

UNITED STATES OF AMERICA 105 FERC ¶ 62,119
FEDERAL ENERGY REGULATORY COMMISSION

Citizens Utilities Company

Project Nos. 2306-008 and -024

ORDER ISSUING NEW LICENSE

(Issued November 21, 2003)

1. On December 23, 1991, Citizens Utilities Company (Citizens) 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 existing Clyde River Hydroelectric Project No. 2306, located on the Clyde River near Newport, Orleans County, Vermont.² As relicensed, the 4.80 megawatt (MW) project would generate an average of approximately 20.0 gigawatt hours (GWh) of energy annually. This order issues a new license for the project.

BACKGROUND

2. Public notice of Citizens' application was issued,³ seeking comments, protests, and motions to intervene. Timely motions to intervene were filed by the Vermont Agency for Natural Resources (Vermont), Vermont Natural Resources Council (VNRC), American Whitewater Affiliation (AWA), U.S. Department of the Interior (Interior), U.S. Environmental Protection Agency (EPA), and jointly by Trout Unlimited (TU), Vermont Council of Trout Unlimited, and Northeast Kingdom Chapter of Trout Unlimited (Vermont TU). On January 10, 2001, the Commission issued a notice granting a motion for late intervention by Barton Village, Inc.

¹16 U.S.C. §§ 797(e) and 808.

²The original license for the Clyde River Project was issued on November 6, 1963, for a term expiring December 31, 1993. 30 FPC 1213, reh'g denied, 30 FPC 1437 (1963). The Clyde River is a navigable waterway of the United States. 23 FPC 233 at 242 (1959). Therefore, Section 23(b) of the FPA, 16 U.S.C. § 817(1), requires the project to be licensed. The project currently operates pursuant to a notice of authorization for continued operation. See 66 FERC ¶ 61,145.

³57 Fed. Reg. 60182 (December 18, 1992).

3. Scoping meetings were conducted by the Commission's staff (the staff) pursuant to the National Environmental Policy Act⁴ in Newport, Vermont, and Grand Isle, Vermont. A Draft Environmental Impact Statement (EIS) for this project was prepared by the staff.⁵ Comments on the Draft EIS were filed by Citizens, the National Oceanic and Atmospheric Administration (NOAA), Vermont TU, TU, Interior, EPA, Vermont, and various interested individuals. These comments were considered in preparing the Final EIS for this project.⁶ All of the comments received from interested agencies and individuals have been fully considered in determining whether, and under what conditions, to issue a new license.

PROJECT DESCRIPTION

4. The Clyde River Hydroelectric Project, as originally licensed, consisted of three hydroelectric generating developments on the Clyde River and two storage impoundments located on an unnamed tributary to the Clyde River. Echo Pond and Seymour Lake impounded in 1922 and 1928, respectively, are storage reservoirs located on an unnamed tributary to the Clyde River. The West Charleston Development, constructed in 1900, is located at RM 10.8. The Newport Nos. 1, 2, 3 Development, which was constructed in 1918, is located at RM 1.7. The Newport No. 11 Development, the most downstream of the project's developments, was located at river mile (RM) 1.5, just upstream of the river's mouth at Lake Memphremagog.⁷ The developments are located in the towns of Newport, Derby, and Charleston in Orleans County in the St. Lawrence River Basin. Under its current license, Citizens operates the Clyde River Project as a daily peaking facility. The historic average annual generation of the project was 25.44 GWh.

⁴42 U.S.C. § 4331 et seq.

⁵60 Fed. Reg. 10841 (February 28, 1995).

⁶Final Environmental Impact Statement, Clyde River Hydroelectric Project, FERC Project No. 2306, Vermont, prepared by FERC Office of Hydropower Licensing, Washington, D.C. (June 1996).

⁷As explained below in "Other Issues," the Newport No. 11 dam removal was authorized by Commission letter dated July 26, 1996, after it had been breached during a high water event.

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Seymour Lake

5. Seymour Lake Development consists of: (1) a 43-foot-long, 5-foot-high rock-filled, timber crib-type dam consisting of (a) a 30.6-foot-long uncontrolled spillway section, (b) a five-foot by 4.3-foot sluice gate, and (c) six-inch flashboards; (2) a 1,750-acre impoundment with a usable storage of 2,040 acre-feet; and (3) appurtenant facilities. This site is also unmanned.

Echo Pond

6. Echo Pond Development consists of: (1) a 72.5-foot-long concrete spillway with a crest elevation of 1,248.33 feet topped with flashboards varying in height from 8 inches to 14 inches; (2) a gate control structure with one slide gate controlled outlet pipe; and (3) appurtenant facilities.

West Charleston Development

7. The West Charleston Development consists of: (1) a 196.5-foot-long, 28-foot-high masonry dam consisting of (a) a 106-foot-long uncontrolled spillway section, (b) a single 19-foot square forebay extending to a six-foot- and an eight-foot-diameter headgate, (c) a six-foot-diameter sluice gate which has been plugged with concrete and capped, and (d) flashboards 18 inches in height; (2) a reinforced concrete and brick powerhouse 64 feet long, 19 feet wide, and 15 feet high, housing one horizontal twin runner S. Morgan Smith-Francis turbine connected to a generator rated at 800 kW; (3) one six-foot-diameter steel penstock, extending for 1,622 feet from the dam; (4) a wood-framed, clapboard-sided structure, 26 feet long, 23 feet wide, and 17 feet high; (5) a 40-acre impoundment with a usable storage of 220 acre-feet; and (6) appurtenant facilities. The station is remotely operated from the Newport Nos. 1, 2, 3 Development powerhouse control room.

Newport Nos. 1, 2, 3 Development

8. The Newport Nos. 1, 2, 3 Development consists of: (1) a 713-foot-long, 22-foot-high masonry dam consisting of (a) a 324-foot-long uncontrolled spillway section, (b) an earthen section on each side of the dam with an upstream-face concrete retaining wall about 347.5 feet long, (c) concrete abutments about 41.5 feet in length, (d) flashboards 15 inches in height, (e) two 5.5-by-four-foot sluice gates, and (f) an intake structure consisting of a 21-by-12-foot forebay which extends to a six-foot-diameter headgate; (2) two reinforced concrete and brick powerhouses: (a) for units 1 and 2, 50 feet long, 34 feet wide, and 20 feet high, housing two vertical Allis Chalmers-Francis turbines each

connected to generators rated at 1,700 kW each, and (b) for Unit 3, 37 feet long, 29 feet wide, and 13 feet high, housing one horizontal S. Morgan Smith turbine connected to a generator rated at 600 kW; (3) one six-foot-diameter steel penstock, extending for 80 feet from the dam, at which point it bifurcates into six-foot and five-foot-diameter penstocks, extending 2,175 feet and 1,800 feet, respectively; (4) a 4.5-foot-diameter pipe connecting the two penstocks to a six-foot-diameter surge tower; (5) a wood-framed, clapboard-sided gatehouse 24 feet long, 13 feet wide, and 12 feet high; (6) a 200-acre impoundment (Clyde Pond) with a usable storage of 2,400 acre-feet; and (7) appurtenant facilities. The station is continuously manned.

Newport No. 11 Development

9. The most downstream dam, the Newport No. 11 Development, was removed in 1996.⁸ Prior to removal, the development consisted of: (1) a 114-foot-long, 19-foot-high concrete gravity dam consisting of (a) a 90-foot-long uncontrolled spillway section, (b) a four-foot by four-foot sluice gate, the bottom of which is 12 feet below the crest of the dam, (c) a 154-foot-long concrete retaining wall extending from the western abutment of the dam and running parallel with the canal intake, and (d) an intake structure consisting of a 2,170-foot-long canal and a 10-foot diameter headgate; (2) a concrete block powerhouse 27 feet long, 22 feet wide, and 18 feet high, housing one vertical Leffel-Kaplan fixed blade turbine connected to a generator rated at 1,790 kilowatts (kW); (3) one 10-foot-diameter steel penstock, extending for 80 feet; (4) a one-acre impoundment with a usable storage of 3.5 acre-feet; and (5) appurtenant facilities. The station was remotely operated from the Newport Nos. 1, 2, 3 Development powerhouse control room.

Project Operations

10. The water used by the Newport Nos. 1, 2, 3 Development discharged into the impoundment created by Newport No. 11 dam. Newport No. 11 was historically operated in a peaking mode. Under mean flow conditions the powerhouse was usually operated 13 to 18 hours per day. During low flow and high flow, the powerhouse would operate for eight hours and continuously, respectively.

11. Even though the impoundments have 3,180 acre-feet and 2,040 acre-feet of usable storage at Echo Pond and Seymour Lake, respectively. Although the current license

⁸ I discuss the circumstances of the Newport No. 11 dam removal in the section entitled "Other Issues."

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allows for impoundment drawdowns, Citizens has limited its use of these storage impoundments in recent years to maintain stable water levels for the lake area residents.

