

WATER QUALITY CERTIFICATION

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

In the matter of: Vermont Marble Company
61 Main Street
Proctor, Vermont 05765
Alterations to General Facilities
at Proctor Station

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. Vermont Marble Company (VM) owns and operates an existing hydro-electric generation facility located at river mile 63.6 on the Otter Creek in the Town of Proctor. This project consists of the construction of a new, above-ground, 7 foot diameter, steel penstock; powerhouse addition; new turbine and generating equipment.

2. The Proctor Station plant consists of a masonry dam of laid up marble blocks capped with concrete, 86 feet long and 13 feet high, a 9 foot diameter steel penstock, 460 feet long, and a powerhouse containing 4 vertical turbine-generator units. The dam utilizes 3 feet of flashboards. Spillage flows 500 feet horizontally and 120 vertically down a rock gorge to the tailrace. There will be no modifications to the dam, gates and trash racks.

3. The hydraulic capacities of the existing units are 1 at 220 cfs and 3 at 112 cfs. The new 3 MW unit would have a hydraulic capacity of approximately 325 cfs. The total hydraulic capacity of the plant is about 880 cfs.

4. Proctor Station shall continue to be operated essentially run-of-the-river with releases approximating instantaneous inflows to the reservoir. VM desires the capability to exercise limited management using reservoir storage to enhance generating capability and to respond to fluctuations in reservoir inflow caused by natural events and by upstream flow regulation. Under

emergency conditions, NEPOOL may demand that VM generate at full capacity. VM is a net purchaser of electrical power with loads being relatively constant. Such being the case, the facility will not be operated in a peaking mode. With 5 turbines equipped with adjustable gates, VM has the capability of generating at a wide variation of flow rates.

5. The maximum drawdown of the reservoir is 4 feet from the top of the flashboards. The estimated storage capacity within this range is 16 million cubic feet, or approximately 4 million cubic feet per foot of drawdown. Typically the impoundment would be managed within the first foot of storage. Drawdowns greater than 1 foot would be relatively infrequent and for an average year have been estimated at 70 times, 10 times and 4 times per year for drawdowns from 1 to 2 feet, 2 to 3 feet, and 3 to 4 feet, respectively. The reservoir would be refilled at a uniform rate. Monthly and annual duration curves furnished by VM indicate that plant operation will not result in a substantial change to the natural duration of flows.

6. The annual daily flow duration curve for Proctor Station based on Center Rutland USGS gaging station indicates that flows of 100 cfs or less may be anticipated to occur less than 1 percent of the time. The 7Q10 flow has been estimated at 93 cfs. The average annual flow duration curve submitted by VM indicates that a flow of 100 cfs or less will occur 11 percent of the time under this proposal during an average year. Under natural conditions, 11 percent of the time flows will be less than or equal to 160 cfs. Generally releases from the project will not be cut back to 100 cfs unless reservoir inflows are naturally low.

7. As projected loads exceed generation capability at the site, there will be no weekly pond management cycle. Neither will there be any seasonal operation.

8. The morphology of Otter Creek between Proctor Station and Middlebury is such that stream wetted area is not significantly influenced by changes in the flow for in-bank conditions. Typically the channel is prismatic with steep side slopes and flat sandy bottoms. The water surface profile generally has a very slight slope and stream velocities are quite low. During low flows, the stream depths are relatively high.

9. The Otter Creek below Proctor Station contains a smallmouth bass fishery. Reproduction of the species may be impacted by artificial flow fluctuation during the spring spawning period. The bass spawn on shoals in shallow areas and such areas may be dewatered if flow releases from the project area are extremely low as compared to natural spring flows.

CONDITIONS

The Department of Water Resources and Environmental Engineering certifies that this project will meet Vermont Water Quality Standards with the following conditions imposed:

A. An instantaneous stream flow of 100 cfs or greater shall be released at all times when available from inflow to the impoundment. When inflow rates fall below 100 cfs, the instantaneous outflow rate shall be at least equal to the instantaneous inflow.

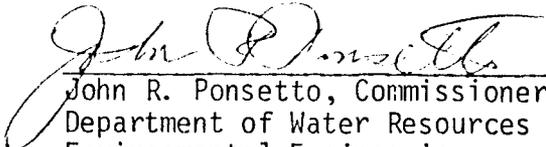
B. During the spring bass spawning and incubation period consisting of the months of April, May, and the first two weeks in June, VM shall at all times on an instantaneous basis release at least 50 percent of the instantaneous reservoir inflow.

C. During the final engineering phase or earlier, the applicant shall file a comprehensive erosion and sediment control plan to 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.

D. 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.

E. Any significant changes to the project including the operational scheme must be submitted to the Department of Water Resources and Environmental Engineering for prior review and approval.

F. No construction may commence until the Department of Water Resources and Environmental Engineering has issued written approval for condition C.


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

Dated at Montpelier, Vermont this
21st day of July, 1981

JRC/rh