

State of Vermont
WATER RESOURCES BOARD

Water **Quality** Certificate
(P.L. **92-500, Section 401**)

In re: Vermont Marble Power Division of OMYA (OMYA)
61 Main Street, Proctor, Vermont 05765
Docket No. WQ-92-12

APPLICATION FOR CENTER **RUTLAND** HYDROELECTRIC
PROJECT

On December 27, 1991, Vermont Marble Company, whose name was changed to OMYA, Inc. on September 30, 1992 (**the applicant**), filed an application (dated December 24, 1991) for a water quality certification under section 401 of the federal Clean **Water Act** with the Water Quality Division of the Vermont **Department of Environmental Conservation, Agency of Natural Resources (the Department)**. On November 20, 1992, the Commissioner of the **Department** issued a certification. The applicant filed a timely, **appeal of the decision**, purportedly made on behalf of **the Secretary, challenging certain findings and conditions**. **Based on** the stipulation of the parties **to the appeal**, and after hearing the **comments** of the parties, the Water Resources Board (Board), makes **the following findings and issues the following** water quality certificate, based upon its jurisdiction on appeal pursuant to 20 V.S.A. §§ 1004 and 1024(a) and the application of the Vermont Water Quality Standards (Effective May 27, 1991) (**the Standards**) **as well as** other appropriate requirements of State law as outlined herein:

I. **Background/General Setting**

1. The applicant has applied to the Federal' Energy Regulatory Commission (FERC) for relicensure of the Center **Rutland Hydroelectric Project** located on **the Otter Creek in the Town of Rutland approximately** 71 river miles upstream of the Creek's confluence with Lake Champlain. **The project** dam is approximately 1,000 feet upstream of the confluence of the Clarendon River with Otter Creek and 6,000 feet downstream of the confluence of East Creek with Otter Creek. (Attachment A)
2. Otter Creek, Vermont's longest stream, originates in **Dorset** in the wetlands above 'Emerald Lake and flows northerly through, first, the Valley of Vermont, between the **Taconic** Range to the west and the Green Mountain Range to the **east and** then through the broad Champlain Lowlands before discharging into Lake- Champlain below Vergennes.
3. The dam and other **project facilities** were first developed by the applicant, which has operated them since 1898.

II. Project and Civil Works

4. The existing dam consists of a 190 foot long concrete and stone masonry structure located on a ledge outcropping known as Meads Falls. The dam crosses the stream in a generally north-south direction with a twelve-degree bend about a third of the way from the right (north) abutment. The spillway is 174 feet long and has a crest elevation of 504.8 feet (msl). The remaining portion of the dam **is** a 16 foot long, non-overflow section. (Attachment B)
5. The dam's spillway is fitted with 2.3 feet of wooden flashboards. The top of these boards is at elevation 507.1 feet (msl). Flashboards are maintained in place for normal operation year-round.
6. The project impoundment has a surface area of 13 acres; negligible usable storage capacity; a gross storage volume of 30 acre-feet; an average width of 140 feet; and a backwater influence of about 4,000 feet. With water levels lowered to the dam crest (elevation 504.8 msl)., **the** impoundment has an average maximum surface area of seven acres; a gross storage capacity of 17 acre-feet; and a length of 3,200 feet (**draft FERC** license amendment application, 1988). The project has an average tailwater elevation of 477 feet (msl), resulting in an average gross head of 30.4 feet.
7. Project headworks consist of a **forebay** and intake structure located at the north end of the dam. The **forebay** makes an S-bend coming from the impoundment to the intake. The intake structure is a steel trashrack and a wooden gate in a steel frame. The trashrack is approximately 31 feet wide by 12 feet high. Trashrack bar spacing is approximately 9/16 inch. The wooden gate is operated manually with a handwheel. An abandoned spill gate 6 feet wide by 5.5 feet high is located just north of the intake structure ~~this gate is plugged with~~ concrete.
8. Water flows from the headworks to the powerhouse through a 75-foot long, 6-foot diameter welded steel penstock, 15 feet of **the penstock** being located in the project's powerhouse. The powerhouse is a one-story stone and masonry structure **measuring** approximately 33 feet by 40 feet by 12 feet high. It contains a single turbine and generator. **The turbine is a horizontal Francis type unit** manufactured by Holyoke Machine Company. The generator is rated at 275 kW. Estimated average annual generation **is 1686 mWh.**

9. The **tailrace** from the project powerhouse discharges into the downstream corner of a plunge pool located at the base of the ledge outcrop on which the dam is constructed. The resulting bypass is approximately 100 feet long. Immediately below the plunge pool is riffle reach of about 700 feet terminating just below the U.S. Route 4 bridge, below which the river turns into a slower moving river with numerous **oxbows** and S-bends further downstream.
10. Electrical power generated by the project is carried approximately 70 feet to three **110-KVA**, single-phase, **480/11,000-volt** transformers located outside the powerhouse. The primary purpose of the project is to generate electricity for use in the applicant's system load, which includes service to residential customers as well as its own industrial facilities.

III. Flow Resime

11. The project hydraulic capacity is 60 to 275 cfs.
12. The drainage area at the dam is 307 square miles. Since water year 1928, a gaging station (**#04282000**) has been **operated** by the U.S. **Geological** Survey on Otter Creek 200 feet downstream of the dam. Operation of Center **Rutland** and other generating facilities on East Creek affect the natural flow statistics of the river. Several **of** the flow parameters for the project have been estimated and are shown in the following table:

Parameter	Value
Mean runoff	5 5 4 cfs (24.51 in/yr)
7410	79 cfs
95 % Exceedance	107 cfs
50 % Exceedance	332 cfs
10 % Exceedance	1240 cfs

13. A run-of-river project is one which does not operate out of storage and, therefore, **does not artificially regulate streamflows below the project's powerhouse**. Outflow from the project is **equal** to inflow to the project's impoundment on an instantaneous basis.