12. The West Charleston Development has been historically operated in a peaking mode. Generation is strongly influenced by the operations of the Barton Village Project No. 7725 hydroelectric facility, which discharges into Lubber Lake. In 1995, the Barton Village Project altered its mode of operation from peaking to run-of-river,⁹ thus inhibiting peaking operations at West Charleston.

13. Units 1 and 2 are the primary hydro units used at the Newport Nos. 1, 2, 3 Development for peaking operation. Unit 3 is used primarily during high flow conditions. During low flow conditions, little or no generation occurs on the weekends; rather, the water is stored to satisfy peak demands on the weekdays. On mean flow days, generation occurs for 13 to 18 hours per day. During high flows, Units 1 and 2 operate continuously, and Unit 3 as necessary.

APPLICANT'S PLANS AND CAPABILITIES

14. In accordance with Sections 10 and 15 of the FPA,¹⁰ I have evaluated Citizens' record as a licensee with respect to the following factors: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safety 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 and (8) actions affecting the public. I accept the staff's findings in each of these areas.

Conservation Efforts

15. Citizens participates in the Efficiency Vermont program. Efficiency Vermont is the nation's first statewide provider of energy efficiency services. Efficiency Vermont was created in 2000 by the Vermont legislature and the Vermont Public Service Board to help all Vermonters save energy, reduce energy costs and protect Vermont's environment. The program is operated by an independent, non-profit organization under contract to the

⁹ Application for a Subsequent License for Minor Water Power Project. Barton Village Hydroelectric Project. FERC Project No. 7725. Volume 1. Filed September 27, 2003.

¹⁰ 16 U.S.C. §§ 803(a)(2)(C) and 808(a).

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Vermont Public Service Board. Efficiency Vermont provides technical advice, financial assistance and design guidance to help make Vermont homes, farms and businesses energy efficient. All the utilities in the state of Vermont participate in the program with the exception of the Burlington Electric Department.

Compliance History and Ability to Comply with the New License

16. Staff reviewed Citizens' license application and its record of compliance with the existing license in an effort to judge its ability to comply with the terms and conditions of any license issued, and with other applicable provisions of this part of the FPA. Staff found that its overall record of making timely filings and compliance with its license is satisfactory. As a result of its review of Citizens' compliance record and the license application, staff concluded that Citizens is able to satisfy the conditions of a new license.

Safe Management, Operation, and Maintenance of the Project

17. Citizens owns and operates a series of hydroelectric developments along the Clyde River, which constitute Project No. 2306. These facilities are operated from Citizens' control center at the Newport Nos. 1, 2, 3 Development powerhouse, which is manned 24 hours a day, seven days a week. The control center is able to coordinate the operation of these facilities in a manner that best provides for valuable electricity as well as for a healthy river.

18. Citizens retains an independent consultant to make a complete inspection of the project facilities every five years in accordance with Part 12 of the Commission's regulations, which implement the Commission's safety requirements.¹¹ Citizens has not recorded a lost time accident related to the project since the issuance of the initial license. As a result of its review of Citizens' plans, staff concluded that Citizens would be able to manage, operate, and maintain the Clyde River Project in a safe manner.

Ability to Provide Efficient and Reliable Electric Service

19. Staff reviewed Citizens' plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. Citizens currently has no plans to increase the capacity of the Clyde River Project. There are some modifications necessary to increase equipment reliability and efficiency under the proposed operating conditions.

¹¹ 18 C.F.R. §§ 12.1 - 12.44 (2003)

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20. Citizens has ongoing maintenance programs, including generator testing and cleaning, turbine inspections and maintenance, and controls testing and maintenance. In the last five years Citizens has experienced one unscheduled generation outage at the Clyde River Project. The West Charleston Plant went out of service from November 21, 1989, until January 18, 1990, because of an electrical fire. An estimated 500 megawatt hours (MWh) was lost. All other outages have been due to scheduled outages and maintenance.

21. Based on its review of the information, staff concluded that Citizens has operated the project in an efficient manner within the constraints of the existing license and that it would continue to provide efficient and reliable electric service in the future.

Need for Power

22. Historically, the Clyde River Project has generated about 20.0 GWh per year. Citizens uses the power from the project to help meet their electric demand. The project is located in the Northeast Power Coordinating Council (NPCC) region of the North American Electric Reliability Council (NERC). To see how the demand for electricity is expected to change in the future for the NPCC, staff looked at the regional self-assessment published by NERC. In its 2001 assessment, the NPCC forecast the average annual demand growth rate, for the summer-peaking United States portion of the NPCC, is expected to grow at a rate of 1.3 percent through the summer of 2010. Also, the NPCC forecasts the annual electrical energy growth rate through 2010 is 1.2 percent for the United States portion of the NPCC. Power from the project would be useful in helping Citizens meet a small part of this need for power.

Transmission Services

23. Citizens injects all Clyde River Project generation into its distribution system, not into its transmission system. The point of injection from the project is at the transmission-distribution transformation. Therefore, feeder circuit loading is independent of project generation. The transformer loading is sized when the project is operating. Transformation is sized to carry the total distribution load regardless of project output.

Cost Effectiveness

24. Staff reviewed Citizens proposal. Citizen proposes environmental and recreational resource enhancements to the project that would affect the existing project operation and the present environmental resources of the project. Staff concludes that the

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project, as presently configured and operated, fully develops and uses the economical hydropower potential of the site and represents a cost-effective plan for using the Clyde River at this location.

Actions Affecting the Public

25. The Clyde River Project generates electricity used to serve the needs of the public. Citizens provides some recreational facilities for the public and also provides public safety measures at project dams.

Ancillary Benefits

26. In analyzing public interest factors, the Commission takes into account that hydropower projects offer unique operational benefits to the electric utility system (ancillary benefit). These benefits include their value as almost instantaneous load-following response to dampen voltage and frequency instability on the transmission system, system-power-factor-correction through condensing operations, and a source of power available to help in quickly putting fossil-fuel based generating stations back on line following a major utility system or regional blackout.

27. Ancillary benefits are now mostly priced at rates that recover only the cost of providing the electric service at issue, which do not resemble the prices that would occur in competitive markets. As competitive markets for ancillary benefits begin to develop, the ability of hydropower projects to provide ancillary services to the system will increase the benefits derived from hydropower projects.

SECTION 18 FISHWAY PRESCRIPTIONS

28. Section 18 of the FPA authorizes the Secretary of the Interior or the Secretary of Commerce to prescribe fishways at Commission-licensed projects. In its letter dated April 4, 1994, Interior requested that the Commission reserve its authority to prescribe the construction, operation, and maintenance of fishways at the Clyde River Project under Section 18 of the FPA.

29. The Commission recognizes that future fish passage needs cannot always be determined at the time of project licensing. The Commission's practice has been to include a license article that reserves the Secretary of the Interior's authority to prescribe facilities for fish passage when so requested. Therefore, consistent with Commission practice, article 415 of this license reserves the Commission's authority to require the

licensee to construct, operate, and maintain such fishways as may be prescribed by the Secretary of the Interior under Section 18 of the FPA.

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

30. Under the provisions of Section 10(j)(1) of the FPA,¹² each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources affected by the project. Section 10(j)(2) of the FPA¹³ states that whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA 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 each agency. If the Commission still does not adopt a recommendation, it must explain how the recommendation is inconsistent with Part I of the FPA or other applicable law and how the conditions imposed by the Commission adequately and equitably protect, mitigate damages to, and enhance fish and wildlife.

31. In response to the Notice of Application Ready for Environmental Analysis, Vermont submitted an April 27, 1994 letter and FWS submitted an April 4, 1994 letter with comments, recommendations, terms, and conditions. The license issued here for the Clyde River Project includes conditions consistent with recommendations for: (1) notching or removal the abandoned dam in the Newport Nos. 1, 2, 3 bypass (article 313); (2) upstream and downstream fish passage (articles 409 and 412, respectively); (3) a minimum flow below the Newport Nos. 1, 2, 3 Development (article 402); (4) West Charleston Development run-of-river and minimum flows (article 401); (5) a minimum flow in the Newport Nos. 1, 2, 3 bypass (article 402); (6) Clyde Pond water levels (article 402); (7) an erosion control plan (article 403); (8) ramping procedures (article 408) and; (9) a channel restoration plan for vegetative removal (article 420).

32. Commission staff made an initial determination that some of Vermont's and FWS's recommendations were inconsistent with the comprehensive planning and public

¹²16 U.S.C. § 803(j)(1).

¹³16 U.S.C. § 803 (j)(2).

interest standards of sections 4(e) and 10(a) of the FPA. In the draft EIS, staff concluded that resource agency recommendations for: (1) a West Charleston Development minimum flow; (2) a minimum flow in the Newport Nos. 1, 2, 3 bypass; (3) a minimum flow below the Newport Nos. 1, 2, 3 Development; (4) Clyde Pond water levels; (5) removal of the abandoned mill dam in the Newport Nos. 1,2,3 bypass; (6) a channel restoration plan for vegetative removal; and (7) ramping procedures, were inconsistent with Part I of the FPA. Commission staff concluded that there was no evidence that these measures would provide environmental benefits commensurate with their costs, and that the alternative measures Commission staff recommended would adequately protect fish and wildlife.

