Water Quality Certificate
(P.L. 92-500, Section 401)

In the matter of: Central Vermont Public Service Corporation
77 Grove Street
Rutland, Vermont 05701

APPLICATION FOR TAFTSVILLE HYDROELECTRIC PROJECT

The Water Quality Division of the Vermont Department of Environmental Conservation (the Department) has reviewed a water quality certification application dated and filed October 2, 1992 and filed by Central Vermont Public Service Corporation (the applicant). This application has been supplemented by a copy of the Federal Energy Regulatory Commission (FERC) license application filed with the FERC on December 31, 1991; a March 1993 copy of the license application with a revised Exhibit E; and two responses to FERC additional Information requests, those responses dated November 25, 1992 and March 31, 1993. The Department, based on the application and record before it, makes the following findings and conclusions:

I. Background/General Setting

1. The applicant has applied to the FERC for relicensure of the Taftsville Hydroelectric Project located at River Mile 11.3 on the Ottauquechee River, at the village of Taftsville in the Town of Woodstock.

2. The Ottauquechee River originates in Sherburne and flows easterly from the Green Mountain Range for 38 miles before discharging into the Connecticut River about five miles below the White River confluence and four miles below the Mascoma River confluence. The river is undammed from its headwaters to Taftsville. Below Taftsville, four existing dams have been developed in the last decade for hydropower production. The full basin area is 223 square miles, with 200 square miles of the watershed above Taftsville Dam.

3. The Woodstock Electric Company developed the site for hydroelectric generation in 1910. The applicant purchased the Woodstock Electric Company and the Taftsville station in 1956.

II. Project and Civil Works

4. The existing dam consists of a left concrete abutment section and an uncontrolled overflow concrete gravity spillway section. A portion of the intake structure forms the right abutment of the dam. The dam has a total length of 220 feet with the spillway section of the dam being 194 feet. Crest elevation is 637.12 feet. The normal headwater elevation is 638.6 feet (msl) and the normal tailwater elevation is 618.0 feet (msl).

5. The dam is fitted with 1.5 feet of flashboards creating an impoundment with a surface area of about 20.5 acres, a usable storage capacity of about 30.1 acre-feet, and a backwater influence of about 4800 feet. Flashboards are removed prior to winter and reinstalled in late spring; the flashboards usually function to increase project operating head from about May 15 to November 15 (response to FERC AIR #3(b)(4), March 31, 1993). Storm events usually cause flashboard failure two or three times during the summer.

6. The powerhouse contains one S. Morgan Smith, vertical Kaplan turbine with a 500 kw generator capacity. The estimated average annual generation is 1,691,000 kwh. Except for routine monitoring, inspection and maintenance, the plant operates automatically and unattended. The turbine's wicket gates and runner blades can be adjusted through use of a headwater float or by remote control from the applicant's dispatch center in Rutland.

7. The powerhouse substation is located along the west side of the integral-intake powerhouse. The substation steps up generator output to 46 kv, and three 46 kv transmission lines carry output from the facility to Wilder, Bethel, and Windsor.

III. Flow Regime

8. The project hydraulic capacity is 95 to 370 cfs.

9. The drainage area at the dam is 200 square miles. Since water year 1931, a gaging station has been operated by the U.S. Geological Survey at North Hartland on the Ottauquechee. The drainage area at the gage is 221 square miles. Operation of Taftsville and the North Hartland Flood Control Reservoir affect the natural flow statistics of the river. Several of the flow parameters for the project have been estimated and are shown in the following table; the mean runoff is for the full period of record, and the other parameters are based on the period of gage-data collection that preceded the flood control reservoir:

Parameter	Value
Mean runoff	360 cfs (24.58 in/yr)
7Q10	26 cfs
95% Exceedance	32 cfs
50% Exceedance	145 cfs
10% Exceedance	990 cfs

10. Historically, the Taftsville Project was operated as a daily peaking plant with headpond cycling of two to three feet.

