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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Central Vermont Public Service Corporation	))	Project No. 2731-018

ORDER APPROVING A MINIMUM FLOW STUDY PLAN

JUL 24 1997

On March 24, 1997, Central Vermont Public Service Corporation (licensee) filed a minimum flow study plan for the Weybridge Project.

Background

The Weybridge Project is located on Otter Creek, Vermont approximately 20 miles upstream of the confluence with Lake Champlain. The 3,000 kilowatt-project has a single Kaplan turbine with a hydraulic capacity of 1,625 cubic feet per second (cfs). The licensee usually operates the project in a run-of-river mode, but it may store water for peaking generation. Article 31 of the project license required the licensee to conduct studies to determine the need for a minimum flow release from the project to protect and enhance the fish and wildlife resources in Otter Creek.

Pursuant to article 31, the licensee filed the results of its minimum flow studies in 1987. On December 26, 1991, the Commission issued an Order Establishing Minimum Flow Release Requirement for the Weybridge Project. Based on the information from the licensee's study, paragraph (A) of that order required the licensee to discharge a minimum flow 140 cfs or inflow, whichever is less, for the protection of fish and wildlife resources in Otter Creek.

On January 24 and 27, 1992, the U.S. Department of the Interior (Interior) and the State of Vermont (Vermont), respectively, filed requests for rehearing of the December 26 order. Vermont contended that the biological analysis, upon which the required 140 cfs minimum flow was based, was flawed. Interior requested that the Commission order the licensee to conduct further instream flow studies of the reach below the project using the Instream Flow Incremental Methodology (IFIM).

On March 14, 1996, Commission staff convened a meeting among representatives of the licensee, Vermont Agency of Natural Resources (VANR), and U.S. Fish and Wildlife Service (FWS). The purpose of the meeting was to resolve some the outstanding issues set forth by Vermont and Interior in their respective rehearing requests. In a letter dated June 13, 1996, the Commission circulated a copy of a signed Agreement reached among the

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participants at the March 14 meeting regarding minimum flows at the Weybridge Project. Part of the Agreement provided for the development of a plan for conducting a new instream flow study that would be filed with the Commission. Upon the issuance of a Commission order approving the plan, FWS and VANR, representing Interior, and Vermont, respectively, consented to concomitant dismissal of their pending requests for rehearing of the Commission's December 1991 order.

In accordance with the Agreement, the licensee developed a minimum flow study plan in consultation with FWS and VANR. The study was completed in August 1996. Because the provisions of the Agreement also call for Commission approval of the study plan, the licensee filed the plan with the Commission on March 24, 1997.

Licensee's Minimum Flow Study Plan

To evaluate the habitat/discharge relationship in the two-mile section of Otter Creek below the project, the licensee developed a minimum flow study using the FWS's recommended IFIM. With input from the FWS and VANR, the licensee selected eight transects in four Otter Creek primary habitat regimes. In the field, the licensee collected depth and water velocity data at each transect under a series of four flow releases from the dam and powerhouse (140 cfs, 500 cfs, 800 cfs, and 1,600 cfs).

In consultation with VANR, the licensee selected several aquatic species and life stages it would evaluate using the IFIM. These species included walleye, rainbow trout, fallfish, smallmouth bass, macroinvertebrates, and mussels. With the exception of mussels1/, the licensee obtained habitat suitability index (HSI) curves that represented preferred microhabitat conditions (depth, water velocity, substrate, and cover) for each species.

The licensee used the stage-discharge field measurements in the IFG4 hydraulic model to predict water surface elevations for flows in the habitat analysis. Based on this analysis, the licensee computed the amount of physical habitat weighted by the HSI curve for each species and life stage. The result of this analysis were weighted usable area (WUA) curves for each species and life stage. The licensee, FWS, and VANR may use the WUA curves to make recommendations for minimum flow releases necessary to protect and enhance the fish and wildlife resources of Otter Creek.

1/ The licensee and the resource agencies agreed to evaluate mussel habitat using the wetted width method rather than IFIM.

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Resource Agency Comments

In letters dated March 13 and 28, 1997, the VANR and FWS, respectively, commented on the licensee's plan. In general, FWS and VANR made several comments regarding the analysis and presentation of the IFIM study data but did not raise objections regarding how the data were collected.

Discussion

The licensee filed its minimum flow study plan in accordance with an Agreement with the resource agencies to resolve some outstanding issues associated with the Commission's 1991 order. The licensee completed its new minimum flow study in 1996, but did not include the results in its March 1997 filing. Our purpose here is to review the methodology the licensee used in collecting its 1996 data necessary to make a revised minimum flow recommendation for the project. We will evaluate the results of the licensee's 1996 study in a separate proceeding when it files the study results.

Our review of the licensee's plan indicates that it conforms to the basic tenants of IFIM methodology as outlined in peer-reviewed scientific literature. 2/ Implementation of the plan should have provided the licensee and the resource agencies with the information necessary to make a revised minimum flow recommendation for the project. Based on our review, we do not believe the licensee should have to repeat the study or collect any additional hydraulic and or habitat data to make a recommendation for a revised minimum flow.

As discussed previously, the resource agencies do not appear to disagree with the how the instream flow study was conducted. Our review of the licensee's filing indicates that it adequately responded to the agencies' concerns about how it may analyze the instream flow data in the future.

One of the terms of the licensee's Agreement with the resource agencies indicates the data from the 1996 instream flow study would become the basis for setting the minimum flow requirements under the existing license (article 31). The licensee suggests that it would file the results of its 1996 instream flow study by July 1, 1997. Review of Commission records does not indicate that the licensee has filed these data. In accordance with its Agreement, we fully expect that, after

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2/ Orth, D.J., and O.E. Maughan. 1982. Evaluation of the incremental methodology for recommending instream flows for fishes. Transactions of the American Fisheries Society, 111(4): 413-445.

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consultation with the resource agencies, the licensee will file the 1996 study results, a recommendation for a revised minimum flow, and a request to amend the Commission's December 26, 1991 Order Establishing Minimum Flow Release Requirement for the Weybridge Project.

As discussed above, the licensee's minimum flow study plan, filed March 24, 1997, should be approved.

The Director orders:

(A) The licensee's minimum flow study plan, filed March 24, 1997, is approved.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of The date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

Kevin P. Madden
Acting Director
Office of Hydropower Licensing