33. The Section 10(j) letters advising FWS and Vermont of the staff's preliminary determinations were issued on November 1, 1995. The letter offered a meeting or a conference call to attempt to resolve the disagreements. Interior did not respond. Vermont sent a letter dated December 14, 1995, which discussed the issues further and indicated that a meeting was not needed. Instead, Vermont included its original 10(j) recommendations or modifications that they considered appropriate as conditions of its water quality certification. Vermont's water quality certification conditions are included in the Appendix attached to this order.

WATER QUALITY CERTIFICATION

34. Under Section 401(a)(1) of the Federal Water Pollution Control Act (the Clean Water Act), 33 U.S.C. § 1341(a)(1), the Commission may not issue a license for a hydroelectric project unless the state certifying agency has either 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.¹⁴

35. On December 20, 1991, Citizens filed an application for water quality certification from Vermont. The application was withdrawn and refiled on October 5, 1992, July 7, 1993, and May 5, 1994. On July 8, 1994, Vermont denied the application for certification. Citizens filed an appeal on July 22, 1994 and again filed an application on August 30, 1996. Citizens withdrew the application on July 2, 1997 and simultaneously

¹⁴Section 401(a) requires an applicant for a federal license or permit to conduct any activity which may result in any discharge into navigable waters to obtain from the state in which the discharge originates certification that any such discharge will comply with applicable state water quality standards.

reapplied for certification, an annual cycle that was repeated until 2002 when Vermont issued water quality certification on August 1.

36. On August 15, 2002, certification was appealed to the Vermont Water Resources Board (Water Board) by the Seymour Lake Association and jointly by the VNRC and Vermont TU. After a *de novo* contested case hearing with respect to the issues raised on appeal, the Water Board issued an amended water quality certification on July 11, 2003. Consistent with Commission policy for mandatory license conditions, Vermont's conditions of the amended water quality certification are set for verbatim in the Appendix to this order and are made part of the license by ordering paragraph (D).

37. In addition to standard conditions and reservations of authority to Vermont, the water quality certification includes provisions requiring Citizens to: (1) operate the Newport Nos. 1, 2, 3 development according to specified reservoir water level management schedule and a minimum bypass flow of 30 cubic feet per second (cfs); (2) operate the Seymour Lake dam in a run-of-river mode with a minimum flow of 4 cfs; (3) store up to 10 percent of inflows as needed to restore water levels after an approved maintenance drawdown; (4) file a flow management plan detailing project operations necessary to comply with minimum flow and impoundment fluctuation limits; (5) develop a plan for continuous monitoring and reporting of flow releases, pond levels, and inflows at the West Charleston and Newport developments; (6) provide turbine rating curves; (7) develop plans for replacement of Seymour Lake dam; (8) develop plans for replacement of the West Charleston penstock; (9) modify or replace two culverts to provide access to spawning habitat by rainbow smelt; (10) consult with Vermont with respect to trashrack design at the West Charleston development; (11) develop a plan for the design, construction, and operation of a fish trap-and-truck facility at the Newport Nos. 1, 2, 3 development; (12) develop a plan for installation of a downstream fish passage facility at the Newport Nos. 1, 2, 3 development, including notching or removal of an abandoned dam; (13) develop a plan for disposal of debris associated with project operation; (14) file any plans for project maintenance or repair work; (15) allow public access to project land for utilization of public resources; (16) file a recreation plan; (17) design and implement erosion control measures; and (18) allow Vermont to inspect the project area at any time. I discuss some of these conditions below.

Notching of the Abandoned Dam

38. In its water quality certification, Vermont requires that the abandoned mill dam adjacent to the Newport powerhouse be notched (adding a flume, if necessary) or removed to facilitate downstream fish passage. Vermont reasoned that notching this dam would also restore some fish habitat in the bypass reach by eliminating backwater. In the

Final EIS, staff agreed with Vermont's reasoning regarding habitat restoration above the abandoned dam, but concluded that the dam should remain in place to prevent upstream migrating fish from bypassing the recommended trap-and-truck upstream passage facility adjacent to the project powerhouse and continue up into the bypass reach. Notching of the dam would cost Citizen's approximately \$4,000.

39. While some upstream migrating salmon may utilize the habitat in the reach created by notching the abandoned dam, I remain concerned about fish that may become trapped in the reach because of the inability to ascend Arnolds Falls.¹⁵ Therefore, I have included article 410 in the license requiring Citizens to consult with the FWS and Vermont, and develop a fish recovery and monitoring plan for the Newport Nos. 1, 2, 3 bypass reach. The plan should be implemented annually whenever the upstream trap-and-truck fish passage facilities are operating and should seek to recover fish that may be stranded at the base of Arnolds Falls or Newport dam. If after 5 years of monitoring, Citizens finds that few, if any, fish are attempting to ascend Arnolds Falls, it may file, for Commission approval, a request to cease implementation of the plan.

Newport Nos. 1, 2, 3 Minimum Bypass Flows

40. Vermont requires that Citizens release a minimum flow of 30 cfs into the Newport Nos. 1, 2, 3 bypass reach. Citizens did not propose a minimum flow for this reach. In the Final EIS, staff analyzed the potential for sustainable fish habitat in this reach and concluded that the reach did not provide the contiguous habitat necessary for rearing or spawning due to the presence of Arnolds Falls and the backwater effects of the abandoned mill dam. Therefore, staff recommended a minimum flow of 5 cfs to maintain water quality in the reach. However, as stated previously, staff also concluded that, if the abandoned mill dam were removed or altered, the reach of river below Arnolds Falls could provide some fish habitat.

41. Vermont altered its Newport Nos. 1, 2, 3 minimum flow regime recommendation considerably since its original 10(j) recommendation¹⁶ and I note that Vermont's

¹⁵ Arnolds Falls is located further upstream of the abandoned dam, approximately half-way up the 1,600 foot bypass reach.

¹⁶ In its 10(j) filing, Vermont recommended that Citizens release a continuous minimum flow to the Newport Nos. 1, 2, 3 bypass equal to the lesser of inflow to Clyde Pond or 150 cfs from April 1 through June 15, 120 cfs from September 15 through

minimum flow of 30 cfs in its water quality certification would cost Citizens approximately \$123,000 less annually than its original 10(j) recommendation. While Vermont's Newport Nos. 1, 2, 3 bypass flow regime would still result in some generation losses costing Citizens \$48,000 annually relative to staff's recommended 5 cfs flow, I conclude that the added value of fish habitat resulting from notching the abandoned dam and the 30 cfs minimum bypass flow is worth the associated generation losses.

West Charleston Minimum Flows

42. Vermont requires that Citizens release a continuous instantaneous minimum flow from the dam to the West Charleston bypass reach of the lesser of inflow or 50 cfs from July 1 through September 30, and 74 cfs for the remainder of the year. In its application, Citizens' recommended flows for this reach were based on the FWS's aquatic base flow methodology.¹⁷ Using this methodology, Citizens consulted with the United States Geological Survey (USGS) in estimating unregulated flow conditions of 46 and 67 cfs in August and February, respectively. However, Vermont did not agree with Citizens' hydrologic analysis and based its West Charleston minimum flow provisions on its own estimates. In the Final EIS, staff indicated that Citizens' and Vermont's minimum flow proposals for this reach were not appreciably different and that both proposals would provide some juvenile fish habitat, support salmon spawning, and limit the potential for fish stranding. Vermont's West Charleston minimum flow regime would cost Citizen's approximately \$44,800 annually.

Flows below the Newport Nos. 1, 2, 3 Powerhouse

43. Vermont requires that Citizens release a continuous minimum flow downstream of the Newport Nos. 1, 2, 3 powerhouse equal to 363 cfs from April 1 through June 7, 100 cfs from June 8 through September 30, 120 cfs from December 16 through March 31, and run-of-river conditions from October 1 through December 15. In the Final EIS, staff agreed with all aspects of the flow regime except run-of-river operation from October 1 through December 15. However, staff noted that its October to December flow recommendation of 150 cfs closely approximates the seasonal run-of-river conditions.

December 31, 120 cfs from January 1 through March 31, and 100 cfs from June 16 through September 14.

¹⁷ The aquatic base flow methodology uses basin-wide flow information to determine a median daily unregulated flow for February and August. The assumption behind this methodology is that, in the absence of habitat-based information, these estimates would represent flows needed to protect aquatic habitat.

Regardless of this difference, staff concluded that this flow regime would maintain aquatic habitat necessary for walleye and salmon passage and spawning and would provide potential habitat for the establishment of a steelhead fishery. Vermont's minimum flow regime would cost Citizens approximately \$171,000 annually.