11. In October 1988, the applicant voluntarily agreed to operate the project in a true run-of-the-river mode in order to reduce the project impact on the river fishery. A true run-of-river project is one which does not operate out of storage and, therefore, does not artificially regulate streamflows below the project's powerhouse. Outflow from the project is equal to inflow to the project's impoundment on an instantaneous basis.

12. The applicant's proposed targeted operating level will be 638.7 feet with flashboards in place, and at 637.2 feet with flashboards removed. In both

cases, the elevations reflect one inch spillage over the crest.

13. The applicant proposes to continue to operate the project in this mode. The flow regime below the project will essentially be the river's natural regime, except in special circumstances, such as following the reinstallation of flashboards.

14. Flashboards are reinstalled after inflows decline below 370 cfs, the maximum capacity of the station. Following the reinstallation of flashboards, the applicant proposes to cut back the plant discharge to refill the impoundment; half of inflows, or about 180 cfs, would be maintained downstream during the refill period, which would last about two hours. During this period, leakage under the boards is passed through the bypass reach. Boards are not sealed until after the impoundment has been filled.

15. During the flashboard replacement period, no flows are proposed to be released into the bypass. By letter dated June 30, 1993, the Agency requested more information on flashboard replacement procedures and the technical feasibility of releasing flows into the bypass during the replacement period. In its July 16, 1993 response, the applicant stated that it is its belief that no "practical, safe, or technically feasible method" of releasing flows into the bypass exists.

16. The flashboard replacement procedure entails a drawdown of the impoundment to 6 inches below the crest, flashboard installation, and then a refilling period raising the impoundment 25 inches (minus 6 inches to plus one inch over the 18-inch flashboards). The total storage manipulation time is lengthy.

    The applicant has indicated that the flashboard installation alone takes four to six hours. Under the most favorable flow conditions (inflow of 250 to 290 cfs), the time to draw and to refill the impoundment, based on the 30.1 acre-foot useable storage estimate in the license application, takes about 5.2 hours. A time period of 9 to 11 hours

of no flow in the bypass is excessive. Further, the draw-and-refill time, which is a function of inflows, project maximum capacity, and the proposal to release half of inflows during the refill, varies substantially. On Page E-41 of the license application, the applicant states that flashboard installation begins when flows first recede below 370 cfs. With an inflow of 360 cfs, it takes 14.1 hours to draw the impoundment and 2.8 hours to refill; this would result in about 21 to 23 hours of total replacement time. With an inflow of 150 cfs, it takes 0.6 hours to draw the impoundment and 10.1 hours to refill; this would result in about 15 to 17 hours of total replacement time.

17. Extended periods of no flow in the bypass can be lethal for resident organisms, due to increased predation and dissolved oxygen/temperature stress. Lack of flows through the bypass under certain air temperature and solar radiation conditions during the flashboard replacement period may result in water temperature increases greater than the numeric limit of +1°F allowed in the Standards. .

18. A release of 180 cfs below the project during flashboard replacement would be well above the summer aquatic base flow of 0.5 csm (100 cfs) prescribed by the U.S. Fish and Wildlife Service <u>Flow Recommendation Policy for the New England Area</u> and the Agency of Natural Resources (Agency) <u>Interim Procedure for Determining Acceptable Minimum Stream Flows</u> and would protect downstream resources during these infrequent events. However, there is no assurance that all flashboard replacement events would occur when inflows equal about 360 cfs. Under the applicant's proposal , the replacement of boards during inflows of less than 200 cfs would result in downstream flows that are substandard relative two the two policies cited.

19. The project will not be cycled for audits nor for local emergency energy demands.

IV. Bypass

20. The length of the diversion caused by the dam and position of the powerhouse is approximately 100 feet long and 190 feet wide and is dominated by boulders one to three feet in diameter. A peninsula from the dam extends downstream and divides the bypass. On the side of the peninsula furthest from the powerhouse, the length of the diversion from the dam extends 135 feet downstream.

