WATER QUALITY CERTIFICATION
(P.L. 92-500)

In the matter of: Killington Hydroelectric Company
P.O. Box 251
Killington, Vermont 05751
Application for Killington
Hydroelectric Project

The Water Quality Division of the Vermont Department of Water Resources and Environmental Engineering (the Department) has reviewed a Water Quality Certification application dated April 17, 1984 and filed by Killington Hydroelectric Company (the applicant). A draft copy of the Federal Energy Regulatory Commission exemption application was submitted in support of this application. The Department has made the following findings:

1. The applicant proposes to develop a hydroelectric project on Kent Brook in the Town of Sherburne. The project location is about a mile downstream of Kent Pond at the site of a former mill which was in operation from 1920 to 1972. A weir, penstock and powerhouse are still in place. The weir and powerhouse would be used as part of the proposed project. The weir is located at the top of a steep cascade known as Thundering Falls. The powerhouse is located at the base of this cascade and is in the Ottauquechee River floodplain.

2. The weir creates a small impoundment with a volume of about 15,000 gallons and a surface area of 1000 square feet. The weir is a concrete structure 50 feet long with a maximum height of 4 feet. The applicant proposes no alterations to the

weir other than putting in trashracks and improved gate structure. The existing penstock would be replaced with a new 20 inch diameter steel penstock 400 feet long and would follow the same course as the existing structure. The powerhouse would contain a reaction-type turbine with a hydraulic operating range of 2.5 to 15 cfs. The discharge from the powerhouse would be directly into the stream.

3. The project would be operated in a run-of-the-river mode with an installed capacity of 100 kw under a net operating head of 123 feet.

4. The drainage area at the project site is 5.0 square miles. A USGS gaging station (#01150800) was in operation on Kent Brook just upstream of Kent Pond from 1964-1974. Records for this gaging station have been prorated based on drainage areas to estimate the following hydrologic values for the dam site:

Parameter	Value (cfs)
Mean Flow	12 (33.60 in/yr)
7Q10	.7
95% Exceedance	2
50% Exceedance (median)	7
10% Exceedance	28

5. Kent Brook supports a good brook trout fishery.

6. The project would bypass 400 feet of stream. This bypassed section of stream is a series of cascades and some pools. The cascades range in height from 1 to 4 feet up to 15 to 75 feet. The pools are up to 15 feet wide. The cascades create a barrier to the upstream migration of fish. The stream

habitat in the bypass has little direct value for fish production due to a lack of adequate spawning and nursery areas. The pools, however, provide habitat for the production of benthic organisms and serves as refuge areas for fish which may go over the weir.

7. Kent Brook at the project site is designated Class B by the State of Vermont Water Resources Board. Class B waters are suitable for swimming, recreation, irrigation, and agricultural uses; good fish habitat; good aesthetic value; and are acceptable for public water supply with filtration and disinfection.

Kent Brook is designated Water Management Type I or II for the protection and management of aquatic life. Dissolved oxygen content of these waters shall not be less than 6 mg/l, and 7 mg/l or greater may be required at and near spawning area.

8. The applicant proposes a minimum flow release of 1.0 cfs (0.2 cfsm) in the bypassed section of stream.

9. The Department normally uses the U.S. Fish and Wildlife Service Flow Recommendation Policy for the New England Area of 0.5 cfsm as a basis for determining minimum flow requirements at hydroelectric projects where detailed site-specific studies have not been completed. The Department finds that flows derived using this policy are usually sufficient to maintain water quality and fish habitat and sustain aquatic organisms. At the project site, the minimum flow recommendation is equal to 2.5 cfs.

The Department finds that the applicant's minimum flow proposal of 1.0 cfs may not be sufficient to maintain dissolved oxygen standards and keep pools in the bypass fresh to maintain benthic organisms and any fish which may become stranded in these pools.

Due to the limited amount of fish habitat in the bypass, however, and the fact that stream habitat above the project provides some reaeration to inflows to the impoundment, the Department will require the applicant to maintain a minimum flow in the bypass of 2.0 cfs.

10. Because of the high aesthetic and natural area values of this site, and because it is an important public resource, the Agency of Environmental Conservation (the Agency) has taken a position against development of Thundering Falls. The Agency also discourages limiting public access. However, these issues are not considered in the Department's review of the project's conformity with the technical requirements of the State Water Quality Standards.

This Water Quality Certification is issued pursuant to Section 401 of P.L. 92-500 as amended and as such only certifies compliance with the narrow provisions of the State Water Quality Standards. This Certification cannot be used as the State Fish and Wildlife Agency comments under the provisions of the Federal Energy Regulatory Commission exemption regulations.

The Agency's position on this project is included in the "Upper Ottauquechee River Basin Water Quality Management Plan" prepared by the Department. It is a position which the Agency will also present in its comments to the Federal Energy Regulatory Commission and the Vermont Public Service Board.

CONDITIONS

Based on its review, the Department certifies that the proposed facility will not violate Vermont Water Quality Standards provided the following conditions are met:

A. When available from inflow, a minimum instantaneous flow of 2.0 cfs shall be maintained in the penstock-bypassed section of stream at all times. If the instantaneous inflow falls below this minimum, all flows shall be spilled at the dam. Before the start of construction the applicant shall furnish a description, hydraulic design calculations, and plans for the measure to be used to pass this minimum flow.

B. The facility shall be operated in a strict run-of-the-river mode where instantaneous outflow below the tailrace shall equal instantaneous inflow to the impoundment at all times. The impoundment may not be drawn down without prior approval by the Department. When the facility is not operating, all flows shall be spilled at the dam.

C. The applicant shall file for review and written approval, prior to the start of construction, an erosion control and water management plan to cover construction activities. This plan shall address the maintenance of stream flow and measures taken to prevent the discharge of sediment, wet concrete, and other debris into State waters.

D. Debris associated with project construction and operation shall be disposed of properly.

E. Any desilting of the dam impoundment shall be done in accordance with the Agency of Environmental Conservation's Desilting Policy, a copy of which is attached. The Department shall be contacted prior to any desilting activity.

F. Any significant changes to the project must be submitted to the Department for prior review and written approval.

G. The applicant shall provide the Department with an as-built set of plans for the record.

H. No construction may commence until after the Department issues written approval under conditions A and C and all other necessary State and Federal permits and licenses are obtained by the applicant.

John R. Ponsetto, Commissioner
Department of Water Resources
and Environmental Engineering

Dated at Montpelier, Vermont
this 15th day of August, 1984.

AMD/rh