14. **According to a Department report Hydropower in Vermont: An Assessment of Environmental Problems and Opportunities, May 1988, the project's impoundment fluctuates up to 1.5 feet during low flows and 1.0 foot during moderate flows. Also, the U.S. Geological Survey gage located immediately downstream has recorded instantaneous flows as low as 10% of 7Q10, an indication of impounding conditions.**
15. The applicant proposes to operate the site in an automated run-of-river mode and maintain a spillage flow of 79 cfs, or instantaneous inflow if less, over the dam for the period June 1 to October 15. Operation of the generating unit will be controlled by a pond level sensor **that will be installed in the impoundment.** Direct linkage of the sensor to automated unit controls will allow the applicant to maintain a stable **headpond** to provide the spillage required hereby. The applicant has **estimated that this** will require maintaining the **headpond** at approximately 0.25 foot -above the top of **the** flashboards, but it is understood that 80 cfs will be the spillage requirement, not the height of water above the **flashboards.**
16. Under the applicant's spillage proposal, during the period June 1 to October 15, all inflows will be spilled when flows recede below 140 cfs (minimum turbine outflow plus 80 cfs spillage). When inflows exceed 355 cfs (**maximum turbine outflow plus 80 cfs spillage**), excess flows will be spilled at the dam, in addition to the 80 cfs minimum.

IV. Bypass

17. The project bypass is approximately 100 feet long and consists of the ledge outcrop on which the dam is founded and a **plunge pool** at the base of the outcrop. The ledge **outcrop is approximately** 60 feet long and 24 feet high. The plunge pool is at approximately the same elevation as the **tailrace** from the project's power house. **Flows** that have been passed through the turbines feed the plunge pool to a significant extent. The portion of the river that actually may receive less than natural flows, therefore, consists only of the face of the dam and the rock **ledge** on which it is built, neither of which is itself suitable fish habitat. The required level of habitat for aquatic biota in the **plunge pool and** further downstream is ensured by the spillage flows **required** herein.

V. Standards Desianation

18. The 'Otter Creek from its confluence with Moon Brook in **Rutland** (river mile 72.8,) to its confluence with **Furnace Brook** in Pittsford (river mile **60.3**) presently is designated as a Class B waste management zone. (Prior to the amendment of 10 V.S.A. § 1252, which amendment **was** effective after the date the applicant filed the application that resulted in the issuance of the **certificate** on appeal, that section of Otter Creek was designated as a Class- C zone.) The zone receives discharges from five municipal facilities. The outfall of the **Rutland** Municipal Wastewater Treatment Facility is located about **one** mile upstream of the project **at** river mile 71.9. The project is located at river mile **71**, within the class B waste management zone. See Standards, Ch. 4, Section 4-03 and the Classification Orders referenced therein: see also 10 V.S.A. § 1252(b) (**Supp.** 1994).

The Water Resources Board has designated the Otter Creek as cold water fisheries habitat from its **source** to the outfall of the Proctor Wastewater Treatment Facility in Proctor. From- the Proctor outfall downstream to. **the** stream's confluence with Lake Champlain, except the portion between the Beldens Dam and Huntington **Falls Dam** in New Haven/Weybridge, the **Board** has designated the river as a warm water fisheries habitat. Standards. Appendix A, part **A.3.(j)**. The project is located upstream of the Proctor Wastewater Treatment Facility, **in** the section that has been designated as cold water fisheries habitat.

19. Class B waters are managed to achieve and maintain a high level of quality compatible with certain beneficial values and uses. Values are high quality habitat for aquatic biota, fish and wildlife and a water quality that consistently exhibits good aesthetic **value**; **uses** are public water supply with filtration and disinfection, irrigation and other agricultural uses, swimming, and recreation. (Standards, Section 3-03)
20. Class C waters, such as the stretch of Otter Creek at issue here, formerly were managed to achieve and maintain a good level of quality compatible with certain beneficial values and uses. Values are habitat suitable for aquatic biota, fish and wildlife.: Uses are recreational boating and any recreational or other water uses where contact with the water is minimal and where ingestion of the water is not probable; irrigation of crops not used for human consumption without cooking; and **compatible industrial** uses. (Standards, Section 3-04)

21. Waste management zones (formerly classified as Class C waters), although Class B waters, present an increased level of health risk to contact recreational users due to the discharge of treated sanitary wastewater.
22. For Class B waters (including those designated as waste management zones that formerly were classified as Class C waters) the following criteria apply: dissolved oxygen limits for cold water habitat streams are 6 mg/l or 70 percent saturation unless higher concentrations are imposed for areas that serve as salmonid spawning or nursery areas important to the establishment or maintenance of the fishery resource, Standards, section 3-01B.1.a.; temperature increases from background are limited to 1.0°F, Standards, Section 3-01B.2.b.; turbidity is not to exceed 10 NTU, Standards, sections 3-03B.1.a. and 3-04B.1.a.
23. Under the general water quality criteria, all waters, except mixing zones, are managed to achieve, as in-stream conditions, aquatic habitat with "[n]o change from background conditions that would have an undue adverse effect on the composition of the aquatic biota, the physical or chemical nature of the substrate or the species composition or propagation of fishes." (Standards, Section 3-01B.5.)
24. Section 2-02 Hydrology of the Vermont Water Quality Standards requires that "[t]he flow of waters shall not be controlled or substantially influenced by man-made structures or devices in a manner that would result in an undue adverse effect on any existing use; beneficial value or use or result in a level of water quality that does not comply with these rules." The project dam is a man-made structure that controls or substantially influences streamflow.

VI. Water Quality

a: Chemical

25. The applicant did not collect water quality data as part of its relicensing studies. The applicant did, however, collect water quality data at the project as part of an earlier 'redevelopment proposal. This data, 'collected July 10-15, 1988, is presented in the draft 1988 FERC license amendment application.
26. Based on this earlier data, the applicant cites, in the 1988 draft application, the importance of spillage at the Center Rutland Dam as a 'source' of reaeration. The applicant also states in the amendment application that

the downstream riffles from **the tailrace** to the new **U.S.** Route 4 bridge have limited effectiveness in raising the **water's** dissolved oxygen concentration **except** when the concentration is well below saturation and that producing saturated conditions **at the** base of the dam assures that the downstream **dissolved** oxygen sag point, located at river mile 65.7, will be maintained above the **minimum** standards.

