78 FERC ¶ 61,109

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Elizabeth Anne Moler, Chair;
Vicky A. Bailey, James J. Hoecker,
William L. Massey, and Donald F. Santa, Jr.

Southern California Edison Company) Project No. 1389-001

ORDER ISSUING NEW LICENSE

(Issued February 4, 1997)

Southern California Edison Company (Edison) filed an application for a new license, pursuant to Sections 4(e) and 15 of the Federal Power Act (FPA), 1/ to continue to operate and maintain the 8.4-megawatt (MW) Rush Creek Project, located on Rush Creek in the Mono Lake Basin, about 14 miles upstream from Mono Lake, near the town of June Lake, in Mono and Inyo Counties, California. Most of the project occupies lands of the Inyo National Forest. 2/ Edison proposes no new capacity and no new construction.

The Commission issued the original license for the Rush Creek Project in 1939. 3/ That license expired in 1986. Since then Edison has operated the project pursuant to successive annual licenses authorizing Edison to continue project operations pending the disposition of its application for a new license. For the reasons discussed below, we will issue a new license to Edison.

I. BACKGROUND

Notice of the application was published. The California Department of Fish and Game (Cal. Fish and Game) filed a timely motion to intervene in opposition to Edison's application. Cal. Fish and Game recommended in its motion that Edison's application be denied unless Edison agrees to conduct hydrological and biological baseline studies and make subsequent modifications to the design and operation of the project that include maintenance

1/ 16 U.S.C. §§ 797(e) and 808.

2/ Inasmuch as Project No. 1389 is located in part on lands of the United States, Section 23(b)(1) of the FPA, 16 U.S.C. § 817(1), requires the project to be licensed.

3/ Nineteenth Annual Report of the Federal Power Commission at p. 49.

of set instream flows to minimize adverse project impacts to biological resources. Since the filing of its motion to intervene Cal. Fish and Game has filed, pursuant to Section 10(j)(1) of the FPA, recommendations for the protection and enhancement of fish and wildlife resources at the project, discussed below, which this license adopts in part.

An Environmental Assessment (EA) was issued on May 5, 1992. 4/ The EA contains background information, analysis of impacts, and the basis for the finding of no significant impact on the environment. The concerns raised in comments by intervenors, protesters, and other interested agencies and individuals were considered in preparing the EA. A Safety and Design Assessment was also prepared and is available in the Commission's public file associated with this project.

All comments received from interested agencies, entities, and individuals have been fully considered in determining whether, and under what conditions, to issue this license.

II. PROJECT DESCRIPTION

The existing project consists of the 50-foot-high Rush Meadows Dam, impounding the 185-acre Rush Meadows reservoir (Waugh Lake), the 80-foot-high Gem dam, impounding the 282-acre Gem Lake, the 30-foot-high Agnew dam, impounding the 40-acre Agnew Lake, a 4,584-foot-long flowline from Gem dam to the valvehoue, a 575-foot-long flowline from Agnew dam to the valvehouse, two 4,280-foot-long penstocks extending from the valve house near Agnew dam to a powerhouse with an installed capacity of 8.4 MW, a 150-foot-long transmission line, and appurtenant facilities. A more detailed description is contained in ordering paragraph (B)(2).

4/ Incorporated by reference into the EA is the Commission's earlier October 5, 1990 cumulative environmental assessment (CEA), which examined the potential cumulative impacts of two other proposed Mono Lake Basin projects, the Legett Project No. 3272 and the Paoha Project No. 3259, in combination with three existing projects, the Lee Vining Project No. 1388, the Lundy Project No. 1390, and the Rush Creek Project. The Commission staff determined in the subsequent May 5, 1992 EA for the Rush Creek Project that there would be no significant cumulative impacts to the target resources of riparian vegetation, riparian-associated wildlife, resident trout, visual quality, and recreation in the Mono Lake Basin as a result of relicensing the Rush Creek Project. (See EA for Project No. 1389 at pp. 9-10.)

During periods of low flow, water at the project has historically been used conservatively to ensure continuous downstream water supply throughout the year. All three project reservoirs have usually been drawn down before winter and refilled during the spring runoff. Gem Lake is the most important reservoir in terms of storage, with a usable capacity of 17,228 acre-feet. Waugh Lake and Agnew Lake provide net storage capacities of 5,277 acre-feet and 810 acre-feet, respectively.

III. APPLICANT'S PLANS AND CAPABILITIES

In accordance with Sections 10(a)(2)(C) and 15(a) of the FPA, 5/ we have evaluated Edison's record as a licensee for these areas: (1) consumption efficiency improvement program; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission services; (7) cost effectiveness of plans; and (8) actions affecting the public.

1. Consumption Efficiency Improvement Program

Edison's efforts to conserve electricity include use of all of the energy generated by the projects in its system, encouraging its customers to conserve energy, and maintenance of extensive ongoing programs to reduce system peak demand.

Edison's ongoing plans and activities to promote and achieve conservation include promotion and implementation of state building and appliance standards, supply and demand-side management programs, public energy programs, and electric utility systems improvements. Edison's plans meet the statutory requirements of the California Energy Commission (CEC) and conform to the CEC's recommendations on conservation.

We conclude that Edison is making a satisfactory good faith effort to conserve electric energy.

2. Compliance History and Ability to Comply with the New License

We have reviewed Edison's license application in order to judge its ability to comply with the conditions of any license issued, and with applicable provisions of Part I of the FPA. We have also reviewed Edison's record of compliance with the Commission's requirements under its prior license.

5/ 16 U.S.C. §§ 803 and 808.

Our review shows that Edison has made a satisfactory record of filing submissions in a timely manner and of generally complying with the terms of its existing license. Therefore, we conclude that Edison will be able to provide the resources and expertise necessary to carry out its plans and comply with all articles, terms, and conditions of the new license and other provisions of Part I of the FPA.

3. Safe Management, Operation, and Maintenance of the Project

Edison owns and operates the Lee Vining Project. The project dam and appurtenant facilities are subject to Part 12 of the Commission's regulations (18 C.F.R.) concerning project safety. We have reviewed Edison's management, operation, and maintenance of the project pursuant to the requirements of Part 12 and the associated Engineering Guidelines, including all applicable safety requirements such as warning signs and boat barriers, Emergency Action Plan, and Independent Consultant's Safety Inspection Report. We conclude that the project is being safely managed, operated, and maintained.

4. Ability to Provide Efficient and Reliable Electric Service

Edison coordinates operation of the Rush Creek Project with the Los Angeles Department of Water and Power and the Bishop Creek Water Users Association through development and distribution of monthly water release and operation plans. Edison distributes its monthly generation plans to its inter-company departments and informs agencies not involved in power generation of the water releases.

We conclude that Edison has demonstrated the ability to provide efficient and reliable electric service.

5. Need for Power

Edison's operation of the 8.4 MW Rush Creek Project under the requirements of this license will result in an estimated annual net energy production of 49 gigawatt-hours (GWh) of renewable energy.

The 1996 report of the Western Systems Coordinating Council indicated that electricity utilities in the California-Southern Nevada area plan to add over 2,500 MW of capacity over a 10-year planning period. In 1995 Edison had a peak system load of 17,548 MW and an average system energy requirement of 81,924 GWh. With an annual generation of 49 GWh, the 8.4 MW Rush Creek Project helps to meet a small part of Edison's total generation requirements, and displaces some fossil-fueled generation.

We conclude that Edison will continue to need power for the short and long term, and that the Rush Creek Project can contribute to meeting that need.

6. Transmission Services

The project's primary transmission line consists of a 150-foot-long, 2.3-kV line extending from the Rush Creek powerhouse to an Edison substation.

Edison proposes no new power development at the project and contemplates the continued use of the project's low-cost energy on its system. Edison's electrical system is designed to function so that no significant operational or circuit loading impacts would occur if the project is out of service. The project's principal benefit to Edison is the project's proximity to the load it serves. Such proximity minimizes electrical losses and improves area system efficiency.

We conclude that the existing transmission system is adequate and that licensing the project to continue operations would have no significant effect on the existing or planned transmission system.

7. Cost-Effectiveness of Plans

Edison does not propose any modifications to the project. We conclude that the project, as presently constructed and as Edison proposes to operate it, fully develops and uses the hydropower potential of the site.

8. Actions Affecting the Public

The Rush Creek Project generates electricity which Edison uses to serve its power customers. The project also provides employment and opportunities for a limited amount of recreational fishing. Continued operation of the project will benefit the public.

IV. WATER QUALITY CERTIFICATION

Under Section 401(a)(1) of the Clean Water Act, 6/ the Commission may not issue a license for a hydroelectric project unless the state certifying agency has issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable time, not to exceed one year.

6/ 33 U.S.C. § 1341(a)(1).

By letter dated November 4, 1981, Edison filed a request for water quality certification for the Rush Creek Project with the California Regional Water Quality Control Board. By letter dated December 13, 1992, the Water Quality Control Board indicated that water quality certification for the project had been waived.

V. PROJECT IMPACTS ON THREATENED OR ENDANGERED SPECIES

By letter dated September 26, 1996, the U.S. Fish and Wildlife Service provided the Commission with an updated list of threatened or endangered species that may occur in the project area. The updated list contained two species, the threatened bald eagle, which was discussed in the EA, and the peregrine falcon, which was not discussed in the EA.

As discussed in the EA, the project is expected to have no unavoidable adverse impacts to the bald eagle. 7/ Although peregrine falcons have never been observed in the Rush Creek area, the area does provide suitable habitat for the species. However, relicensing the Rush Creek Project will not affect any existing or future use of the project for peregrine falcon nesting. The only construction activity, gauge installation, will generate minor, short-term noise unlikely to disturb any falcons that may be nesting in the area. The project transmission line consists of a 150-foot-long, 2.3-kV line segment, extending from the Rush Creek powerhouse to an Edison substation. This short line does not pose an electrocution hazard to peregrine falcons or other raptors.

We conclude that relicensing the project will not affect the endangered peregrine falcon.

VI. SECTION 4(e) FINDINGS AND CONDITIONS

Section 4(e) of the FPA 8/ states the Commission may issue a license only after a finding that the license will not interfere or be inconsistent with the purpose for which the reservation was created or acquired. Section 3(2) of the FPA 9/ defines reservations as including national forests. There is no evidence or allegation in this proceeding to indicate that the relicensing of the Rush Creek Project will interfere with the purposes of the Inyo National Forest. We therefore find that this license will not interfere or be inconsistent with the purposes for which the reservation was created.

7/ See EA at pp. 25-26.

8/ 16 U.S.C. § 797(e).

9/ 16 U.S.C. § 796(2).

FPA Section 4(e) also requires that Commission licenses for projects located within United States reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation.

Most of the Rush Creek Project is located within the Inyo National Forest, which is under the supervision of the U.S. Forest Service. Pursuant to Section 4(e), the Forest Service, by letter dated July 15, 1992, submitted terms and conditions, set forth in Appendix A of this order, to be included in any new license for the Rush Creek Project. On September 2, 1992, Edison filed with the Forest Service an appeal of the Forest Service's A Section 4(e) conditions. Forest Service action on the appeal is still pending. Ordering Paragraph (D) of this order therefore reserves the Commission's authority to amend the license as appropriate in light of the Forest Service's ultimate disposition of Edison's appeal.

The Forest Service's 4(e) conditions, as set forth in Appendix A of this order, require Edison to:

(1) obtain a Forest Service special use authorization for use of National Forest lands and written approval for all final project design plans and project changes after initial construction, and consult with the Forest Service annually on measures needed to protect project area natural resources (Conditions 1, 2, 3, and 4);

(2) provide minimum flow releases to protect project area fisheries and riparian resources (Condition 5);

(3) install and continuously operate measurement devices to ensure compliance with the reservoir level requirements and minimum flow requirements of 4(e) Condition 5 (Condition 6);

(4) implement a riparian and aquatic resource monitoring plan (Condition 7);

(5) manage recreational and wilderness resources within in the project through (1) maintenance of reservoir water levels in relation to spillway elevations, (2) adherence to Cal. Fish and Game ramping rates, (3) prohibition of motorized uses within the Ansel Adams Wilderness area, (4) construction or financing of toilet facilities, and (5) shifting a portion of the project transmission line away from a project area campground (Condition 8);

(6) implement a plan for oil and hazardous substance storage and spill prevention (Condition 9);

(7) implement an erosion control plan (Condition 10);

(8) implement a spoil disposal plan (Condition 11);

(9) implement a visual resources protection plan (Condition 12);

(10) implement a plan for the protection of sensitive, threatened, and endangered species (Condition 13); and

(11) implement a cultural resources management plan (Condition 14).

Forest Service Conditions 1 though 7 require, among other things, that Edison's plans and studies and functional design drawings be reviewed, accepted, and approved by the Forest Service. In Escondido Mutual Water co. v. LaJolla Band of Mission Indians, 10/ the Supreme Court made it clear that the Commission has no authority to decide whether conditions imposed under Section 4(e) are either reasonable or lawful. The Commission must include the Section 4(e) conditions and defer to the Courts of Appeals to determine their validity. 11/ However, under the statutory mandate of the Federal Power Act the Commission cannot relinquish its responsibility to assess plans and designs. The Commission's final approval authority over plans and studies is therefore specifically retained in Articles 402, 403, and 406 of this license.

Condition 1 of the Forest Service's Section 4(e) conditions requires Edison to obtain a special use authorization before Edison may start any land-disturbing activities. The Forest Service submitted its Section 4(e) conditions before passage of

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10/ 466 U.S. 765 (1984).

11/ Id. at 777. The only exception to this rule is that the Commission need not include conditions that do not relate to the reservation on which project works are to be located or which relate to project works that are not located on a reservation. See id. at 780-81; Pacific Gas and Electric Company, Minnesota Power & Light Co., 75 FERC ¶ 61,477-48 (1996).

the Energy Policy Act of 1992, 12/ of which Section 2401 amended Section 501 of the Federal Land Policy and Management Act of 1976 (FLPMA) 13/ to add a new subsection which provides that:

> (d) With respect to any project or portion thereof that was licensed pursuant to, or granted an exemption from, part I of the Federal Power Act which is located on lands subject to a reservation under section 24 of the Federal Power Act and which did not receive a permit, right-of-way or other approval under this section prior to enactment of this subsection, no such permit, right-of-way, or other approval shall be required for continued operation, including continued operation pursuant to section 15 of the Federal Power Act, of such project unless the Commission determines that such project involves the use of any additional public lands or National Forest lands not subject to such reservation.

The Rush Creek Project has not previously received a permit, right-of-way, or other approval under Section 501 of FLPMA, and this relicensing proceeding does not involve the use of any additional public lands or National Forest lands. Therefore, we are barred by the Energy Policy Act from requiring Edison to obtain a special use authorization, and Condition 1 cannot be a part of this license. 14/

VII. RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES AND THE SECTION 10(j) PROCESS

Section 10(j)(1) of the FPA 15/ requires the Commission, when issuing a license, to include conditions based upon recommendations of federal and state fish and wildlife agencies, submitted pursuant to the Fish and Wildlife Coordination Act, 16/ "to adequately and equitably protect, mitigate

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12/ Pub. L. No. 102-486, 106 Stat. 3096 (October 24, 1992). The Forest Service's letter, dated July 15, 1992, was filed on July 17, 1992.

13/ 43 U.S.C. § 1761.

14/ See Henwood Associates, Inc., 63 FERC ¶ 61,227 (1993), and Pacific Gas and Electric Co., 69 FERC ¶ 61,070 (1994).

15/ 16 U.S.C. §803(j)(1).

16/ 16 U.S.C. § 661 et seq.

damages to, and enhance, fish and wildlife (including related spawning grounds and habitat)" affected by the project.

If the Commission believes that any such recommendation may be inconsistent with the purposes and requirements of Part I of the FPA or other applicable law, Section 10(j)(2) requires the Commission and the agencies to attempt to resolve any such inconsistency giving due weight to the recommendations, expertise and statutory responsibilities of such agencies. If the Commission then does not adopt a recommendation, it must explain how the recommendation is inconsistent with applicable law and how the conditions selected by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife.

A number of recommendations were filed by Cal. Fish and Game pursuant to Section 10(j). The new license issued herein contains conditions consistent with Cal. Fish and Game's recommendations that Edison: (1) maintain at all times between Waugh Lake and Gem Lake a continuous maintenance flow of at least 10 cfs or the natural inflow, whichever is less; (2) install and maintain stream gauges and annually provide the Forest Service with streamflow reading reports; and (3) raptor-proof transmission line structures to prevent bird losses. 17/

Cal. Fish and Game also recommended that Edison: (1) install and maintain fish screens or perform a site-specific study to determine the need for installation of fish screens at the Gem dam and Agnew dam intakes to protect stocked trout fingerlings from potential entrainment and install such screens if the study indicated that screens were needed; and (2) maintain the reservoir elevation at Waugh Lake during the winter at a level sufficient to establish a viable year-round recreational fish population. The Commission staff made a preliminary determination that these two recommendations were inconsistent with, or outside the scope of, Section 10(j).

Cal. Fish and Game, Edison and the Commission staff attempted to resolve the two inconsistencies at a February 4, 1994 meeting. As an alternative to its recommendation for installation of fish screens or a site-specific study, Cal. Fish and Game recommended at the meeting that Edison release a year-round minimum flow of three cfs below Agnew Dam to mitigate the

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17/ With the exception of its recommendation for raptor-proofing transmission lines, Cal. Fish and Games recommendations are reflected in the Forest Service Section 4(e) Conditions 5 and 6 in Appendix A, which is a part of this license. The project's short 150-foot-long transmission line does not pose a hazard to the peregrine falcon and other raptors.

effect of entrainment. Commission staff agreed to reconsider these recommendations.

Although the EA found that the benefit to the fish resources was not worth the cost of installing and maintaining fish screens, the conclusion in the EA was not based on a site-specific study. Upon further consideration, we believe that a study of entrainment impacts at the Rush Creek Project is needed. However, specific mitigative measures such as fish screens or an alternative three cfs minimum flow are premature, and are currently unwarranted, until substantial evidence of entrainment impacts is obtained from the study. Article 405 of this license therefore requires Edison to perform an entrainment study and to file for Commission approval after completion of the study a proposed plan for mitigation of entrainment impacts at the project. The required plan need not limit mitigative measures to fish screens and minimum flow restrictions. The Commission under Article 405 reserves the right to require any changes in the plan that it may find to be necessary to protect fishery resources.

Maintenance of winter reservoir levels sufficient to establish a year-round fishery at Waugh Lake, however, would require construction of a cofferdam at Waugh Lake, which is located within an area designated by Congress in 1968 as the Ansel Adams Wilderness Area. Section 4(c) of the Wilderness Act, 16 U.S.C. § 1133(c), prohibits the creation of any structure or installation within a designated wilderness area. That recommendation, therefore, will not be adopted as it is inconsistent with applicable requirements of law.

VIII. COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, 16 U.S.C. § 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. 18/ Under Section 10(a)(2)(A), federal and state agencies filed 32 plans addressing various resources in California. Of these, the Commission staff identified and reviewed five plans that are relevant to the Rush

18/ Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (1996).

Creek Project. 19/ The project does not conflict with any of these comprehensive plans.

IX. COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA require the Commission, in acting on applications for a license, to give equal consideration to the power development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgement will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

The EA analyzed the effects associated with issuance of a new license for the Rush Creek Project, and the EA recommends a variety of measures to protect and enhance the environmental resources, which, as discussed above, we adopt. We conclude that issuance of a new license for the Rush Creek Project will not constitute a major federal action significantly affecting the quality of the human environment.

In determining whether a proposed will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, pursuant to Section 10(a)(1) of the FPA, the Commission considers a number of public interest factors, including the economic benefits of project power.

We have considered the proposed project, enhancement measures recommended by intervenors and by the Commission staff, and the alternative of continuing the project operations authorized in the original license. From our independent analysis of the environmental and economic effects of the alternatives, we have selected the applicant's proposed project, plus the staff's recommended additional measures, as the

19/ The California Water Plan: Projected Use and Available Water Supplies to 2010, 1983, California Department of Water Resources; California Water, Looking to the Future, 1987, California Department of Water Resources; Recreation Needs in California, 1983, California Department of Parks and Recreation; Inyo National Forest Land Resource Management Plan, 1988, Forest Service, U.S. Department of Agriculture; and Inyo National Forest Environmental Impact Statement for the Land and Resource Management Plan, 1988, Forest Service, U.S. Department of Agriculture.

preferred alternative. We have selected this option because these measures will protect and enhance water quality and fishery resources while continuing to generate electricity from a renewable resource. The project's economic and environmental benefits outweigh its costs.