21. The applicant proposes to operate with a continuous spillage of 1.0 inch of water over the dam, or 15 cfs. Because of the accuracy of the level sensing and project automation (SCADA) equipment, the applicant expects a plus or minus 1/2 inch variation in spillage. Accordingly, the discharge could vary from 5 to 28 cfs.

V. Standards Designation

22. The Ottauquechee River in the project-affected reach is designated as Class B waters. Recent legislation eliminated Class C zones and substituted waste management zones in Class B waters. From the Woodstock Wastewater Treatment Plant outfall to the Happy Valley Brook confluence (located about 250 feet upstream from the project dam), the river is a waste management zone. The reach from the outfall of the Taftsville Wastewater Treatment Facility (located about 150 feet downstream from the dam) to the Hartland Town Line is also a waste management zone. Most of the impoundment falls within the upper waste management zone. The Water Resources Board has designated the Ottauquechee River from its source down to North Hartland Reservoir as cold water fisheries habitat.

    The lengths of waste management zones are being reviewed by the Department and will be reset based on rules to be promulgated by the Water Resources Board. The upstream zone will probably be shortened and terminate well above the impoundment.

23. Class B stream reaches are managed to achieve and maintain a high level of quality compatible with certain beneficial values and uses. Values are high quality habitat for aquatic biota, fish and wildlife and a water quality that consistently exhibits good aesthetic value; uses are public water supply with filtration and disinfection, irrigation and other agricultural uses, swimming, and recreation. (Standards, Section 3-03)

24. Waste management zones, although Class B waters, present an increased level of health risk to contact recreational users due to the discharge of treated sanitary wastewater.

25. The dissolved oxygen standards for cold water habitat streams are 6 mg/l or 70 percent saturation unless higher concentrations are imposed for areas that serve as salmonid spawning or nursery areas important to the establishment or maintenance of the fishery resource. The temperature standard limits increases from background to 1.0°F. (Standards, Section 3-01(B)) The turbidity standard is 10 ntu. (Standards, Section 3-03(B))

26. Under the general water quality criteria, all waters, except mixing zones, are managed to achieve, as in-stream conditions, aquatic habitat with "[n]o change from background conditions that would have an undue adverse effect on the composition of the aquatic biota, the physical or chemical nature of the substrate or the species composition or propagation of fishes." (Standards, Section 3-01(B)(5))

27. Section 2-02 Hydrology of the Vermont Water Quality Standards requires that "[t]he flow of waters shall not be controlled or substantially influenced by man-made structures or devices in a manner that would result in an undue adverse effect on any existing use, beneficial value or use or result in a level of water quality that does not comply with these rules." The project dam is a man-made structure that artificially regulates streamflow.

VI. Water Quality

a. Chemical

28. The impoundment chemical water quality is substandard under summer low-flow conditions. The historical peaking mode of operation, which lacked spillage, would pass oxygen-deficient conditions downstream during periods of water release through the powerhouse.

29. The river contains a lush growth of periphyton, a 40% cover having been noted by Aquatec, Inc. during macroinvertebrate work done in summer 1990. The type and extent of plant growth indicates that the river is moderately enriched. This condition causes large diurnal fluctuations in dissolved oxygen levels.

30. The limited data provided in the application contains three dissolved oxygen standards violations. For the upstream early morning sampling by the Department on both August 14 and August 15, 1985, the dissolved oxygen standards were not met (6.0 mg/l (67%) and 5.8 mg/l (66%), respectively). These samples were collected upstream of the impoundment and under extreme low-flow conditions.

31. On July 11, 1988, the applicant sampled at the project intake during mid-day and recorded a substandard dissolved oxygen concentration of 5.6 mg/l; however, a replicate sample was recorded as 6.5 mg/l.