Study results from the 1988 sampling show that spillage of **all** inflows-at the dam removes all or most of the dissolved oxygen deficit that exists in the project's impoundment (Station **6A**). Samples collected at Station 6A were substandard on two out of three of the 'dates where early morning samples were collected, the algal influence being quite pronounced.

27. The Department has conducted extensive modeling in this reach of the Otter Creek. The Department conducted a wasteload allocation study in 1978, **the results** of which' are presented in two parts. Otter Creek Wasteload Allocation Study, Part A: Report of Data, January 1979; and Otter Creek Wasteload Allocation Study, Part B: Mathematical Modeling Report, May 1979. A continuous spillage over the Center Rutland Dam of 80 cfs (-slightly more than 7Q10), or instantaneous inflow if less, will maintain downstream water quality standards based on the assimilative capacity modeling.
28. A wasteload allocation order, issued for Otter Creek in May 1991, allocates **the** assimilative capacity of the stream below the City of **Rutland** to five communities: **Rutland City, Rutland Town, West Rutland, Mendon, and, Sherburne.** This wasteload **allocation is** predicated on the spillage at Center **Rutland** Dam.'
29. Presently, the project is operated without spillage during critical low-flow periods. **The minimum** hydraulic -capacity of 60 cfs is less than Otter Creek's **drought-**flow condition, **enabling** continuous operation during extreme **low flows.**
30. There are no thermal discharges associated with the project. Although it is theoretically possible that operation of the. project could make it possible for natural temperature changes to occur, **extensive sampling** done in 1977 and 1978 as part of wasteload assimilative capacity study by the Department shows **that no** such changes occur. Temperature records from that study upstream and downstream of the project show that the project, operated as proposed, will not cause a total

increase in temperature from' background **conditions** in excess of 1.0 degree F. at any time.

31. The applicant's **proposal** to convert the project operation, to **run-of-the-river**, with automation to eliminate impoundment fluctuations, and to spill 80 cfs, or instantaneous inflow if less during the critical water quality period of June 1 to October 15 will ensure that dissolved oxygen standards are met. The minimum flow for operation is 60 cfs. **With** a minimum spillage of 80 cfs, the project will not be operational at flows less than 140 cfs. Therefore, during the most critical water quality periods of flows less than 140 cfs, all flows will spill and benefit from reaeration. At moderate flows of 140 cfs or greater, a significant portion of the inflow will be spilled, creating a **mix** of highly **oxygenated water** with the oxygen-deficient water from the turbine. release. The changes in project operation are particularly important because 'of the use of the Otter Creek for wasteload assimilation and the evidence of algal activity that causes a **diel flux** in dissolved oxygen.
32. Because natural river flows will be continuously available downstream, the impact of the project on concentrations or levels **of the** following parameters will not be significant:
- Phosphorus
 - Nitrates
 - Settleable, floating or suspended solids
 - Oil, grease, and scum
 - Alkalinity**
 - pH**
 - Toxics**
 - Turbidity
 - Escherichia coli
 - Color
 - Taste and odor
- b. Aquatic Biota
33. Aquatic biota are defined in Standards, section **1-01B**, as "organisms that spend all or part of their life cycle in or on the **water**." Included, for example, are fish, aquatic insects, amphibians, and some reptiles, such as turtles.
34. The Otter Creek in the project area supports a mixed fishery of warm and coldwater species. Tributary streams entering Otter Creek, (such as East Creek and the Clarendon River, offer additional coldwater fish habitat.

Segments in this vicinity are stocked with brown trout, although natural reproduction also occurs within the watershed. Anglers use the project's **plunge pool** and the riffle below this pool according to Department of Fish and Wildlife reports. Most of the **fishing** is from the bank. Yellow perch, brown trout, smallmouth bass, and white sucker are the species **most often** caught;

35. The principal management objective of the Vermont Department of Fish and Wildlife in this reach of Otter Creek is to protect, and where possible enhance, populations of these fish species and others occurring in the stream, and their propagation. Brown trout populations are supplemented through stocking of catchable size fish, to increase fishing opportunities. (Letter from the Agency of Natural Resources (Agency) to applicant regarding relicensing studies, April 13, 1990.)
36. Because Otter Creek is a major tributary, to Lake Champlain, the Department of Fish and Wildlife plans to stock portions of Otter Creek, downstream of the project, with migratory salmonids such as steelhead rainbow trout. These fish would eventually migrate to Lake Champlain and contribute to the Lake's sport fishery. Otter Creek plays an important role in the overall Lake Champlain Salmonid Restoration Program (A Strategic Plan for the Development of Salmonid Fisheries in Lake Champlain, New York State Department of Environmental Conservation, October 4, 1977). 'Migratory salmonids have not yet been stocked upstream of Center Rutland Project as part of the Lake Champlain program..
37. Adequate dam spillage is important to the maintenance of fish habitat in the plunge pool during the period April to mid-October (memorandum dated August 25, 1992 from the Department of Fish and Wildlife). A flow-demonstration study was conducted August 19, 1992 to identify a suitable flow for providing adequate flow circulation in the plunge pool for feeding and resting habitat for the variety of fish species that may use the pool. **The** species include brown trout, smallmouth bass, perch, suckers, minnows, and darters. Spillage flows, in addition to providing a range of current conditions in the pool, entrain air bubbles in the water. This entrainment serves as excellent overhead cover for fish that use the pool.

spillage during the flow demonstration was varied between 0 to 100 cfs for a visual qualitative assessment. The channel control for plunge pool water levels is located downstream of the tailrace. For this reason, water levels in the pool did not vary appreciably, as the

spillage was increased and the powerhouse discharge reduced during the study. As expected, current distribution and air entrainment did vary.

Fish and Wildlife determined that a spillage of 80 cfs was the lowest flow observed that provided any **significant** amount of perceptible currents in the pool. This flow was judged as adequate to serve the-main body of the pool; substantially higher spillage flows would be necessary to enhance two of the **eddy** areas on either side of the pool. Fish and Wildlife determined that higher flows were unwarranted to enhance these two small areas of the pool.