Under our approach to evaluating the economics of hydropower projects, as articulated in Mead Corp., 20/ we employ an analysis that uses current costs to compare the costs of the project and likely alternative power without regard to forecasts of potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of our analysis is to provide a general estimate of the potential power benefits and the costs of a project, and reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

In making these determinations, we considered the project with the applicant's mitigative proposals, with intervenor-recommended enhancement measures, and with the Commission's mitigative proposals. Based on current economic conditions, without future escalation or inflation, with the conditions we have adopted, the annual value to Edison of power from the project will be about $1,443,000 annually (about 29.5 mills/kWh). We base our estimate of the project's energy benefits on cost information provided by Edison in August of 1996. The cost of replacing the project's dependable capacity is $111 per kW-year. The annual cost of operating the project is about $794,000 (16.5 mills/kWh). To determine whether the project is economically beneficial, we subtract the project cost from the current value of the project power. We find that the cost of power from the project will be about $625,000 (13 mills/kWh) less than the current cost of alternative power. The project is therefore economically beneficial.

X. LICENSE TERM

Section 15 of the FPA 21/ specifies that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years nor more than 50 years. The Commission's policy is to establish 30-year terms for projects with little or no redevelopment, new construction, new capacity, or environmental mitigative or enhancement measures; 40-year terms for projects with a moderate amount thereof; and 50-year terms for those projects with an extensive

20/ 72 FERC ¶ 61,027 (1995).

21/ 16 U.S.C. § 808(e)

amount thereof. 22/ The environmental mitigation and enhancement costs of the new license for the Rush Creek Project warrant a term of 30 years, effective the first day of the month in which this license is issued.

XI. SUMMARY

Background information, analysis of impacts, support for related license articles, and the basis for our finding of no significant impact on the environment are contained in the EA.

The design of the project is consistent with the engineering safety standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment, which is available in the Commission's public file for this project.

The Commission orders:

(A) This license is issued to Southern California Edison Company (licensee), for a period of 30 years, effective the first day of the month in which this order is issued, to operate and maintain the Rush Creek Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by exhibits G-1 through G-14 (FERC Drawing numbers 1 through 14).

(2) Project works consisting of: (a) the 463-foot-long, 50-foot-high, concrete, constant radius, Rush Meadows arch dam, impounding the 185-acre Rush Meadows reservoir (Waugh Lake); (b) the 688-foot-long, 80-foot-high, concrete, multiple arch Gem dam, impounding the 282-acre Gem Lake; (c) the 278-foot-long, 30-foot-high, concrete, multiple arch Agnew dam, impounding 40-acre Agnew Lake; (d) a reinforced concrete intake structure at Gem dam, including trashracks and 48-inch-diameter steel pipe; (e) a reinforced concrete intake structure at Agnew dam, including trashrack and 30-inch-diameter steel pipe; (f) a valve house; (g) a 4,584-foot-long, 48-inch-diameter flowline from Gem dam to the valve house; (h) a 575-foot-long, 30-inch-diameter flowline from Agnew dam to the valve house; (i) two lap-welded, 4,280-foot-long penstocks varying from 28 to 30 inches in diameter from the valve

22/ See e.g. Mead Corp., supra.

house to the powerhouse; (j) a two-story, reinforced concrete powerhouse containing two turbine/generator units, one rated at 4.4 MW and one rated at 4 MW, for a total installed capacity of 8.4 MW; (k) a 150-foot-long, 2.3 kV transmission line; and (l) appurtenant facilities.

The project works generally described above are more specifically described in Exhibit A of the application, sections A.1 through A.5, consisting of four typewritten pages, describing the project electrical and mechanical facilities of the project, and shown by the following exhibits:

Drawing	FERC No. 1389-	Showing
F- 1	15	Rush Meadows Dam
F- 2	16	Gem and Agnew Dam
F- 3	17	Rush Creek Pipeline Details
F- 4	18	Rush Creek Powerhouse
F- 5	19	Rush Creek Powerhouse

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, F, and G described above are approved and made part of the license.

(D) This license is subject to the conditions (except Condition 1) submitted by the U.S. Forest Service under Section 4(e) of the FPA, as those conditions are set forth in Appendix A to this order. The Commission reserves the right to amend this ordering paragraph and Appendix A to this order as appropriate in light of the Forest Service's ultimate disposition of the appeals of the Section 4(e) conditions, and to make whatever additional conforming changes in the license may be necessitated by any such amendment. For the reasons discussed above, Condition 1 is not incorporated into this license.

(E) This license is subject to the articles set forth in Form L-1 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States the following charges, effective the first day of the month in which this order is issued.

(a) For purposes of reimbursing the United States for the cost of administering Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 8,400 kilowatts.

(b) Recompensing the United States for use, occupancy, and enjoyment of 1,129.38 acres of its lands, other than for transmission line right-of-way.

Article 202. Pursuant to Section 10(d) of the FPA , a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserved account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. Within 45 days of the issuance date of the license, the licensee shall file a complete original set and two complete duplicate sets of aperture cards of all the approved drawings, and a third, partial duplicate set of aperture cards showing only the Exhibit G drawings. The set of originals must

be reproduced on silver or gelatin 3mm microfilm. The duplicate sets are copies of the originals made on diazo-type microfilm. All microfilm must be mounted on type D (3-1/4" x 7-3/8") aperture cards. The licensee shall submit two copies of Form FERC-587 with aperture cards.

Prior to microfilming, the FERC Drawing Number shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number must be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, G-1, etc.), Drawing Title, and date of issuance of this license must be typed on the upper left corner of each aperture card.

The complete original set and one complete duplicated set of aperture cards, and one copy of the Form FERC-587, must be filed with the Secretary of the Commission, ATTN: Division of Licensing and Compliance/ERB. The second complete set of aperture cards shall be filed with the Commission's San Francisco Regional Office. The third partial duplicate set of aperture cards (Exhibit G only) and the remaining copy of Form FERC-587 shall be filed with the Bureau of Land Management Office at the following address:

State Director
California State Office
Bureau of Land Management
Branch of Adjudication and Records (CA-943.5)
attn: FERC Withdrawal Recordation
2135 Butano Drive
Sacramento, CA 95825-0451

Article 401. The flows required by Condition 5 in Appendix A of this order, and the lake levels and ramping rates required by Condition 8 in Appendix A of this order, may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon agreement among the licensee, the California Department of Fish and Game, and the U.S. Forest Service.

Article 402. The licensee shall file, at least 60 days prior to the start of any land-disturbing or land-clearing activities, the erosion control plan required by Condition 10 in Appendix A of this order. The plan shall be based on actual site geological, soil, and groundwater conditions and on project design, and shall include, at a minimum, the following:

(a) a description of the actual site conditions;

(b) measures proposed to control erosion and to minimize the quantity of sediment resulting from land disturbance;

(c) detailed descriptions, functional design drawings, and specific topographic locations of all control measures;

(d) a specific implementation schedule and details for monitoring and maintenance programs for the land disturbance; and

(e) documentation of Forest Service approval of the plan.

The Commission may require changes to the plan to ensure adequate protection of the environmental, scenic, and cultural values of the project area.

Article 403. Within one year from the date of issuance of this license, the licensee shall file for Commission approval the plan for implementation of the cultural resources management plan, and the data recovery plan to mitigate the adverse impacts of shoreline erosion on cultural sites required by Condition 14 in Appendix A to this order. The Commission reserves the right to require changes in the plan necessary to protect the cultural values of the project area.

Article 404. If archeological or historic sites are discovered during project operation, the licensee shall: (1) consult with the Forest Service and the California State Historic Preservation Officer (SHPO); (2) prepare a cultural resources management plan and a schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to any sites found eligible for inclusion in the National Register of Historic Places; (3) base the plan on the recommendations of the Forest Service and the SHPO, and the Secretary of the Interior's Guidelines for Archeology and Historic Preservation; (4) file the plan for Commission approval, together with the written comments of the Forest Service and SHPO on the plan; and (5) take the necessary steps to protect the discovered sites from further impact until notified by the Commission that all of these requirements have been satisfied.

The Commission may require a cultural resources survey and changes to the cultural resources management plan based on the filings. The licensee shall not implement a cultural resources management plan or begin any land-clearing or land-disturbing activities in the vicinity of any discovered sites until informed by the Commission that the requirements of this article have been fulfilled.

Article 405. Within six months of the date of issuance of this license, the licensee shall file with the Commission for approval, a plan to evaluate the entrainment of stocked trout at the project's intake to determine if screens are needed to protect the trout resource.

The study plan shall include a schedule for:

(1) conducting the study;

(2) consultation with the appropriate federal and state agencies concerning the results of the study; and

(3) filing the study results, agency comments, and the licensee's response to agency comments with the Commission.

The license shall prepare the study plan after consultation with the California fish and Game Department and the U.S. Forest Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the plan after it has been prepared and provided to the agencies, and specific descriptions of how the plan accommodates the agencies comments. The licensee shall allow a minimum of thirty days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed study plan. The study plan to evaluate trout entrainment at the project shall not be implemented until the Commission notifies the licensee that the plan is approved. Upon Commission approval the licensee shall implement the proposal, including any changes required by the Commission.

If the entrainment study indicates that significant entrainment of trout is occurring at the project, the licensee shall file with the Commission, for approval, plans and a schedule for the installation of fish protection screens to reduce the entrainment of trout at the project, or an alternative mitigation proposal.

The licensee shall prepare the fish protection plan or alternative mitigation proposal after consultation with the California Fish and Game Department and the U.S. Forest Service. The filing shall include, but not be limited to:

(a) detailed design drawings of the licensee's proposed fish protection measure;

(b) documentation of consultation with the California Fish and Game Department and U.S. Forest Service.

(c) specific descriptions of how agency comments and recommendations were incorporated into the plan;

(d) agency comments and recommendations on the plan after the plan has been prepared and re-submitted for their review; and

(e) a schedule for installing the licensee's proposed fish protection measure or implementing any alternative mitigation proposal.

The licensee shall allow a minimum of thirty days for the agencies to comment and make recommendations during consultation periods and before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed plan. Construction of any protection measure or implementation of any alternative mitigation proposal shall not begin until the licensee is notified by the Commission that the filing is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 406. Within one year of the date of issuance of this license, the plans for relocating a segment of the transmission line away from the Oh! Ridge Campground, as required by Condition 8 in Appendix A to this order, shall be filed with the Commission for approval. The Commission reserves the right to require changes to the plan. The transmission line relocation shall not occur until the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 407. (a) In accordance with the provisions of this Article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this Article. If a permitted use and occupancy violates any condition of this Article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance

made under the authority of this Article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and water for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water

intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this Article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this Article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this Article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this Article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this Article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this Article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this Article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

Article 501. If the licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is final unless a request for rehearing is filed within 30 days of the date of issuance of this order, pursuant to Section 313 of the FPA. Requests for rehearing may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.813. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this license.

By the Commission.

(S E A L)

Lois D. Cashell,
Secretary.

APPENDIX A

FOREST SERVICE SECTION 4(E) CONDITIONS

Condition No. 1 - Requirement to Obtain a Forest Service Special-Use Authorization

Within 6 months following the date of issuance of this license and before starting any activities the U.S. Forest Service (FS) determines to be of a land-disturbing nature, the Licensee shall obtain from the FS a special-use authorization for the occupancy and use of (National Forest System) NFS lands, and that authorization shall be filed with the Director, Office of Hydropower Licensing.

The Licensee may commence land-disturbing activities authorized by the license and special-use authorization 60 days following the filing date of such authorization, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Notwithstanding the authorizations granted under the Federal Power Act, NFS lands within the project boundaries shall be managed by the FS under the laws, rules, and regulations applicable to the NFS. The terms and conditions of the FS special-use authorization are enforceable by the FS under the laws, rules, and regulations applicable to the NFS. The violation of such terms and conditions also shall be subject to applicable sanctions and enforcement procedures of the Commission at the request of the FS. In the event there is a conflict between any provisions of the license and FS special-use authorization, the special-use authorization shall prevail on matters which the FS deems to affect NFS resources.

Condition No. 2 - Forest Service Approval of Final Design

Before any construction of the project occurs on NFS land, the Licensee shall obtain the prior written approval of the FS for all final design plans for project components which the FS deems as affecting or potentially affecting NFS resources. The Licensee shall follow the schedules and procedures for design review and approval specified in the FS special-use authorization. As part of such prior written approval, the FS may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the FS, the Commission, or the Licensee to be a substantial change, the licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the

Secretary of Agriculture made pursuant to section 4(e) of the Federal Power Act.

Condition No. 3 - Approval of Changes After Initial Construction

Notwithstanding any license authorization to make changes to the project, the licensee shall get written approval from the FS prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the FS, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the FS for such changes. The licensee shall file an exact copy of this report with the FS at the same time it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this License.

Condition No. 4 - Consultation

Each year during the 60 days preceding the anniversary date of the license, the Licensee shall consult with the FS with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the FS. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Condition No. 5 - Minimum Streamflow Requirements

During the operation of the facilities authorized by this license, the Licensee shall maintain each year between Waugh and Gem Lakes, a continuous, minimum flow of 10 cubic feet per second (cfs) or the natural flow into Waugh Lake, whichever is less. Said flow shall be measured immediately below Waugh Dam (aka "Rush Meadows Dam"). The Licensee shall also maintain each year in those reaches of Rush Creek between Gem Lake and Agnew Lake, and immediately below Agnew Lake Dam, a continuous minimum flow of 1 cfs, or natural flows when the level of either Gem or Agnew Lake falls below the level of the face of each respective dam.

The Licensee may temporarily modify minimum flows if required by operating emergencies beyond the control of the Licensee. The Licensee may also modify minimum flows for short periods upon written consent of the FS.

The Licensee, FS, and the California Department of Fish and Game (FG) will meet no later than May 1st of each year to develop a summer operations and maintenance plan for the project facilities. The Licensee will accommodate FS and FG objectives to the extent that those objectives are within operational constraints of the project. This plan will address the subjects of construction and maintenance of powerhouses, powerlines, penstocks, flowlines, roads, dams, and all other facilities; and construction and maintenance work which is earth disturbing in nature and is beyond simple maintenance work. Additionally, water management of the reservoirs and spills, and projected streamflows will be addressed and be based upon the Mono Basin snow water forecast compiled annually by the State of California on April 1st.

Condition No. 6--Guaranteed Flow Device

The Licensee shall construct, operate, and maintain guaranteed streamflow devices as part of the release of the minimum instream flows identified in Condition No. 5. Required stream maintenance flows and lake levels listed in Conditions 5 and 8 herein shall be automatically released through or measured by these devices. Within 1 year following issuance of this license, the Licensee shall have installed and will have operational a continuously monitoring stream gauge device located in Rush Creek just below Waugh Lake Dam, reservoir level monitoring devices located in Waugh, Gem, and Agnew Lakes, and v-notch weirs to measure the minimum flow requirements below Gem Lake and Agnew Lake Dams. Prior to construction, FS approval must be obtained for the design, location, and means of installing the stream gauge and reservoir level monitoring devices. FS approval will be granted in accordance with all applicable Federal regulations and FS policy concerning the management of National Forest lands and Congressionally designated wilderness. Alternative consideration may be given to the installation of a guaranteed bypass flow device in the toe of Rush Meadows Dam should the installation of a continuously monitoring streamgauge device be determined to be inconsistent with wilderness management objectives. The Licensee shall file a report of the streamflow at the gauging station and the levels of Waugh, Gem, and Agnew Lakes by December 31st of each year for the preceding water year. The report will be filed with the Inyo National Forest.

Condition No. 7--Monitoring

A monitoring program will be conducted by the Licensee as follows:

A. Monitoring will continue for the term of the license.

B. The Licensee will ensure continuity between monitoring periods, subject to approval by the Forest Service. The Forest Service will approve transect locations and marking methodology prior to implementation. Deviations from approved methodologies must be approved by the Forest Service before their implementation.

C. The Licensee and its contractor will meet with the Forest Service for a field review prior to and at the end of each field season. At the end of each monitoring field season, the Licensee, its contractor, and the FS will discuss monitoring reporting format for final approval by the FS. If determined necessary, a draft of the report will be provided by the Licensee to the FS for review by the end of December of that calendar year.

D. By March 1 of the year following each monitoring season, the Licensee will provide the FS with a monitoring report that has been prepared in accordance with the previously agreed-to format. Monitoring reports will include all data collected, photos, data analysis, a comparative analysis between current and past years' data, and detailed descriptions of methodologies used. Repeatability of measurements within transects and quadrants will be ensured by providing adequate information on all locations. The Licensee and the FS will then meet by March 31 for a post monitoring review.

E. Yearly riparian measurements will be taken after peak annual flows, at the time of peak vegetative production and prior to annual reservoir drawdowns to provide for comparable data throughout the term of the monitoring plan. Aquatic monitoring will be conducted concurrently.

F. Monitoring will be conducted at 3 sites on Rush Creek, between Rush Meadows (Waugh Lake) Dam and Gem Lake. The specific location of each site will be identified on the ground by the FS in consultation with the Licensee and its contractor. Endpoints of transects will be permanently marked with either angle iron or rebar and referenced to permanent bearing points outside the riparian zone. Flagging, transect lines, and other monitoring paraphernalia will be removed upon the completion of data collection at each site.

G. Riparian transects will extend beyond the fluvial surface to ensure that future increases in riparian vegetation are accounted for.

H. Photo documentation will be completed at the same time as the vegetation and aquatic monitoring.

I. As new methodologies and technologies become available, their usefulness and applicability to the monitoring will be evaluated. The Forest Service will have final approval regarding any changes in methodology.

ABIOTIC PARAMETERS TO BE MEASURED ONCE INITIALLY AND ONCE AT THE END OF THE TERM OF LICENSE
(In addition, cataclysmic events may necessitate re-evaluation of some or all of these parameters between monitoring years).

Parameter	Units	Definition
Physiographic valley type	N/A	Classification of types based on landform features
Reach types	N/A	Hydrological classification of stream reaches (e.g., gaining, losing, or in equilibrium)
Elevation	Meters	Altitude above sea level
Channel Gradient	Degrees	Slope of stream channel along length of stream
Valley Slope	Degrees	Slope of surfaces beyond the active channel edge and perpendicular to the stream
Soil profile description	N/A	Description of soil horizon characteristics including color, structure, texture, degree of alkalinity or acidity, rooting depths by species or life form. Descriptions will follow Soil Conservation Service (SCS) soil survey and profile description standards. Number of profiles will reflect soil variability within each site and fluvial surface.
Soil moisture retention capacity	gm/gm or %	Measure of moisture holding capacity of soil determined by gravimetric method or available water holding (field AWC) following SCS standards.

ABIOTIC PARAMETERS TO BE MEASURED IN 1993, 1994, 1995, AND THEN ONCE EVERY FIVE YEARS THEREAFTER, (i.e., 2003, 2011, 2019, etc.)

Yearly measurements are to be taken after peak flows, during the peak of vegetative production, and prior to annual reservoir drawdown of the year in which monitoring is conducted.

Parameter	Units	Frequency	Method or Source of Data
Streamflow	cfs	Daily	License gauging stations
Streamflow	cfs	Weekly during growing season at each site	Current meter or gauge calibrated to gauging stations.
Riparian zone width	Meters	Yearly	Direct measure with tape. Show x-section profile in data summary.
Channel width bankfull to bankfull	Meters	Yearly	Direct measure on transects
Channel depth bankfull to bankfull	Meters	Yearly	Direct measure along transects (note current water level height)
Soil moisture	Ohms	Yearly	Fiberglass blocks. Number of blocks per transect to be determined according to soil variability.

* For the following climatic parameters, information from the nearest location where weather data is collected, will be provided.

Temperature	Degrees	Daily	License
Precipitation	Millimeters	Daily	License
Relative humidity	Percent	Daily	CA Dept of Water Resources, or nearest source
Wind speed	Meters/second	Daily	CA Dept of Water Resources, or nearest source

VEGETATIVE PARAMETERS TO BE MEASURED IN 1994, 1994, 1995, AND THEN EVERY FIVE YEARS THEREAFTER, (i.e., 2003, 2011, etc.)

Yearly measurements are to be taken after peak flows, during the peak of vegetative production, and prior to annual reservoir drawdowns during the year in which monitoring is conducted.