32. Flow information for the sampling by the applicant was not provided. Downstream sampling stations were too far from the project to document any degradation of water quality below the project; the Department sampled 1.9 miles downstream, and the applicant sampled 1.4 miles downstream. Dissolved oxygen sampling by the applicant during 1991, the only sampling done after the institution of a run-of-the-river operating mode, used stations outside of the influence of the project (at the head of the impoundment and 1.4 miles downstream of the dam) and, therefore, have little

value in describing the water quality in the reach directly below the dam.

33. The applicant's proposals to operate the project in a true run-of-the-river mode and to spill a minimum flow into the bypass will significantly improve the river's chemical water quality over conditions associated with historical operation, which was resulted in long periods of impounding and short generation cycles during periods of low flow.

    The minimum flow for operation is 95 cfs. With a minimum spillage of 15 cfs (1.0 inch of spillage), the project will not be operational at flows less than 110 cfs. This flow is about four times the 7Q10 drought flow condition. Therefore, during the most critical water quality periods, all flows will spill and benefit from reaeration. This is particularly important because of the use of the Ottauquechee River for wasteload assimilation and the evidence of algal activity that causes a diel flux in dissolved oxygen.

34. Run-of-the-river operation will also preclude a violation of the temperature standards. Such an operation essentially provides a natural flow regime, with no alteration of the river's thermal mass.

35. Because natural river flows will be continuously available downstream, the impact of the project on concentrations or levels of the following parameters will not be significant:

    Phosphorus
    Nitrates
    Settleable, floating or suspended solids
    Oil, grease, and scum
    Alkalinity
    pH
    Toxics
    Turbidity
    Escherichia coli
    Color
    Taste and odor

36. Routine removal of debris from the river is necessary in order to maintain project operation, especially debris that lodges on the trashracks. This material cannot be redeposited in the river. Standards prohibit the discharge of any solid refuse to state waters (Section 3-01(B)(6)).

b. Aquatic Biota

37. Aquatic biota are defined in Standards Section 1-01(B) as "organisms that spend all or part of their life cycle in or on the water." Included, for example, are fish, aquatic insects, amphibians, and some reptiles, such as turtles.

38. The river in the project reach is managed as a coldwater fishery consisting principally of brown and rainbow trout. The river supports wild populations, which are supplemented by stocking.

39. The applicant's operating personnel indicate usage by fisherman is one or less daily visits during summer/early fall weekdays and perhaps three or four visits on weekends during the same period. Most fishing use occurs below the dam. The applicant estimates that there are 200 fisherman visits in a year.

40. The proposed downstream flow regime will optimize conditions for fishlife. Flows below the tailrace will be unregulated.

41. Spillage flows in the short bypass reach will be sufficient to support residence in the predominantly pool-type habitat. During low flow periods (less than 110 cfs), all inflows will be spilled and discharged into the bypass. During periods of moderate flow between 110 cfs and 385 cfs, the flow discharged into the bypass will be held at no less than 15 cfs (0.08 csm). During high-flow periods in excess of 385 cfs, additional spillage will be discharged into the bypass.

42. A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin (1982) identifies the Ottauquechee River as potential non-natal smolt production habitat for stocking consideration at such time in the future that the

program's hatchery fry production capacity expands to meet the needs of non-natal streams. The plan estimates that there are 5,700 units (one unit = 100 sq. yards) of salmon nursery habitat upstream of the project.

43. In order to meet the goals of the salmon program, downstream passage facilities to safely convey fish will be necessary if and when juvenile salmon are stocked above the project. Facilities may include screens to minimize entrainment and impingement and a conveyance conduit. Adequate flows to operate the conveyance device will also be required. Facilities will also benefit resident trout species.

44. The river water quality and institution of a run-of-the-river flow regime with spillage, as proposed by the applicant and with the conditions imposed below, will protect the biological integrity in the Ottauquechee River below the Taftsville facility, including macroinvertebrates, fish, and other aquatic organisms.

