

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 6638

Petition of State of Vermont, Department of)	
Environmental Conservation, for authorization to make)	Hearing at
repairs to the Waterbury Dam, a flood control dam)	Montpelier, Vermont
located in Waterbury, Vermont)	March 20, 2002

Order entered: 3/27/2002

PRESENT: Wayne L. Foster, Hearing Officer

APPEARANCES: Warren T. Coleman, Esq.
for Vermont Department of Environmental Conservation

June E. Tierney, Esq.
for Vermont Department of Public Service

Harriet A. King, Esq.
for Green Mountain Power Corporation

I. INTRODUCTION

This case concerns a petition filed by the Vermont Department of Environmental Conservation ("DEC"), a Department of the Vermont Agency of Natural Resources, on February 8, 2002, requesting authorization, under Chapter 43 of Title 10 of the Vermont Statutes, to proceed with repairs to the Waterbury Dam ("Dam").

On March 15, 2002, a public hearing was held in Waterbury, Vermont. Notice of the public hearing was sent to all parties and interested persons on March 6, 2002. In addition, notice of the public hearing was published in "The Stowe Reporter" on February 28 and March 7, 2002, and in "The Times Argus" on February 27 and March 8, 2002. The public hearing was held as scheduled at 7:00 P.M. at the Skylight Conference Room located on the first floor of the North Building of the Waterbury State Office Complex, 103 South Main Street, Waterbury, Vermont. Also, on March 15, 2002, a site visit was held at 3:00 p.m.

Notice of a technical hearing was sent on March 6, 2002, to all interested parties. In addition, notice was posted in the Waterbury and Stowe Town Offices and was published in "The

Stowe Reporter" on February 28 and March 7, 2002, and in "The Times Argus" on February 27 and March 8, 2002. The technical hearing was held as scheduled on March 20, 2002, at 9:30 A.M. at the Public Service Board's Hearing Room, Third Floor, Chittenden Bank Building, 112 State Street, Montpelier, Vermont. No one appeared in opposition to the petition and substantial evidence was presented in support of the petition.

On March 20, 2002, the Board's engineering consultant, Stephen C. Knight, Jr., P.E., submitted his report on this matter to the Board.

II. FINDINGS

Pursuant to 30 V.S.A. § 8, and based on the record and evidence before me, I present the following findings of fact and conclusions of law to the Board. To the extent these findings are inconsistent with any proposed findings, such proposed findings are rejected.

1. DEC is the owner of the Dam which is located in Waterbury, Vermont. The Dam, built in 1935-1938 following the disastrous flood of 1927, is a compacted earth embankment dam and impounds Waterbury Reservoir ("Reservoir"), a pond of 850 acres of surface area at normal pool height. The primary purpose for constructing the Dam was flood control. Subsequent to the Dam's original construction, Green Mountain Power Corporation ("GMP") was authorized in 1953 by the Federal Energy Regulatory Commission ("FERC") to construct a hydroelectric facility below the Dam. The Reservoir is also a highly utilized recreational facility for swimming, fishing and boating and provides frontage for two State Parks and four boat launches. Finucane pf. at 3-6, 19; pet. at 1-2.

2. The Dam is subject to the jurisdiction of the Public Service Board ("Board") pursuant to 10 V.S.A. § 1081(a) which regulates dams "that relate to or are incident to the generation of electric energy for public use or as part of a public utility system." Pet. at 1.

3. DEC closely monitors the condition of the Dam. In 1996, conditions were observed that precipitated the hiring of a consultant to further study the Dam and gather data. A report generated by the consultant detailed problems with the Dam that could lead to its failure. Specifically, internal changes in water levels have the potential to cause internal erosion or piping caused by seepage in the old river gorge. As a result of this report, in 1999, the U.S. Army Corps of Engineers ("USACE") enrolled the Dam in the Dam Safety Assurance Program.

In August 2000, the USACE prepared a report that concurred with the consultant regarding the serious problems with the Dam along the line of the old river gorge. In addition, the USACE reported that the construction of the embankment along the line of the outlet tunnel was potentially deficient. This report proposed corrective measures to the Dam. In April 2001, the USACE conducted a Value Engineering Study, which identified potential problems with the proposed corrective measures. Following additional site investigations, in November 2001, the USACE prepared an addendum to the August 2000 Report, which addressed changes in the engineering design basis for repair of the Dam in the old river gorge section and described measures for environmental mitigation projects. Finally, a board of consultants convened and reviewed the August 2000 Report and the November 2001 addendum and approved the approach proposed in the addendum. The USACE has since prepared plans and specifications for repairs at the Dam that address the Dam's structural deficiencies in light of the findings of the August 2000 Report, the addendum, and the board of consultants' report. These plans and specifications have been reviewed by the Board's engineering consultant. Finucane pf. at 6-9; Snyder pf. at 4-5, 10; exhs. DEC 10 and 11; exh. Board-1.