All vegetative parameters will be identified by fluvial surface. All vegetative parameters will be measured using belt transects, each five meters in width, with the exception of seedling beds and species composition, which will be determined for each entire site.

Parameter	Units	Frequency	Method of Source of Data
Riparian Vegetative Zone Width	Meters	Yearly	Direct measure with tape. Show x-profile with corresponding fluvial surfaces in data summary.
Absolute Cover (transects)			
Tree/shrub cover	Percent	Yearly	Belt transect by species and by size/age classes.
Herbaceous cover	Percent	Yearly	Nested sq meter plot (min. 3 per transect).
Ground cover (rock, litter, bare ground, water, moss)	Percent	Yearly	Nested sq meter plot (min. 3 per transect); use SCS stds for rock categories.
Absolute Cover (site walkover)	Percent	Yearly	Ocular estimate of absolute cover, by species, over entire plot
Frequency	Number	Yearly	Number of individuals recorded during cover estimate on belt transect and cover estimate over entire plot.
Species Richness	Number	Yearly	Display from plot and belt transect data.
Relative Importance			
Tree and shrub density	#/hectare	Yearly	Belt transects-count individuals by species and by size/age classes.
Tree and shrub height	Meters	Yearly	Belt transect-direct measure or estimation, by species and by size/age classes.
Relative cover	Percent	Yearly	Display from plot and belt transect data.
Stand Age and Productivity			
Tree diameter at breast height	Cm	Yearly	Measure along transect by species.
Tree growth	Cm/yr	Baseline	Increment bore taken only

Tree age	Years	Baseline and 10 yr interval	Increment bore will be taken only once per tree.
Biomass			
Trees	Kg/hectare	Yearly	For species with height/dbh relationships
Shrubs	Kg/hectare	Yearly	Reference unit estimation method, by species.
Herbaceous	Kg/hectare	Yearly	Nested plots on transect, reference unit estimation, by species.
Shrub stem number	#/shrub	Yearly	Count stems on transect.
Tree stem number for multi-stemmed trees	#/tree	Yearly	Count stems on transect.
Mortality			
Trees & Shrubs	% of total by species on transect	Yearly	Ocular estimate, brief description of cause, include collection of damaged leaves & insects for verification.
Snags	Number/ac	Yearly	Count by species and size class over whole site.
Recruitment			
Seedling beds	Number, spp	Monthly	Entire site, in channel; record substrate and location.
Seedlings	Number, spp	Yearly	Presence or absence on transects by fluvial surfaces.
Tree & shrub juveniles			
Shoot age	Years/meters	Yearly	Bud scar count and height by species.
Shoot origin	Sexual or veg./meters	Yearly	Ocular observation and ht by species.

Shading Canopy Closure	Percent	Yearly	% of ground area shaded by all woody veg. using a ceptometer or sphere densiometer.
Stream Shading	Percent	Yearly	Ceptometer reading mid-stream, channel pt on transect.
Photo documentation Photo points	35 mm (black and white prints)	Yearly	Minimum 4/transect: upstream, downstream, endpoints
Aerial photos	1":500'	Yearly	False color infrared.
Off-site Photo Points	35 mm (black and white prints)	Yearly	Minimum of 4/location (upstream, downstream, and endpoints) at 5 locations to be identified between Waugh Lake and Rush Creek Powerhouse (other than the 3 aquatic/riparian monitoring sites)

AQUATIC PARAMETERS TO BE MEASURED IN 1993, 1994, 1995, AND THEN ONCE EVERY FIVE YEARS THEREAFTER (I.E., 2003,2011, ETC.)

Yearly measurements will be taken after peak flows, during the peak of vegetative production, and prior to annual reservoirs drawdowns during the year in which monitoring is conducted.

All parameters will be measured along the same transects used for riparian monitoring. Unless otherwise indicated, parameters are measured at 15 evenly spaced sampling points across each transect.

Parameter	Units	Frequency	Method of Source of Data
Height of Bankfull	cm	Yearly	vertical distance from water level to bankfull
Wetted Perimeter width	cm	" "	distance across wetted perimeter of channel
Water Depth	cm	" "	at each sampling point along transects
Water Velocities	ft/sec	Yearly	at each sampling point along transects
Discharge	cu ft/sec	" "	calculate from water depth and velocity
Channel Substrate	cm	" "	actual particle size for each sampling point along line transect.
Size Composition	percent	" "	a) ocular estimate of particle size distribution along wetted width of veg. Belt transects b) calculated from above point sampling estimates and grouped as follows: boulder > 30 cm cobble 8-30cm gravel 0.5cm-8cm sand 0.1-0.5cm fines < 0.1cm
Embeddedness	percent	" "	% percent particles embedded in fine/sand substrates at each sampling point along transects.
Consolidation	rating	" "	After Pfankuch (1978) for each transect.
Streambank angle	degrees	" "	Measured from water surface.
Streambank overhang	cm	" "	Horizontal extension of bank out over water.
Stream Canopy	%	" "	Using densiometer or

Submerge Debris	cm	" "	Horizontal coverage of substrate by submerged organic debris.
Aquatic Vegetation	cm	" "	Horizontal coverage of transect by aquatic vegetation.

Immediately following the second eight-year monitoring interval, (i.e., following the year 2011), the licensee shall prepare, using the data collected as required above, an analysis of the effects of the flow requirements (identified in Condition No. 5) on aquatic and riparian dependent resources. Based upon that analysis, the licensee shall recommend any changes in flow necessary to meet Forest Service management goals and objectives for aquatic/riparian dependent resources, as identified in the Inyo National Forest Land and Resource Management Plan. The licensee shall provide the FS, FG, and the U.S. Fish and Wildlife Service an opportunity to comment on their analysis and recommendations, and shall submit all such documentation to the Commission by no later than 6 months following the close of the second five-year monitoring interval. The above procedure will be repeated after each subsequent five-year monitoring interval. In addition, the Forest Service reserves the right to petition the Commission to amend the flows cited in Condition No. 5 if determined necessary to meet the above referenced management goals and objectives.

Condition No. 8 - Recreation and Wilderness Management

The Licensee shall maintain the water levels in Waugh and Gem Lakes within 2 feet of the spillway elevations from July 1st to the Tuesday following Labor Day weekend. On low water years (defined as < 75% of the April 1st snow water equivalent for the Mono Basin), the water level of Waugh Lake will be maintained to within 3 feet of the spillway elevation and the level of Gem Lake within 6 feet of the spillway elevation during the season specified above. The water level of Agnew Lake will be maintained within 15 feet of the spillway elevation in all water years during the season specified above.

The Licensee will adhere to the California Department of Fish and Game standards for the ramping of flows during its annual drawdown of the Waugh Lake, Gem Lake, and Agnew Lake reservoirs. This includes a standard which provides for no more than a 25% change in flow over any given 8 hour period.

All motorized uses within those portions of the license boundaries located within the boundary of the Ansel Adams Wilderness will be discontinued. FS authorization must be obtained for use of any motorized equipment within the Ansel Adams Wilderness. The FS will consider the need for such a use on a case-by-case basis, and will authorize such use only if the activity is determined to be essential for the operation of the project and cannot be feasibly accomplished by nonmotorized means because of such factors as unavoidable time or season limitations, safety factors, or other restrictions.

Within 1 year following issuance of this License, the Licensee shall provide to the FS for approval, plans for the construction of three new toilet facilities at the Oh! Ridge Campground, and the relocation of a segment of the 115 kV transmission line away from developed recreation facilities at the Oh! Ridge Campground. Such plans will include a schedule for the completion of these projects, and detailed maps of the design and proposed location/relocation of these facilities. In lieu of designing and constructing the 3 new toilet facilities, the Licensee may choose to satisfy that portion of this condition by depositing with the FS a sum of money equal to either the FS costs to complete the construction of said toilet facilities or $180,000, whichever is less.

Condition No. 9 - Hazardous Substances Plan

Within 1 year following the date of issuance of this license and at least 60 days before starting any activities the FS determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and cleanup.

At a minimum, the plan must require the Licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill cleanup equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform the FS immediately of the nature, time, date, location, and action taken for any spill.

The Licensee shall not commence activities the FS determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 10 - Erosion Control Plan

Within 1 year following the date of issuance of this license and before starting any activities the FS determines to be of a land-disturbing nature on NFS land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the FS for the control of erosion, stream sedimentation, dust, and soil mass movement.

The Licensee shall not commence activities the FS determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 11 - Spoil Disposal

Within 1 year following the date of issuance of this license and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the Forest Service for the storage and/or disposal of excess construction/tunnel spoils and slide material. At a minimum, the plan must address contouring of any storage piles to conform to adjacent land forms and slopes, stabilization and rehabilitation of all spoil sites and borrow pits, and prevention of water contamination by leachate and runoff. The plan also must include an implementation schedule and maintenance program.

The Licensee shall not commence activities the Forest Service determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 12 - Visual Resource Protection

Before starting any activities the FS determines to be of a land-disturbing nature on NFS lands, the Licensee shall file with the Director, Office of Hydropower Licensing, a plan approved by the FS for the design and construction of project facilities in order to preserve or enhance its visual character. The plan must consider facility configurations and alignments, building materials, color, conservation of vegetation, landscaping, and screening. Project facilities of concern to this plan include, among other things, -clearings, diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines and corridors, and access roads.

Condition No. 13 - Protection of Sensitive and T&E Species

Within 1 year from the issuance of this license and before starting any activities the FS determines to be of a land-disturbing nature on NFS land, the Licensee shall file with the Director, Office of Hydropower Licensing, a detailed implementation plan approved by the FS for the mitigation of impacts to sensitive, threatened, and endangered plant and animal species located within the area to be disturbed.

The Licensee shall not commence activities the FS determines to be affected by the plan until after 60 days following the filing date, unless the Director, Office of Hydropower Licensing, prescribes a different commencement schedule.

Condition No. 14 - Cultural Resources Management

Within 1 year following issuance of this license, the Licensee shall submit for Forest Service approval a multi-year plan to implement provisions of the "Management Plan for Historic and Archaeological Resources Associated with the Rush Creek Hydroelectric Project" (White, 1990) concerning the management of those resources within the project boundaries. This will include a plan to implement a multi-year data recovery program to mitigate the adverse impacts of reservoir shoreline erosion at 9 of the sites belonging to the Rush Meadow Archaeological District, as identified in the above-referenced Plan. These provisions will allow for compliance with Section 106 of the National Historic Preservation Act. The Licensee shall consult with the California State Historic Preservation Officer and the Inyo National Forest prior to the demolition, alteration, or remodeling of the contributing properties that would affect their significant characteristics. The Licensee shall implement the Plan in a manner satisfactory to the Forest Service and the California State Historic Preservation Office, and consistent with the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation.

ENVIRONMENTAL ASSESSMENT FOR HYDROPOWER LICENSE

Rush Creek

FERC Project No. 1389-001

California

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
825 N. Capitol Street, NE
Washington, D.C. 20426

May 5, 1992

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

The applicant, Southern California Edison, proposes to continue operation of the existing Rush Creek Project. This environmental assessment evaluates the potential economic benefits and project-specific and cumulative environmental effects that would result from issuing a new license for the Rush Creek Project. The proposed action does not involve appreciable tradeoffs between the economic feasibility of the project and enhancing nondevelopmental resources, because it is possible to enhance environmental resource values without adversely affecting project operation.

Along with considering whether to license the project as SCE proposes, we consider two alternative actions: (1) issuing a new license with the enhancement measures we recommend or (2) denying the license.

Based on our review of the proposed action and the alternatives under sections 4(e) and 10(a) of the Federal Power Act, we recommend the proposed action with our environmental measures. These measures would protect nondevelopmental values and would not reduce the average annual generation of 49 GWh. We conclude that the proposed action, with the environmental measures we recommend, would best adapt the project to a comprehensive plan for Rush Creek.

Based on our independent environmental analysis, issuance of an order approving the proposed action with our recommendations is not a federal action significantly affecting the quality of the human environment.

ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION
OFFICE OF HYDROPOWER LICENSING, DIVISION OF PROJECT REVIEW

Rush Creek

FERC Project No. 1389-001—California

(April 10, 1992)

I. APPLICATION

On December 1, 1981, Southern California Edison (SCE) filed an application for major license for the existing Rush Creek Hydroelectric Project.

SCE would continue to operate the project on Rush Creek in Inyo and Mono Counties, California, near the year-round resort community of June Lake (figure 1). Most of the project occupies lands of the United States managed by the Forest Service (FS), although the powerhouse is located on land owned by SCE (figure 2).

II. PURPOSE AND NEED FOR ACTION

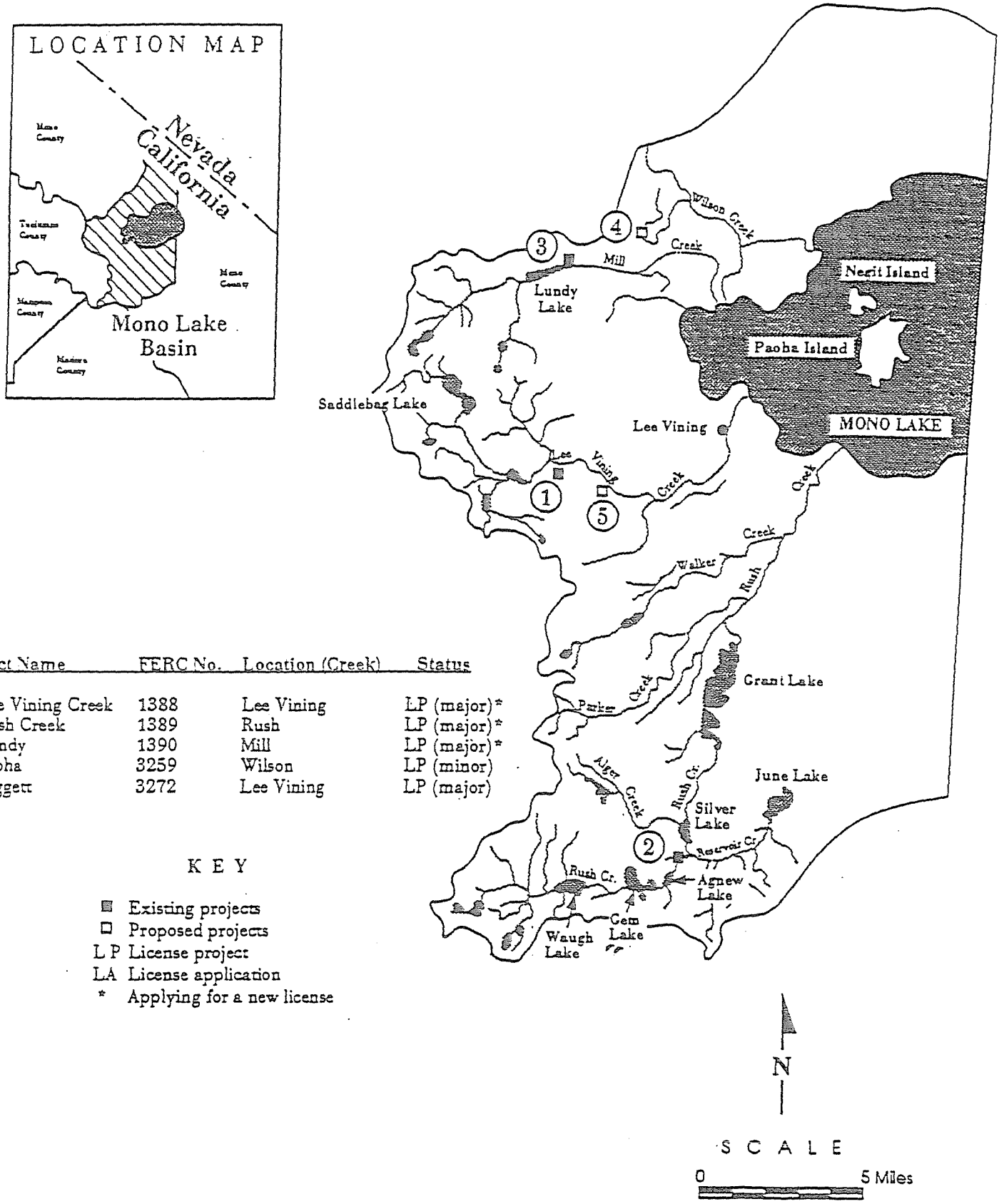
A. Purpose

Under SCE's proposal for a minimum instream flow of 10 cubic feet per second (cfs) below Rush Meadows dam, we estimate the project would produce about 49 million kilowatthours (kWh) of electrical energy annually. SCE can use this renewable energy to meet its own current system load requirements and respond to the California Energy Commission's (CEC) energy diversity recommendations.

B. Need for Power

We conclude that SCE has needed the energy and capacity from the project over the past decades, and will need the power in the future. The project's energy and capacity are already included in SCE's adopted resource plan. The project is useful in supplying a small portion of the utility's current need for power, and provides the SCE system with energy diversity by using a nonfossil energy resource.

To consider the need for power in California, and more specifically in the SCE service territory, we reviewed the CEC's 1991 Biennial Report (California Energy Commission, 1991) and a predecessor document, the 1990 Electricity Report (California Energy Commission, 1990). The Biennial Report (California's Energy Plan) is California's principal energy planning and policy document, and it concludes:



Project Name	FERC No.	Location (Creek)	Status
1. Lee Vining Creek	1388	Lee Vining	LP (major)*
2. Rush Creek	1389	Rush	LP (major)*
3. Lundy	1390	Mill	LP (major)*
4. Paoha	3259	Wilson	LP (minor)
5. Leggett	3272	Lee Vining	LP (major)

KEY

■ Existing projects
□ Proposed projects
L P License project
LA License application
* Applying for a new license

Figure 1. Locations of proposed and existing hydroelectric projects in the Mono Lake Basin, California (Source: the staff).

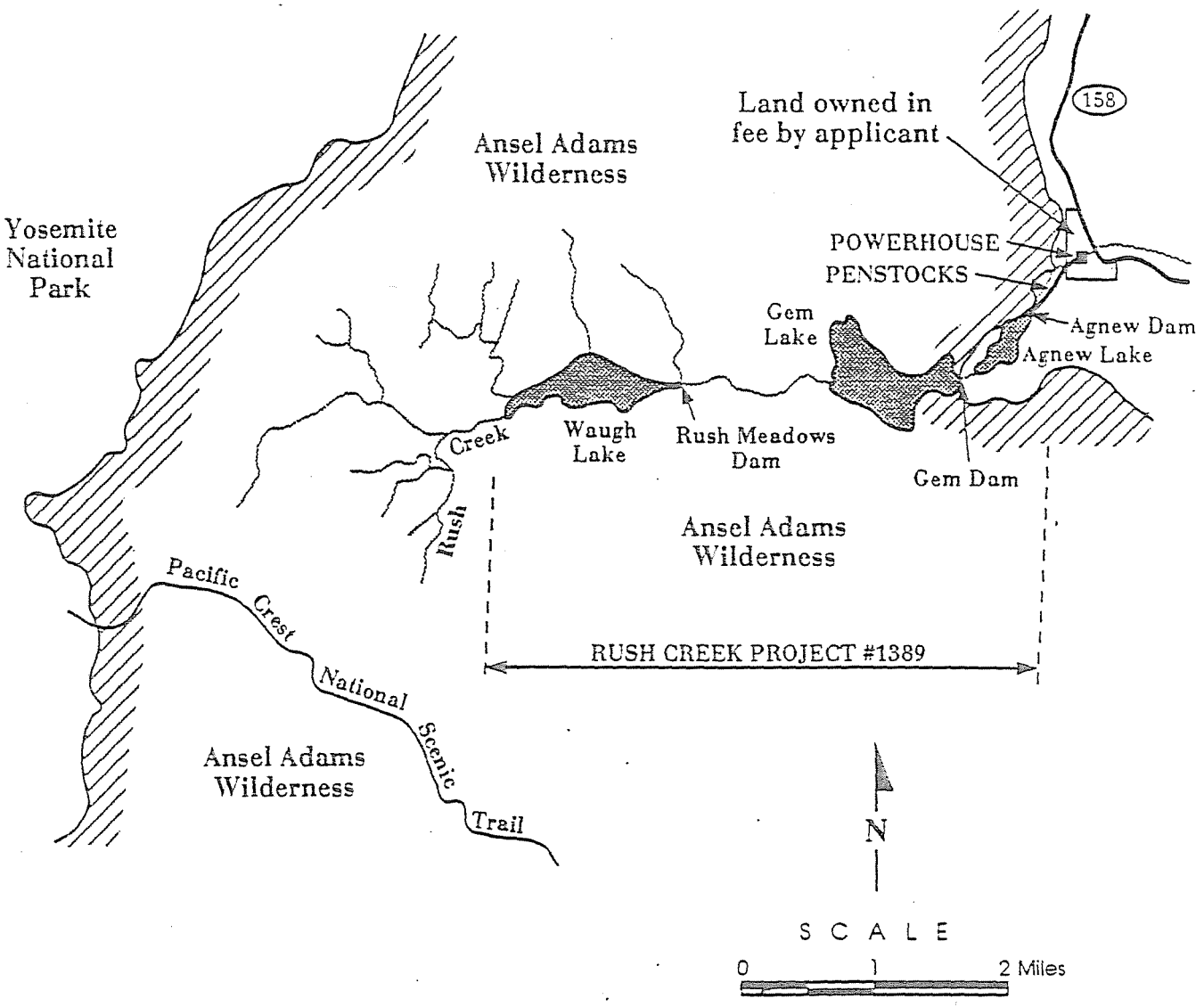


Figure 2. Rush Creek Hydroelectric Project, FERC No. 1389. All project lands except the powerhouse area are lands of the United States managed by the Forest Service (Source: the staff).