The pool habitat is especially important under summer conditions when fish seek out cold deep-water areas that are well aerated. Fish are less active during the winter, and circulation of currents from the **tailrace** discharge into the pool, which remains full even without spillage, is judged adequate for the winter period, giving consideration to the power production value of the flow.

39. Below the tailrace, artificial flow regulation is only anticipated to occur during impoundment refilling following flashboard reinstallation. The applicant attempts to maintain flashboards in place year round (personal communication with Steven Bliss, Vermont Marble general manager, July 7, 1992). During reinstallation, the impoundment is drawn slightly below the dam crest. The U.S. Fish and Wildlife Service Flow Recommendation Policy for the New England Area and the Agency Interim Procedure for Determinins Acceptable Minimum Stream Flows prescribe minimum flows for the perpetuation.? of indigenous fish species. The minimums are 4.0 csm for spring spawning and incubation, 1.0 csm for fall/winter spawning and incubation, and 0.5 csm for the remaining period and in cases where spawning and incubation is not applicable. Substantial reduction of flows below these minimums for the purpose of refilling the impoundment would imperil fish below the project. **Mainstem** spawning in the spring and fall is believed to occur downstream.

Technically, the impoundment can only be drawn when inflows recede below 275 cfs, the station's maximum operating capacity. When inflows are **just** below 275 cfs, the **drawdown** time is lengthy. By the time the impoundment is drawn and the boards replaced, flows may recede such that the 0.5 csm (153 cfs) cannot be **met and** the impoundment refilled at the same time. In order to allow flexibility that would allow refill of the impoundment without causing undue adverse effects to

aquatic biota, it is reasonable to allow 10% of inflows to be placed into storage with a continuous release of 90% of inflows. Without such an allowance, bypass flows would be suspended for extensive periods of time while waiting for inflows to increase and allow **the** impoundment to be refilled.

39. The river water quality and institution of a **run-of-the-river** flow regime with continuous spillage between June 1 and October 15 will protect the biological integrity in the Otter Creek below the, Center **Rutland** facility,, including macroinvertebrates, fish, and other aquatic organisms.
40. The water use as proposed, with the conditions imposed below, will not impair the viability of the existing population of aquatic biota and fish. The use will neither significantly impair growth or reproduction nor cause an alteration of the habitat which impairs the viability **of** the existing population.

c. Wildlife and Wetlands

41. The Vermont Water Quality Standards require the Agency Secretary to identify and protect existing uses of state waters. Existing uses to be considered include wetland **habitats** and wildlife that utilize the **waterbody**. No Class I or Class II wetlands exist within the influence of the dam backwater zone. Institution of a run-of-the-river operating mode will protect any downstream wetlands that may exist.
42. Wildlife that use the riparian zone and river will be better supported by the improved operating regime.- Typical wildlife would include furbearers such as otter, beaver, muskrat, mink, and deer and birds such as kingfisher, herons, ducks, and osprey.
43. The water use as proposed, with the conditions imposed **below**, will not impair the viability of the existing population of wildlife. The use will neither significantly impair growth or reproduction nor cause an alteration of the habitat which impairs the viability of **the existing population. Standards, section 1-03B.2.a.** The water use as proposed also will not cause a change from background conditions that would have an undue adverse effect on the composition of the aquatic **biota**, the physical or chemical nature of the substrate or the species composition or propagation of fishes. Standards, section' 3-01B.5.

d. Shoreline Erosion and Impoundment Desilting

44. The applicant did not conduct a special study of shoreline erosion. However, an archeological study was done, and that study identified two reaches of slight bank erosion in the impounded reach. These two reaches are on the left, or south bank. The right bank adjacent to the impoundment consists primarily of fill, mostly marble **waste** from past industrial use. No severe erosion problems have been identified that need correction in order to prevent excessive turbidity and sedimentation. The applicant's proposed operating mode will minimize the potential for new problems to develop in the future.
46. Impoundment desilting can result in significant degradation of water quality if not executed properly. The applicant has no record of the project impoundment ever having been desilted. (Letter of December 24, 1991 from Kleinschmidt Associates to Agency) Development of a desilting plan is, therefore, unnecessary **at this** time. Should the need to desilt arise in the future, the applicant should seek review by and approval from the Agency under the existing Agency desilting policy.

e. Recreation and 'Aesthetics'

47. The project is near U.S. Route 4, a heavily travelled highway into and out of the City of **Rutland**, and near the State Route 3 intersection.
48. The **project** includes a dam constructed on a cascade known as Meads Falls which is of some aesthetic value. An old railroad bridge that formerly connected the **Delaware and Hudson** Railway to a nearby train yard spans the river just upstream of the dam.
49. Otter Creek is an important, statewide and, regional recreational resource. The river is enjoyed by local, regional, and statewide residents, as well as tourists. Otter Creek provides a variety of recreational opportunities, including fishing, **swimming**, boating, picnicking, viewing, and photography.
50. Agency staff site visits have identified use of the project area, including existing paths along the streambanks and evidence of fishing activity. The current use of the site for hydrogeneration may be of interest to the public.
51. Vermont Water Quality Standards require the **protection** of existing water uses, including the use of the water for recreation. Standards, section 1-03B. The **Standards**

also require the management of the waters of the State to protect, maintain and improve water quality in such manner that the beneficial values and uses associated with a water's classification are attained. Standards, section 1-03A.

