut Diversion at various times of the year. However, no critical habitat has been identified in the project area, and project construction and operation would not affect submerged vegetation, which is a food source for the swans.

Winter populations of trumpeter swans at Island Park Reservoir area are reported to be in excess of 300 (Fall River Electric Cooperative, Inc., 1985). Potential impacts to trumpeter swans from hydropower development are related to freezing of the river during winter low-flow periods, which would make swan foods unavailable. If drawdown for installation of the intake structure results in a pool elevation below normal drawdown levels, this would result in reduced winter flows in order to refill the reservoir. The impacts, however, would be project-specific.

Since the trumpeter swan would not be adversely affected by the Ashton-St. Anthony Project or the Cross Cut Project, any potential impacts at the Island Park Project would not be cumulative.

In summary, construction and operation of the Ashton-St. Anthony Project would not contribute to cumulative adverse impacts to target resources in the Henry's Fork River Basin. Mitigative measures proposed for the fishery in Ashton Reservoir and provisions of fish passage facilities for the St. Anthony Development would result in enhancement of the resident fishery. With appropriate timing of multiple construction activities, careful construction practices, and use of proper sediment control measures, increased sedimentation in the Henry's Fork would be localized, minor, and short-term. During project operation, DO levels are expected to continue to comply with state standards. While bald eagles and trumpeter swans occur in the project vicinity, no cumulative impacts would be expected. For these reasons, the staff concludes that the construction and operation of the Ashton-St. Anthony Project, as conditioned, would not contribute to cumulative adverse impacts to resident trout, water quality, bald eagles, or trumpeter swans.

C. Alternative of No Action

Under the no-action alternative, there would be no new construction. Electrical power that is currently generated by existing hydroelectric facilities would have to be generated from other available energy sources or offset by conservation measures. Moreover, the no-action alternative would preclude: (1) the implementation of the fish and wildlife mitigative plans; (2) the construction of an upstream fish passage facility at the St. Anthony diverison dam; and (3) the implementation of the proposed recreation plan.

D. Recommended Alternative

The relicense of the Ashton-St. Anthony Project is recommended. The continued operation of the existing hydroelectric facilities and the replacement of one turbine-generator unit at the Ashton Development would not result in any major, long-term, adverse, environmental impacts. Moreover, relicensing the project would permit the implementation of the applicant's proposed fish and wildife mitigation and recreational improvements, which would benefit the environmental resources of the project area.

VI. FINDING OF NO SIGNIFICANT IMPACT

The Ashton and St. Anthony Developments have been in operation for over 60 years. The applicant would not alter the current operation of these facilities. The replacement of a turbine-generator unit at the existing Ashton powerhouse would involve only the modification of the powerhouse interior. The construction of a fish passage facility at the EIC diversion dam would produce some temporary, minor sedimentation and turbidity in the Henry's Fork downstream of the diversion. The continued operation

of the project could result in some minor turbine entrainment and resultant mortality of fish. In contrast, implementation of the applicant's proposed fish and wildlife mitigation and recreational improvements would benefit the existing environment. On the basis of this independent environmental analysis, issuance of a license for the project would not constitute a major federal action significantly affecting the quality of the human environment.

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VIII. LIST OF PREPARERS

Brad Bortner —— Terrestrial Resources (Ecologist; M.S., Wildlife Biology).

Jim Haimes —— EA Coordinator (Economist; B.A., Economics).

James Hastreiter —— Water and Fishery Resources (Fishery Biologist; M.S., Natural Resources).

Ann Miles —— Recreational Resources (Environmental Protection Specialist; M.A., Recreation Resource Management).

Kathleen L. Sherman —— Geology and Soils; Cumulative Impact Assessment (Soil Conservationist; M.S. Agronomy and Soil Science]).

Edwin D. Slatter —— Cultural Resources (Archeologist; Ph.D., Anthropology).

Mary Nowak——Writer—Editor (B.A., English).