"The state should require the most cost-effective and efficient operation of its existing electricity generation, transmission, and distribution systems to minimize the economic and environmental impacts of existing facilities and new construction."

The CEC in its 1990 Electricity Report (ER-90) (California Energy Commission, 1990) identifies hydroelectric relicensing projects as one of seven statewide categories of resources that should be completed. ER-90 concludes that hydro project relicensing will remain very competitive from an economic perspective because of the projects' low capital and operating costs relative to competing new projects.

The CEC is also required to assess the integrated need for new resources for each of the major utilities in California. Based upon the CEC's integrated assessment for the SCE service territory, ER-90 concludes:

- Although SCE has sufficient resources to meet expected demand through the 1990's, the utility will reduce future ratepayer costs by adding new resources in the mid to late 90's.

- Additional economic generation will be available by 1999 by repowering three existing SCE oil- and gas-fired boilers.

- Utility-owned geothermal facilities will become the most socially cost-effective resource beginning in the period 2000 through 2004.

- Additional demand side management (DSM) resources may become cost effective once societal costs (residual emissions) are considered in the DSM cost-effectiveness analysis.

Therefore, if this project license application is not approved, the project's dependable energy and capacity would probably be replaced in the short term by SCE's repowered oil/gas-fired combined cycle plants, or alternatively by power purchases from an independent power producer.

Over the long term, SCE would probably consider additional replacement alternatives such as geothermal facilities and additional DSM resources.

III. PROPOSED PROJECT AND ALTERNATIVES

A. Proposed Project

1. Project Description

The Rush Creek Project is located on Rush Creek about 14 miles upstream from Mono Lake (figure 1). It is approximately 330 miles north of Los Angeles, about 100 miles southeast of Lake Tahoe, about 5 miles east of Yosemite National Park, and about 21 miles southwest of the Nevada state line.

Built between 1915 and 1917 and expanded in 1925, the Rush Creek Project (figure 2) consists of: (1) the 463-foot-long, 50-foot-high, concrete, constant radius, Rush Meadows arch dam, impounding the 185-acre Rush Meadows reservoir (Waugh Lake); (2) the 688-foot-long, 80-foot-high, concrete, multiple arch Gem dam, impounding 282-acre Gem Lake; (3) the 278-foot-long, 30-foot-high, concrete, multiple arch Agnew dam, impounding 40-acre Agnew Lake; (4) a reinforced concrete intake structure at Gem dam, including trashracks and 48-inch-diameter steel pipe; (5) a reinforced concrete intake structure at Agnew dam, including trashrack and 30-inch-diameter steel pipe; (6) a valve house; (7) a 4,584-foot-long, 48-inch-diameter flowline from Gem dam to the valve house; (8) a 575-foot-long, 30-inch-diameter flowline from Agnew dam to the valve house; (9) two lap-welded, 4,280-foot-long penstocks varying from 28 to 30 inches in diameter from the valve house to the powerhouse; (10) a two-story, reinforced concrete powerhouse containing two turbine/generator units, one rated at 4,400 kilowatts (kW) and one rated at 4,000 kW, for a total installed capacity of 8,400 kW; (11) a 49.6-mile-long, 115-kilovolt (kV), three phase, single circuit transmission line supported on wood pole H-frame structures; and (12) appurtenant facilities. No new construction is proposed by SCE.

The Rush Creek powerhouse is operated at a level consistent with the available water supply. During periods of high streamflow, the powerhouse is operated at capacity. During periods of low flow, water is used conservatively so that a continuous water supply is assured throughout the year. All three reservoirs are generally drawn down before the winter and refilled during the spring runoff. Gem Lake is the most important reservoir in terms of storage, with a usable capacity of 17,228 acre-feet. Waugh Lake and Agnew Lake provide net storage capacity of 5,277 acre-feet and 810 acre-feet, respectively.

The powerhouse operates about 50 weeks of each year on the Gem Lake head, with a rating of 8,400 kW. The powerhouse operates on the Agnew Lake head, with a rating of 5,800 kW, for about 2 weeks in early October when Agnew Lake is drawn down for the winter. The project license contains no minimum instream flow requirement for Rush Creek, although SCE generally provides for at least 2.5 cfs in the 1.7-mile-long reach between Rush Meadows dam and Gem Lake.

We studied the project transmission lines to determine which lines should be considered as primary lines within the definition of section 3(11) of the Federal Power Act if a new license is issued for the Rush Creek Project. Our study of the existing transmission system in the vicinity of the project indicates that there are two existing lines connecting to the project and that they are performing SCE transmission system functions, and as such are not subject to license within the meaning of section 3(11). These two lines include a 15.2-mile-long line to the Lee Vining 115/55-kV substation (currently licensed as part of the Lee Vining Project No. 1388), and a 19.6-mile-long line to the Casa Diablo 115/33/12-kV substation. The 19.6-mile-long line is part of the 49.6-mile-long line currently under license as part of Project No. 1389.

Any new license issued for the Rush Creek Project should include only the approximately 150-foot-long, 2.3-kV line segment from the project generator, through voltage transformation and appurtenant facilities, to interconnect with SCE's system at the Rush Creek substation bus.

Historically, the project has produced 49 million kWh of electrical energy annually with an installed capacity of 8,400 kW and hydraulic capacity of 96 cfs. The average annual water use has been approximately 35,000 acre-feet, the equivalent of 48 cfs. The dependable capacity is 635 kW when operated on Gem Lake head and 440 kW when operated on Agnew Lake head. The annual plant factor is approximately 0.665.

2. Proposed Enhancement Measures

SCE proposes to maintain a continuous minimum release of 10 cfs or natural inflow, whichever is less, from Rush Meadows dam into Rush Creek. The release would not be gaged. SCE would not draw down any of the project reservoirs between Memorial Day and Labor Day of any year except in dry years. In dry years the drawdown would not exceed 3 feet at Waugh Lake, 6 feet at Gem Lake, and 6 feet at Agnew Lake.

3. Federal Land Management Conditions

After the final environmental assessment (EA) is completed, the FS will provide terms and conditions of occupancy for lands of the Inyo National Forest under section 4(e) of the Federal Power Act. The FS recommendations cited in this EA are preliminary 4(e) conditions provided by the FS in letters to the Commission.

B. Alternatives to the Proposed Project

The alternatives to the proposed project are (1) to issue a license with our enhancement recommendations, or (2) to deny the license.

Our enhancement alternatives would require releasing a minimum flow from Rush Meadows dam into Rush Creek, installing a stream gage, maintaining high reservoir levels during the recreation season, and following certain procedures with regard to protecting cultural resources.

No action, denial of a license, would mean SCE would operate the project under annual license, with no changes.

C. Alternatives Considered but Eliminated from Detailed Study

We looked at various ways of providing a low minimum instream flow (1.4 cfs) below Gem and Agnew dams, particularly during the summer and fall recreation seasons in dry years, in order to provide a wetted surface that would be visually appealing to recreationists and viewers on the June Lake Loop (California State Highway 158). We dismissed all options because the cost of needed flow release mechanisms would be excessive compared to the benefits to be derived.

We also examined opportunities to provide wilderness access to handicapped persons via the project tramways. We dismissed this concept because of liability concerns.

IV. CONSULTATION AND COMPLIANCE

A. Consultation

The Federal Energy Regulatory Commission (FERC and 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 statutes. Prefiling 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 June 8, 1982.

Commenting entities	Date of Letter
California Department of Parks and Recreation	07/13/82
State Water Resources Control Board	08/05/82
California Department of Fish and Game	08/11/82
The Resources Agency of California	08/12/82

Environmental Protection Agency	08/17/82
Forest Service	09/07/82
Department of the Interior	09/30/82
Department of Transportation	10/04/82
State Historic Preservation Office	10/22/82

Intervenors	Date of motion to intervene
California Department of Fish and Game	08/13/82

SCE did not respond to the comments and motions to intervene.

Scoping of Issues

Since the Notice of Application for license dated June 8, 1982, various meetings have been held with representatives of agencies and individuals with an interest in the Rush Creek Project. From these agencies and individuals, we determined the major issues of relicensing the project are:

a. Is the applicant's proposed instream flow in Rush Creek downstream of Rush Meadows dam adequate to protect the trout fishery, other aquatic resources, and riparian vegetation?

b. What other structural or operational measures, such as fish screens and maximum ramping rates, are required to adequately protect the fishery resource?

c. Are the applicant's proposed summer reservoir levels adequate to protect fish and wildlife values, as well as recreation and aesthetic values, particularly during the high use recreation season between July 1 and Labor Day?

d. Can a satisfactory plan be devised to enhance winter fish habitat in Waugh Lake without jeopardizing wilderness values or dam safety?

We address these issues in section V, Environmental Analysis.

B. Water Quality Certification

The applicant requested water quality certification pursuant to Section 401 of the Clean Water Act by letter dated November 4, 1981. On December 13, 1982, the California Regional Water Quality Control Board waived Section 401 water quality certification.

V. ENVIRONMENTAL ANALYSIS

A. General Description of the Locale

1. Mono Lake Basin

The Mono Lake Basin (figure 1) is located almost entirely in Mono County, California. A small portion of the basin is in Mineral County, Nevada. The basin is approximately 340 miles north of Los Angeles, about 90 miles southeast of Lake Tahoe, about 8 miles east of Yosemite National Park, and about 10 miles southwest of the Nevada State line. The basin contains about 700 square miles. Perennial streams in the basin occur along the western side of Mono Lake; the major ones are Wilson, Mill, Lee Vining, Walker, Parker, and Rush creeks (figure 1).

For more than 100 years, irrigation, hydroelectric developments, and water export have altered the water resource and associated riparian vegetation in the watersheds of Mono Lake. The water diversions have shrunk Mono Lake's size and depth, and the water has become too salty to support the previous large populations of migratory birds. The basin has lost (1) riparian vegetation, (2) fish and wildlife habitat, (3) recreation opportunities, (4) scenic quality, and (5) natural character.

The natural landforms and closeness of the basin to the Los Angeles and San Diego metropolitan areas make the Mono Lake Basin an important recreation area that is visually appealing to most people visiting the area. The perennial streams are important in sustaining the highly valued recreational trout fishery and related activities.

The recreational opportunities and visual values of the basin form much of the economic base of the local communities. Mining contributes little to the economy, but is locally important in Lee Vining. The communities of June Lake and Lee Vining serve recreationists. June Lake is an important year-round resort community that includes a downhill ski area; Lee Vining's economy is closely tied to spring, summer, and autumn, when nearby Tioga Pass, the eastern entrance to Yosemite National Park, is open.

2. Cumulative Impacts

The Commission's staff examined the potential cumulative impacts of two proposed Mono Lake Basin hydroelectric projects, Leggett and Paoha, in combination with three existing hydroelectric projects, Lee Vining, Lundy, and Rush Creek, on five target resources: (1) riparian vegetation; (2) riparian associated wildlife; (3) resident trout in the streams; (4) visual quality; and (5) recreation. The Commission issued the cumulative environmental assessment (CEA) on October 11, 1990 (Federal Energy Regulatory Commission, 1990). The CEA is hereby incorporated into this document by reference.

In the CEA, Commission staff concludes that the benefits to the target resources from proposed enhancement measures (increased instream flows and stable lake levels) for the three existing SCE projects would compensate for the impacts on the target resources that would result from the construction and operation of the two proposed projects, Leggett and Paoha.

Therefore, the Commission determined that there would be no significant cumulative impacts to the target resources of riparian vegetation, riparian-associated wildlife, resident trout in the streams, visual quality, and recreation in the Mono Basin as a result of relicensing the Rush Creek Project.

B. Proposed Project

1. Geology and Soils

Affected Environment: The Rush Creek project area was formed by glaciers and is characterized by steep ridge and valley topography. The soils are thin but stable in their current environment, with low erosion potential (Southern California Edison, 1988).

The uppermost reservoir, Waugh Lake, is completely rimmed by low to moderately sloping outcrops of glaciated granitic rock. The 1.7-mile-long reach of Rush Creek between Rush Meadows dam and Gem Lake (figure 2) supports a riparian community.

The Gem Lake shoreline is rocky, and is surrounded by talus slopes and some vegetation growing where there is sufficient soil. The 0.2-mile reach of Rush Creek between Gem dam and Agnew Lake is a steep series of rockfalls (personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, January 17, 1992).

The steep and rugged terrain around Agnew Lake is characterized by talus slopes and granitic outcrops along the rocky shoreline.

The powerhouse is located on glacial till at the base of the mountain front. Two 0.8-mile-long penstocks descend the mountain face from a valve house located below Agnew dam.

Environmental Impacts and Recommendations: Erosion problems have not been documented in the project area except in the Waugh Lake drawdown zone. In the Cultural Resources section, we recommend that SCE undertake an archaeological data recovery program in the Waugh Lake drawdown zone to mitigate for erosion damage to sites in the Rush Meadow Archaeological District. To ensure that soil disturbance associated with this data recovery program does not increase erosion, we recommend that SCE prepare and implement an erosion control plan. (See Condition A in the appendix.)

Unavoidable Adverse Impacts: There would be no unavoidable adverse impacts to the geology and soil resource as a result of project operations with implementation of our recommended measures.

2. Water and Fishery Resources

Affected Environment: Rush Creek originates in the Ansel Adams Wilderness, in the eastern Sierra Nevada, at an elevation of about 11,000 feet mean sea level (msl), and discharges into Mono Lake about 20 miles downstream. The Rush Creek watershed covers an area of about 23 square miles and the creek has a mean annual flow of 60 cfs, as measured downstream from Agnew Lake (Federal Energy Regulatory Commission, 1990). Flows in Rush Creek fluctuate seasonally, with most streamflows resulting from snowmelt during spring runoff and locally heavy summer thunderstorms typical of the eastern Sierra Nevada. Flows are generally highest between April and August, and lowest from September through March (figure 3).

a. Reservoir Operation and Instream Flow

The three project reservoirs (table 1) are used to regulate flows for electricity generation at the Rush Creek powerhouse downstream of Agnew Lake.

Table 1. Rush Creek Hydroelectric Project reservoirs, spillway crest elevations, surface acres and maximum storage capacities. (Source: Southern California Edison, 1981).

Reservoir	Spillway Elevation (msl)	Surface Acres (range)	Storage Capacity (acre-feet)
Waugh Lake (Rush Meadows Reservoir)	9,415	185 (0-185)	5,277
Gem Lake	9,052	282 (20-282)	17,228
Agnew Lake	8,496	40 (23-40)	810

Waugh Lake regulates the flow in upper Rush Creek. It is allowed to fill beginning in May, is usually at capacity by mid-June, and remains full through the Labor Day holiday (Southern California Edison, 1988; personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, January 21, 1992). Beginning in September, water is transferred from Waugh Lake to Gem Lake. The transfer of water is usually completed by November 1. During the

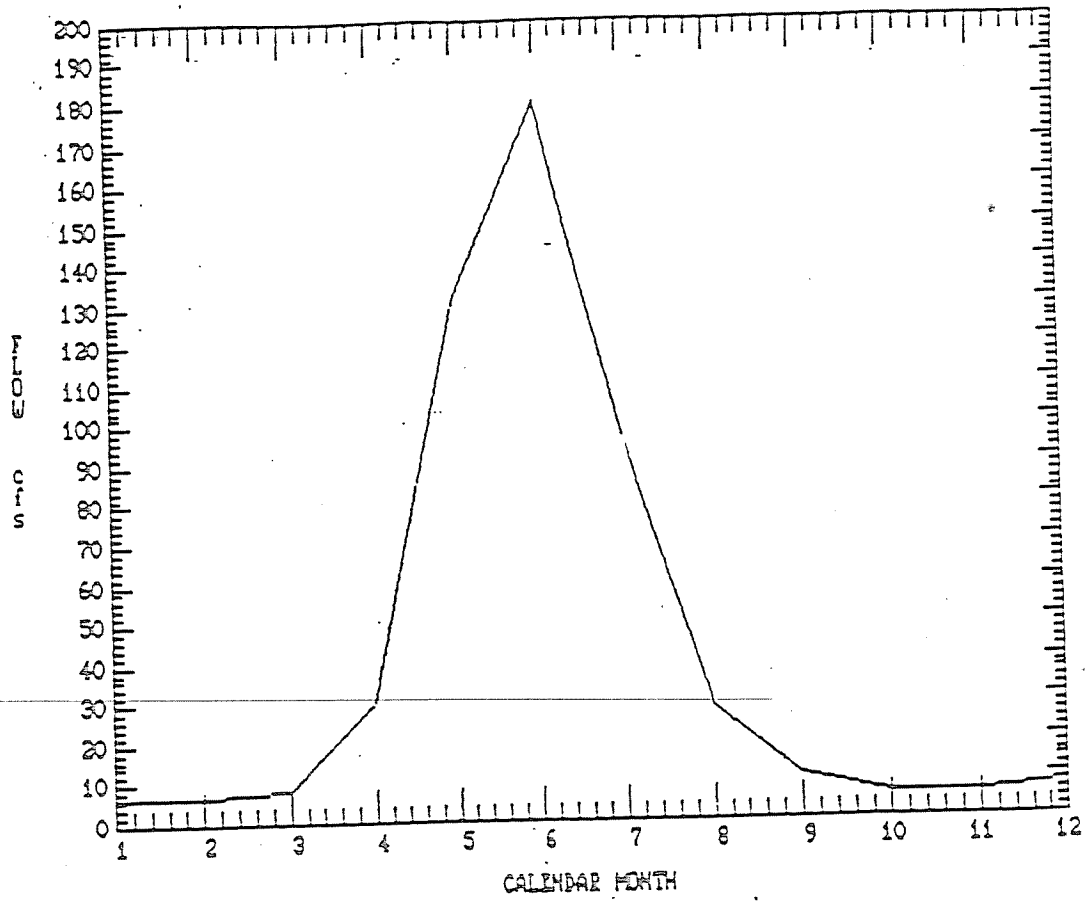


Figure 3. Mean monthly flows in upper Rush Creek (calculated from changes in project reservoir levels and power generation flows; period of record not specified). Flows as high as 500 cfs are present occasionally during heavy spring runoff. (Source: EA Engineering, Science and Technology, 1986).

winter, natural streamflows are passed through Rush Meadows dam and no water is stored in Waugh Lake.

Historically, SCE has voluntarily released flows of at least 2.5 cfs out of Waugh Lake as a normal part of reservoir regulation (personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, March 4, 1991). This year-round flow maintains fish and wildlife habitat in 1.7 miles of Rush Creek above Gem Lake.

Gem Lake is the main storage reservoir for the Rush Creek project and provides the main source of water for power generation. It is normally allowed to fill during the runoff period (April through July). To reduce the chances of uncontrolled spills, water is transferred from Gem Lake to Agnew Lake with controlled releases as needed (Southern California Edison, 1988; personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, January 21, 1992).

Agnew Lake also provides storage for power generation. The California Department of Safety of Dams (DSOD) requires the lake to be drawn down below the arches between November 1 and April 1 to avoid ice damage to the dam. After April 1, the reservoir is allowed to fill to maximize storage of spring runoff flows (Southern California Edison, 1988; personal communication, Gary Aubrey, Southern California Edison, Bishop Hydroelectric Division Manager, Bishop, California, January 17, 1992). A minimum lake level no less than 6 feet below the spillway is maintained during the summer to allow SCE personnel to access Gem dam by boat or barge (personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, January 21, 1992).