52. The reach of river in the vicinity of the project is classified as Class B waters, waste management zone, formerly Class C waters.
53. The river is a navigable and **boatable** water of the State.
- 54'. The Agency publication Vermont Rivers Study, February 1986, lists Otter Creek from North Dorset to Lake Champlain as Vermont's longest **recreational** boating reach at 100 miles, with high use for general touring. Otter Creek has an extended canoeing season and scenic variety. The Appalachian Mountain Club River Guide for Vermont and New Hampshire highly recommends Otter Creek for "**its** pleasant paddling and its scenic views of the Green Mountains, the Taconics, and the Adirondacks in New York." The Guide also states, "**There** are several dams on this river, and at many of them the current is strong right **up** to the edge. Take out well above all dams, especially in high **water**."
55. Three segments of Otter Creek are included in the Nationwide Inventory, which evaluates and identifies rivers and river segments that meet the minimum criteria for further study and potential inclusion in the National Wild and Scenic River System.
56. The applicant states that there is little need to provide any aesthetic and recreational enhancements because the project is in an industrialized area, current use of the site is slight, and more attractive areas exist upstream and downstream of the project. The applicant also contends that access to the river in the project vicinity is hazardous. The Agency disagreed with these **assertions** in a letter dated December 10, 1991 to the applicant. The project is located at falls near a residential area and there: is evidence of use as set forth above.
57. By letter dated April 13, 1990, the Agency requested the applicant complete a recreation master plan for its project. **No master plan has been developed. By letter** dated May 22, 1992, FERC has instructed the applicant to provide additional, information on the cost of **Agency-**requested recreational facilities, a draft master plan, a description of **how** recreational data was collected, and documentation of existing informal access, areas in and immediately outside of the project area, including,

ownership. On September 21, 1992 the applicant submitted the additional information to FERC.

58. The present project boundary is limited. The boundary encompasses the project civil works, tailrace, and impoundment flowage.
59. There is no canoe portage around the area containing applicant's project boundaries and Meads-Falls, so-called. Although the project boundaries encompass land 'upstream and downstream of the Falls, the project **boundaries** do not contain sufficient space to permit the construction of a safe canoe portage within the boundaries. The Department engaged the services of a canoeist to study the river in the vicinity of the project. The canoeist determined that it would be unsafe, particularly in high water conditions, to attempt a portage exiting the river just above the project. The lands outside of the **project** boundaries are owned by others than the applicant **and some** of those lands; particularly on **the** right (facing downstream) side of the river, -contain steep banks, high masonry retaining walls and other physical impediments that preclude or would make very difficult a portage over such lands **even if** the owners thereof were to give their permission for the construction of a canoe portage. While lands on the left side of the river upstream of but outside the project boundary **may** not contain insurmountable physical impediments, they are not owned by the applicant either.
60. Page E-18 of the amendment application states:

Center **Rutland** Dam and falls could be an important aesthetic resource. The facilities are located in-town and the dam and falls ... is visually interesting The falls and the riffle areas below the existing power station are visible from the Route 4 **bridge**, located approximately 600 feet downstream. . . .
61. The project's civil works alter the morphological and physical character of the river.
62. Spillage over the dam is a significant aesthetic component of the project setting. The Agency landscape architect participated in the flow demonstration study discussed under the aquatic biota section above. Flows were spilled in 20 **cfs** increments **from 0 to 100 cfs**. A spillage of 80 cfs was determined to be 'appropriate. Additional spillage resulted in no **appreciable aesthetic** enhancement. For mitigation and enhancement as they relate to public viewing and **recreational use in the**

proj ect area, 80 cfs spillage is a suitable spillage for aesthetics for the period June 1 through October 15. It is the landscape architect's opinion **that** spillage cannot be justified through the late fall and winter due **to the** minimal public use at that time of year, reduced visibility, and the loss of power generation.

VII. Other Uses

63. Downstream, the river is used for the assimilation of wastewater from four wastewater treatment facilities, **Rutland**, West **Rutland**, Proctor, and the village of Pittsford and the generation of hydropower at five **facilities**, Middlebury Lower, Beldens, Huntington Falls, Weybridge, and Vergennes., The proposed project, as conditioned below, is compatible with these uses.

VIII. Other Applicable State Laws

a. Agency Regulatory Powers over Fish and Wildlife

64. Under 10 V.S.A. Chapter 103, "[i]t is the policy of the state that the protection, propagation control, management and conservation of fish, **wildlife** and **fur-bearing** animals in this state is in the interest of the public welfare, and that safeguarding of this valuable resource for the people of the state requires constant and continual vigilance."
65. The water use as **proposed**, with the conditions imposed below, will **be consistent** with this state policy.

b. Wetlands

66. The Vermont Wetland Rules, promulgated under 10 V.S.A. **§ 905**, protect wetlands determined to be significant under that statute and the rules promulgated thereunder. No significant wetlands exist within **the** influence of the dam backwater zone, and run-of-the-river operation will protect any downstream wetlands that may exist. 'The project, therefore, does not adversely affect wetlands.

c. Outstanding Resource Waters

67. Waters of the state may be designated Outstanding Resource Waters, pursuant to' 10 V.S.A. **§ 1424a**. Outstanding Resource Waters receive special **protection** under the Vermont Water Quality Standards. Standards, section 1-03D. No section of Otter Creek has been designated as outstanding Resource Waters.

IX. State Comprehensive River Plans

68. **The Agency**, pursuant to 10 V.S.A. Chapter 49, is mandated to create plans and policies by which 'Vermont's water resources are managed **and** uses of these resources are defined. These plans implement **the** Agency policy. The Agency must, under Chapter 49 and general principles of 'administrative law, act, when possible, consistently with these plans and policies.
- a. Hydropower in Vermont, An Assessment of Environmental Problems and Opportunities
69. The Department publication Hydropower in Vermont, An Assessment of Environmental Problems and Opportunities is a state comprehensive river plan. The hydropower study, which was initiated in 1982, indicated that hydroelectric development has had an impact on Vermont streams. It recommends releasing appropriate minimum flows at the project site as necessary to satisfy fisheries, aesthetics, and dissolved oxygen concerns.
- b. 1988 Vermont Recreation Plan
70. The 1988 Vermont Recreation Plan (Department of Forests, Parks and Recreation) identified water resources and access as priority issues.
71. The Water Resources and Access Policy is:
- It is the policy of the State of Vermont to protect the quality of the rivers, streams, lakes, and ponds with scenic, recreational, and natural values **and** to increase efforts and programs that strive to balance competing uses. It is also the policy of the State of Vermont to provide improved public access through the acquisition and development of sites that meet the needs for a variety of water-based recreational opportunities.
72. Allowance of access and improved flow management would be compatible with this policy and balance competing uses **of** the river for recreation and hydropower.
- c. Vermont Comprehensive Energy Plan
73. **Pursuant to** Executive Order No. 79 (1989), the Department of Public Service produced the Vermont Comprehensive Energy Plan, January 1991. This plan sets out an integrated strategy for controlling energy use and developing sources of energy. Several goals of the plan are to reduce global warming gases and acid rain precursors by 15% by the year 2000 through modified

energy usage; to reduce by 20% by the year 2000 the per capita consumption of energy generated using non-renewable energy sources; and to maintain the affordability of energy. Continued availability of electricity generated by this renewable source, with proper environmental constraints in place, is consistent with the State energy plan.