4. The DEC is proposing to repair the Dam in accordance with the plans and specifications prepared by the USACE, which will involve constructing a filter along the outlet conduit and installing a cutoff wall and a seepage collection system in the old river gorge section. The proposed repairs will control seepage, prevent piping, allow for the control of water levels in the dam and permit subsequent monitoring of internal dam conditions. Finucane pf. at 10-11, 13-14; Snyder pf. at 5-10, 12-13, 18; exhs. DEC 7, 8, 10 and 11.

5. Repair of the Dam will restore its flood control functions as well as significant scenic, recreational and other public benefits associated with the Dam and the Reservoir. The Reservoir has been drawn down since the summer of 2000 due to precautionary measures against failure of the Dam. Normal Reservoir pool sizes will not be restored until repairs are completed. Finucane pf. at 7, 19, 21-23; pet. at 2.

6. Construction of the proposed repairs of the Dam will commence in June 2002, with an estimated completion date of November 2004. Leite pf. at 5; Finucane pf. at 17; pet. at 3.

7. As mitigation for the anticipated short-term environmental impacts associated with the release of sediment during further draw down of the Reservoir, the USACE has proposed shoreline stabilization projects to control erosion which will commence during the second construction year. The Agency of Natural Resources ("ANR") must issue an approval for these proposed projects, a Lakes and Ponds Encroachment permit. In addition, a small area of streambank that has been destabilized below the Dam will be repaired. The ANR will need to issue a Stream Alteration Permit for this proposed project. This proposed bank stabilization project will commence in the first or second construction year. The DEC will apply for these permits following completion of the final designs and expects that these proposed off-site mitigation projects can be designed in accordance with the applicable permit requirements. These proposed off-site mitigation projects are not part of the proposed repairs to the actual Dam facility. Pet. at 2; Finucane pf. at 11; Penko pf. at 5, 8-9.

Cultivated Agricultural Land

[10 V.S.A. § 1086(a)(1)]

8. No cultivated agricultural lands will be rendered unfit for use as a result of this proposed project, including both the immediate and long-range agricultural land use impacts. The proposed project will restore the Reservoir to historic 1938-2000 water levels. No new agricultural lands will be inundated as a result of the proposed project or the restoration of the Reservoir to historic water levels. Finucane pf. at 18.

Scenic and Recreational Values

[10 V.S.A. § 1086(a)(2)]

9. In the short term, scenic and recreational values will continue to be affected as the Reservoir is drawn down for the 2002 construction season to 520' from its current precautionary level of 550'. As a result, the total pond surface area will be reduced from approximately 400 acres at present to 160 acres at the 520' elevation. Access by powerboats will therefore be more difficult as more unvegetated reservoir bottom will be exposed around the perimeter of the reservoir. Finucane pf. at 18-19; Penko pf. at 8.

10. Following the end of the first construction season, the pond will be restored to the 550' elevation and a pond area of approximately 400 acres, which is approximately half of its normal

size of 850 acres. Therefore, scenic and recreational resources will be restored to those experienced after the 2000 precautionary draw down. Finucane pf. at 18-19.

11. After completion of the proposed Dam repairs, scenic and recreational values will be enhanced with the restoration of the historic water levels of approximately 590'. The Reservoir provides frontage for two State parks and four boat launches and extensive swimming, fishing and boating opportunities. Close to 48,000 recreational user days per year are attributable to the Dam and Reservoir. Finucane pf. at 19; pet. at 2.

Fish and Wildlife

[10 V.S.A. § 1086(a)(3)]

12. The Department of Fish and Wildlife has investigated the potential effects on fish and wildlife resources resulting from the proposed project. Exh. DEC 13.

13. In accordance with 10 V.S.A. § 1084, the Commissioner of the Department of Fish and Wildlife has certified the results of the Department's review of the proposed project and finds that no new impacts to wildlife are expected, although short-term effects on fish and fish habitat are expected as a result of the 2002 proposed draw down of the Reservoir to the 520' pool level. Specifically, short-term effects on fish, fish reproduction, and macroinvertebrate populations may result due to increased water temperature, turbidity associated with sediment release, and decreased levels of dissolved oxygen. Alternatives to prevent potential impacts were considered and none were found to be feasible. The USACE has proposed a program of monitoring of sediment, turbidity, temperature and dissolved oxygen impacts. Methods to minimize impacts of temperature and dissolved oxygen will be implemented if necessary. The Commissioner has recommended, in a report dated January 30, 2002, that the proposed repairs should proceed without delay to ensure the restoration of functional water levels for wetlands around the Reservoir. Finucane pf. at 19-20; Penko pf. at 4-5, 7-9; Kim pf. at 7-14; pet. at 7; exh. DEC 13.