Rush Creek between Gem Lake and Agnew Lake (0.2 miles) and between Agnew Lake and the powerhouse (0.9 miles) are bypass reaches wetted by natural accretion and runoff. They contain higher flows only when the lakes are spilling. All other flows that would occur in the two stream reaches in the absence of the project are diverted through the project flowlines. These stream reaches are characteristically steep bedrock channels, with some riparian vegetation along the banks and small, deep pools that provide limited aquatic habitat and support small populations of trout (letter from F. Worthly, Regional Manager, Region 5, California Department of Fish and Game, Long Beach, California, August 5, 1988).

b. Fishery Resources

Waugh Lake is not currently stocked with trout by CDFG because of the drawdown of the reservoir every winter (personal communication, D. Wong, Fisheries Biologist, California Department of Fish and Game, Bishop, California, January 21, 1992). Trout that reside in Rush Creek upstream of Waugh Lake

may move into the lake during spring runoff when the reservoir is filling. Because of the lack of overwintering habitat and the absence of seasonal fish plants by CDFG, however, trout populations in the lake during spring, summer, and fall are low relative to other stocked reservoirs and natural lakes in the area (personal communication, D. Wong, Fisheries Biologist, California Department of Fish and Game, Bishop, California, December 30, 1991, and January 21, 1992).

The reach of Rush Creek between Waugh Lake and Gem Lake (referred to as upper Rush Creek) has self-sustaining populations of brook trout and rainbow trout. Between 1985 and 1987, rainbow trout averaged 11.5 pounds per acre and brook trout averaged 7.3 pounds per acre in upper Rush Creek (EA Engineering, Science and Technology, 1988). This is below average compared to other eastern Sierra streams above 9,000 feet (Gerstung, 1973; Platts and McHenry, 1988). Upper Rush Creek supports a moderate to good recreational fishery (personal communication, S. Chubb, Biologist, Forest Service, Bishop, California, January 22, 1992).

CDFG stocks rainbow trout annually in Gem and Agnew lakes and in lower Rush Creek downstream of the powerhouse (personal communication, D. Wong, Fisheries Biologist, California Department of Fish and Game, Bishop, California, January 21, 1992). Annual stocking levels for fingerling rainbow trout in Gem and Agnew lakes are 10,000 and 5,000 fish, respectively. Lower Rush Creek, between the project area and Grant Lake, receives from 21,000 to 34,000 catchable rainbow trout annually (Southern California Edison, 1981; personal communication, D. Wong, Fisheries Biologist, California Department of Fish and Game, Bishop, California, January 21, 1992). Self-sustaining populations of brook trout also occur in Gem and Agnew lakes.

c. Threatened and Endangered Aquatic Species

There are no known federally or state-listed aquatic species within the project area, or species being considered for listing (letter from Steven Chambers, Office Supervisor, United States Fish and Wildlife Service, Ventura, California, January 22, 1992; California Department of Fish and Game, 1991).

d. Water Use and Quality

There are no major consumptive uses of water within the project reach. Minor domestic water uses occur at the project powerhouse. The major consumer of Rush Creek water downstream of the project is the City of Los Angeles, which diverts water out of the basin at Grant Lake for domestic uses.

The Rush Creek project does not cause any long-term net loss of water to downstream areas.

Water quality is good, overall, for support of aquatic life in the project reservoirs and Rush Creek. Water samples taken at Waugh, Gem, and Agnew lakes in 1986 and 1987 (table 2) indicate

that lake waters are within the Environmental Protection Agency's (EPA) water quality standards for aquatic life (Lund, 1988).

Table 2. Selected water quality parameters for the three Rush Creek Project reservoirs, measured between July 1986 and August 1987. (Source: Lund, 1988).

	Temperature (°C) (range)	pH (range)	Dissolved Oxygen (% saturation range)	Electrical Conductivity (μScM, range)	Calcium (CA) (μEg/L range)	Bicarbonate (μEg/L range)
Waugh Lake	6.2-15.7	6.2-7.5	22*-112	4.7-10.1	21.0-28.8	19-50
Gem Lake	0.3-16.4	6.4-7.5	25*-113	7.5-17.3	39.6-83.5	46-95
Agnew Lake	4.6-15.5	6.0-7.6	3*-120	16.1-219.1**	87.7-1,320.0**	101-2,034**

* Low dissolved levels observed at deepest lake measurement during winter and late summer.

** High observed during August 1987.

Erosion problems in the project area have been reported only in the Waugh Lake drawdown zone. Sediment transport is minimal within the project area, and the reservoirs act as sediment traps that collect fines transported downstream. Waugh Lake is an exception because of the seasonal drawdown every winter and the absence of a residual pool volume (table 1). Lake drawdown allows sediments to naturally move with existing streamflows and distribute downstream. Due to the limited amount of erodible soils, sediment volumes carried downstream are typically small and sediments (mostly coarse to fine sand) collect in natural depositional areas of the stream, as documented in field surveys in 1988 (Hinkle, 1988). These deposits comprise approximately 5 percent or less of the total stream substrate.

Environmental Impacts and Recommendations

a. Minimum Instream Flow

To evaluate the effects of various project flow releases on trout habitat in Rush Creek below Waugh Lake, SCE used the Instream Flow Incremental Methodology (IFIM) to model and compare the amount of habitat available to all life stages of rainbow and

brook trout at flows of 0 to over 200 cfs (EA Engineering, Science and Technology, 1986, 1987a).

The IFIM analysis indicates that maximum weighted usable area (WUA) for adult and juvenile brook and rainbow trout is achieved at 5 cfs (table 3 and figure 4). At 7 cfs, usable habitat for adult and juvenile rainbow trout decreases to 99 percent of maximum and adult and juvenile brook trout habitat declines to 98 and 89 percent of maximum, respectively.

A 10 cfs flow decreases usable habitat for adult and juvenile rainbow trout to 96 and 94 percent of maximum, respectively, and adult and juvenile brook trout habitat to 92 percent and 80 percent of maximum, respectively (table 3 and figure 4). Flows above 10 cfs further reduce habitat for the juvenile and adult life stages of both species.

Maximum spawning habitat for both brook and rainbow trout occurs between 90 and 100 cfs (EA Engineering, Science, and Technology, 1986). Mean monthly flow data for upper Rush Creek indicate flows that meet or exceed 90 cfs occur over about 2 to 2.5 months of the year during early spring and summer (figure 3). Therefore the optimal WUA for spawning rainbow and brook trout is met under natural conditions during portions of the year.

CDFG and the FS have recommended, and SCE has agreed, that a minimum instream flow in this section of Rush Creek of 10 cfs or the natural flow, whichever is less, would ensure aquatic resource protection and enhancement. The CDFG and FS based their 10 cfs minimum flow recommendation on:

1) The aesthetic values of a full stream channel within a wilderness area; and

2) the ability of trout to avoid strong recreational fishing pressure and predation with additional deep water cover available at higher flows.

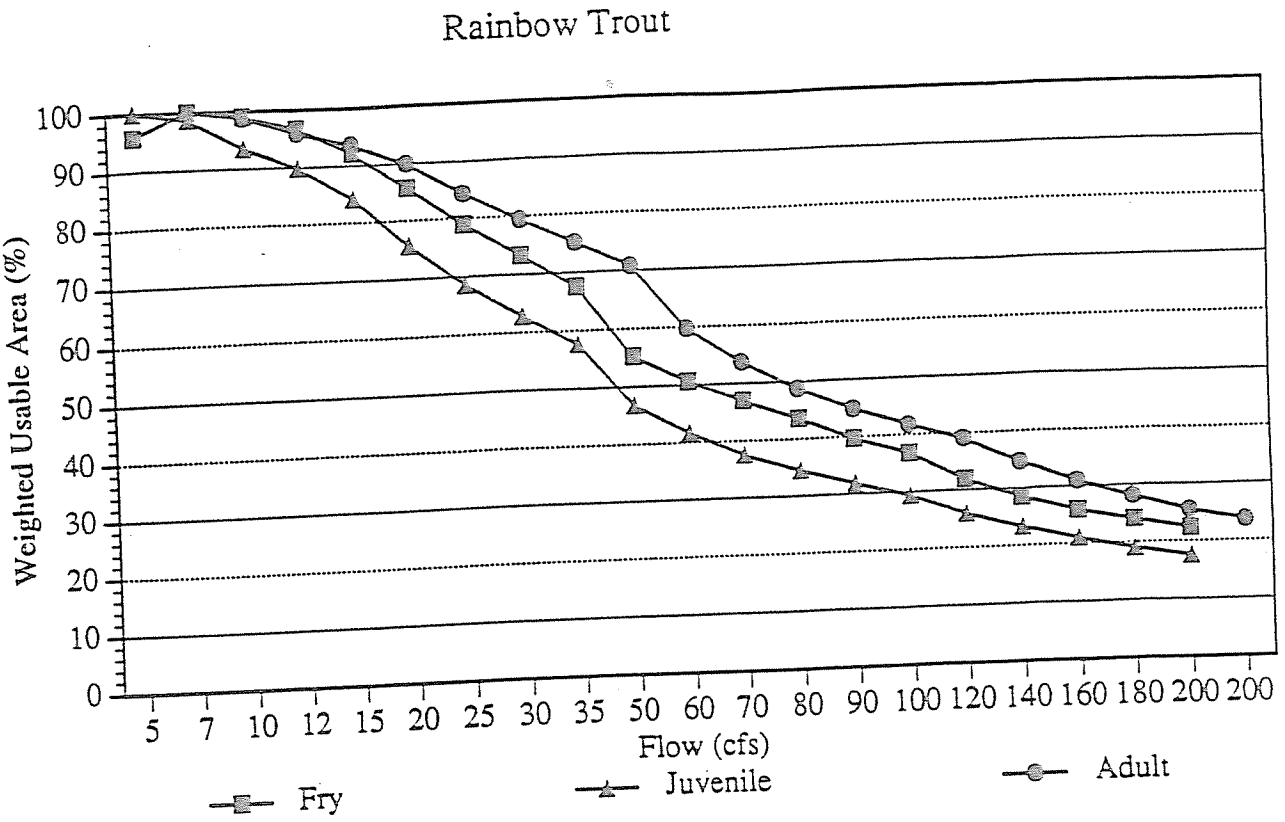
Agency personnel report that both these objectives are achieved at 10 cfs (personal communication, T. Felando, Hydrologist/Fisheries Biologist, Forest Service, Bend, Oregon, March 9, 1992), which is 67 percent higher than the existing calculated mean monthly minimum flow in late summer, fall, and winter (6 cfs, figure 3).

We conclude that maintaining a minimum release of 10 cfs into Rush Creek below and Rush Meadows dam would protect and enhance the fishery resource of Rush Creek. Results and analysis of IFIM studies conducted on upper Rush Creek indicate that adult and juvenile trout habitat would be maximized at a lower, 5 cfs flow. The CDFG manages the reach primarly for adult rainbow trout (personal communication, D. Wong, Fisheries Biologist, California Department of Fish and Game, April 6, 1992),

Table 3. Percent of maximum WUA for adult and juvenile rainbow and brook trout at various flow releases from Waugh Lake to upper Rush Creek, and magnitude and cumulative change in WUA between flows.

Flow (cfs)	Percent of Maximum WUA				Magnitude of change in percent maximum WUA between flows				Cumulative change in percent maximum WUA between flows			
	Rainbow trout		Brook trout		Rainbow trout		Brook trout		Rainbow trout		Brook trout	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
5	100.0	100.0	100.0	100.0	0	0	0	0	0	0	0	0
7	98.7	98.7	97.3	89.7	-1.3	-1.3	-2.7	-10.3	-1.3	-1.3	-2.7	-10.3
10	95.8	93.5	91.8	80.0	-2.9	-5.2	-5.5	-9.7	-4.2	-6.5	-8.2	-20.0
12	93.6	89.7	88.1	75.2	-2.2	-3.8	-3.7	-4.8	-6.4	-10.3	-11.9	-24.8
15	89.9	84.1	83.1	69.2	-3.7	-5.6	-5.0	-6.0	-10.1	-15.9	-16.9	-30.8
20	84.3	75.6	75.7	61.8	-5.6	-8.5	-7.4	-7.4	-15.7	-24.4	-24.3	-38.2
25	79.4	68.5	69.3	56.3	-4.9	-7.1	-6.4	-5.5	-20.6	-31.5	-30.7	-43.7
30	75.1	62.8	63.4	51.7	-4.3	-5.7	-5.9	-4.6	-24.9	-37.2	-36.6	-48.3

Source: Adapted from EA Engineering, Science and Technology, 1986, 1987a.



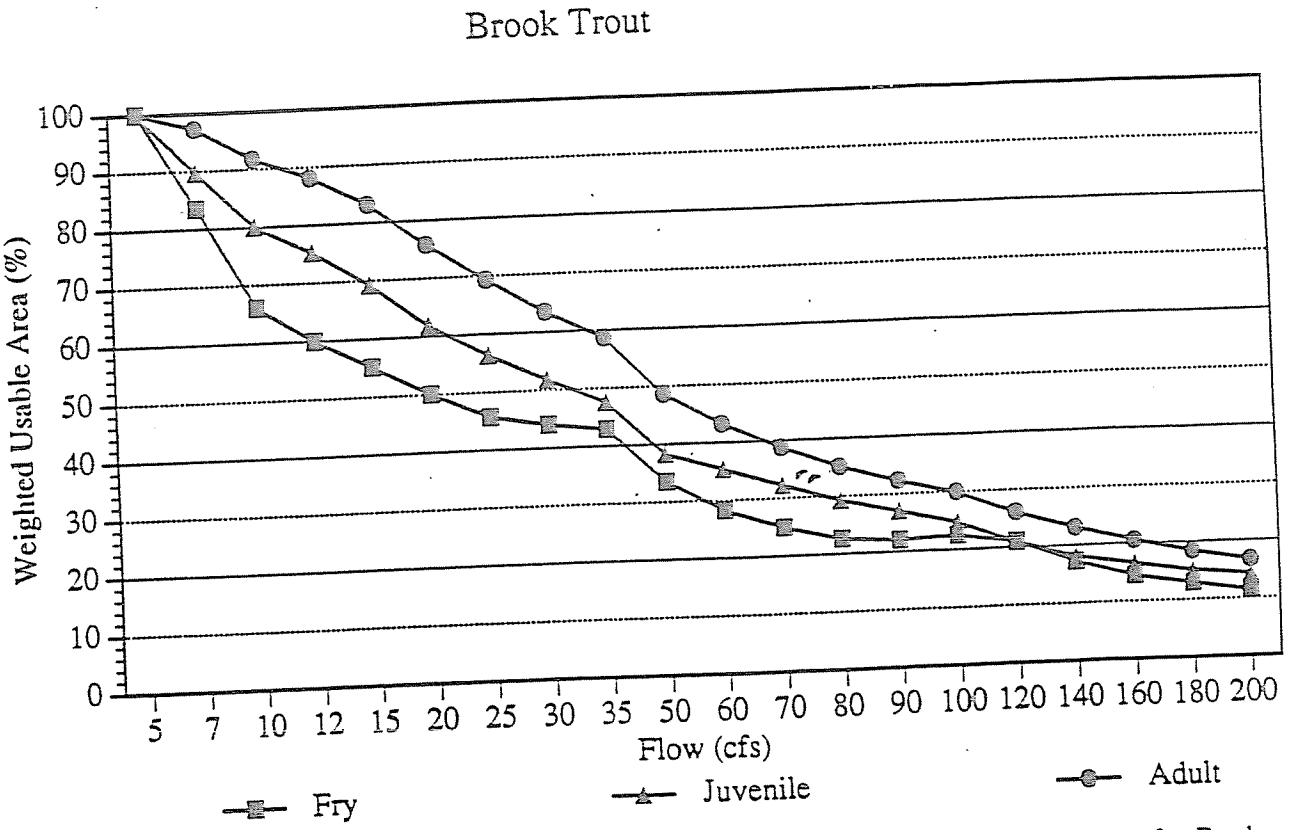


Figure 4. Percent of WUA versus flow for three life stages of brook and rainbrow trout for Rush Creek, Mono County, California (source: EA Engineering, Science and Technology, 1986, 1987a).

and a minimum flow of 10 cfs would maintain adult rainbow trout habitat very near the maximum WUA (96 percent). We consider the small loss in WUA an acceptable tradeoff because the 10 cfs flow would achieve the other benefits noted above, including the CDFG goal of providing deeper pools for fish cover. (See Condition B in the Appendix.)

The CDFG recommends installation of a flow monitoring gage at Rush Meadows dam to monitor minimum flow releases into Rush Creek (letter from P. Bontadelli, Director, California Department of Fish and Game, Sacramento, California, June 2, 1988). The FS has also recommended that a flow monitoring gage be installed, and has stated that the FS would provide construction permits to allow installation of a gage in the wilderness area (personal communication, S. Chubb, Biologist, Forest Service, Bishop, California, January 22, 1992). We concur with the agencies' recommendation to install a flow measurement gage at Rush Meadows dam. Gage records would provide documentation that flow releases below Rush Meadows dam would be maintained at the recommended minimum 10 cfs flow or natural inflows, whichever is less. (See Condition C in the appendix.)

b. Streamflow in Dewatered Reaches

Construction of Gem and Agnew dams greatly reduced the amount of water in Rush Creek below both dams. Flows that would have passed through the creek are diverted into conduits that connect to the powerhouse penstocks. Water in the creek below both dams is supported by natural accretion, surface runoff, minor leakage from the dams, uncontrolled spills, and natural drainages that contribute water in the project reach. With the winter drawdown of Agnew Lake by November 1, as required by California DSOD, all naturally occurring streamflows below Gem dam pass through Agnew dam into the stream channel downstream (personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, Bishop, California, January 21, 1992). These low flows have supported aquatic habitat and small populations of trout in both reaches (letter from F. Worthly, Regional Manager, Region 5, California Department of Fish and Game, Long Beach, California, August 5, 1988).

The existing trout populations provide minor recreational fishing opportunities despite the steepness of the stream channel in these reaches. Flow records from the Parshall flume below Agnew dam document frequent small flows (≤2 cfs) in the creek (period of record 1968 to 1987) (Southern California Edison, 1988). Therefore, we conclude that the existing flow pattern in these reaches is adequate to sustain the fish population, and do not recommend any change in project operation to provide flow for these reaches.

c. Flushing Flows

The natural hydrologic regime in Rush Creek prior to project operation ranged in volume from 2 to 6 cfs in winter and up to 559 cfs in late spring or early summer (Southern California Edison, 1981). Operation of Waugh Lake releases follows natural seasonal fluctuations, with uncontrolled spills over the dam occurring during high runoff (figure 3) (Southern California Edison, 1988; U.S. Geological Survey, 1981 to 1990). These flows periodically flush accumulated fines through the channel and maintain channel depth and form.

The geologic formation of the basin, composed of extensive granitic bedrock, contributes small amounts of fine sediments, soils or eroded materials to the basin (Southern California Edison, 1988). Additionally, stream sediment surveys indicate only small accumulations of fine sediments in Rush Creek (Hinkle, 1988). The existence of a self-sustaining, moderate population of trout in upper Rush Creek (Southern California Edison, 1988) indicates that fine sediments have not severely limited trout populations in the creek, and that some suitable spawning gravels exist (Hinkle, 1988).

Given the lack of erodible fine materials; extensive bedrock-formed channel; no significant instream sediment problems; self-sustaining trout populations; and naturally occurring, uncontrolled spills over Rush Meadows dam, we do not recommend managed or controlled flushing flows for upper Rush Creek.

d. Entrainment

Unscreened intakes are a potential source of mortality for adult trout, since studies on eastern Sierra reservoirs indicate that most adult trout placed in project intakes were killed or severely injured by passage through turbines (Southern California Edison, 1988). Based on other studies in Oregon, the CDFG recommended screening intake structures at Gem and Agnew dams to minimize fish entrainment (letter from P. Bontadelli, Director, California Department of Fish and Game, Sacramento, California, June 2, 1988; letter from C.S. Brooks, Manager of Project Licensing and Planning, Southern California Edison, Long Beach, California, April 9, 1988).