45. Consistent with Standards Section 1-03(B)(2)(a), the water use for hydropower, as proposed and with the conditions imposed below, will not impair the viability of the existing population of aquatic biota and fish. The use will neither significantly impair growth or reproduction nor cause an alteration of the habitat which impairs the viability of the existing population.

c. Wildlife and Wetlands

46. Vermont Water Quality Standards requires the Agency Secretary to identify and protect existing uses of State waters. Existing uses to be considered include wetland habitats and wildlife that utilize the waterbody. No Class I or Class II wetlands exist within the influence of the dam backwater zone. Institution of a run-of-the-river operating mode will protect any downstream wetlands that may exist.

47. Wildlife that use the riparian zone and river will be better supported by the improved operating regime. Typical wildlife would include furbearers

such as otter, beaver, muskrat, mink, and deer and birds such as kingfisher, herons, ducks, and osprey.

48. Consistent with Standards Section 1-03(B)(2)(a), the water use as proposed, with the conditions imposed below, will not impair the viability of the existing population of wildlife. The use will neither significantly impair growth or reproduction nor cause an alteration of the habitat which impairs the viability of the existing population.

d. Shoreline Erosion and Impoundment Desilting

49. A town road, named Gravel Ledge Road, closely follows the left (north) bank of the impoundment. The right bank is paralleled by U.S. Route 4 near the dam and then, the former bed of the Woodstock Railroad. Erosion-susceptible portions of the shoreline adjacent to the town road have been rip rapped.

50. Very little of the impoundment reach is located in postglacial alluvium. The impoundment is in a narrow, deeply incised valley with bedrock-cored hills steeply sloping down to the shoreline. Bank slumping does exists on the south bank one-half mile upstream from the station, where U.S. Route 4 follows the right bank of the river. The slope exceeds 50 percent and a portion of the overburden of hemlock/hardwood forest has slid from the top of the bank to the river. This erosion is probably not project induced.

51. Impoundment desilting can result in significant degradation of water quality if not executed properly. Desilting has been executed at this project periodically in the past. The application outlines a general desilting protocol that includes isolation of work areas from the river proper and flow management. For any future projects, specific details should be provided to the Agency for prior review.

e. **Recreation and Aesthetics**

52. The site is adjacent to U.S. Route 4, a heavily travelled highway, between population centers of Woodstock and the Hanover/Lebanon/White River Junction area. The river is enjoyed by regional residents and tourists as well. It is a short distance from Quechee Gorge, which draws many sightseers. In the project vicinity, the river is popular for several recreational uses, including fishing, swimming, picnicking, boating, photography and viewing.

53. Vermont Water Quality Standards require the protection of existing water uses, including the use of the water for recreation. The Standards also require the management of the waters of the State to improve and protect water quality in such manner that the beneficial values and uses associated with a water's classification is attained.

54. Beneficial values and uses of Class B waters include water that exhibits good aesthetic value and swimming and recreation. Section 2-02 of the Standards prohibits regulation of river flows in a manner that would result in an undue adverse effect on any existing use, beneficial value or use.

55. The applicant estimates passive recreational use, based on spot observations, as six to ten persons daily, peaking during fall foliage season to about 25 persons daily for a total of 300 to 400 annual visits.

56. The river is a navigable and boatable water of the State.

57. The application notes that the site lacks sufficient public parking and does not have a canoe portage. The extent of development of recreational facilities at present is picnic tables. Cartop boats can access the impoundment, although the location of existing boat barriers upstream of the dam limit upstream paddling; the applicant does not intend to relocate the barriers to facilitate boating until after "all licensing

issues have surfaced (e.g. after FERC review)..." (page E-49 of application).

58. The applicant will provide a bank fishing area near a proposed picnic/parking impoundment access area on the west side of the river. For downstream bank fishing, the proposed canoe ingress point will be made available.

59. Disabled visitors to the Taftsville Station will have access to the fishing, parking, and picnic facilities but not to portage areas. Grades from the parking lot to and along walkways will not be in excess of 8% slope.

60. The project boundary is very limited, encompassing the project civil works, tailrace, dam, and the impoundment flowage.