Clyde Pond Water Levels

44. Vermont requires that Clyde Pond be maintained with a one-foot fluctuation of the reservoir level from December 16 through July 15; a two-foot fluctuation from July 16 through September 30; and no fluctuations from October 1 through December 15. Vermont also requires that these operating ranges be measured relative to the dam crest.

45. In the Final EIS, staff suggested that restricting reservoir fluctuations to 1 foot in the spring, from April 1 to July 15, would protect walleye spawning. Vermont's two-foot fluctuation from July 16 through September 30 would afford Citizens some operational flexibility. Vermont's requirement of no Clyde Pond fluctuations in the fall is consistent with its proposed run-of-river requirement for the Newport Nos. 1, 2, 3 powerhouse necessary to protect downstream aquatic habitat. Vermont's Clyde Pond water level restrictions would cost Citizens approximately \$494,000 annually.

46. I have some dam safety concerns regarding the effect of Vermont's project reservoir level restrictions. Historically, Clyde Pond has operated under a maximum operational drawdown of 11 feet 2 inches, with a maximum maintenance drawdown of an additional 6 feet. In addition, the West Charleston pond, Seymour Lake, and Echo Pond have been historically drawn down. The water quality certification limits the Clyde Pond operational drawdown to 2 feet and requires stable water elevations at the others. These limited drawdowns will decrease the ponds' storage capacity, resulting in an increase over prior years in the duration of high water-surface elevations. This may, in turn, increase the likelihood the dams' embankment will be overtopped when passing flood flows. Therefore, article 305 requires the licensee to prepare a report describing the effects of limiting Clyde Pond, West Charleston, Seymour Lake, and Echo Pond drawdowns on upstream flooding and overtopping the embankment. Article 305 also precludes Citizens from implementing the water level scenarios described for Clyde Pond, West Charleston, Seymour Lake, and Echo Pond in the water quality certification until the Division of Dam Safety and Inspection's New York Regional Engineer determines that the altered project operations have no adverse impact on project safety and issues a letter indicating such.

Fish Passage at the Newport Development

47. Vermont requires that both upstream and downstream fish passage would be provided at the Newport development. A downstream passage facility would be constructed at Newport dam to pass fish from Clyde Pond to the Newport 1, 2, 3 tailrace. In its Final EIS, staff agreed with the need for downstream fish passage and recommended a passage flow of 15 cfs to provide the necessary attraction flow. Article 412 requires this operational flow for the downstream fish passage facility and requires Commission approval of functional design drawings to ensure safe passage of fish without injury.

48. Regarding upstream fish passage, Vermont requires construction of a trap and truck facility at the Newport Nos. 1, 2, 3 powerhouse. In the Final EIS, staff agreed that a trap and truck facility was the only reasonable option to ensure upstream passage past Newport dam to Clyde Pond. Finally, Vermont would require fish passage effectiveness monitoring. I agree with this water quality provision as well to ensure that the facilities are achieving the desired objectives.

49. I conclude that upstream and downstream fish passage facilities are necessary in order to restore the Atlantic salmon fishery in the Clyde River and to make use of available upstream habitat.¹⁸ Re-establishing this fishery will also be important to local and regional recreation and the local economy. The annual cost of all these measures, including operation and maintenance is about \$42,100.

HISTORIC PROPERTIES UNDER THE NATIONAL HISTORIC PRESERVATION ACT

50. Section 106 of the National Historic Preservation Act requires the Commission to take into account the effects that a new license may have on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. As part of a new license application for this project, a cultural resources inventory was conducted by Citizens to identify existing and potential historic properties within the project area, and a number of prehistoric and historic archeological sites, and elements of the hydropower facilities, were identified. The inventory and staff's analysis also

¹⁸ Staff concluded that the reach of the Clyde River above Clyde Pond includes about 80 percent of the available Atlantic salmon spawning and nursery habitat in the Clyde River.

determined that there were existing and potential future project-related adverse effects that may occur on historic properties within the project area. As a result, and in order to fulfill the requirements under Section 106, the Commission executed a Programmatic Agreement (PA) with the Advisory Council on Historic Preservation and the Vermont State Historic Preservation Officer to have Citizens file for the Commission's approval a final Cultural Resources Management Plan within one year of a license issuance for this project. Article 419 of the license requires implementation of the PA.

OTHER ISSUES

Recreation

51. To improve recreation resources in the region, article 416 of the license requires that Citizens file a recreation plan. In addition to the recreational enhancements proposed by Citizens, article 416 requires that the plan include provisions for: a canoe put-in/take-out, a picnic/day use area, and parking for 12 vehicles at the Newport Nos. 1, 2, 3 dam; grading and maintaining an existing unimproved access road to Clyde Pond; access to lands designated as nature conservation areas adjacent to Clyde Pond; interpretative signs, directional signs, and fencing for safety at project facilities; a campsite at the West Charleston Development; a Clyde River recreation pamphlet; an angler access point and canoe/boat put-in and a parking area adjacent to the tailrace at the Newport Nos. 1, 2, 3 Development; and a phone number for information on existing and future flows in the lower stretch of the Clyde River. Staff estimates that these recreational measures would cost approximately \$2,500 annually. Finally, I note that Condition Q of Vermont's water quality certification would also require some recreational enhancements.

Newport No. 11 Dam Removal

52. On or about May 1, 1993, the project's Newport No. 11 dam was breached in an unusual high water event. The breach involved failure and significant erosion of the steeply sloped right embankment adjacent to the dam. On July 19, 1994 the Commission ordered Citizens to repair the dam and stabilize the adjacent river embankment.¹⁹ However, Vermont and the VNRC opposed the repair of the dam. On July 26, 1996, the Commission approved a consensus-based plan by Citizens to stabilize the embankment

¹⁹ Letter from J. Mark Robinson, Director, Division of Project Compliance and Administration, to James P. Avery, Vice President, Citizens Utility Company, dated July 19, 1994.

and remove the Newport No. 11 Dam and some associated appurtenant facilities.²⁰ Citizens completed dam removal and embankment stabilization and remediation in May 2000.²¹

53. In the Final EIS, staff examined the environmental effects of the Newport No. 11 dam removal.²² Staff concluded that removal of the dam would have significant benefits to local resources and to the public. Specifically, staff concluded that dam removal would result in increases in available fish spawning and rearing habitat and would greatly benefit recreational boating and fishing. Although removal of the Newport No. 11 dam cost \$253,000 in lost generation and capacity, I agree with staff that the environmental benefits outweigh these costs and will not order that the Newport No. 11 dam be rebuilt under the new license.²³ Article 307 of the license requires that Citizens file a plan for the disposition of the retired Newport No. 11 powerhouse, penstock, and intake structure.

Proposed Amendments to Existing License

54. On June 16, 1999, Citizens filed an application to amend its existing license in order to repair deteriorating concrete and seepage at the Seymour Lake dam and Echo Lake dam and to make structural modifications to enable the spillways to be used to help

²⁰ Letter from J. Mark Robinson, Director, Division of Project Compliance and Administration, to James P. Avery, Vice President, Citizens Utility Company. Vermont, FWS, the Environmental Protection Agency, the U.S. Army Corps of Engineers, TU, and VNRC all agreed with Citizens' plan for Newport No. 11 dam removal and embankment stabilization.

²¹ Letter from Kevin W. Perry, Citizens Utilities to Anton J. Sidoti, Director, New York Regional Office, dated June 7, 2000.

²² Because the issue of Newport No. 11 dam removal was unresolved at the time of final EIS preparation, the staff used as a baseline the dam as it existed in place prior to the breach, with the adjacent slope stabilized.

²³ In the Final EIS, staff also examined an alternative to remove the Newport No. 11 dam but repower the Newport No. 11 powerhouse by constructing a penstock from the Newport 1, 2, 3 tailrace to the Newport No. 11 canal. Staff did not include repowering in its preferred alternative as it concluded that repowering was not cost-effective and would limit recreational boating in the Clyde River below the Newport 1,2,3 powerhouse. I agree with staff regarding repowering the Newport No. 11 powerhouse.

regulate lake levels.²⁴ The application was noticed on July 19, 1999.²⁵ Motions to intervene were filed by Vermont, Interior, and TU. Interior and TU opposed the application.²⁶ Comments were filed by the Seymour Lake Association (Seymour Association), Salem Lakes Association (Salem Association), and Mr. Ronald Kolar.²⁷

55. In its amendment application, Citizens proposed to modify Seymour dam by lowering the spillway four inches to facilitate run-of-river operations. This proposal is identical to the proposal set forth by Citizens in its license application.²⁸ For this reason, I address this issue in the context of a new license which will render Citizens' amendment application of its existing license moot (see ordering paragraph (E)).

