

WATER QUALITY CERTIFICATION

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

In the matter of: Pownal Hydropower Corporation  
80 Boston Street  
Salem, MA 01970  
Application for the Pownal  
Hydroelectric Project

The Water Quality Division of the Vermont Department of Water Resources and Environmental Engineering (the Department) has reviewed the Water Quality Certification application filed by letter dated September 30, 1982 and amendments made by letter dated January 20, 1983. Filings were made by the Swift River Company on behalf of Pownal Hydropower Corporation (the applicant). The Department has made the following findings:

1. The applicant proposes to reactivate the hydroelectric facility at the Pownal Tanning Company, located on the Hoosic River at North Pownal. The energy produced would be sold to Central Vermont Public Service Company.

2. The existing dam, built in 1955, is a concrete gravity structure, 18 feet high and 153 feet long. The crest elevation is 515.6' NGVD. The two steel penstocks are 8 feet in diameter and 129 feet long. The existing powerhouse will contain a new or rehabilitated unit rated at 400 kw. The existing tailrace would be utilized.

3. The available head at the dam will be increased to 20½ feet through the installation of 2.5 feet of flashboards.

The applicant states that 2.5 feet of flashboards were used prior to closing the facility in 1972.

4. The facility will operate in a strict run-of-the-river manner, with instantaneous flows below the project maintained equivalent to instantaneous inflows to the impoundment. The Rodney Hunt turbine has a hydraulic capacity of 110 cfs to 365 cfs.

5. The impoundment will have a gross storage capacity of 490 acre-feet and a surface area of 77 acres. The backwater is presently  $2\frac{1}{2}$  miles.

6. The tailrace is located less than 200 feet downstream of the dam crest. The fish habitat and angler access to the bypassed section are relatively limited.

7. The Agency of Environmental Conservation issued an order under 10 V.S.A. §1272 on August 17, 1982, to authorize the applicant to desilt the forebay area using mechanical dredging. The Water Quality Certification application requests permission to periodically flush sediment through a waste gate at the forebay as a normal maintenance technique. The Department has already given conceptual approval to this by letter dated February 25, 1981. The Department cannot approve such a measure through this certification procedure. The applicant must comply with the Agency Desilting Policy, a copy of which is attached. Prior to allowing sediment to be vented, the Department would need at least the following information:

- a. The location of the waste gate;
- b. The quantity of material involved;

c. A plan showing depth contours for the area to be desilted;

d. An indication of whether or not any of the original bed sediments are to be flushed;

e. A statement as to how the activity is to be timed (approximate date and flow conditions); and

f. A statement as to whether or not the pool will be pulled down and, if it is to be pulled down, how flows will be maintained below the project as the pool is refilled.

8. The watershed area of the Hoosic River at the site is 224 square miles. The location is approximately 30 miles upstream of the Hudson River. The majority of the watershed is in the State of Massachusetts. Two miles below the dam, the river enters New York State.

9. The mean annual flow has been estimated at 463 cfs and the 7Q10 flow at 56 cfs. The USGS gages used in making these estimates are Gage No. 13325 on the Hoosic River (drainage area 132 square miles) and Gage No. 13330 on the Green River, a Hoosic River tributary (drainage area 42.6 square miles). Both gages are in Williamstown, Massachusetts.

10. In Vermont, the Hoosic River has been classified by the Vermont Water Resources Board as Class C waters. Class C waters receive or may receive treated waste discharges. They are waters suitable for recreational boating, irrigation of crops not used for consumption without cooking, habitat for wildlife and for common food and game fishes indigenous to the region, and such industrial uses as are consistent with other

class uses. The Hoosic River is Water Management Type III for management primarily as a warmwater fishery, although the Vermont Department of Fish and Game has indicated that there is some potential in establishing a good trout fishery. The associated dissolved oxygen and turbidity standards are 5 mg/l and 25 Jackson Turbidity Units, respectively.

11. Over the years, toxic wastes have been discharged into the Hoosic River by industrial polluters. In fact, three fish kills which occurred in 1980 have been attributed to industrial discharges. As a result, the Department of Fish and Game has no present plans to undertake a stocking program.

12. The Hoosic River has a critical water quality problem. A review of historical water quality sampling data indicates that the river has frequently not met D.O. standards in the past. Furthermore, sampling done in August, 1965 indicates that substantial reoxygenation occurs at the dam. Without spillage at the dam, there can be no assurance that the project will meet D.O. standards. In order to demonstrate no degradation of water quality without spillage, it would be necessary to collect additional water quality data and perform some detailed water quality modeling. In lieu of undertaking that type of study at this time, the applicant now proposes to spill 7Q10 or project inflow, if less. With a run-of-the-river operation, as proposed, this means that the project will not begin to operate until inflows reach 166 cfs (110 cfs low end of the turbine plus a 7Q10 of 56 cfs). That being the case,

the project will not be operating during the critical summer  
low flow periods.

## CONDITIONS

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

A. The project shall be operated in a strict run-of-the-river manner, with instantaneous flows downstream of the tailrace maintained equivalent to instantaneous inflows to the impoundment. A minimum flow of 56 cfs, or instantaneous inflow, if less, shall be spilled at the dam. When the facility is not operating, all inflows shall be spilled at the dam on an instantaneous basis.

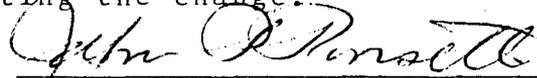
B. When flashboards are installed and the storage deficit behind the boards must be filled, a minimum instantaneous flow of 155 cfs (the estimated August median flow) must be spilled while the pool fills.

C. Any desilting shall be done in accordance with the Agency of Environmental Conservation's Desilting Policy.

D. The applicant shall insure that every reasonable precaution is taken to prevent the discharge of petro chemicals and debris to state waters.

E. Any debris removed from the dam in trashracks shall be disposed of properly.

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



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

Dated at Montpelier, Vermont this  
4<sup>th</sup> day of March, 1983.

JRC/rh  
Encl.