14. Recognizing the potential short-term effects of the proposed Reservoir draw down, the USACE has proposed two shoreline stabilization projects to control erosion in the Reservoir. These proposed projects will contribute to the long-term improvement of water quality in the Reservoir and downstream of the Dam in the Little River, and will be implemented during the second construction season. Finucane pf. at 20; Penko pf. at 8-9; Fitzgerald pf. at 7; pet. at 2.

15. Although construction of the proposed project will result in some short-term impacts on the environment, failure of the Dam would have a variety of severe adverse environmental and economic impacts. The environmental impacts of the proposed project are equal to or less than those of any other plan that would fully reduce the risk of a catastrophic failure of the Dam. Penko pf. at 2, 6-7.

Forests and Forest Programs

[10 V.S.A. § 1086(a)(4)]

16. The proposed project will have no impact on forests or forest programs. The proposed project does not involve the cutting of forests or any construction activities within a forest. No new reservoir area will be created and therefore no forestlands will be inundated. No access used for forestry operations will be affected. Finucane pf. at 21.

Minimum Water

Discharge Flow Rate

[10 V.S.A. § 1086(a)(5) & (b)]

17. The DEC has recommended that downstream flow management standards, which are consistent with current operation of the GMP hydroelectric facility, be maintained during the proposed project construction period. These flows also represent the ANR's recommendations for minimum stream flows pursuant to 10 V.S.A. § 1086(b). During the first season draw down to 520', accomplished by a controlled draw down of one foot per day, the maximum discharge rate from the GMP facility will be similar to historic operations when the reservoir is at normal pool levels of 590'. During periods when the reservoir is being maintained at either 520' (during the first construction season) or 550' (until construction completion), outflow of the reservoir will equal inflow on a daily basis, with a minimum flow of 11 cubic feet per second ("cfs") being maintained. Finally, after completion of construction and during refilling of the Reservoir to 590', the 11 cfs conservation flow will be maintained at all times. Fitzgerald pf. at 4-6; Finucane pf. at 21.

Existing Uses
of the Waters

[10 V.S.A. § 1086(a)(6)]

18. Since the summer of 2000, the Reservoir has been drawn down as a precautionary measure to the 550' elevation. This has limited the surface area to approximately 400 acres and rendered three of four boat launches and two public beaches unusable. Finucane pf. at 7, 8, 21-22.

19. During the first season of construction, the Reservoir is proposed to be lowered to 520', which will affect boating, swimming and fishing opportunities. However, following the first season of construction, the Reservoir will be brought back up to the 550' elevation and current recreational uses will be reestablished. Finucane pf. at 19.

20. Upon completion of construction, the Reservoir will be refilled to the 590' historic elevation and approximately 850 surface acres for recreation will be reestablished, thereby fully restoring historic public uses. Finucane pf. at 19-20, 22.

Hazard to Navigation, Fishing, Swimming
or Other Public Uses

[10 V.S.A. § 1086(a)(7)]

21. During the first season of construction, the proposed draw down of the Reservoir to 520' will create boating hazards because the Reservoir will be shallower. In addition, the area near the outlet conduit intake will be potentially dangerous to boaters and swimmers. The DEC will employ booms and buoys to provide warning signs of this hazard and prevent unsafe conditions. Finucane pf. at 22; tr. at 22-25.

22. During the second and third construction seasons, water levels in the Reservoir will return to the current level of 550'. This will alleviate hazards to boaters and swimmers from shallow water and the outlet conduit intake. Following the construction period, water levels in the Reservoir will return to 590', thereby alleviating hazards to public uses both at the Reservoir and downstream of the Dam. Finucane pf. at 22-23.

Cutting Clean and Removal
of All Timber

[10 V.S.A. § 1086(a)(8)]

23. The proposed project will not involve the cutting of trees or timber in any part of the flowage area of the dam. No new areas will be flooded. The area that has been exposed by the 2000 precautionary draw down will not have grown timber that needs to be cut and removed when historic water levels are reestablished in the Reservoir. Finucane pf. at 22.

Creation of Any Public benefits

[10 V.S.A. § 1086(a)(9)]

24. The proposed project will repair the Dam and eliminate the potential for its failure, which could result in an estimated \$278 million in flood damages and economic losses including the inundation and damage to 1300 structures, 31 miles of roads, and 17 miles of railroad tracks. The population at risk from Dam failure is over 10,000 people with the potential for loss of life. Finucane pf. at 12, 23; pet. at 2-3.