²⁴ Citizens' proposal would lower the Echo Lake dam crest eight inches from the existing crest to 1,248.33 feet msl. The remediation work at Echo was determined to be maintenance work pursuant to the Commission's regulations at 18 C.F.R. Part 12 pertaining to dam safety that does not require a license amendment. To maintain lake levels required by the current license, Citizens installed temporary flashboards. Citizens' plans and specifications, quality control and inspection program, temporary emergency action plan, and erosion and sediment control plan for the work were approved by the Commission's Division of Dam Safety and Inspections. Letter from Daniel Mahoney, Acting Director, New York Regional Office, to Kevin Perry, Citizens Utilities, dated August 6, 1999.

²⁵ 64 Fed. Reg. 39,976 (July 23, 1999).

²⁶ Neither Interior nor TU opposes the amendment proposal on its merits. They contend that the application amounts to "piecemealing" the relicensing proceeding. I agree, therefore, I am considering Citizens' amendment request in the context of this proceeding.

²⁷ The Seymour Association expressed concerns with the effects of dam alterations on Seymour Lake, the Salem Association expressed concern with the effects on the downstream Salem Pond, and Ronald Kolar expressed concern regarding the spillway extending onto his personal property. Regarding the latter, article 306 requires that Citizens demonstrate that it has the necessary property rights to complete its proposed dam alterations.

²⁸ Citizens indicated that it filed its amendment application to coincide with planned dam repairs.

56. In the Final EIS, staff concluded that lowering the Seymour Lake dam spillway, as proposed by Citizens would not result in meaningful changes in downstream flow conditions and would reduce the weekly and daily fluctuations in flows and lake elevations. However, since issuance of the Final EIS, Vermont suggests in its water quality certification that Citizens has altered its proposal for Seymour Lake dam. Vermont indicated that, in addition to lowering the spillway, Citizens would lengthen the dam crest from 30.6 feet to 52.0 feet and modify the existing gate bay with a bulkhead with sill elevation of 1275.0 feet msl. Citizens has not filed any information with the Commission indicating a change in its original proposal for modifying Seymour dam.

57. Condition H of the water quality certification requires that Citizens develop a plan for the replacement of Seymour Lake dam. Article 306 requires that Citizens consult with Vermont, FWS, Seymour Association, and Salem Association and file a plan for Seymour Lake dam alterations with the Commission. At that time, I will address the concerns of the commenters regarding the effects on the Seymour Lake shoreline, downstream aquatic habitat, and the structural integrity of the existing dam. Article 306 also states that Citizens not initiate dam remediation until final approval by the Commission.

Other Environmental Measures

58. Based on staff recommendations in the Final EIS and/or requirements in Vermont's water quality certification, I am also including provisions for: (1) run-of-river operations and minimum flows for the Seymour Lake and Echo Pond Developments (articles 404 and 406, respectively); (2) erosion monitoring (article 405); (3) water level and flow monitoring (article 407); (4) a flow management plan (article 408); (5) monitoring fish passage effectiveness (articles 411 and 413); (6) a debris disposal plan (article 414); (7) design drawings of West Charleston proposed trashrack (article 417); (8) design drawings of modified culverts for fish passage (article 418); (9) a wildlife management plan (article 421); (10) a landscape management plan (article 422) and; (11) a plan for historical documentation of the West Charleston powerhouse (article 423).

STATE AND FEDERAL COMPREHENSIVE PLANS

59. Section 10(a)(2)(A) of the FPA²⁹ requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving,

²⁹ 16 U.S.C. § 803(a)(2)(A).

developing, or conserving a waterway or waterways affected by the project.³⁰ Under Section 10(a)(2)(A), federal and state agencies filed a total of 28 comprehensive plans that address various resources in Vermont. Of these, the staff identified and reviewed twelve plans that are relevant to this project.³¹ No conflicts were found.

COMPREHENSIVE DEVELOPMENT

60. In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in Mead Corp.,³² the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power, with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic 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

³⁰Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2003).

³¹ These plans are: (1) "North American Wildlife Management Plan," 1986, U.S. Fish and Wildlife Service; (2) "North American Waterfowl Management Plan," 1986, U.S. Fish and Wildlife Service; (3) "Final Environmental Impact Statement - Atlantic Salmon Restoration to New England Rivers," 1989, U.S. Fish and Wildlife Service; (4) "Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service," undated, U.S. Fish and Wildlife Service; (5) "The Nationwide Rivers Inventory," 1982, National Park Service; (6) "The Waterfalls, Cascades, and Gorges of Vermont," 1986, Vermont Agency of Natural Resources; (7) "Vermont State Comprehensive Outdoor Recreation Plan, 1983-1988," Vermont Agency of Environmental Conservation; (8) "Vermont Rivers Study," 1986, Vermont Agency of Environmental Conservation; (9) "Clyde River Futures Project Final Report," 1992, Vermont Department of Environmental Conservation; (10) "Hydropower in Vermont: An Assessment of Environmental Problems and Opportunities," 1988, Vermont Agency of Natural Resources; (11) "Vermont Recreation Plan," 1988, Vermont Agency of Natural Resources and; (12) "Wetlands Component of the 1988 Vermont Recreation Plan," 1988, Vermont Agency of Natural Resources.

³²72 FERC ¶ 61,207 (1995).

license. In making its decision, the Commission considers the project power benefits both with the applicant's proposed mitigation and enhancement measures and with the Commission's modifications and additions to the applicant's proposal. Ultimately, the licensee must make the business decision whether or not to accept the license.

61. Under Citizens' proposal, the project would have an average annual generation of 20.21 GWh at an annual cost of \$1,080,000 or 53.5 mills per kilowatt-hour (mills/kWh). Based on the cost of replacing the project power with natural gas fueled combustion turbines, which the Commission staff considers to be the most likely alternative power source for this project, the staff determined that the current annual value of the project's power would be about \$1,023,000 or 50.6 mills/kWh. To determine whether the proposed project is currently economically beneficial, staff subtracts the project's cost from the value of the project's power. Thus, based on current costs, the project would have negative economic benefits over the new license term, costing about \$57,000 or 2.9 mills/kWh more than the current cost of alternative power.

62. As proposed by Citizens with staff's additional measures and environmental measures in the water quality certification, the proposed project would produce an average of 16.54 GWh of energy annually at an annual cost of about \$1,156,000 or 69.9 mills per kilowatt-hour (mills/kWh). Staff determined that the current annual value of the project's power would be about \$637,000 or 38.5 mills/kWh. Thus, based on current costs, the project would have negative economic benefits over the new license term, costing about \$519,000 or 31.4 mills/kWh more than the current cost of alternative power.

63. Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. 797(e) and 803(a)(1), require the Commission, in acting on applications for license, to give equal consideration to the power and 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 in the Commission's judgment 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. Based on the record in this proceeding, I conclude that the Clyde River Project, with the conditions attached to this license, does not conflict with any planned or authorized development and is best adapted to comprehensive development of the waterway for beneficial public uses.

LICENSE TERM

64. Section 15(e) of the FPA³³ specifies that any new license issued shall be for a term which the Commission determines to be in the public interest, but not less than 30 years or more than 50 years from the date on which the license is issued. The Commission's policy establishes 30-year terms for projects with little or no proposed redevelopment, new construction, new capacity, or environmental mitigation and enhancement measures; 40-year terms for projects with a moderate amount thereof; and 50-year terms for projects with an extensive amount thereof.

65. The new license for the Clyde River Project requires a moderate amount of construction and environmental mitigation and enhancement measures, and I am therefore issuing the new license for the Clyde River Project for a 40-year term.

SUMMARY OF FINDINGS

66. The Final EIS contains background information, analysis of effects, and the support for related license articles. The design of this project is consistent with the engineering standards governing dam safety. The project would be safe if operated and maintained in accordance with the requirements of this license.

67. Based upon a review of the agency and public comments filed on the project, and the staff's independent analysis pursuant to Sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, I conclude that issuing a license for the Clyde River Project, with the required environmental measures and other special license conditions, will be best adapted to the comprehensive development of the Clyde River for beneficial public uses.

The Commission orders:

(A) This license is issued to Citizens Utilities Company (the licensee) for a period of 40 years, effective the first day of the month in which it is issued to operate and maintain the Clyde River Project. This license is subject to the terms and conditions of the Federal Power Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Federal Power Act.

³³16 U.S.C. § 808.

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(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 Exhibit G:

<u>Exhibit G Drawing</u>	<u>FERC No. 2306-</u>	<u>Description</u>
1 and 2	1001	Clyde Pond to Newport
3	1002	West Charleston Pond
4A	1003	Echo Pond and Seymour Lake
4B	1004	Seymour Lake

(2) The Clyde River Hydroelectric Project consists of two hydroelectric generating developments on the Clyde River and two storage impoundments located on a tributary to the Clyde River.