ACTION OF THE BOARD

Based on the above findings, the Board determines that there is reasonable assurance that operation in accordance with the following conditions **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, P.L. 92-500, as **amended**. Accordingly, it is hereby ORDERED, ADJUDGED AND DECREED by the Water Resources Board of the State of Vermont that the within water quality certificate be issued on the following conditions:

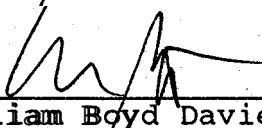
- A. Except as allowed in Condition C below, the facility shall be operated in a run-of-the-river mode where instantaneous flows below the **tailrace** shall equal instantaneous inflow to the impoundment at all times. When the facility is not operating, all flows shall be spilled at the dam.
- B. When available from inflow, a minimum instantaneous flow of **80 cfs** shall be uniformly **spilled** over the dam crest **at all times** during the period June 1 through October 15. If the instantaneous inflow falls below the hydraulic capacity of the turbine unit plus this spillage requirement, all flows shall be spilled at the dam. **The applicant shall file with the Department for the Department's review and approval (which such approval shall not be withheld or delayed unreasonably), within 150 days of the issuance of this certificate, a description, hydraulic design calculations, and plans for the measure to be used to pass this minimum flow. The filing shall address conditions with and without the flashboards in place.**
- C. During the reinstallation of flashboards, the impoundment shall be drawn to the dam crest and the **project operated** continuously in a run-of-the-river mode. After the installation is complete, the impoundment shall be refilled by reducing downstream **flows** to no less than 90% of the instantaneous inflow.
- D. Except as required for the installation of flashboards **as** allowed for in Condition C above, the level of the impoundment shall be maintained no lower than the dam crest or the top of the flashboards, when in place, unless prior written **approval** for a **drawdown** is granted by the Department.

- E. The applicant shall file with the Department for the Department's review and approval, (which such approval shall not be withheld or delayed unreasonably), within-150 days of the issuance of this certificate, a plan for monitoring instantaneous flow releases at the project. Following approval of the monitoring plan, the applicant shall conduct such measurements and, at the reasonable request of the Department, provide such records as are required by the monitoring plan. Upon receiving a written request from the applicant, the Department may waive the requirement for flow monitoring at this project provided the applicant satisfactorily demonstrates that the required flow will be discharged at all times.
- F. The applicant shall provide the Department with a copy of the turbine rating curves, accurately depicting the flow/production relationship, for the record within one year of the issuance of this certificate.
- G. The applicant shall allow public access to the project area for, utilization of public resources, subject to reasonable safety and liability limitations.
- H. Debris associated with operation, including trashrack debris, shall be disposed of in accordance with State law.
- I . Any desilting of the dam impoundment shall be done in accordance with the Agency Desilting Policy, a copy of which is attached. (Attachment Cj The Department shall be contacted prior to any desilting activity.
- J. The applicant shall allow the Department to inspect the project area at any time to monitor compliance with the conditions of this certification.
- K. A copy of this certification shall be prominently posted within the facility.
- L. 'Any change in operation which would in any way alter' any condition of this certification constitutes a material impact on water quality.
- M. Any significant changes to the project, including project operation, must be submitted to the Department for review, and such changes or portion thereof affecting water quality and only water quality shall require prior written approval.

N. The applicant shall incorporate the conditions of this **certification** in any conveyance--by lease, sale or otherwise --of its interests so as to legally assure compliance with said conditions for as long as the project operates.

Dated at Montpelier, Vermont this 13th day of April, 1995.

Vermont Water Resources Board



William Boyd Davies, Chair

Concurring:
William Boyd Davies
Ruth Einstein
W. Byrd\ **LaPrade**
Jane Potvin

Dissenting:
Stephen **Dycus**

Attachment A: A Location Map
Attachment B: Map of Dam Site
Attachment C: Desilting Policy

In re: Vermont Marble Power Division of OMYA,
§401 Certification, Docket No. WQ-92-12