SCE does not believe that screens are necessary, based on entrainment studies conducted at Bishop and Lundy creeks where they used hydroacoustic and high resolution video methods, as well as netting in tailrace flows, to determine the susceptibility of various trout species and lifestages to entrainment at facility intakes (letter from M. Mullin, Biologist, Occidental College, Los Angeles, California, August 2, 1988; Biosystems Analysis, 1988). These and other studies indicate that fish entrainment through unscreened intake structures was not a significant occurrence at Lundy dam on Mill Creek in Mono County or at other facilities elsewhere (EA

Engineering, Science and Technology, 1987b; Southern California Edison, 1988).

We do not recommend the installation of fish screens at the intakes of the project reservoirs. Our recommendation is based on the results of SCE's entrainment studies, as well as the calculated water velocities in the vicinity of the Gem Lake intake, which are less than 0.5 foot per second (similar velocities are assumed at Agnew Lake intake due to the similarity of the structure). Intake water velocities of 0.5 foot per second do not exceed the maximum sustainable swimming speeds of juvenile or adult rainbow and brook trout. Maximum sustainable swimming speeds of trout range from 2 to 6 feet per second (Bell, 1986; Reiser and Bjornn, 1979) depending on the species, age, and condition of the trout and temperature and dissolved oxygen content of the water.

Voluntary fish entrainment (i.e., fish swimming into the intake) may be occurring, particularly during winter months and reservoir drawdown. Even if some loss to entrainment occurs due to project operation, studies do not indicate such loss would be frequent or significant in healthy populations of fish (Biosystems Analysis, 1988; EA Engineering, Science and Technology, 1987b).

e. Reservoir Level Drawdowns

Under existing operating conditions, water levels in all three reservoirs are generally maintained near maximum levels in the summer after spring refill and are drawn down for the winter in late autumn. Seasonal drawdowns can adversely affect fish by reducing the amount of available habitat.

In the Visual Resources section, we make recommendations regarding summer lake level maintenance in normal, wet, and dry years. Particularly in dry years, maintenance of higher summer lake levels would enhance available aquatic habitat and aquatic invertebrate production, and reduce bank erosion along lake shores.

The CDFG and FS recommended that SCE refrain from emptying Waugh Lake in the winter, so that the lake could sustain a year-round population of stocked rainbow trout in addition to the existing self-sustaining trout population that overwinters upstream of the lake. Maintaining a winter lake depth of about 10 feet would sustain an overwintering fish population in the lake, and would make it feasible for CDFG to stock the lake each spring and summer (letter from Gary E. Cargill, Associate Deputy Chief, Forest Service, Washington, D.C., January 13, 1989). Such a program would benefit fish resources by increasing available winter fish habitat. We do not recommend that a higher lake level be maintained in winter, however, because new construction needed to achieve this goal would conflict with wilderness values (see Recreation Resources section).

f. Water Quality

Whenever the reservoirs are less than full during the summer through fall months of heavy recreational use (see Recreation Resources section), the lake basin area is exposed to recreational uses such as camping in the drawdown zone. Garbage and human wastes left by recreationists contribute to a reduced water quality, particularly as reservoir levels increase from captured runoff during the recreation season or the following spring refill season. Our recommendations to maintain high summer lake levels in the project reservoirs (see Visual Resources section) would enhance water quality by reducing recreational use of the drawdown zone.

Unavoidable Adverse Impacts: No unavoidable adverse impacts to fishery resources or water quality and quantity are expected to occur as a result of project operations with implementation of our recommended enhancement measures.

3. Terrestrial Resources

Affected Environment: The vegetation surrounding the project reservoirs consists primarily of widely scattered lodgepole pine and willow (Federal Energy Regulatory Commission, 1990; Jones and Stokes, 1985). This coniferous forest community is characterized by open stands of trees with sparse litter accumulation and little shrub or herbaceous understory (Barbour and Major, 1988).

Deciduous forests of willow, black cottonwood, and aspen comprise the riparian vegetation of the project area. Above Waugh Lake, Rush Creek supports a willow-dominated riparian community, while the reach above Gem Lake, a distance of 1.7 miles, is characterized by willow, Jeffrey pine, aspen, and black cottonwood.

The reaches between Gem and Agnew lakes (0.2 miles) and Agnew Lake and the powerhouse (0.9 miles) are characterized by steep glaciated rock. Vegetation in these areas consists primarily of aspen and willow (Federal Energy Regulatory Commission, 1990). Currently, the majority of natural flow that would occur in these two reaches is diverted into flowlines (Southern California Edison, 1988). The riparian community is maintained through accretion, surface runoff, and minor leakage from Gem and Agnew lakes. A tributary into Agnew Lake adds additional water to the lower Rush Creek reach. In October, Agnew Lake is drained into the natural Rush Creek channel and flows are allowed to pass through the dam (personal communication, Gary Aubrey, Bishop Hydroelectric Division Manager, Southern California Edison, January 21, 1992).

There are nine sensitive plant species that may occur in the project area (table 4). They include the Scalloped-leaved lousewort, Mono County phacelia, Mono County milkvetch, Tahoe draba, Mono buckwheat, Bodie Hills draba, Nodding buckwheat, Mono

Lake lupine, and Snow willow (Southern California Edison, 1981; California Department of Fish and Game, 1991; personal communication, Brian Miller, Botanist, Forest Service, Bishop, California, January 21, 1992). All nine species are considered sensitive because of their California Native Plant Society (CNPS) or state or federal listing status (table 4).

Environmental Impacts and Recommendations: Project operation, particularly the magnitude and location of flow releases, affects the riparian vegetation along Rush Creek. Studies show strong correlations between streamflow and the improvement of riparian habitat conditions and establishment of a self-perpetuating community (Taylor, 1982; Stromberg and Patten, 1988; Kondolf, 1988; Stine, 1991; Stine et al., 1981; Vorester and Kondolf, 1988). In the Comprehensive Development and Alternatives section, we recommend that SCE release a minimum flow into Rush Creek between Waugh and Gem lakes. The proposed minimum flow would enhance riparian vegetation along this reach of Rush Creek.

CR: State listed, rare.

C1: Enough data are on file to support the federal listing.

C2: Threat and/or distribution data are insufficient to support federal listing.

C3c: Too widespread and/or not threatened.

There are no data to indicate that on-going project operation would adversely affect sensitive plant species in the project area. If major ground-disturbing activities are proposed in the future, the Commission would deal with the possible effects to sensitive plants at that time.

Unavoidable Adverse Impacts: No unavoidable adverse impacts are expected to occur as a result of continued project operation with our recommended enhancement measures.

4. Wildlife Resources

Affected Environment: The project area includes a wide variety of habitat types, including primarily alpine and subalpine lodgepole forest and willow/aspen riparian forest. Bird species characteristic of the project area include Clark's nutcracker, western wood pewee, Steller's jay, mountain chickadee, pine grosbeak, and green-tailed towhee. Characteristic mammals include mule deer, coyote, gray fox, mountain beaver, snowshoe hare, and long-tailed meadow vole.

Table 4. Sensitive plant species that may occur within the Rush Creek project area. (Source: Adapted from Southern California Edison, 1981; California Department of Fish and Game, 1991.)

Common Name	Scientific Name	Status					
		California Native Plant Society (CNPS)		California State Listing	Federal Listing		
		List 1B	List 2	CR	C1	C2	C3c
Scalloped-leaved lousewort	Pedicularis crenulata		X				
Mono County phacelia	Phacelia monoensis	X				X	
Mono milk vetch	Astragalus monoensis	X		X	X		
Bodie Hills draba	Draba quadricosta ta	X					
Nodding buckwheat	Eriogonum nutans var nutans	X			X		
Mono Lake lupine	Lupinus duranii	X				X	
Snow willow	Salix reticulata ssp. nivalis		X				X
Tahoe draba	Draba asterophera var. asterophera	X					
Mono buckwheat	Eriogonum ampullaceum	X				X	

Legend:

CNPS List 1B:
Rare, threatened or endangered in California and elsewhere.

CNPS List 2:
Rare, threatened, or endangered in California, but more common elsewhere.

Habitat types that are particularly sensitive are riparian forest and meadows. The riparian zone is attractive and productive habitat for flycatchers and warblers. The meadows are important summer forage and fawning areas for mule deer (Forest Service, 1988).

Federally or state-identified sensitive animal species that occur in or near the project area include one bird species (northern goshawk) and several mammals (Pacific fisher, pine marten, wolverine, and Sierra Nevada red fox) (Forest Service, 1988).

Northern goshawks occupy mature and old-growth stands of forest such as red fir and lodgepole. There are no specific records of goshawks in the project area, and most of the high altitude habitat is unsuitable.

Both fisher and marten are designated indicator species[1] by the Inyo National Forest. The fisher is also designated as a California Species of Special Concern. Both these carnivores are characteristic of mixed evergreen and red fir forests.

We discuss the wolverine and Sierra Nevada red fox in Section 5, Threatened and Endangered Species.

Environmental Impacts and Recommendations: In the section on Terrestrial Resources, we conclude that our recommended minimum flow in Rush Creek between Waugh and Gem lakes would enhance riparian vegetation. Any benefits to riparian vegetation would enhance wildlife habitat for riparian-dependent species. The value of the Rush Creek project area as habitat for sensitive wildlife species would remain at its present level.

Unavoidable Adverse Impacts: There would be no unavoidable adverse impacts to wildlife resources as a result of continued project operation with our recommended enhancement measures.

5. Threatened and Endangered Species

Affected Environment: According to the USFWS (letter from Steven Chambers, Office Supervisor, U.S. Fish and Wildlife Service, Ventura, California, January 22, 1992), the bald eagle is the only federally listed threatened or endangered species that may occur in the project area. One state-listed threatened bird species, the willow flycatcher, and two state-listed threatened mammals, the wolverine and Sierra Nevada red fox, may also occur (California Department of Fish and Game, 1991).

The willow flycatcher depends on dense willow stands at high elevations to provide the abundance of insects and cover it needs for reproduction. The willow flycatcher may occur in willow thickets in the project area.

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1 Management Indicator Species (MIS) designated by the FS include key harvest species, threatened and endangered species, and species that are characteristic of wildlife habitat types most likely to be affected by forest management activities.

The current distribution of wolverine is poorly known, though records of wolverines occupying the head of Lee Vining canyon suggest they may also occur in the Rush Creek area. Surveys of wolverine distribution in the Inyo National Forest are underway (personal communication, Ed Rodriguez, Wildlife Biologist, Forest Service, Lee Vining, California, January 6, 1992).

The Sierra Nevada red fox is listed as a sensitive species by the FS, and is listed as threatened by the State of California. There have been few sightings in the June Lake area, and the habitat is similar in the nearby Rush Creek drainage (California Department of Fish and Game, 1991).

Environmental Impacts and Recommendations: Our recommended minimum instream flow in upper Rush Creek would benefit the willow flycatcher insofar as it enhances riparian willow habitat. The proposed operation of the existing project is not expected to have either beneficial or adverse effects on any other threatened or endangered species.

Unavoidable Adverse Impacts: There would be no unavoidable adverse impacts to threatened or endangered species as a result of continued project operation with our recommended enhancement measures.

6. Visual Resources

Affected Environment: The project area contains a variety of landforms, water features, and vegetation types that combine to create an area of exceptional high country aesthetic appeal. The uppermost lake, Waugh Lake, is surrounded by gently to moderately sloping terrain, large expanses of rock around the shoreline, and isolated groups of lodgepole pine and willow. A hiking trail follows Rush Creek between Waugh and Gem lakes, where the riparian vegetation provides shelter and shade for hikers.

Rush Creek flows into the west side of Gem Lake, which is surrounded by steeper terrain than Waugh Lake and has a shoreline composed primarily of rock. Areas of lodgepole pine and riparian vegetation grow along the lake and are particularly well developed along tributaries that flow into the lake. Between Gem and Agnew lakes, the Rush Creek bed is steep and rocky, but contains scattered stands of riparian vegetation, primarily aspen and willow.

Agnew Lake is much smaller than Gem and Waugh lakes, and is located in a steep, narrow canyon. It is surrounded by the most rugged terrain of any of the project lakes and has the least amount of shoreline vegetation. Below Agnew Lake, the creekbed drops through rocky terrain to the valley floor near the powerhouse. Water features in the stream can be seen from various locations on the Rush Creek Trail, and larger waterfalls such as Horsetail Falls (which falls and cascades approximately 500 vertical feet) can be observed from the June Lake Ski Area and the June Lake Loop (personal communication, Rick Murray, District Coordinator, Lands, Forest Service, Lee Vining, California, January 28, 1992).

The three lakes vary seasonally in size and appearance. In July and August, when the majority of visitors are present, the lakes are generally full or nearly full (figure 5). In September

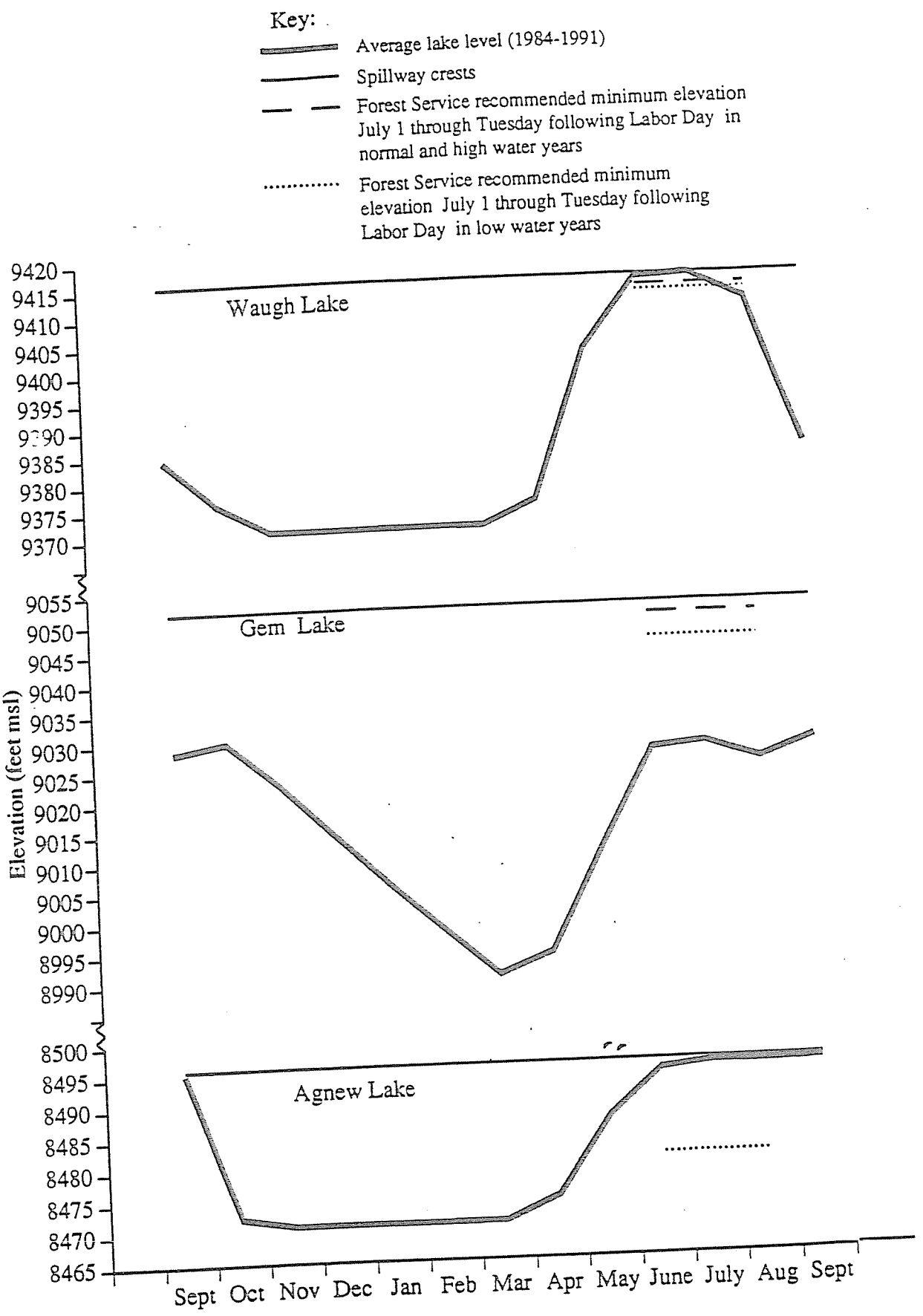

Figure 5. End of month lake levels in project reservoirs (1984-1991 average) (Source: the staff).

and October, visitation drops off significantly and the lake elevations are lowered. By winter there are very few visitors to the lakes, and the lakes are at their lowest (figure 5), exposing lake bottom, tree stumps, and unsightly "bathtub" rings of debris around the edge of the lake.

SCE has no current license requirement to provide instream flows to Rush Creek but has historically released water throughout the year (see Water and Fishery Resources section). This flow has helped to maintain the fish and wildlife habitat along Rush Creek between Waugh and Gem lakes and has contributed to the aesthetic appeal of a running stream and creekside riparian vegetation.

Project facilities that are visible from trails include the dams, tramways, and penstocks. The powerhouse and related facilities are visible to people driving by the powerhouse on the June Lake Loop.

Environmental Impacts and Recommendations: Two of the project reservoirs (Waugh and Gem) are located in the Ansel Adams Wilderness (formerly the Minarets Wilderness). The wilderness boundary is located on the top of the Gem dam and includes the project area upstream of the dam. The face of the dam and associated outbuildings are outside the wilderness boundary (personal communication, Rick Murray, District Coordinator/Lands, Forest Service, Lee Vining, California, January 21, 1992). The presence of project features and operations (fluctuating water levels) surprises many visitors to the wilderness and are in conflict with the FS's Visual Quality Objective (VQO) of Preservation for wilderness (letter from Gary E. Cargill, Associate Deputy Chief, Forest Service, Washington, D.C., September 7, 1982). Because the project facilities were built before the establishment of the Minarets Wilderness, they have been accepted as nonconforming uses (letter from Gary E. Cargill, Associate Deputy Chief, Forest Service, Washington, D.C., January 13, 1984).

The FS places a higher priority on minimizing impacts to lakes within a wilderness (Waugh and Gem) than to lakes outside wilderness areas (Agnew) (letter from Gary E. Cargill, Associate Deputy Chief, Forest Service, Washington, D.C., September 30, 1983). As a result, the FS recommended that SCE decrease the current annual water level fluctuation at Waugh Lake and Gem Lake (letter from Gary E. Cargill, Associate Deputy Chief, FS, Washington, D.C., January 13, 1984; letter from Dennis Martin, Forest Supervisor, Inyo National Forest, Bishop, California, April 15, 1988). The FS recommended that the pool level of Waugh and Gem lakes be held within 2 feet of the spillway elevation between July 1 and the Tuesday following Labor Day during normal and wet years (figure 5). During dry years the FS recommended the pool level of Waugh Lake be kept to within 3 feet of the spillway crest, Gem Lake within 6 feet of the spillway crest, and Agnew Lake within 15 feet of spillway crest.

SCE proposed keeping Waugh and Gem lakes within 2 feet of the spillway crest between Memorial Day and Labor Day except during dry years. During dry years, SCE proposed to limit drawdowns to 3 feet at Waugh Lake and 6 feet at both Gem Lake and Agnew Lake (Southern California Edison, 1988). SCE's proposal is therefore the same as the FS recommendation except that Gem Lake would be kept at a higher level (6 feet below spillway crest instead of 15 feet) and the restriction would begin earlier in

the season (Memorial Day instead of July). We concur with SCE's proposal, which would offer the greatest enhancement of visual quality at the lakes during the busy summer recreation season. (See Condition D in the appendix.)

In the Water and Fishery Resources section, we discuss the FS and CDFG recommendations to release 10 cfs or the natural flow, whichever is less, into the 1.7-mile section of Rush Creek between Waugh Lake and Gem Lake. A flow of 10 cfs would enhance the visual appeal of that reach by ensuring that water features such as rapids, cascades, and pools would have enough water to be observed and enjoyed by wilderness area recreationists. Benefits to adjacent riparian vegetation and its associated wildlife would add to the visual and aesthetic qualities of the creek environment. Flows higher than 10 cfs would achieve similar results. Lower flows between 10 cfs and the current summer mean of 6 cfs and would not fill the stream channel, but would enhance the appearance of rapids, cascades and pools to a lesser degree.

Unavoidable Adverse Impacts

There would be no unavoidable adverse impacts to visual resources as a result of project operations with implementation of our recommended enhancement measures.