25. The proposed project, once completed, will permit the Reservoir to be restored to historic 1938-2000 levels of 590', which will restore recreational opportunities and positively impact the regional economy. Finucane pf. at 23.

26. Hydroelectric operations at GMP's facility downstream of the Dam have been adversely affected by the precautionary draw down of the Reservoir since the summer of 2000 due to lost head and water storage. Hydroelectric operations will continue to be adversely affected in the short term due to reduced head that will result from further lowering of the water level in the Reservoir and reduced operational flexibility due to less operable storage during the period of draw down to 520' of the first construction season. Completion of the project will enable a return to normal water levels and restore the generating capacity, headwater benefits, and operational flexibility to GMP. Finucane pf. at 23.

Classification, If Any, of Affected Waters

[10 V.S.A. § 1086(a)(10)]

27. The waters of the Reservoir and the Little River are all classified as Class B in accordance with the Vermont Water Quality Standards. The proposed project will not have an effect on the classification of the affected waters. Fitzgerald pf. at 10; Finucane pf. at 24.

Any Applicable State, Regional or Municipal Plans

[10 V.S.A. § 1086(a)(11)]

28. The proposed project will have no known effect on any state, regional or municipal plans. Finucane pf. at 24; exhs. DEC 14-15.

Municipal Grand Lists and Revenues

[10 V.S.A. § 1086(a)(12)]

29. The proposed project will have no effect on the Municipal Grand Lists or Revenues. Repair of the Dam and all related work will be on State-owned lands. Finucane pf. at 24; exh. DEC 15.

Public Safety

[10 V.S.A. § 1086(a)(13)]

30. The existing Dam is in need of repair and has the potential for failure due to internal changes in water levels which have the potential to cause internal erosion or piping caused by seepage in the old river gorge. Finucane pf. at 25; Snyder pf. at 13.

31. Extensive investigation of potential alternatives for repair have been investigated by the DEC and USACE. The proposed project has been selected as the preferred alternative to repair the Dam and restore its flood control functions and ensure the public's safety. The project will thus improve the public safety. Finucane pf. at 25; Snyder pf. at 10-12.

32. The Board's dam safety engineering consultant has reviewed the proposed project plans and specifications, visited the site and recommended that the Board approve construction of the proposed project. The Board's consultant has concluded that the proposed project adequately provides for the public safety, and will serve the public good. Exh. Board-1; tr. 3/20/02 at 54 (Knight).

III. CONCLUSIONS

Based upon all the above evidence, the proposed Waterbury Dam repairs will serve the public good, having given due consideration, among other things, to the effect the proposed project will have on:

- (1) the quantity, kind and extent of cultivated agricultural land that may be rendered unfit for use by the project, including both the immediate and long range agricultural land use impacts;
- (2) scenic and recreational value;
- (3) fish and wildlife;
- (4) forests and forest programs;
- (5) the need for a minimum water discharge flow rate schedule to protect the natural rate of flow and the water quality of the affected waters;
- (6) the existing uses of the waters by the public for boating, fishing, swimming and other recreational uses;
- (7) the creation of any hazard to navigation, fishing, swimming or other public uses;
- (8) the need for cutting clean and removal of all timber or tree growth from all or part of the flowage area;
- (9) the creation of any public benefits;
- (10) the classification, if any, of the affected waters under Chapter 47 of Title 10;
- (11) any applicable state, regional or municipal plans;
- (12) municipal grand lists and revenues; and
- (13) public safety.

The parties have waived the opportunity to comment on this Proposal for Decision in accordance with 3 V.S.A. § 811.

Dated at Montpelier, Vermont, this 25th day of March, 2002.

s/Wayne L. Foster
Wayne L. Foster
Hearing Officer

IV. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that:

1. The Findings and Conclusions of the Hearing Officer are adopted.
2. The repairs of the Waterbury Dam in Waterbury, Vermont, by the Vermont Department of Environmental Conservation, in accordance with the evidence, plans and specifications submitted in this proceeding, will serve the public good, in accordance with 10 V.S.A. § 1086.
3. A minimum stream flow of 11 cfs shall be maintained during the term of the project repairs, consistent with Finding No. 17.

Dated at Montpelier, Vermont, this 27th day of March, 2002.

<u>s/Michael H. Dworkin</u>)	
)	
)	PUBLIC SERVICE
<u>s/David C. Coen</u>)	
)	
)	BOARD
)	
)	OF VERMONT
<u>s/John D. Burke</u>)	

OFFICE OF THE CLERK

FILED: March 27, 2002

ATTEST: s/Susan M. Hudson
Clerk of the Board

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or mail) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: Clerk@psb.state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.