61. One of the most limiting factors to recreational use of the river resource is the lack of provisions for portaging the applicant's dam. The dam physically impairs boating on a navigable river. Recreation and recreational boating are designated uses for the Ottauquechee River. Where designated uses have been impaired or eliminated, all reasonable steps should be taken to restore such uses.

62. The Appalachian Mountain Club, River Guide, New Hampshire/Vermont, Second Edition indicates that a road on the left bank makes a take-out possible at various points along the impoundment. Below the Taftsville dam 4 miles of mixed rapids and smoothwater bring canoeists to the dam and covered bridge at Quechee.

63. On June 6, 1989, the Agency commented on the applicant's FERC initial consultation document for relicensing. The Agency stated "[c]onvenient portage routes should be provided where there are none presently." By letter dated December 8, 1989 in response to the Agency comments, the applicant indicated that a canoe portage would be provided at Taftsville. On January 6, 1991, the applicant met with a representative of Northern Vermont Canoe Cruisers to show the representative its tentative plans for portaging the dam, including

"a put-in trail/access a short distance below the dam." (letter to the applicant from Ray Gonda, Northern Vermont Canoe Cruisers, February 20, 1991)

64. The applicant will provide a signed canoe portage at the dam. Three routes are presently being investigated. (Letters of May 4, May 24, May 28, and June 9, 1993 from the applicant to the Agency)

65. The preferred portage route on river left (east side) would involve a take out at the existing boat barrier, the anchor for which would be moved downstream to shorten the length of the portage. The put in would be located below the covered bridge and at the end of an existing path. The path is off of the applicant's property. The applicant is seeking an easement from the landowner and would brush out the path. Development of this portage option would not entail major construction. The path would also be available for general river access, including angling.

66. If an agreement can be reached with the landowner to develop the preferred option, the applicant will make the necessary improvements in the spring of 1994. Two other alternatives are available if an agreement cannot be reached.

67. For the low level of recreational facilities being provided, the applicant states that it may restrict open access if vandalism becomes a problem. Arbitrary restriction of public access to the river would impair recreational use and enjoyment of the resource.

68. The site has outstanding visual qualities. The river setting contains the historic project structures, a covered bridge, and falling water, surrounded by the Taftsville village area. The village is composed of a small commercial area on U.S. Route 4 and early nineteenth century homes. Development of the village centered on the river as a source of waterpower for several mills. The covered bridge is a rare, possibly unique Mongrel truss structure and is listed on the National Register of Historic Places.

69. Spillage over the dam is extremely important to the setting. The Agency landscape architect has advised that the minimum flow proposal by the applicant is acceptable for aesthetics.

VII. Other Uses

70. Downstream, the river is used for the assimilation of wastewater from the Taftsville Wastewater Treatment Facility; as a source of water for Lake Pinneo at the Quechee Lakes Golf Course; and for the generation of hydropower at four facilities, Downers Mill, Deweys Mills, North Hartland, and Ottauquechee Woolen Mill. The proposed project, as conditioned below, is compatible with these uses.

VIII. Other Applicable State Laws

Vermont Endangered Species Law (Title 10, Sections 5401 to 5403)

71. The Vermont Endangered Species Law (Title 10, Sections 5401 to 5403) governs activities related to the protection of endangered and threatened species. Generally, a person shall not "take, possess or transport wildlife or plants that are members of an endangered or threatened species." (Title 10, Section 5403(a)) Disturbance of a endangered or threatened species is considered a taking. (Title 10, Section 4001)

72. Populations of obedience plant (*Physostegia virginiana*), a threatened species, exist along the Ottauquechee River. The obedience plant is associated with riparian zones of lakes and major rivers. Obedience plant occurs upstream of the dam on the steeply sloping north riverbank, and a few plants are found among thick vegetation on the highest portion of one of the large gravel-bar islands in the impoundment. The plants at Taftsville are possibly introduced and are found outside the area affected by daily project operations.