7. Cultural Resources

Affected Environment: There are prehistoric and historic era cultural resources in the project area that are eligible for nomination to the National Register of Historic Places. The prehistoric resources include one archaeological site (CA-Mno-2439) located along a trail below Rush Meadows dam, and 9 archaeological sites located within the Waugh Lake annual drawdown zone (CA-Mno-2440 through -2442 and CA-Mno-2458 through -2463) (Clay and Hall, 1988, 1989; White 1988a, 1988b, 1990). These 10 sites belong to the Rush Meadow Archaeological District (White, 1989, 1990; York, 1990; letter from Kathryn Gualtieri, State Historic Preservation Officer, California Department of Parks and Recreation, Sacramento, California, August 1, 1989).

Project facilities constructed between 1915 and 1922 are also eligible for nomination to the National Register, as the Rush Creek Hydroelectric System Historic District (White, 1990; Diamond and Hicks, 1988; Williams and Hicks, 1989; letter from Kathryn Gualtieri, State Historic Preservation Officer, California Department of Parks and Recreation, Sacramento, California, September 27, 1989). Properties contributing to the district include the Rush Creek powerhouse; transformer shop; three cottages; clubhouse; Agnew, Gem, and Rush Meadow dams; Agnew and Gem penstocks and flowlines; Gem tunnel; and Agnew and Gem tramways.

Environmental Impacts and Recommendations: Shoreline erosion associated with Waugh Lake's annual drawdown affects 9 of the 10 archaeological sites belonging to the Rush Meadow Archaeological District. Implementation of SCE's proposed multi-year program of scientific excavation to recover and analyze data from these sites would mitigate this adverse effect (White, 1990). (See Condition E in the appendix.)

One of the sites of the Rush Meadow Archaeological District, CA-Mno-2439, is located along a trail and could be affected by routine maintenance activities. SCE should mark this site on

project maps as an Environmentally Sensitive Area and avoid disturbing the site. SCE currently consults with the FS before undertaking maintenance and repair work in the project area. We feel that a continuation of this practice will adequately protect this site, and no further Commission action is required.

Continued project operation could affect the characteristics of the Rush Creek Hydroelectric System Historic District that make it eligible for National Register nomination. SCE should avoid such effects by implementing a cultural resources management plan (White, 1990), specifying that they consult with the SHPO and FS prior to remodeling or removing any of the properties contributing to the district (letter from Kathryn Gualtieri, State Historic Preservation Officer, California Department of Parks and Recreation, Sacramento, California, April 9, 1989). (See Condition F in the appendix.)

Unavoidable Adverse Impacts: There would be no unavailable adverse effects to cultural resources from continued project operation with implementation of our recommended enhancement measures.

8. Recreation Resources

Affected Environment: The Rush Creek drainage is a major access route to the Ansel Adams Wilderness, Yosemite National Park, and the Pacific Crest Trail. The back country of the Rush Creek drainage offers excellent opportunities for dispersed outdoor recreation. Activities include camping, fishing, hiking, hunting, picnicking, swimming, and nature study (Federal Energy Regulatory Commission, 1990). There are no developed facilities in the project area except for trails that are maintained by the FS. The trailhead for the Rush Creek Trail, located on Highway 158 approximately 2 miles north of the project powerhouse, serves as a gateway into the Rush Creek drainage.

The trails and reservoirs in the project area receive heavy day and overnight use. In its most recent estimate (1982), the FS indicated the following use at project lakes: Waugh Lake - 1,900 RVDs[2]; Gem Lake - 6,300 RVDs; Agnew Lake - 5,400 RVDs. To deal with the increasing popularity of the Rush Creek drainage and the back country access to the Ansel Adams Wilderness via the Rush Creek Trail, a quota system was implemented by the FS in 1982. The system is in effect from the last Friday in June until September 15. Thirty-four people per day are allowed to enter the Ansel Adams Wilderness from the Rush Creek trailhead (Forest Service, undated). In addition to day users, backpackers, and equestrians, one commercial outfitter regularly takes customers into the Wilderness via the Rush Creek Trail.

Fishing is popular in the project area. Much of the recreational fishery is supported by CDFG's stocking program in Agnew and Gem lakes (see Water and Fishery Resources section). The annual drawdown of Waugh Lake, because it limits the wild fish population and precludes stocking by CDFG, limits the size of the recreational fishery at Waugh Lake.

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[2] A recreation visitor day (RVD) is defined by the FS as 12 hours of recreational use.

Environmental Impacts and Recommendations: The CDFG has recommended that Waugh Lake be maintained at a winter elevation sufficient to establish a viable year-round fish population, which would in turn support an enhanced summer recreational fishery. The retention of water at Waugh Lake through the winter would require construction of a cofferdam within the lake bed to protect the existing Rush Meadows dam from ice damage (personal communication, Gary Aubrey, Southern California Edison, Bishop Hydroelectric Division Manager, Bishop, California, January 17, 1992).

Because Waugh Lake and Rush Meadows dam are located in a designated wilderness area, cofferdam construction could be approved by the FS only after preparing an Environmental Impact Statement and receiving approval by the President of the United States (memo from J. Shiro, Recreation Staff Officer, Forest Service, San Francisco, California, January 16, 1992). If the cofferdam were built, construction activities would occur during the recreation season and would disrupt the primitive and pristine atmosphere of the Ansel Adams Wilderness during the period of construction. Given the adverse effect on wilderness values that would be associated with construction activities required to maintain higher winter lake levels without jeopardizing dam safety, we conclude that SCE should not be required to construct the cofferdam or change its current winter drawdown of Waugh Lake.

In the Visual Resources section, we recommend that SCE maintain Waugh and Gem lakes levels within two feet of spillway crest during the summer recreation season in normal and wet years, and maintain slightly lower lake levels in dry years. By improving the visual quality of the lakes, maintenance of these high summer lake levels would enhance the experience of recreationists in the project area.

In the Water and Fishery Resources section, we discuss the FS and CDFG's 10 cfs flow recommendation for the section of Rush Creek between Waugh Lake and Gem Lake, and note that such a flow would fill the stream channel and enhance the visual appeal of rapids, cascades, and pools. This increased visual appeal would enhance the area's attractiveness to anglers, hikers, and other recreationists.

Unavoidable Adverse Impacts: There would be no unavoidable adverse impacts to recreation resources from project operation with implementation of our recommended measures.

9. Developmental Resources

As noted earlier, historically the Rush Creek Hydroelectric Project has generated an annual average of about 49 GWh. If the Commission issued a new license with existing conditions, the levelized annual value of the project power would be about $3,700,000.

In this EA, we have discussed the concept proposed by SCE and recommended by the FS and CDFG that an instream flow of 10 cfs or the natural flow, whichever is less, should be maintained in Rush Creek below Rush Meadows dam and above Gem Lake. Minimum flow requirements in this reach would not significantly affect the project generation because there is no power intake at Waugh Lake. Any flows released from Rush Meadows dam would be

available for storage at Gem and Agnew lakes, and available for generation at Rush powerhouse.

C. Alternative of No Action

Under the No-action Alternative, the Commission would deny the proposed action. Denial of the license would allow the continued operation of the project, with no changes, under annual license.

D. Consistency with Comprehensive Plans

Section 10(a) of the Federal Power Act requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Under section 10(a)(2), federal and state agencies filed 29 comprehensive plans that address various resources in California. Of these, the staff identified and reviewed five plans relevant to this project.[3] No conflicts were found.

E. Comprehensive Development and Recommended Alternative

From our analysis of the environmental effects and the economic consequences of issuing a new license for the Rush Creek Project under sections 4(e) and 10(a) of the Federal Power Act, we conclude that issuing a new license for the project with our recommended enhancement measures would offer the greatest public benefits from the waterway.

Our reasons:

1. With our recommended instream flow, the project would continue to generate an average of 49 GWh annually from a renewable energy resource.

2. Our recommended enhancement measures would improve existing conditions in the project area. Our recommended enhancement measures include:

- Raising the instream flow in Rush Creek below Waugh Lake and installing a flow gage to monitor compliance for the protection of fish and the enhancement of riparian vegetation, wildlife, visual resources, and recreation.

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[3] (1) The California Water Plan: Projected Use and Available Water Supplies to 2010, 1983, California Department of Water Resources; (2) California Water: Looking to the Future, 1987, California Department of Water Resources; (3) Recreation Needs in California, 1983, California Department of Parks and Recreation; (4) Inyo National Forest Land and Resource Management Plan, 1988, Forest Service, Department of Agriculture; and (5) Inyo National Forest Environmental Impact Statement for the Land and Resource Management Plan, 1988, Forest Service, Department of Agriculture.

- Maintaining pool elevations in Waugh and Gem lakes, except during dry years, within 2 feet of spillway crest during the recreation season (Memorial Day weekend through Labor Day weekend) for the enhancement of visual and recreation resources.

- Preparing an erosion control plan and implementing a cultural resources data recovery plan to protect archaeological resources.

- Consulting with the FS and SHPO before undertaking any activities that could adversely affect cultural resources.

3. With regard to our flow recommendation in Rush Creek below Waugh Lake, we concur with the CDFG and FS recommendation, as well as SCE's proposal, that SCE provide for a continuous minimum flow release of 10 cfs or natural inflow, whichever is less. We base our conclusion on the evidence that a 10 cfs flow would fill the stream channel, benefitting wilderness recreationists by enhancing the visual appeal of the stream and its water features. A 10 cfs flow would also enhance riparian vegetation and riparian-dependent wildlife, and would provide additional deep water cover that would enhance the ability of trout to avoid strong recreational fishing pressure and predation.

The recommended minimum flows would not reduce project generation as they are recommended for stretches upstream from Agnew Lake where the project head is developed. The cost of implementing the other recommended measures would be minimal.

Based on our review under section 4(e) and 10(a) of the Act, the Rush Creek project, if authorized with our recommended enhancement measures, would be best adapted to a comprehensive plan for developing Rush Creek.

VI. DETERMINATION OF CONSISTENCY OF FISH AND WILDLIFE RECOMMENDATIONS WITH THE FEDERAL POWER ACT AND APPLICABLE LAW

Under the provisions of the Federal Power Act (Act), as amended by the Electric Consumers Protection Act of 1986, each hydroelectric license issued by the Commission shall include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of such resources affected by the project.

Section 10(j) of the Act states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and requirement of the Act or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

Pursuant to section 10(j) of the Act, we are making a determination that certain of the recommendations of the federal and state fish and wildlife agencies are inconsistent with the purpose and requirements of Part 1 of the Act or other applicable law.

As discussed in section V.B.2, we do not recommend adopting CDFG's recommendations concerning installing screens on the intake or maintaining water in Waugh Lake through the winter. For the reasons stated in the EA, we believe that CDFG's recommendations are inconsistent with the public interest standard of section 4(e), comprehensive planning standard of section 10(a), and the substantial evidence standard of section 313(b) of the Act.

VII. FINDING OF NO SIGNIFICANT IMPACT

On the basis of this independent environmental analysis, issuing a new license for the Rush Creek project with our recommended enhancement measures would not constitute a major federal action significantly affecting the quality of the human environment.

VIII. LITERATURE CITED

Barbour, M. G., and J. Major. 1988. Terrestrial vegetation of California. California Native Plant Society, Special Publication Number 9. pp. 537-555.

Bell, M.C. 1986. Fisheries handbook of engineering requirements and biological citeria. Fish Passage Development and Evaluation Program, U.S. Army Corps of Engineers, North Pacific Division, Portland, Oregon.

Biosystems Analysis, Inc. 1988. Bishop Creek entrainment studies, Lundy Creek entrainment study-status report. Prepared for Southern California Edison Company, Rosemead, California.

California Department of Fish and Game. 1991. California Natural Diversity Database: RareFind. California Department of Fish and Game, Natural Heritage Division. Sacramento, California.

California Energy Commission. 1990. Electricity report. California Energy Commission, P 106-90-002, October 1990. 115 pp.

California Energy Commission. 1991. Biennial report. California Energy Commission, P 106-91-001, December 1991. 57 pp.

Clay, V.L., and M.C. Hall. 1988. Results of the 1987 field season, cultural resources survey for the Historic and Archaeological Preservation Plan for the Lee Vining Creek Hydroelectric Project (FERC Number 1388) and the Rush Creek Hydroelectric Project (FERC Project Number 1389). ARR-05-04-441. Archaeological Research Services, Virginia City, Nevada. Prepared for Southern California Edison Company, Rosemead, California.

Clay, V.L., and M.C. Hall. 1989. Results of the 1988 field season, cultural resources survey for the Historic and Archaeological Preservation Plan for the Lee Vining Creek Hydroelectric Project (FERC Number 1388) and the Rush Creek Hydroelectric Project (FERC Project Number 1389). ARR-05-04-441, Addendum 1. Archaeological Research Services, Virginia City, Nevada. Prepared for Southern California Edison Company, Rosemead, California. 50 pp.

Diamond, V.H., and R.A. Hicks. 1988. Historic overview of the Rush Creek and Lee Vining Creek Hydroelectric Projects. Theodoratus Cultural Research, Fair Oaks, California. Prepared for Southern California Edison Company, Rosemead, California.

EA Engineering, Science, and Technology. 1986. Instream flow and fisheries studies for the upper Rush Creek Hydroelectric Project. Lafayette, California, November, 1986. 30 pp.

EA Engineering, Science, and Technology. 1987a. Addendum 1 to instream flow and fisheries studies for the Rush Creek Hydroelectric Project. Lafayette, California, November, 1987. 45 pp.

EA Engineering, Science, and Technology. 1987b. East side Sierra hydroelectric relicensing studies: Effects of unscreened intakes on fish populations in reservoirs. Lafayette, California, August 1987. 10 pp.

EA Engineering, Science and Technology. 1988. East side hydroelectric relicensing study: Fish populations on the upper Rush Creek Hydroelectric Project. Lafayette, California, January 1988. 35 pp.

Federal Energy Regulatory Commission. 1990. Environmental assessment of potential cumulative impacts associated with hydropower development in the Mono Lake Basin, California. Washington, D.C., October 1990. 48 pp.

Forest Service. 1988. Environmental Impact Statement for the Land and Resource Management Plan, Inyo National Forest. Bishop, California, 552 pp.

Forest Service. Undated. Wilderness travel, Mono Lake District, Lee Vining, California. 2pp.

Gerstung, E.R. 1973. Fish population and yield estimates from California trout streams. Cal-Neva Wildlife, 1973. 19 pp.

Hinkle, D. 1988. Stream Sediment Survey Waugh Lake to Gem Lake, September, 21, 1988. 12 pp.

Jones and Stokes Associates, Inc. 1985. Characteristics of the riparian vegetation at streamflow diversion sites on the eastern slope of the Sierra Nevada Mountains. Prepared for Research and Development Department, Southern California Edison Company, Rosemead, California. 71 pp.

Kondolf, G.M. 1988. Stream-groundwater interactions along streams of the eastern Sierra Nevada, California: Implications for assessing potential impacts of flow diversions. Proceedings of the California Riparian Systems Conference; Protection, Management and Restoration for the 1990's, September 22-24, 1988, Davis, California. pp. 352-359.

Lund, L. 1988. Water quality of Bishop Creek and selected eastern Sierra Nevada lakes. Report of Research for 1986 to 1988. SCE. 110 pp.

Platts, W.S., and M.L. McHenry. 1988. Density of trout and char in western streams. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. Technical Report INT-138. 17 pp.

Reiser, D.W., and T.C. Bjornn. 1979. Habitat requirements of anadromous salmonids. In: W.R. Meehan (ed.), influence of forest and rangeland management on anadromous fish habitat in the western United States and Canada. Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon. General Technical Report PNW-96.

Southern California Edison. 1981. Application for license for major project—existing dam, Project No. 1389, Rush Creek Project. Rosemead, California. November 16, 1981.

Southern California Edison. 1988. Response to May 3, 1988 request for additional information, Project No. 1388-000-Lee Vining Creek Project, Project No. 1389-001-Rush Creek Project, Project No. 1390-001-Lundy Project. Rosemead, California. September 1988. 27 pp. plus appendices.

Stine, S. 1991. Extent of riparian vegetation on streams tributary to Mono Lake, 1930-1940; An assessment of the streamside woodlands and wetlands, and the environmental conditions that supported them. Report to the California State Water Resources Control Board, and Jones and Stokes, Associates, Sacramento, California. 73 pp.

Stine, S., D. Gains, and P. Vorester. 1981. Destruction of riparian systems due to water development in the Mono Lake watershed. Proceedings of the California Riparian Systems Conference; Ecology, Conservation, and Productive Management, September 1981, Davis, California.

Stromberg, J.C., and D.T. Patten. 1988. Early recovery of an eastern Sierra Nevada riparian system after 40 years of stream diversion. Proceedings of the California Riparian Systems Conference; Protection, Management and Restoration for the 1990's, September 22-24, 1988, Davis, California.

Taylor, D.W. 1982. Eastern Sierra riparian vegetation: Ecological effects of stream diversions. Report to Inyo National Forest. Mono Basin Research Group. Lee Vining, California. 56 pp.

U.S. Geological Survey. 1981 to 1990. Water resources data, California, water year. U.S. Geological Survey, Sacramento, California. 1981 to 1990.

Vorester, P., and M.G. Kondolf. 1988. The effects of water management and land use practices on restoration of Lee Vining and Rush Creeks. Proceedings of the California Riparian Systems Conference; Protection, Management and Restoration for the 1990's, September 22-24, 1988, Davis, California. pp. 405-410.

White, D.R. 1988a. Results of the 1985 field season, cultural resources survey for the Historic and Archaeological Preservation Plan for Eastern Sierra hydroelectric projects in Mono and Inyo counties, California: Lee Vining Creek (FERC Project 1388) and Rush Creek (FERC Project 1389). Engineering, Planning, and Research Department, Environmental Affairs Division, Southern California Edison Company, Rosemead, California.

White, D.R. 1988b. Guide to areas surveyed for the Historic and Archaeological Preservation Plan for Eastern Sierra hydroelectric projects in Mono and Inyo counties, California: Lundy (FERC Project 1390), Lee Vining Creek (FERC Project 1388), Rush Creek (FERC Project 1389), and Bishop Creek (FERC Project 1394). Engineering, Planning, and Research Department, Environmental Affairs Division, Southern California Edison Company, Rosemead, California. 29 pp.

White, D.R. 1989. An evaluation of National Register eligibility for prehistoric archaeological sites around Rush Meadow (Waugh Reservoir), Mono County, California; Historic and Archaeological Preservation Plan for the Rush Creek Hydroelectric Project, (FERC Project 1389). Engineering, Planning, and Research Department, Environmental Affairs Division, Southern California Edison Company, Rosemead, California.

White, D.R. 1990. Management plan for historic and archaeological resources associated with the Rush Creek Hydroelectric Project (FERC Project No. 1389), Mono and Inyo counties, California. Engineering, Planning, and Research Department, Environmental Affairs Division, Southern California Edison Company, Rosemead, California. 20 pp.

Williams, J.C. and R.A. Hicks. 1989. Evaluation of the historic resources of the Lee Vining Creek (FERC Project Number 1388) and Rush Creek (FERC Project 1389) hydroelectric systems, Mono County, California. Theodoratus Cultural Research, Fair Oaks, California. Prepared for Southern California Edison Company, Rosemead, California.

York, A. 1990. An evaluation of twenty-one archaeological sites on the Lee Vining Creek, Rush Creek, and Lundy hydroelectric projects, Mono and Inyo counties, California. Dames & Moore, San Diego, California. Prepared for Southern California Edison Company, Rosemead, California.

IX. LIST OF PREPARERS

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Douglas Davy–Cultural Resources (Archaeologist; Ph.D., Archaeology).

Ted Frink–Water and Fishery Resources (Fishery Biologist; B.S., Fisheries Biology).

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Patrick Lilly–Need for Power (Power Systems Planner; B.S., Mechanical Engineering).

APPENDIX

Condition A. Erosion control plan

At least 90 days before the start of any land-disturbing or land-clearing activities associated with the archaeological data recovery program in the Waugh Lake drawdown zone, the Licensee shall file with the Commission for approval a plan to control erosion and to minimize the quantity of sediment resulting from land disturbance.

The plan shall be based on actual site geological, soil, and groundwater conditions and on project design, and shall include, at a minimum, the following:

(a) A description of the actual site conditions;

(b) Measures proposed to control erosion and to minimize the quantity of sediment resulting from land disturbance;

(c) Detailed descriptions, functional design drawings, and specific topographic locations of all control measures; and

(d) A specific implementation schedule and details for monitoring and maintenance programs for the land disturbance.