Newport Nos. 1, 2, 3 Development

The Newport Nos. 1, 2, 3 Development (Newport Nos. 1, 2, 3) consists of: (1) a 713-foot-long, 22-foot-high masonry dam consisting of (a) a 324-foot-long uncontrolled spillway section, (b) an earthen section on each side of the dam with an upstream-face concrete retaining wall about 347.5 feet long, (c) concrete abutments about 41.5 feet in length, (d) flashboards 15 inches in height, (e) two 5.5-foot by 4-foot sluice gates, and (f) an intake structure consisting of a 21-foot by 12-foot forebay which extends to a 6-foot-diameter headgate; (2) two reinforced concrete and brick powerhouses: (a) for Units 1 and 2, 50 feet long, 34 feet wide, and 20 feet high, housing two vertical Allis Chalmers-Francis turbines each connected to General Electric generators rated at 1,700 KW each, and (b) for Unit 3, 37 feet long, 29 feet wide, and 13 feet high, housing one horizontal S. Morgan Smith turbine connected to a General Electric generator rated at 600 kW; (3) one 6-foot-diameter steel penstock, extending for 80 feet from the dam, at which point it bifurcates into separate 6-foot and 5-foot-diameter penstocks, extending 2,175 feet and 1,800 feet, respectively; (4) a 4.5-foot-diameter pipe connecting the two penstocks to a 6-foot-diameter surge tower; (5) a wood-framed, clapboard-sided gatehouse 24 feet long, 13 feet wide, and 12 feet high; (6) a 200-acre impoundment with a usable storage of 2,400 acre-feet (Clyde Pond); and (7) appurtenant facilities.

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West Charleston Development

The West Charleston Development consists of: (1) a 196.3-foot-long, 28-foot-high masonry dam consisting of (a) a 107.3-foot-long uncontrolled spillway section, (b) a single 19-foot square forebay extending to a 6-foot- and an 8-foot-diameter headgate, (c) a 6-foot-diameter sluice gate which has been plugged with concrete and capped, and (d) flashboards 18 inches in height; (2) a reinforced concrete and brick powerhouse 64 feet long, 19 feet wide, and 15 feet high, housing one horizontal twin runner S. Morgan Smith-Francis turbine connected to a General Electric generator rated at 800 kW; (3) one 6-foot-diameter steel penstock, extending for 1,622 feet from the dam; (4) a wood-framed, clapboard-sided structure, 26 feet long, 23 feet wide, and 17 feet high; (5) a 40-acre impoundment with a usable storage of 220 acre-feet; and (6) appurtenant facilities.

Echo Pond Dam

Echo Pond dam consists of: Echo Pond dam consists of: (1) a 72.5-foot-long concrete spillway with a crest elevation of 1,248.33 feet topped with flashboards varying in height from 8 inches to 14 inches; (2) a gate control structure with one slide gate controlled outlet pipe; and (3) appurtenant facilities.

Seymour Lake Dam

Seymour Lake dam consists of: (1) a 43-foot-long, 5-foot-high rock-filled, timber crib-type dam consisting of (a) a 30.6-foot-long uncontrolled spillway section, (b) a five-foot by 4.3-foot sluice gate, and (c) six-inch flashboards; (2) a 1,750-acre impoundment with a usable storage of 2,040 acre-feet; and (3) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following sections of Exhibit A filed on December 31, 1991:

Newport Development project works on pages A-3 through A-5; West Charleston Development project works on pages A-6 and A-7; Echo Pond dam project works on pages A-9 and A-10; and Seymour Lake dam project works on page A-11.

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Exhibit F: The following Exhibit F drawings, filed on December 31, 1991:

<u>Exhibit F</u>	<u>FERC No. 2306-</u>	<u>Showing</u>
1	1005	Newport dam for Unit No. 11 & Units 1,2,3
1A	1006	Newport dam, Spillway Anchors
1B	1007	Newport dam, Intake Anchors
1C	1008	Newport dam, Concrete Paving
1D	1009	Newport dam, New Retaining Wall
2	1010	West Charleston dam
3	1011	Echo and Seymour Dams
5	1012	Powerhouse, Newport Unit Nos. 1 and 2
6	1013	Powerhouse, Newport Unit Nos. 3
7	1014	West Charleston 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) The Exhibits A, F and G described above are approved and made part of the license.

(D) This license is subject to the water quality certification conditions applicable to the Clyde River Project No. 2306 submitted by the State of Vermont Agency of Natural Resources and Water Resources Board pursuant to Section 401(a) of the Clean Water Act, as those conditions are set forth in the Appendix to this order.

(E) The amendment application filed by Citizens Utilities on June 16, 1999, is dismissed as moot.

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(F) This license is subject to the articles set forth in Form L-3, (October 1975), entitled, "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. For the purposes of reimbursing the United States for the Commission's administrative costs, pursuant to 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 4,800 kilowatts. This annual charge shall be effective as of the first day of the month in which this license is issued.

Article 202. Pursuant to Section 10(d) of the Federal Power Act, 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 reserve 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 included 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 two years from the date of issuance of this order, the licensee shall file, for Commission approval, revised Exhibits A, F, and G drawings, prepared in accordance with 18 C.F.R. § 4.39 and 4.61(a), (e) and (f), showing current conditions of the project after implementation of all enhancements and modifications contained in the

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license. The licensee shall file six copies with the Commission, one copy to the Division of Dam Safety and Inspections, New York Regional Engineer, and one copy to the Director Division of Hydropower Administration and Compliance, Office of Energy Projects.

Article 204. Within 45 days of the date of issuance of this license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Drawing Number (e.g., P-2306-1001 through P-2306-1014) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall 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 this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office.

b) The licensee shall file two separate sets of exhibit drawings in electronic format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office. Each drawing must be a separate electronic file, and the file name shall include: FERC Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension [e.g., P-2306-1001, G-1, Project Boundary, 11-04-2003.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
 FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
 RESOLUTION – 300 dpi
 DRAWING SIZE FORMAT – 24" X 36" (min), 28" X 40" (max)
 FILE SIZE – less than 1 MB

c) The licensee shall file three separate sets of the project boundary data in a geo-referenced electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or any similar format) with the Secretary of the Commission, ATTN: OEP/DHAC. The file name shall include: FERC Project Number, data description, date of this license, and file extension [e.g., P-2306-1001, boundary vector data, 11-04-2003.SHP]. The geo-

referenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale, and contain all reference points shown on the individual project boundary drawings. The latitude and longitude coordinates, or state plane coordinates of each reference point must be shown. The data must include a separate text file describing the map projection used (i.e., UTM, State Plane, Decimal Degrees, etc), the map datum (i.e., North American 27, North American 83, etc.), and the units of measurement (i.e., feet, meters, miles, etc.). The text file name shall include: FERC Project Number, data description, date of this license, and file extension [e.g., P-2306-1001, boundary metadata, 11-04-2003.TXT].

Article 205. If the licensee's project was directly benefited 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 license.

Article 301. At least 60 days before starting any license-related construction activities, including, but not limited to, modifications to Seymour Lake dam, installation of fish passage facilities, installation of minimum flow gates, and removal of project features, the licensee shall submit one copy to the Division of Dam Safety and Inspections – New York Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of a supporting design report and final contract plans and specifications. The Commission may require changes to the plans and specifications to assure the work is completed in a safe and environmentally sound manner. Construction may not commence until authorized by the Regional Engineer.

Article 302. At least 60 days before starting any license-related construction activities, including, but not limited to, modifications to Seymour Lake dam, installation of fish passage facilities, installation of minimum flow gates, and removal of project features, the licensee shall submit one copy to the Division of Dam Safety and Inspections – New York Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the Quality Control and Inspection Program (QCIP) for the Commission's review and approval. The QCIP shall also include a sediment and erosion control plan required by article 403.

Article 303. Before starting construction, including, but not limited to, modifications to Seymour Lake dam, installation of fish passage facilities, installation of minimum flow gates, and removal of project features, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations. At least 30 days before starting construction of the cofferdams, the licensee shall submit one copy to the Division of Dam Safety and Inspections – New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the approved cofferdam construction drawings and specifications and the letters of approval.

Article 304. At least 60 days before starting construction, including, but not limited to, modifications to Seymour Lake dam, installation of fish passage facilities, installation of minimum flow gates, and removal of project features, the licensee shall submit one copy to the Division of Dam Safety and Inspections – New York Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the Temporary Emergency Action Plan (TEAP) for the Commission's review and approval. The TEAP shall describe emergency procedures in case failure of a cofferdam, large sediment control structure, or any other water retaining structure could endanger construction workers or the public. The TEAP shall include a notification list of emergency response agencies, a plan drawing of the proposed cofferdam arrangement, the location of safety devices and escape routes, and a brief description of testing procedures.

Article 305. Within 60 days of the date of this license, the licensee shall submit one copy to the Division of Dam Safety and Inspections - New York Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of a report describing the effects of limiting reservoir drawdowns on upstream flooding and the potential for overtopping the earth embankment and abutments at West Charleston, Seymour Lake, Echo Pond, and Clyde Pond.