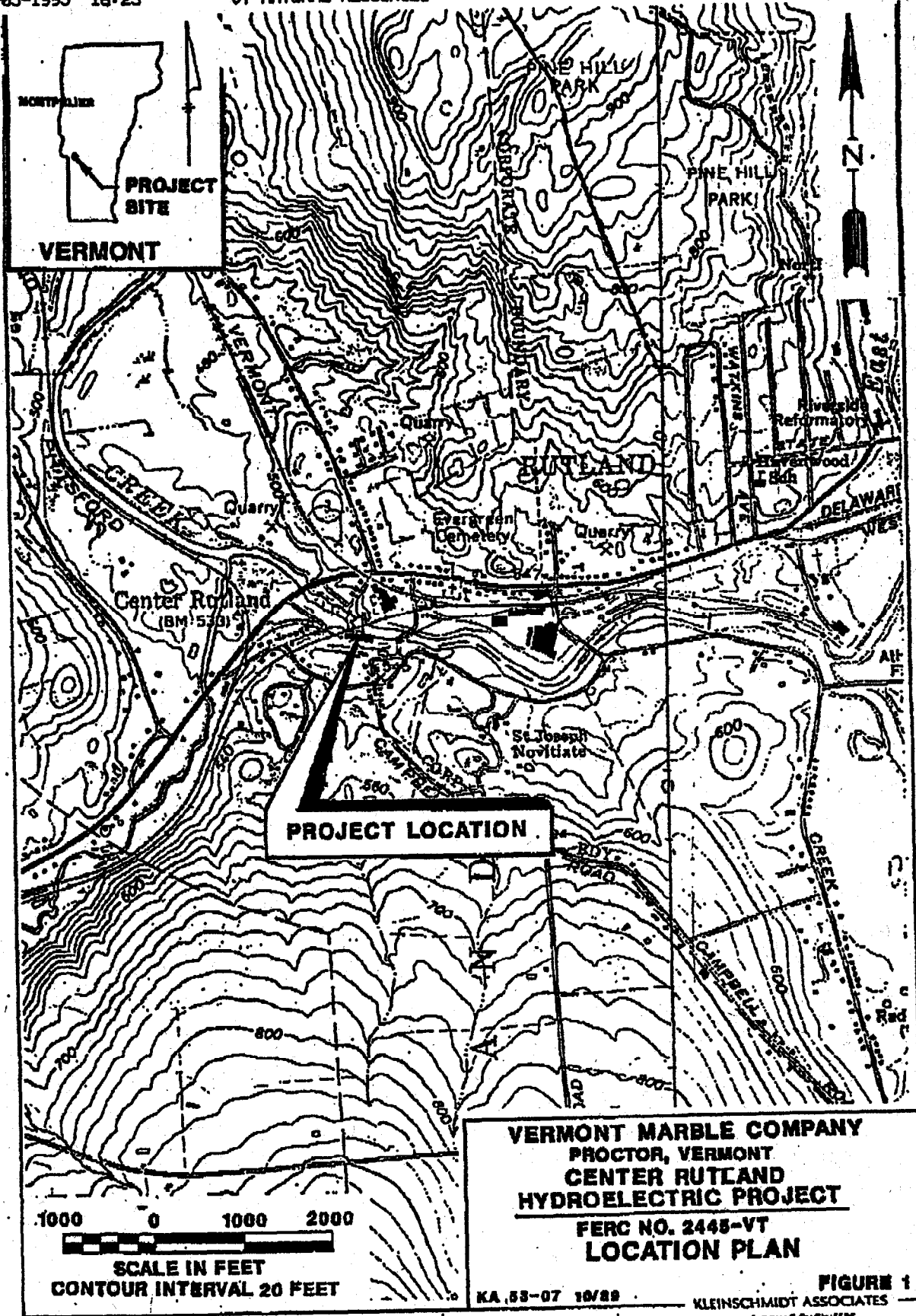
DISSENTING OPINION of Stephen Dycus.

I believe that the **Board** should not have approved the stipulated **§401** certificate in this case without hearing evidence to demonstrate that the planned operation of the Otter Creek hydroelectric facility would not result in any violation of the Vermont Water Quality Standards. Under 10 V.S.A. **§1024(a)**, **appeal to** the Board from a decision of **the Secretary** of the Agency of Natural Resources is de novo, which means that the Board must make its own independent determination of whether the certificate should issue. The Board has not done that, but has relied instead on the assurances of the Secretary that a certificate **upon terms** negotiated and agreed to by the Agency and **the applicant satisfies the requirements of §401 of the Federal Clean Water Act** and the Vermont Water Quality Standards.

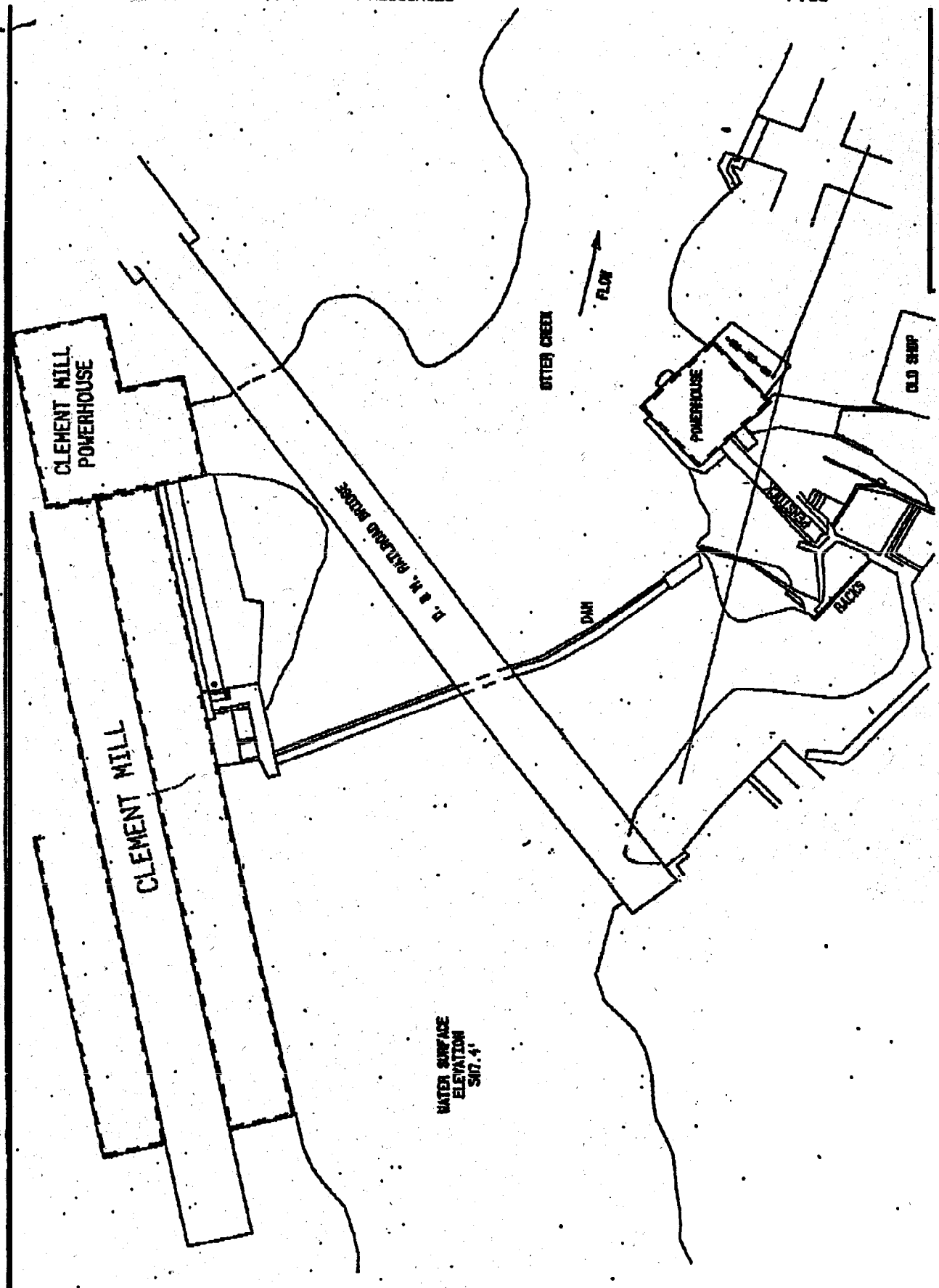
A better course for the Board would have been to remand the matter to the Agency for further action, either upon its own motion or upon the motion of the Agency and the applicant. In the alternative, the Board might have permitted the applicant to withdraw its appeal, pursuant to the applicant's understanding that the **Secretary** would **issue** a new certificate **with the** modifications agreed to. In either instance; the certificate presumably would have been issued by the Secretary immediately; without any further expense or delay.

