WATER QUALITY CERTIFICATION

(P.L. 92-500, Section 401)

In the matter of: Village of Morrisville
Water and Light Department
Morrisville, Vermont 05661
Application for Green River Project

The Water Quality Division of the Vermont Department of Water Resources and Environmental Engineering has examined the information submitted by the applicant and made the following findings:

1. The Village of Morrisville owns a concrete arch dam, 105 feet in height and 250 feet in length, on the Green River in the Town of Hyde Park upstream of the locality of Garfield.

2. The impoundment has been managed in the past as flow augmentation for power generation at two existing plants operated by the applicant on the main stem of the Lamoille River (the Morrisville and Cadys Falls plants). This use has resulted in average maximum annual reservoir drawdown of 31 feet and minimum flow releases of leakage during non-release periods estimated at about 1 cfs. Maximum releases for augmentation were estimated by the applicant at 120 cfs.

3. The applicant proposes to construct hydroelectric generating facilities at the dam site incorporating two turbines rated at a total installed capacity of 1700 kw. The project would entail the extention of the existing 6 foot diameter penstock 140 feet downstream along the left streambank to a proposed 25'X30' powerhouse adjacent to the existing stilling pool weir.

4. As proposed the turbines would generate in the range of 85 cfs (420 kw) to 317 cfs (1700 kw). During non-generation periods, the applicant has agreed to pass a minimum stream flow of at least 5.5 cfs when available from reservoir inflow. The flow of 5.5 cfs is based on the application of the Department of Water Resources and Environmental Engineering's Fisheries Flow Needs Assessment Methodology in order to provide a base flow sufficient to protect the aquatic habitat.

5. Operation during the critical winter period (December-February) will be on a load following procedure automatically controlled by the system demand. As proposed the applicant has estimated that during the average winter period flows would fall in the range of 283 cfs to 317 cfs for 31 non-consecutive hours. A flow of 220 cfs would be exceeded 171 hours on the average. The average natural spring peak at the site is estimated at 390 cfs. Normal winter drawdown below full pool is six (6) feet while no maximum drawdown will exceed ten (10) feet.

6. High spring inflows (March-April) will be utilized to refill the reservoir while generating at a reduced capacity of around 800 kw for duration up to 12 hours daily.

7. From May through November operation will be with a maximum drawdown of one foot from the full pool elevation of 1220' msl using only one turbine except during periods of excessive precipitation when the second turbine will be used to prevent spillage.

8. On March 11, 1981, the applicant released a flow estimated at 210 cfs at the dam in the presence of the Department of Water Resources and Environmental Engineering staff for

observation of the impact of high flows on the stream. Water samples taken during this period by the applicant was tested for turbidity levels. Those levels were found to be less than 10 ntu.

CONCLUSIONS AND CONDITIONS

Based on its review and findings, the Department of Water Resources and Environmental Engineering certifies that the discharge from the proposed facility will not violate Vermont Water Quality Standards, provided that the following conditions and limitations are met:

A. An instantaneous stream flow of 5.5 cfs or greater shall be released at all times when available from inflow to the impoundment. When inflows fall below 5.5 cfs, the instantaneous outflow rate shall be at least equal to the instantaneous inflow rate.

B. Operation shall be substantially as described in the findings of fact. Any variation shall be subject to amendment of this certification and shall not be undertaken until approved by the Vermont Department of Water Resources and Environmental Engineering. Releases in excess of 283 cfs instantaneous discharge shall be allowable only when equal to the instantaneous rate of inflow. During the period of May through November, the generation release shall only exceed 160 cfs when necessary to prevent spillage due to high inflows.

C. The applicant shall measure stream flows below the tailrace during release of minimum stream flows to demonstrate that the mechanism for releasing 5.5 cfs is correctly calibrated. This data and procedure for releasing 5.5 cfs shall be submitted to the Department of Water Resources and Environmental Engineering for review within 30 days following first operation of the project.

D. During the final engineering phase or earlier, the applicant shall file a comprehensive erosion and sediment control plan with the Department of Water Resources and Environmental Engineering for review and approval. The plan shall cover temporary and permanent measures to limit adverse impacts on water quality from turbidity and sedimentation with regard to all construction activity both within the river channel and outside the channel. It may be beneficial to consult with the Department for input during the development of the plan.

E. The applicant shall insure that every reasonable precaution is taken during construction to limit the discharge of petro chemicals, wet concrete and debris to state waters.

F. Any significant changes to the project must be submitted to the Department of Water Resources and Environmental Engineering for review and approval.

G. No construction may commence until the Department of Water Resources and Environmental Engineering has issued written approval for condition D and F. Operational changes made after project completion are subject to condition F and must be approved prior to effecting the change.

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