Agency Regulatory Powers over Fish and Wildlife

73. Under 10 V.S.A. Chapter 103, "[i]t is the policy of the state that the protection, propagation control, management and conservation of fish, wildlife and fur-bearing animals in this state is in the interest of the public welfare, and that safeguarding of this valuable resource for the people of the state requires constant and continual vigilance."

74. The water use as proposed, with the conditions imposed below, will be consistent with this state policy.

IX. State Comprehensive River Plans

The Agency, pursuant to 10 V.S.A. Chapter 49, is mandated to create plans and policies by which Vermont's water resources are managed and uses of these resources are defined. These plans implement the Agency policy. The Agency must, under Chapter 49 and general principles of administrative law, act, when possible, consistently with these plans and policies.

Hydropower in Vermont, An Assessment of Environmental Problems and Opportunities

75. The Department publication Hydropower in Vermont, An Assessment of Environmental Problems and Opportunities is a state comprehensive river plan. The hydropower study, which was initiated in 1982, indicated that hydroelectric development has a tremendous impact on Vermont streams. Artificial regulation of natural stream flows and the lack of adequate minimum flows at the sites were found to have reduced to a large extent the success of the state's initiatives to restore the beneficial values and uses for which the affected waters are managed.

During the hydropower study, the Department received letters from representatives of Trout Unlimited and the John Wheelock Titcomb Ottauquechee River Trust urging the Department to institute a minimum flow requirement at the site. A specific recommendation of the plan is that a minimum flow requirement be established at this

project in order to improve the downstream fishery, water quality, aesthetics, and recreation.

1988 Vermont Recreation Plan

76. The 1988 Vermont Recreation Plan (Department of Forests, Parks and Recreation) through extensive public involvement, identified water resources and access as top priority issues. The planning process disclosed that, while Vermonters and visitors focus much of their recreational activities on surface waters, growing loss of public visual and recreational access to those waters causes substantial concern to the users. The plan projects that access is "likely to become the critical river recreational issue of the 1990s." The need for development of portage trails and canoe access sites is cited as among the major issues relative to canoe trails in Vermont.

77. The Water Resources and Access Policy is:

> It is the policy of the State of Vermont to protect the quality of the rivers, streams, lakes, and ponds with scenic, recreational, and natural values and to increase efforts and programs that strive to balance competing uses. It is also the policy of the State of Vermont to provide improved public access through the acquisition and development of sites that meet the needs for a variety of water-based recreational opportunities.

78. Enhancement of access, provision of a portage, and improved flow management would be compatible with this policy and balance competing uses of the river for recreation and hydropower. The provision of open river access and a convenient portage trail will improve and protect continued river use by recreationalists.

79. Another priority issue identified in the Recreation Plan is the loss or mismanagement of scenic resources. The plan notes "[f]ew recreational activities in Vermont would be the same without the visual resources of the landscape," and that protection of those resources is "necessary if the state is to remain a desirable place to live, work, and visit."

80. The Scenic Resources Protection and Enhancement Policy is:

    It is the policy of the State of Vermont to initiate and support programs that identify, enhance, plan for, and protect the scenic character and charm of Vermont.

81. Landscaping, provision of dam spillage, and maintenance of bypass and downstream flows will protect the scenic characteristics of the shoreline area and river.

Vermont Comprehensive Energy Plan

82. Pursuant to Executive Order No. 79 (1989), the Department of Public Service produced the Vermont Comprehensive Energy Plan, January 1991. This plan sets out an integrated strategy for controlling energy use and developing sources of energy. Several goals of the plan are to reduce global warming gases and acid rain precursors by 15% by the year 2000 through modified energy usage; to reduce by 20% by the year 2000 the per capita consumption of energy generated using non-renewable energy sources; and to maintain the affordability of energy. Continued availability of electricity generated by this renewable source, with proper environmental constraints in place, is consistent with the State energy plan.

