

**Water Quality Certification Amendment
(33 U.S.C. §1341)**

In the matter of: Village of Lyndonville Electric Department
 PO Box 167
 Lyndonville, VT 05851

APPLICATION FOR VAIL HYDROELECTRIC PROJECT

The Vermont Department of Environmental Conservation (the Department) has reviewed a water quality certification amendment application dated February 26, 2009 and filed by the Village of Lyndonville Electric Department (LED). LED requests relief from a certain provision of Condition B of the September 13, 2001, water quality certification for the Vail Hydroelectric Project on the Passumpsic River. Specifically, LED proposes to suspend the spillage of water over the dam crest during the winter period.

The current application is subject to review under the Vermont Water Quality Standards adopted by the Water Resources Board on January 25, 2006 (Standards). Standards became effective on February 9, 2006 (Standards, Section 1-01. Applicability and Definitions). A draft decision was placed on public notice on March 10, 2009, and no comments were received.

The Department, based on the application and record before it, makes the following findings and conclusions.

Findings

1. The Vail Hydroelectric Project was relicensed by the Federal Energy Regulatory Commission (FERC) on March 11, 2004. As part of that proceeding, the Department issued a water quality certification on September 13, 2001, imposing several conditions to assure compliance with Vermont Water Quality Standards.
2. Condition B of the water quality certification requires in part that a uniform spillage of no less than one inch of water (about 8 cfs) be provided over the dam crest year around. Spillage over the dam crest comprises a portion of the flow maintained in the reach of the river between the dam and the project tailrace (the "bypassed reach"). Releasing water into the bypassed reach serves several purposes, including protection of aquatic habitat, improvement of dissolved oxygen concentration in the water, and aesthetics. As noted in Condition B, the provision of full crest spillage was for aesthetics, a management objective for Class B waters.¹ The balance of the bypass flow not spilled over the dam is released through the old skimming sluice near the trashracks. The sluice has been modified for use as part of a downstream passage facility.

¹ Aesthetics - water character, flows, water level, bed and channel characteristics, exhibiting good aesthetic value and, where attainable, excellent aesthetic value based on Water Management Type designation. (*Standards*, Section 3-04(A)(2))

3. By order dated March 24, 2005, FERC approved LED's plan for managing and monitoring flows and impoundment water levels at Vail Dam under Articles 403 and 404 of the new license. Ordering Paragraph B stated, "The licensee shall maintain the impoundment elevation so that at least 1.0 inch of water (approximately 8 cfs) is spilled at all times, until approval of a revised spill schedule is granted by the Vermont Agency of Natural Resources and approved by the Commission. If approval is granted by the Vermont Agency of Natural Resources, the licensee shall submit to the Commission an application to amend the project license, and a revised or amended Water Quality Certificate for the rescheduled flow regime." (*Order Modifying and Approving Operations Plan for Managing/Monitoring Flows and Impoundment Elevations Pursuant to Articles 403 and 404*, FERC, March 24, 2005)
4. By letter dated January 18, 2007, FERC notified LED that it needed to revise its operations plan to reflect a proposed change in the monitoring equipment installation and that the revised plan would need Department approval under Condition E of the water quality certification and FERC approval under Article 404. LED is currently revising its plan in consultation with the Department, FERC, and the U.S. Fish and Wildlife Service. Since the revised plan is in part predicated on suspension of the winter spill, the Department has indicated it will consider approval of the revised plan only after it has acted on a request to amend the certification for the suspension of the winter spill.
5. LED, in its application, indicates that it attempted the year-round spillage during the first year of operation under the new license but encountered a problem. As the ice sheet developed upstream of the dam, the spill over the flashboards became pressurized, creating a spray that enhanced ice formation on and adjacent to the dam, especially during the colder months of January and February. Consequently, LED changed the operation to suspending the aesthetics spill starting around November 1.
6. The flashboards, which are 20 5/8 inches in height, normally fully or partially fail at some point during the winter or during spring high flows. LED proposes to recommence spillage in the spring when the flashboards are reinstalled or repaired.

Analysis and Conclusions

7. Although there may be options to provide the full crest spillage during the winter and reduce the extent of the ice problem, the Department judges that the contribution to the aesthetics value do not merit such changes. LED could install a bubbler system along the upstream side of the dam to create an ice-free zone and diminish the spray effect. Alternatively, LED could remove the flashboards entirely in the fall, but this would reduce the effective head and overall power production.
8. The primary value of the spill to aesthetics at this site is during the non-winter period when most recreational use of the river occurs.
9. Because it is common for the flashboards to partially fail at some point during the period of interest, it is impossible to assure full crest spillage under all conditions.
10. Suspension of the spillage does not divert flow from a natural falls or cascade.

11. LED's request to temporarily suspend the spillage is reasonable; however, it should be limited to the period when the ice formation is problematic. Consequently, the spill should be maintained through the end of November and be reestablished no later than April 1 of the following year.

12. Two other modifications of Condition B are warranted. First, it is being revised to address periods when the flashboards have partially failed. Under those conditions, LED cannot maintain a uniform spillage of one inch. Second, Condition B, as originally drafted, required certain minimum flows over the dam and certain minimum flows through the fishway. Technically, it should have been worded to require certain minimum flows over the crest for aesthetics and a minimum combined flow (spillage and fishway flow) for habitat protection and dissolved oxygen enhancement. The revised Condition B addresses these two issues and the suspension of the winter spillage.

Decision and Certification

Based on its review of the applicant's proposal and the above findings, the Department concludes that there is reasonable assurance that operation and maintenance of the Vail Hydroelectric Project as originally certified but with Condition B revised as follows 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, 33 U.S.C. §1251 et seq., as amended, and other appropriate requirements of state law:

B. Flow Management. Except as allowed in Condition C 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 released through the fishway and spilled at the dam. From April 1 through November 30, the impoundment elevation shall be maintained so that at least 1.0 inch of water (approximately 8 cfs) is spilled at all times uniformly over the full dam crest, except when the flashboards have partially failed, in which case a spillage of no less than 8 cfs shall be maintained over the dam but not at a uniform depth.

Conservation flows for the bypassed reach shall be provided by a combination of spillage over the dam (to address aesthetics during the non-winter period) and flow through the fishway.

When the Great Falls Project impoundment is at or above the top of that dam's flashboards (at or above elevation 668.4 feet msl), a minimum of 31 cfs, or inflow if less, shall be released into the bypass. When the Great Falls Project impoundment is below the top of that dam's flashboards (below elevation 668.4 feet msl), a minimum of 54 cfs, or inflow if less, shall be released into the bypass.

Dated at Waterbury, Vermont this
27th day of April, 2009

Laura Q. Pelosi, Commissioner
Department of Environmental Conservation

By 
Larry R. Fitch, Director
Facilities Engineering Division

c: Distribution List

LRF/JRC