The report should include a flood routing study that evaluates the ability of the developments to safely pass flows up to the Inflow Design Flood. The frequency that the earth embankment would be overtopped under the historical and limited drawdowns should be compared. If necessary, the report should include a plan and schedule for performing any remedial measures necessary to ensure the continued safe operation of the developments during high flows. The foundation materials of the embankment subject to overtopping should be assessed for erodibility. Based on the results of the assessment, the dambreak parameters assumed for determining the hazard potential

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classification of the structures should be verified and, if necessary, additional dambreak analysis performed and submitted to confirm the hazard potential classification.

The licensee shall not implement the water level scenarios described in Condition B of the appendix to this order until the Division of Dam Safety and Inspections' New York Regional Engineer determines that these altered project operations have no adverse impact of project safety and issues a letter indicating such.

Article 306. Within six months of license issuance, the licensee shall file, for Commission approval, detailed design drawings for the licensee's proposed alterations to the Seymour Lake dam, a schedule to construct and install the facilities, and demonstration that it has the necessary property rights to complete the alterations.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U.S. Fish and Wildlife Service, the Vermont Agency of Natural Resources, the Seymour Lake Association, and the Salem Lake Association . The licensee shall include with the drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule 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 facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 307. Within six months of license issuance, the licensee shall file, for Commission approval, a plan for the disposition of the retired Newport No. 11 powerhouse, penstock and intake structure. The plan shall include:

- (1) A description of the disposition of the aforementioned structures and of measures to ensure public safety;
- (2) A schedule for implementation;
- (3) Detailed design drawings showing the planned disposition; and

(4) Disposition of removed materials and equipment.

The licensee shall prepare the plan after consultation with the Vermont Agency of Natural Resources.

The licensee shall include with the plan documentation of consultation, 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 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 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.

Article 308. Within 120 days of license issuance, the licensee shall file, for Commission approval, detailed operating plans and design drawings of West Charleston Dam to release required minimum flows. Consistent with Condition D of the appendix to this order, the plan shall include, but not be limited to, a schedule to construct and install the facilities, plans for an automated gate to maintain run-of-river conditions below the dam during unexpected turbine shut-downs, and plans for periodic testing and maintenance of the automated gate.

The licensee shall prepare the aforementioned plans, drawings, and schedule after consultation with the U.S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the operating plans and drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the operating plans and drawings and schedule 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 modification and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 309. Within 90 days of license issuance, the licensee shall notify the Commission that it has permanently removed the flashboards from the West Charleston Dam as set forth in Condition B of the appendix to this order.

Article 310. Within 120 days of license issuance, the licensee shall file, for Commission approval, operating plans and detailed design drawings of an emergency minimum flow release structure at the Newport Nos. 1, 2, 3 powerhouse, consistent with Condition D of the appendix to this order, together with a schedule to construct/ install the facilities.

The licensee shall prepare the aforementioned operating plans, drawings, and schedule after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the operating plans and drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the operating plans and drawings and schedule 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 facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 311. Within six months of license issuance, the licensee shall file, for Commission approval, a plan and a schedule for repairing the West Charleston Development penstock and generating system including modifications necessary to provide reliable and efficient run-of-river operations. The licensee shall prepare the plan in consultation with the Vermont Agency of Natural Resources.

The licensee shall include with the plan documentation of consultation, 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 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

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The licensee shall submit six copies of the plan to the Commission, one copy shall be filed with the Director Division of Hydropower Administration and Compliance and the Commissions New York Regional Director and five copies with the Secretary of the Commission.

Article 312. Within six months of license issuance, the licensee shall file, for Commission approval, operating plans and detailed design drawings of a minimum flow release structure at the Newport dam, consistent with Condition D of the appendix to this order, together with a schedule to construct and install the facilities.

The licensee shall prepare the aforementioned operating plans, drawings, and schedule after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the operating plans and drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the operating plans and drawings and schedule 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 facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 313. The licensee shall, at least 90 days prior to the start of construction, submit one copy to the Commission's Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of the final contract drawings, specifications, and schedule for the notching or removal of the remnant dam next to Newport Nos. 1, 2, 3 and the addition of the flume (if necessary), as set forth in Condition M of the appendix to this order. The Commission may require changes in the plans and specifications to assure a safe and adequate project.

Article 401. The licensee shall operate the West Charleston Development in accordance with Table A from Condition B of the appendix to this order, except as allowed in Condition C of the same appendix and subject to the determination of the New York Regional Engineer as specified in article 305.

Flows and run-of-river operations may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Vermont Agency of Natural Resources. 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.

Article 402. The licensee shall operate the Newport Nos. 1, 2, 3 development in accordance with Table B from Condition B of the appendix to this order, except as allowed in Condition C of the same appendix and subject to the determination of the New York Regional Engineer as specified in article 305.

The minimum flow, and the maximum change in reservoir drawdown, may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Vermont Agency of Natural Resources. If the flow or reservoir drawdown is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 403. At least 90 days prior to the start of any land-disturbing or land-clearing activities associated with the construction of recreation facilities, fishways, or other activities required by this license, the licensee shall file, for Commission approval, a plan to control erosion and to minimize the quantity of sediment resulting from project construction and operation.

The plan shall be based on the actual-site geological, soil, and groundwater conditions and on project design, and shall include at a minimum, the following four items: (1) a description of actual site conditions; (2) measures proposed to control erosion and to minimize the quantity of sediment resulting from project construction and operation; (3) detailed descriptions, functional design drawings, and specific topographic locations of all control measures; and (4) a specific implementation schedule and details for monitoring and maintenance programs for project construction and operation.

The licensee shall prepare the plan after consultation with the Natural Resources Conservation Service and the Vermont Agency of Natural Resources.

The licensee shall include with the plan documentation of consultation, 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 before filing the plan with the

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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.

Article 404. The licensee shall operate Seymour Lake dam as set forth in Condition B of the appendix to this order, except as allowed in Conditions C and H of the same appendix and subject to the determination of the New York Regional Engineer as specified in article 305.

Run-of-river operation and minimum flows may be temporarily modified if required by the operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Vermont Agency of Natural Resources. If the project's operation or flows are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 405. Within six months of license issuance, the licensee shall file, for Commission approval, a plan to monitor erosion of the river banks from the Newport Nos. 1, 2, 3 dam to Lake Memphremagog. The plan shall include, at a minimum, the following: (1) the establishment of a baseline against which to evaluate changes; (2) the methods to be used in monitoring; (3) the frequency of monitoring; (4) the information to be reported annually to the Commission and Vermont Agency of Natural Resources; (5) procedures to be used in determining the cause of any erosion noted; and (6) steps to be taken in mitigating erosion caused by plant operation.

The licensee shall prepare the plan after consultation with the Natural Resources Conservation Service and the Vermont Agency of Natural Resources.

The licensee shall include with the plan documentation of consultation, 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 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.

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The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 406. The licensee shall operate Echo Lake dam as set forth in Condition B of the appendix to this order, except as allowed in Conditions C of the same appendix and subject to the determination of the New York Regional Engineer as specified in article 305.

Run-of-river operation and minimum flows may be temporarily modified if required by the operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Vermont Agency of Natural Resources. If the project's operation or flows are so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 407. Within 90 days of the date of license issuance, the licensee shall file, for Commission approval, a plan to monitor flows and water levels at West Charleston, Newport Nos. 1, 2, 3 Developments, and Seymour and Echo Lake dams. These plans shall be developed in a manner consistent with, and including the information outlined in Condition E, F, and G in the appendix to this order.

The monitoring plan shall also include a schedule for: (1) implementation of the monitoring program; (2) consultation with the appropriate federal and state agencies concerning the results of the monitoring; and (3) filing the results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the U. S. Geological Service, the U. S. Fish and Wildlife Service, and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it had be 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. 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 plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 408. Within 120 days of license issuance, the licensee shall file, for Commission approval, a flow management plan for the project, detailing how the project will be operated to comply with the conservation flow and impoundment fluctuation limitations set forth in Condition B of the appendix to this order. The flow management plan shall be developed in accordance with Condition D of the appendix to this order.

The monitoring plan shall also include a schedule for: (1) implementation of the monitoring program; (2) consultation with the appropriate federal and state agencies concerning the results of the monitoring; and (3) filing the results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the U. S. Geological Service, the U. S. Fish and Wildlife Service, and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it had be 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. The plan shall be approved by Vermont Agency of Natural Resources, prior to filing 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 plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 409. Within six months of license issuance, the licensee shall file, for Commission approval, detailed design drawings of upstream fish passage facilities at the Newport Nos. 1, 2, 3 powerhouse together with a schedule to construct/install the facilities. These facilities shall be designed in accordance with Condition L of the appendix to this order.