The Licensee shall prepare the plan after consultation with the Forest Service. The Licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agency, and specific descriptions of how the agency's comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations prior to filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on geological, soil, and groundwater conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Licensee is notified by the Commission that the plan is approved. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Condition B. Required instream flows below Rush Meadows dam

The Licensee shall release from Rush Meadows dam into Rush Creek a continuous minimum flow of 10 cfs, as measured at the Rush Meadows dam flow gage required by Condition C, or inflow to Waugh Lake, whichever is less, for the protection and enhancement of fish and wildlife resources, riparian vegetation, and aesthetic resources in the upper reach of Rush Creek.

The minimum flow release may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon agreement between the Licensee, the Forest Service and the California Department of Fish and Game. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Condition C. Plan for installation of stream flow gage at the downstream base of Rush Meadows dam

Within 120 days of the issuance of this license, the Licensee shall file with the Commission for approval a plan for providing a flow gauging facility below Rush Meadows dam to establish compliance with recommended minimum instream flow releases specified in Condition B above. The plan shall include detailed design drawings of the system to measure and record flows downstream of the base of Rush Meadows dam. A construction schedule and construction specifications for erosion control shall be included in the plan.

The Licensee shall prepare the plan after consultation with the Forest Service and the California Department of Fish and Game. The Licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on standard engineering principals and conditions at the site.

The Commission reserves the right to require changes to the plan. No construction shall begin until the Licensee is notified that the plan is approved. Upon Commission approval the Licensee shall implement the plan, including any changes required by the Commission. As-built drawings of the system to measure and record flow to Rush Creek at the base of Rush Meadows dam shall be filed within 90 days after completion of construction.

Condition D. Reservoir pool elevations

The Licensee shall maintain Waugh and Gem Lakes at a full pool elevation during normal and high water years from the Friday before Memorial Day through Labor Day. A full pool elevation in this Condition is defined as a pool elevation that is within 2 feet of spillway crest elevation. During low water years, drawdowns between the Friday before Memorial Day and Labor Day shall be limited to 3 feet below spillway crest at Waugh Lake, 6 feet at Gem Lake, and 6 feet at Agnew Lake. Low water years under this condition shall be defined as 75 percent or less of average predicted runoff for the Mono Lake basin, as published by the California Resources Agency in their April 1 "Water Conditions in California" report.

The minimum pool elevation may be temporarily modified if required by operating emergencies beyond the control of the Licensee, if required for public safety or to prevent property damage, or for short periods upon agreement with the Forest Service and the California Department of Fish Game. If the elevation is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Condition E. Archaeological data recovery program

Within 1 year after the date of issuance of this license, the Licensee shall file with the Commission for approval a plan to implement a multi-year data recovery program to mitigate adverse impacts of reservoir shoreline erosion at 9 of the sites belonging to the Rush Meadow Archaeological District (CA-Mno-2440 through -2442 and CA-Mno-2458 through -2463). The Licensee shall

prepare the plan after consultation with the Forest Service and the State Historic Preservation Office and in conformance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

The Licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on conditions at the site.

The Commission reserves the right to require changes to the plan. No land-disturbing or land-clearing activities shall begin until the Licensee is notified by the Commission that the plan is approved. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Condition F. Cultural resources management

The Licensee shall implement provisions of the cultural resources management plan filed with the Commission on May 15, 1990 (White, 1990) and pertaining to treatment of the Rush Creek Hydroelectric System Historic District. These provisions will allow for compliance with Section 106 of the National Historic Preservation Act. This plan specifies, for each contributing property, the types of alterations that would constitute an effect on significant characteristics. The Licensee shall consult with the California State Historic Preservation Officer and Forest Service, Inyo National Forest, prior to demolition, alteration, or remodeling of the contributing properties that would affect their significant characteristics. The Licensee shall implement the plan in a manner satisfactory to the Forest Service and the California state Historic Preservation Office, and consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

Vol. 44-
PROJ. #1389

FP-754

FEDERAL POWER COMMISSION

LICENSE FOR MAJOR PROJECT ON LANDS OF THE UNITED STATES

PROJECT NO. 1389-CALIFORNIA

THE NEVADA-CALIFORNIA ELECTRIC CORPORATION

Pursuant to the provisions of the Federal Power Act (hereinafter referred to as the Act), the FEDERAL POWER COMMISSION (hereinafter referred to as the Commission) HEREBY ISSUES to THE NEVADA-CALIFORNIA ELECTRIC CORPORATION (hereinafter referred to as the Licensee), THIS LICENSE for the purpose of operating and maintaining certain constructed project works hereinafter described, on lands of the United States in Mono County, State of California, subject to the rules and regulations of the Commission and to the conditions, provisions, and requirements set forth hereinafter and in the Act, which is hereby referred to and incorporated as a part hereof.

Article 1. This license is issued for a period of fifty (50) years beginning December 1, 1936, and extending to November 30, 1986, and in consideration of such license and the benefits and advantages accruing thereunder to the Licensee, it is expressly agreed by the Licensee that the entire project, project area, and project works as hereinafter designated and described, whether or not upon lands of the United States, shall be subject to all the terms and conditions of this license.

Article 2. The project covered by and subject to this license is located on Rush Creek, in T. 2 S., Rs. 25 and 26 E., Mt. Diablo meridian, Mono County, California, mainly on lands of the United States within the Mono National Forest, and consists of —

A. All lands constituting the project area and inclosed by the project boundary, and/or interests in such lands necessary or useful for the purposes of the project, whether such lands or interests therein are owned or held by the Licensee or by the United States; such project area and project boundary being more fully shown and described by certain exhibits which accompanied said application for license and which as subsequently revised are designated and described as follows:

Exhibit J-1 - "General Map Showing the Transmission System of The Southern Sierras Power Company and Associated Companies" (FPC No. 1389-1);

Exhibit J-2 - "General Map of Rush Creek Project," as revised December 3, 1936 (FPC No. 1389-10);

Exhibit K-1 - "Detail Map of Rush Meadows Reservoir" (FPC No. 1389-3);

Exhibit K-2 - "Detail Map of Gem Reservoir," as revised December 3, 1936 (FPC No. 1389-11);

Exhibit K-3 - "Detail Map of Agnew Reservoir and Rush Creek Plant," as revised December 4, 1935, and as further revised June 30, 1938 in accordance with the Commission's order of May 18, 1938 (FPC No. 1389-12);

(All the above exhibits signed July 24, 1936, "Cain Irrigation Company by J. S. Bordwell, Vice President," and "The Nevada-California Power Co. by R. H. Halpenny, Electrical Engineer".)

B. All water rights, as described in a certain exhibit which accompanied said application and which is designated and described as follows:

Exhibit E - "Statement and Evidence of Water Rights," consisting of two typewritten sheets signed July 24, 1936, "The Nevada-California Power Company by H. Dewes, Assistant Secretary", and "Cain Irrigation Company by H. Dewes, Secretary," and photostatic copies of licenses Nos. 25, 61, and 554 issued by the State of California.

C. All project works consisting of the Rush Meadows, Gem, and Agnew Dams and Reservoirs, the Rush Creek power plant with an installed capacity of 16,000 horsepower, a conduit from Gem Reservoir to the power plant, a conduit from Agnew Reservoir to the power plant, and a 2,300-volt transmission line from the power plant to Agnew and Gem Dams; the location and character of said project works being more fully shown and described by exhibits hereinbefore cited and by the following additional exhibits which accompanied said application for license:

Exhibit L-1 - "Plans of Rush Meadows Dam" (FPC No. 1339-6);

Exhibit L-2 - "Plans of Gem and Agnew Dams" (FPC No. 1339-7);

Exhibit L-3 - "Plan and Section of Rush Creek Power House" (FPC No. 1339-8);

Exhibit L-4 - "Detail Plat of Power House Grounds" (FPC No. 1339-9);

(All the above plans signed July 24, 1936, "Cain Irrigation Co. by J. S. Bordwell, Vice President," and "The Nevada-California Power Co. by R. H. Halpenny, Electrical Engineer.")

Exhibit M - "General Descriptions and Specifications" - three typewritten sheets signed July 24, 1936, "The Nevada-California Power Company by H. Dewes, Assistant Secretary," and "Cain Irrigation Company, by H. Dewes, Secretary."

D. All other structures, fixtures, equipment, or facilities used or useful in the maintenance and operation of the project, whether owned by the Licensee or by the United States, and located upon the project area, including such portable property as may be used and useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as a part of the project works is approved or acquiesced in by the Commission; also all other rights, easements, or interests, including said riparian rights, the ownership, use, occupancy or possession of which is necessary or appropriate in the maintenance and operation of the project or appurtenant to the project area.

Article 3. The maps, plans, specifications, and statements designated and described as exhibits in Article 2 hereof, and approved by the Commission, are hereby made a part of this license, and no substantial change shall hereafter be made in said exhibits, or any of them, until such change shall have been approved by the Commission: Provided, however, that if the Licensee deems it necessary or desirable that said approved exhibits, or any of them, be changed there shall be submitted to the Commission for approval amended, supplemental, or additional exhibits covering the proposed changes, and upon approval by the Commission of such proposed changes such amended, supplemental or additional exhibits shall become a part of this license and shall supersede, in whole or in part, such exhibit, or part thereof, theretofore made a part of this license as may be specified by the Commission.

Article 4. Except when emergency shall require for the protection of navigation, life, health, or property, no substantial alteration or addition not in conformity with the approved plans shall be made to any dam or other project works under this license without the prior approval of the Commission; and any emergency alteration or addition so made shall thereafter be subject to such modification and change as the Commission shall direct.

Article 5. Any future work of construction and the operation and maintenance of the project works under this license, whether or not conducted upon lands of the United States, shall be subject to the inspection and approval of the Regional Director, Federal Power Commission, San Francisco, California, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall notify such representative of the date upon which work will begin, and as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of construction for a period of more than one week, and of its resumption and completion.

Article 6. The Licensee shall install and maintain such gages and gaging stations as are necessary, in the judgment of the District Engineer of the United States Geological Survey having charge of stream gaging operations in the region of the project, to determine the amount of water held in and drawn from storage in Rush Meadows, Gem and Agnew Reservoirs, the flow diverted through Rush Creek power plant from Gem Reservoir and from Agnew Reservoir, and the flow in Rush Creek below Agnew Reservoir; and

shall provide for the required readings of such gages and for the adequate rating of such stations. The Licensee shall also install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters or other measuring devices, and the method of operation thereof may be altered from time to time if necessary to secure adequate determinations, but such alteration shall not be made except with the approval of the Commission or its authorized representative or upon the specific direction of the Commission. The installation of gages, the ratings of the stream or streams, and the determination of the flow thereof, shall be under the supervision of or in cooperation with the said District Engineer of the United States Geological Survey, and the Licensee shall advance to the said United States Geological Survey the amounts estimated to be necessary for such supervision or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient record of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually, at such time and in such form as the Commission may prescribe.

Article 7. The Licensee shall be liable for all damages occasioned to the property of others by the construction, maintenance or operation of the project works, or of the works appurtenant or accessory thereto, and in no event shall the United States be liable therefor.

Article 8. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the

United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto. Arrangements to meet such liability, either by compensation for such injury or destruction, reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 9. Timber upon lands of the United States, used or destroyed in the construction of the project works, shall be paid for in accordance with the requirements and estimates of the Department concerned.

Article 10. In the operation and maintenance of the project works herein specified, the Licensee shall place and maintain suitable structures to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling and obstructing traffic and endangering life on highways, streets, or railroads.

Article 11. The Licensee hereby agrees to assent to such changes in the location or design of any of its transmission lines as may in the opinion of the Commission be necessary or desirable in order to avoid inductive interference with any telephone line or lines of the United States hereafter constructed or proposed to be constructed, provided such changes are made at the expense of the United States.

Article 12. The Licensee shall clear the bottoms and margins of all reservoirs up to high-water level, shall clear and keep clear to an ade-

quate width lands of the United States along open conduits and along transmission lines, and shall dispose to the satisfaction of said representative of the Commission of all temporary structures, brush, refuse or unused timber on lands of the United States resulting from the clearing of lands or from the construction and maintenance of said project works.

Article 13. The Licensee shall permit the use of any reservoir included in the project for the temporary storage or for the transportation of logs, ties, poles, lumber, or other forest products, and upon demand of the Secretary of Agriculture shall construct a logway or logways approved by said Secretary and suitable for the passage of such logs, ties, poles, lumber, or other forest products, over or around the dam at any such reservoir without undue hindrance or delay: Provided, that the use of said reservoir or of such logway or logways by owners of such logs, ties, poles, lumber, or other forest products, shall be under such rules and regulations adopted by the Licensee as may be approved by the Secretary of Agriculture.

Article 14. The Licensee shall interpose no objections to, and in no way prevent, the use of water for domestic purposes by persons or corporations occupying lands of the United States under permit along or near any stream or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by this license.

Article 15. The Licensee shall allow officers and employees of the United States free and unrestricted access into, through and across the project and project works in the performance of their official duties, and shall allow the Forest Service, without charge, to construct or permit to

be constructed in, through and across the project, railroads, chutes, roads, trails, conduits, and other means of transportation not inconsistent with the enjoyment of the project by the Licensee for the purposes herein set forth. This article shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the operation and maintenance of the project as set forth in this license.

Article 16. The Licensee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of officers of the Forest Service, or other agency of the United States, to prevent and suppress fires on or near the lands to be occupied under this license.

Article 17. The Licensee shall permit such development of the reservoirs and streams within the project area by the Forest Service for recreational purposes as will not be inconsistent with their use by the Licensee for power purposes.

Article 18. The Licensee shall maintain, as at present, an adequate fish ladder between the stream bed and the outlet pipe on the downstream side of Bush Meadows Dam to allow the passage of fish upstream during periods when the reservoir is empty and the natural flow of the stream is passing through the outlet pipe.

Article 19. The Licensee shall, within six months after the date of issuance hereof, file with the Commission an initial statement containing an inventory in detail of all property included under the license, as of

December 1, 1936; showing the actual legitimate original, or if that is not known, the estimated original cost of the property by prescribed structural and functional items and units; and setting forth an estimate of the accrued depreciation, segregated as to each separate major item or unit of property; all in accordance with the rules and regulations of the Commission.

Article 20. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of such reservoir or other improvement for such part of the annual charges for interest, maintenance, and depreciation thereon as the Commission may deem equitable. The proportion of such charges to be paid by the Licensee shall be determined by the Commission, and the Licensee shall pay to the United States the cost of making such determination. Whenever such reservoir or other improvement is constructed by the United States, the Licensee shall pay similar charges into the Treasury of the United States upon bills rendered by the Commission.

Article 21. Subject to the provisions of Section 10(e) of the Act, the Licensee shall pay to the United States the following annual charges:

(1) For the purpose of reimbursing the United States for the costs of administration of Part I of the Act: One cent per horsepower on 16,000 horsepower installed capacity, plus 2½ cents per thousand kilowatt-hours for energy generated by the project during the preceding fiscal year ended June 30; said charges to begin December 1, 1936.

(2) For recompensing the United States for the use, occupancy, and enjoyment of its lands, $3,000; said charges to begin on the date of issuance of the license.

Payment of annual charges shall be made within 30 days from the end of each calendar year or within 30 days of rendition of a bill therefor by the Commission, whichever is later. A penalty will be imposed pursuant to the provisions of the Act for delinquency in payment unless otherwise ordered by the Commission.

Article 22. After the first 20 years of operation of the project, six percent per annum is the specified reasonable rate of return on the net investment in the project under license for determining surplus earnings, in accordance with the provisions of Section 10(d) of the Act, for the establishment and maintenance of amortization reserves to be held until the termination of the license, or, in the discretion of the Commission, to be applied from time to time in reduction of the net investment in the project, and one-half of all surplus earnings in excess of six percent per annum received in any calendar year shall be paid into such amortization reserves.

Article 23. No lease of said project or any part thereof whereby the lessee is granted the exclusive occupancy, possession, or use of project works for purposes of generating, transmitting, or distributing power shall be made without the prior written approval of the Commission; and the Commission may, if in its judgment the situation warrants, require that all the conditions of this license, of the Act, and of the rules and regulations of the Commission shall be applicable to such lease and to such property so leased t

to the same extent as if the lessee were the Licensee hereunder: Provided, that the provisions of this article shall not apply to parts of the project or project works which may be used by another jointly with the Licensee under a contract or agreement whereby the Licensee retains the occupancy, possession, and control of the property so used and receives adequate consideration for such joint use, or to leases of land while not required for purposes of generating, transmitting, or distributing power, or to buildings or other property not built or used for such purposes, or to minor parts of the project or project works the leasing of which will not interfere with the usefulness or efficient operation of the project by the Licensee for such purposes.

Article 24. It is hereby understood and agreed that the Licensee, its successors and assigns will, during the period of this license, retain the possession of all project property covered by this license as issued or as hereafter amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and that none of such properties valuable and serviceable to the project and to the development, transmission, and distribution of power therefrom will be voluntarily sold, transferred, abandoned, or otherwise disposed of without the approval of the Commission: Provided, that a mortgage or trust deed or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article. The Licensee further agrees, on behalf of itself, its successors and assigns, that, in the event the project is taken over by the United States upon the termination of this

license, as provided in Section 14 of the Act, or is transferred to a new licensee under the provisions of Section 15 of the Act, it will be responsible for and will make good any defect of title to or of right of user in any such project property which is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and will pay and discharge or will assume responsibility for payment and discharge of all liens or incumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of this license: Provided, that the provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear, or to require the Licensee for the purpose of transferring the project to the United States or to a new licensee to acquire any different title or right of user in any such project property than was necessary to acquire for its own purposes as Licensee.

Article 25. The Licensee shall abide by such reasonable regulation of the services to be rendered to customers or consumers of power, and of rates and charges of payment therefor, as may from time to time be prescribed by any duly constituted agency of the State in which the service is rendered or the rate charged; and in case of the development, transmission, distribution, sale or use of power in public service by the Licensee or by its customers engaged in public service within a State which has not authorized and empowered a commission or other agency or agencies within said State to regulate and control the services to be rendered by the Licensee or by its

customers engaged in public service, or the rates and charges of payment therefor, or the amount or character of securities to be issued by any of said parties, it is agreed as a condition of this license that jurisdiction is hereby conferred upon the Commission, upon complaint of any person aggrieved or upon its own initiative, to exercise such regulation and control until such time as the State shall have provided a commission or other authority for such regulation and control; Provided, that the jurisdiction of the Commission shall cease and determine as to each specific matter of regulation and control prescribed in this article as soon as the State shall have provided a commission or other authority for the regulation and control of that specific matter.

Article 26. With the written consent of the Licensee, the Commission may by order made under its seal, and after the public notice required by Section 6 of the Act, modify, alter, enlarge or omit, in so far as authorized by law, any one or more of the conditions or provisions of this license.

Article 27. The enumeration herein of any rights reserved to the United States or to any State or municipality under the Act, or of any requirement of the Act or of the rules and regulations of the Commission shall not be construed in any degree as impairing any other rights so reserved by the Act or as limiting the force of any other requirement of the Act or of the rules and regulations.

IN WITNESS WHEREOF, the Federal Power Commission has caused its name to be signed hereto by OLYDE L. SHAVEY, its Acting Chairman, and its seal to be affixed hereto and attested by LEON M. FUQUAY, its _____ Secretary, this 1st day of May, 1939, pursuant to its orders of November 25, 1936, May 18, 1938, August 12, 1938, and April 11, 1939, attached hereto.

FEDERAL POWER COMMISSION

By Clyde L Seavey
Acting Chairman.

Attest:

Leon M Fuquay
Secretary.

ECB:LSH
9-7-38

IN TESTIMONY OF ACCEPTANCE of all the provisions and conditions of the Federal Power Act and of the further conditions imposed in the foregoing license, the Licensee this 13th day of October, 1938, has caused its corporate name to be signed hereto by A. B. West, its ______ President, and its corporate seal to be affixed hereto and attested by J. R. Gilbert, its ______ Secretary, pursuant to a resolution of its board of directors duly adopted on the 13th day of October, 1938, a certified copy of the record of which is attached hereto.

THE NEVADA-CALIFORNIA ELECTRIC CORPORATION

By A. B. West
President.

Attest: J. R. Gilbert
Secretary.

LEGAL FEATURES APPROVED
[signature] GENERAL COUNSEL

Description Checked [initials]
Approved [initials] ENGINEER

(Executed in triplicate)