The applicant **said it** was eager for **the Board** to issue the **certificate in order to** avoid the possibility that issuance by the Secretary would start a new appeal period running. That concern may have been fueled by the fact that following the issuance of the original certificate and appeal to this Board by the applicant, the Secretary in negotiations with the applicant **agreed** to remove several important certificate conditions that provoked the applicant's appeal, among them provision for possible downstream fish passage facilities and for a canoe portage around the dam. Based on the information presented to the Board, I cannot say that those changes were so substantial that they might have required a new certificate application, with public notice and opportunity for comment. But it is worth noting that the changes during the **pendency** of this appeal were made outside of the usual approval process and out of the public view. While it is true that interested persons might have become parties to the appellate proceedings before the Water Resources Board and thus have preserved an opportunity to comment on or contest the negotiated changes, the practical reality is **that** there were no other parties to the appeal and thus no one with standing to contest the negotiated changes. **The effect of the Board's approval of the certificate, as modified, is to eliminate any possible public notice or debate about the changes.**

The more important point here is one of accountability. Without conducting **its own fact-finding hearing** in this case, the Board simply did **not have** the information it needed **to determine, de novo,** that the certificate should issue. **The Secretary did.** **The Board** has effectively issued the certificate on the **strength of the Secretary's** findings. Responsibility for the result **should** rest with the party who made the critical decision, namely, **the Secretary.**



(ATTACHMENT A)



TOTAL P.86

(ATTACHMENT B)



State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVATION

Montpelier, Vermont 05602

OFFICE OF THE SECRETARY

Department of Fish and Game
Department of Forests, Parks, and Recreation
Department of Water Resources
Division of Environmental Engineering
Division of Environmental Protection
Natural Resources Conservation Council

FOR PUBLIC RELEASE

The State of Vermont wishes to remind all dam owners who may be conducting or contemplating sediment removal operations at their facilities that such activities generally have serious effects on water quality, fisheries and supporting aquatic life. It is the responsibility of the Agency of Environmental Conservation to assure that **water quality** standards are maintained and **aquatic habitat** is not damaged during sediment removal operations. Consequently, there is a need to monitor these operations and to regulate them where appropriate.

Dam owners also have certain responsibilities in this matter. The argument that discharging sediment downstream only involves putting silt and nutrients back into the stream that were originally there does not apply. Proper techniques to control reservoir sedimentation can be beneficial to the dam owner and will significantly reduce unnecessary downstream damages.

Control of reservoir sedimentation may be accomplished by providing for sediment accumulation in the design of the reservoir, venting of the sediment by use of gated outlets to encourage movement of high concentration of sediment in suspension through the dam, removing of the sediment periodically by hydraulic or mechanical means, and reducing sediment yield through construction of vegetative screens or watershed structures. Our experience indicates past practice has been to remove this sediment by venting or by mechanical means.

To provide appropriate direction and to fulfill our responsibility, it is the policy of the Agency of Environmental Conservation:

1. That the Agency (Department of, **Water Resources**) be notified prior to all sediment removal operations and provided with an appropriate description and detailed proposal and timing of the activity.

2. Since the proposed activity may fall under several statutes, a determination will be made whether the activity is applicable under "Dams" (Title 10, Chapter 43), "Management of Lakes and Ponds" (Title 29, Chapter 11), "Stream Alteration" (Title 10, Chapter 41) or, a so-called "1272 Order" (Title 10, Chapter 47).

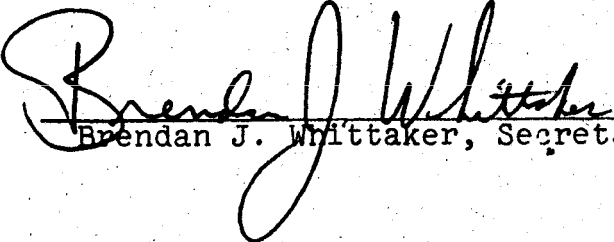
(ATTACHMENT C)

3. Venting of the sediment will normally be processed under a "1272 Order" issued by the Secretary. This order will require certain actions and precautions as developed jointly by the Owner, the Water Quality Division, and the Fish and Game Department to eliminate or minimize water quality standard violations. Also, the order will specify that the Agency be notified of the actual dates of the activity so Water Quality, Fish and Game personnel, or Water Resource Investigators, can be present during the operation.

4. Removal of sediment by hydraulic or mechanical means will be processed under the permitting procedures of one of the other statutes listed in Item 2 above.

Individuals who have further questions or comment should contact one of the following personnel of the Department of Water Resources; Water Quality Division (Telephone 828-2761): A. Peter Barranco, Dam Safety Engineer; Donald Manning, Environmental Engineer.

1/7/80
Date/


Brendan J. Whittaker, Secretary