In addition to items one through six in Condition L, the drawings shall include, at a minimum, the following items: (1) detailed design of a fish trap and sorting facility at the Newport Nos. 1, 2, 3 tailrace; (2) identification of the specific location, and documentation of hydraulic conditions at the fishway entrance; (3) specifications for the transport tanker truck and description of compatibility with the trap and sort facility; (4) design and location of the fish tanker access road to the trap and sort facility; (5) identification and description of suitable tanker truck discharge locations in Clyde Pond and in the Clyde River between Clyde Pond and the West Charleston tailrace; (6) the

proposed daily operating procedures and lifting/trucking frequency; and (7) a schedule for installing the facilities and filing as-built drawings.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule 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 facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 410. Within six months of license issuance, the licensee shall file, for Commission approval, a fish recovery and monitoring plan for the Newport Nos. 1, 2, 3 bypass reach to recover fish that may be stranded at the base of Arnolds Falls or Newport Dam. The plan shall be implemented annually whenever the upstream trap-and-truck fish passage facilities are operating. If after 5 years of monitoring, Citizens finds that few, if any, fish are attempting to ascend Arnolds Falls, it may file, for Commission approval, a request to cease implementation of the plan, after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources.

The licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the plan after they have 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 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 plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 411. Within 18 months of license issuance, the licensee shall file, for Commission approval, a plan to monitor the effectiveness of the upstream fish passage facilities. The monitoring plan shall include, but not be limited to, the following:

- (1) An assessment of the effectiveness of the trap and truck fish passage facilities, including documentation of any observed fish mortality associated with the fish passage facility;
- (2) an assessment of the suitability of each of the proposed fish trucking discharge locations in Clyde Pond and in the reach of the Clyde River between the West Charleston tailrace and Clyde Pond;
- (3) An assessment of the use of the passage facility by salmonids and walleye; and
- (4) A schedule for implementing the plan and for filing the results of monitoring, agency comments, and the licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, 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 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 plan. Operation of the trap and truck facilities shall not 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.

If the results of the monitoring indicate that changes in project structures or operations, including alternative flow releases, are necessary to protect fish resources, the Commission may direct the licensee to modify project structures or operations.

Article 412. Within six months of license issuance, the licensee shall file, for Commission approval, a plan for downstream fish passage at the Newport Nos. 1, 2, 3 dam, together with a schedule to construct and install the facilities. These fish passage facilities shall be designed and operated in accordance with Condition M of the appendix to this order and shall be operated with a minimum attraction flow of 15 cfs.

In addition to items one through five in Condition M, the drawings shall include, at a minimum, the following items: (1) functional design drawings of the passage facilities; (2) the locations of the fishway entrance and discharge; (3) a description of the methods and schedules for installing the passage facilities and filing as-built drawings and; (4) operating and maintenance plans.

The licensee shall prepare the aforementioned plan after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule 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 facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 413. Within 18 months of license issuance, the licensee shall file, for Commission approval, a plan to monitor the effectiveness of the permanent downstream fish passage facilities. The monitoring plan shall include, but not be limited to, the following:

- (1) An assessment of the effectiveness of the downstream fish passage facilities, including documentation of any observed fish mortality associated with the fish passage facility;
- (2) An assessment of the use of the passage facility by salmonids and walleye from April 1 through June 15 and September 15 through December 31; and

- (3) A schedule for implementing the plan and for filing the results of monitoring, agency comments, and the licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the U. S Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, 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 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 plan. Operation of the downstream passage facilities shall not 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.

If the results of the monitoring indicate that changes in project structures or operations, including alternative flow releases, are necessary to protect fish resources, the Commission may direct the licensee to modify project structures or operations.

Article 414. Within 120 days of license issuance, the licensee shall file, for Commission approval, a debris disposal plan in accordance with Condition N of the appendix to this order. The plan shall include, but not be limited to, provisions for removal and disposition of accumulated debris from project log booms and trash racks for the protection of fish and wildlife and preservation of recreation and aesthetic values of the project area.

The plan shall include documentation of consultation, 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 project-specific information.

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The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 415. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior under Section 18 of the Federal Power Act.

Article 416. Within eight months (240 days) of license issuance, the licensee shall file, for Commission approval, a recreation plan developed in accordance with Condition Q of the appendix to this order.

In addition to specific items outlined in Condition Q, the plan shall also include, but not be limited to provisions for: (a) a canoe put-in/take-out, a picnic/day use area, and parking for 12 vehicles at the Newport Nos. 1, 2, 3 dam; (b) grading and maintaining an existing unimproved access road to Clyde Pond; (c) access to lands designated as nature conservation areas adjacent to Clyde Pond; (d) interpretative signs, directional signs, and fencing for safety at project facilities; (e) a campsite at the West Charleston Development; (f) a Clyde River recreation pamphlet; (g) an angler access point and canoe/boat put-in and a parking area adjacent to the tailrace at the Newport Nos. 1, 2, 3 Development; and (h) a phone number for information on existing and future flows in the lower stretch of the Clyde River.

The licensee shall prepare the plan after consulting with the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, 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 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 plan. No construction activities associated with the recreation facilities 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.

Article 417. Within one year of license issuance, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed trashrack

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structure at the West Charleston Development, to reduce the entrainment of resident fish, together with a schedule to install the trashrack, consistent with Condition K of the appendix to this order.

The Commission reserves the right to require changes to the proposed facilities and schedule. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 418. Within one year of license issuance, the licensee shall file, for Commission approval, detailed design drawings of the licensee's proposed design for modification of the culvert on Vermont Route 111 at Twin Culverts brook, together with a schedule to construct/install the facilities. These drawings and schedule shall be developed in accordance with Condition J of the appendix to this order.

The licensee shall prepare the aforementioned drawings and schedule after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the drawings documentation of consultation, copies of comments and recommendations on the drawings and schedule after they have been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the drawings and schedule 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 facilities and schedule. Project operation 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 419. The licensee shall implement the provisions of the "Programmatic Agreement Among the Federal Energy Regulatory Commission, The Advisory Council on Historic Preservation, and the Vermont State Historic Preservation Officer, for Managing Historic Properties that may be Affected by a License Issuing to Citizen Utilities Company for the Continued Operation of the Clyde River Hydroelectric Power Project in Vermont", executed on February 11, 2002. The Commission reserves the authority to require changes to any Cultural Resources Management Plan or plans at any time during the term of the license.

Article 420. Within six months of license issuance, the licensee shall file, for Commission approval, a channel restoration plan to remove and dispose of vegetation in the Newport Nos. 1, 2, 3 bypassed reach and in the reach of river previously bypassed by the Newport No. 11 development. Vegetation removal is necessary to insure effective passage and access to spawning habitat for migratory fish.

The plans should include, at a minimum, the following items: (1) Provisions to minimize duration of flow reductions; (2) a description of methods used to remove vegetation including access provisions for vehicles and equipment; and (3) A schedule for implementation of the plan.

The licensee shall prepare the plan after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, 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 project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 421. Within six months of license issuance, the licensee shall file, for Commission approval, a wildlife habitat management plan.

The plan shall include, but not be limited to:

- (1) Provision of 4.3 acres adjacent to Clyde Pond for beaver habitat;
- (2) Design and installation of waterfowl nest boxes on Clyde Pond;
- (3) A description of the mechanism to be used in setting aside 37 acres for wetland/wildlife habitat and plans for maintaining this habitat; and
- (4) A schedule for implementation.

The licensee shall prepare the aforementioned plan and schedule after consultation with the U. S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the plan and schedule after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's facilities. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan and schedule 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 and schedule. No construction activities associated with the wildlife habitat management plan shall begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the proposal, including any changes required by the Commission.

Article 422. Within 120 days from the date of issuance of this license, the licensee shall file, for Commission approval, a plan for comprehensive landscape management to preserve and enhance the visual resources of the project area.

The plan, at a minimum, shall include the licensee's specific proposals for:

- (1) Blending the project works into the existing landscape character;
- (2) revegetating, stabilizing, and landscaping new construction areas and areas immediately adjacent to the project site disturbed by previous construction or that presently impact the visual resources of the surrounding area;
- (3) Grading, planting grasses, repairing slopes damaged by erosion, and preventing future erosion; and
- (4) Maintaining vegetation around project facilities and within the bypassed reach.

The plan also shall include: (1) an implementation schedule; (2) plans for erosion and sediment control during implementation; and (3) provisions for the plan's periodic review and revision.

The licensee shall prepare the plan after consultation with the Vermont Department of Forests, Parks, and Recreation and the Department of Environmental

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Conservation. The licensee shall include with the plan documentation of consultation, 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 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 visual and landscape conditions at the site.

The Commission reserves the right to require changes to the plan. No land-clearing or land-disturbing 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.

Article 423. Within 90 days after license issuance and prior to any alteration of the facilities associated with the West Charleston Powerhouse, as required by article 311, the licensee shall develop a plan, for Commission approval, to document the West Charleston Powerhouse to the standards established by the National Park Service under the Historic American Engineering Record (HAER) documentation program. The licensee will develop the plan in consultation with the HAER and the Vermont State Historic Preservation Officer to determine what level of documentation is to be required.

The licensee shall include with the plan documentation of consultation, 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 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 visual and landscape conditions at the site.

The Commission reserves the right to require changes to the plan. All documentation must be accepted by HAER prior to the demolition, alteration, or transfer of this property. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. Copies of the documentation must