ACTION OF THE DEPARTMENT

Based on its review of the applicant's proposal the above findings, the Department concludes that there is reasonable assurance that operation of this project as proposed by the applicant and in accordance with the following conditions will not cause a violation of Vermont Water Quality Standards and will be in compliance with sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, P.L. 92-500, as amended, and other appropriate requirements of state law:

A. The applicant shall operate and maintain this project as set forth in the findings of fact and conclusions above and these conditions.

B. Except as allowed in Condition D below, the facility shall be operated in a true run-of-the-river mode where instantaneous flows below the tailrace shall equal instantaneous inflow to the impoundment at all times. When the facility is not operating, all flows shall be spilled at the dam.

C. When available from inflow, a minimum instantaneous flow of 15 cfs (about 1.0 inch) shall be uniformly spilled over the dam crest at all times. If the instantaneous inflow falls below the hydraulic capacity of the turbine unit plus this spillage requirement, all flows shall be spilled at the dam. The applicant shall file for review and approval, within 90 days of the issuance of this certificate, a description, hydraulic design calculations, and plans for the measure to be used to pass this minimum flow. The filing shall address conditions with and without the flashboards in place.

D. During the repair or replacement of flashboards, the impoundment shall be drawn to the dam crest and the project operated continuously in a true run-of-the-river mode. After the installation is complete, the impoundment shall be refilled by reducing downstream flows, but to no less than 100 cfs; if project inflows are less than 200 cfs, flashboard replacement shall ~~not~~ be postponed until inflows increase above 200 cfs.

E. In order to prevent violations of the water quality standards in the bypassed reach during flashboard repair or replacement, the applicant shall:

1. fully investigate alternatives that would enable the continuous passage of 15 cfs at the dam; such alternatives shall include the installation of a slide gate or stoplog section in the dam for use during flashboard replacement;

2. fully investigate alternative flashboard designs or replacement strategies that would reduce replacement time, such as hinged boards and assignment of additional personnel;

3. remove the flashboards during the period November 16 through May 14; and

4. in the event a feasible means of providing the 15 cfs minimum bypass flow cannot be identified and implemented:

   a. only undertake flashboard replacement during periods when inflows are in the range of 200 to 300 cfs in order to minimize the storage manipulation time, and

   b. complete the operation during the period 3 pm to 12 pm in the months of June through September.

The alternatives analysis and proposal will be filed with the Department within six months of the date of issuance of this certification for review and approval.

F. The applicant shall file for review and approval, within 90 days of the issuance of this certificate, a plan for monitoring impoundment levels and instantaneous flow releases at the project, both in the bypass and downstream of the project. Following approval of the monitoring plan, the applicant shall then measure impoundment levels and instantaneous flows and provide records

of discharges at the project on a regular basis as per specifications of the Department. Upon receiving a written request from the applicant, the Department may waive, all or in part, this requirement for monitoring provided the applicant satisfactorily demonstrates that the required flows will be discharged at all times.

G. The applicant shall provide the Department with a copy of the turbine rating curves, accurately depicting the flow/production relationship, for the record within one year of the issuance of this certificate.

H. Within 90 days of the issuance of this certification, the applicant shall submit a plan for proper disposal of debris associated with project operation, including trashrack debris, for written approval by the Department.

I. Any proposals for project maintenance or repair work involving the river, including desilting of the dam impoundment, impoundment drawdowns to facilitate repair/maintenance work, tailrace dredging, shall be filed with the Department for prior review and approval.

J. The applicant shall allow the Department to inspect the project area at any time to monitor compliance with the conditions of this certification.

K. A copy of this certification shall be prominently posted within the facility.

L. Any change to the project that would have a significant or material effect on the findings, conclusions, or conditions of this certification, including project operation, must be submitted to the Department for prior review and written approval.

M. The Department may request, at any time, that FERC reopen the license to consider modifications to

the license necessary to assure compliance with Vermont Water Quality Standards.

Chuck Clarke

Chuck Clarke
Secretary
Agency of Natural Resources

Dated at Waterbury, Vermont this 29 day of September, 1993.

cc: distribution list
CC/LRB/jl