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January 8, 2016

A. Quincy Vale, Esq. Attorney at Law 617.694.5181 qvale@aqvlaw.com

Ms. Luly E. Massaro Commission Clerk Rhode Island Public Utilities Commission 89 Jefferson Boulevard Warwick, RI 02888

<u>Via e-filing</u>

Re: <u>Carbon Zero, LLC Application for RI RPS-New Qualification for Vermont Tissue</u> <u>Hydroelectric Facility</u>. **RI PUC Docket No. 4593**

Dear Clerk Massaro:

On January 4, 2016, reviewers of this application requested as follows:

3. Although the box checked in Application, Section 3.2 specified that there was no "Existing Renewable Energy Resource locate at the site of the Generation Unit", both the FERC Order and Vermont Certificate of Public Good refer to the installation of "two new Kaplan turbine-generating units in the existing powerhouse" (see paragraph 9, page 3 of FERC Order) or "an existing hydroelectric system (see second sentence of Introduction section of VT PSD Certificate of Public Good Order) ← Please complete Appendix C of the Application as best you can, and provide additional evidence (photos, newspaper articles, etc.) that there was no turbine/generator equipment in the "existing powerhouse" during the calendar years 1995 through 1997.

In response to this request for additional information, please accept as attached and enclosed for filing in the above-referenced matter, copies of the following:

- Appendix C of the RI PUC's Renewable Energy Resource Eligibility Form (please see Attachment I). Please take note that the Vermont Tissue Mill Dam Hydroelectric project uses entirely new equipment installed at a dam that was once used for generation over fifty years ago. The new equipment was installed on an existing foundation – technically, the powerhouse foundation and substructure. As stated in the Vermont Water Quality Certification (please see Attachment II) at paragraph 8, there was no powerhouse enclosure or structure prior to the installation of new turbines and generators (noted in paragraph 15).
- Additional evidence that there was no "powerhouse" -- just a foundation can be seen in the form of a series of site photographs. Please see Attachment III.
- Additional evidence that the mill closed down and hydropower production ceased in 1958 from a series of newspaper articles appearing over a number of years. Please see Attachment IV.

I trust that this information adequately responds to the request. If you should have any additional questions or comments, please do not hesitate to contact me at (617) 694-5181 or via email at qvale@aqvlaw.com.

Sincerely,

Withoney Quiney Vale

A. Quincy Vale, Esq Director Vale Law, PLLC 44 Whittier Street Andover, MA 01810 T: (617) 694-5181 F: (978) 849-8791 E: qvale@aqvlaw.com

Enclosures

ATTACHMENT I

Appendix C of the RI PUC's Renewable Energy Resource Eligibility Form

GIS Certification #:

APPENDIX C (Revised 6/11/10) (Required of all Applicants with Generation Units at the Site of Existing Renewable Energy Resources)

STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISION

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM

Pursuant to the Renewable Energy Act

Section 39-26-1 et. seq. of the General Laws of Rhode Island

If the Generation Unit: (1) first entered into commercial operation before December 31, 1997; or (2) is located at the exact site of an Existing Renewable Energy Resource, please complete the following and attach documentation, as necessary to support all responses:

- C.2 If you answered "Yes" to question C.1, please complete the remainder of Appendix C. If you answered "No" and are seeking certification entirely as an Existing Renewable Energy Resource, you do NOT need to complete the remainder of Appendix C.
- C.4 Is the Generation Unit a Repowered Generation Unit (as defined in Section 3.29 of the RES Regulations) which uses Eligible Renewable Energy Resources and which first entered commercial operation after December 31, 1997 at the site of an existing Generation Unit?
- C.5 If you checked "Yes" to question C.4 above, please provide documentation to support that the entire output of the Repowered Generation Unit first entered commercial operation after December 31, 1997.

- C.6 Is the Generation Unit a multi-fuel facility in which an Eligible Biomass Fuel is first cofired with fossil fuels after December 31, 1997? □ Yes ⊠ No
- C.7 If you checked "Yes" to question C.6 above, please provide documentation to support that the renewable energy fraction of the energy output first occurred after December 31, 1997.
- C.8 Is the Generation Unit an Existing Renewable Energy Resource other than an Intermittent Resource (as defined in Sections 3.10 and 3.15 of the RES Regulations)? Yes X No
- C.9 If you checked "Yes" to question C.8 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and can be demonstrated to increase annual electricity output in excess of ten percent (10%). As specified in Section 3.23.v of the RES Regulations, the determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity.

Please provide the single proposed percentage of production to be deemed incremental, attributable to the efficiency improvements or additions of capacity placed in service after December 31, 1997. Please make this calculation by comparing actual electrical output over the three calendar years 1995-1997 (the "Historical Generation Baseline") with the actual output following the improvements. The incremental production above the Historical Generation Baseline will be considered "New" generation for the purposes of RES. Please give the percentage of the facility's total output that qualifies as such to be considered "New" generation.

- C.10 Is the Generating Unit an Existing Renewable Energy Resource that is an Intermittent Resource? □ Yes ⊠ No
- C.11 If you checked "Yes" to question C.10 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and have demonstrated on a normalized basis to increase annual electricity output in excess of ten percent (10%). The determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity. In no event shall any production that would have existed during the Historical Generation Baseline period in the absence of the efficiency improvements or additions to capacity be considered incremental production. Please refer to Section 3.23.vi of the RES Regulations for further guidance.
- C.12 If you checked "Yes" to C.10, provide the single proposed percentage of production to be deemed incremental, attributable to the efficiency improvements or additions of capacity placed in service after December 31, 1997. The incremental production above the Historical Generation Baseline will be considered "New" generation for the purposes of RES. Please make this calculation by comparing actual monthly electrical output over the

three calendar years 1995-1997 (the "Historical Generation Baseline") with the actual output following the improvements on a normalized basis. Please provide back-up information sufficient for the Commission to make a determination of this incremental production percentage.

For example, for small hydro facilities, please use historical river flow data to create a monthly normalized comparison (e.g. average MWh produced per cubic foot/second of river flow for each month) between actual output values post-improvements with the Historical Generation Baseline. For solar and wind facilities, please use historical solar irradiation, wind flow, or other applicable data to normalize the facility's current production against the Historical Generation Baseline.

- C.13 If you checked "no" to both C.3 and C.4 above, please complete the following:
 - a. Was the Existing Renewable Energy Resource located at the exact site at any time during calendar years 1995 through 1997? □ Yes ☑ No
 - b. If you checked "yes" in Subsection (a) above, please provide the Generation Unit Asset Identification Number and the average annual electrical production (MWhs) for the three calendar years 1995 through 1997, or for the first 36 months after the Commercial Operation Date if that date is after December 31, 1994, for each such Generation Unit.
 - Please attach a copy of the derivation of the average provided in (b) above, along with documentation support (such as ISO reports) for the information provided in Subsection (b) above. Data must be consistent with quantities used for ISO Market Settlement System.

ATTACHMENT II

Vermont Water Quality Certification Issued Feb. 27, 2013

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

In the matter of: Carbon Zero, LLC P.O. Box 338 North Bennington, Vermont 05257

APPLICATION FOR VERMONT TISSUE MILL HYDROELECTRIC PROJECT

The Vermont Department of Environmental Conservation (Department) has reviewed a water quality certification application dated April 24, 2012 and filed by Carbon Zero, LLC (Applicant) for the Vermont Tissue Mill Hydroelectric Project. The application was determined to be administratively and technically complete following the filing of the application. Supporting documentation for the application includes the Applicant's Federal Energy Regulatory Commission (FERC) application (FERC No. 14308) for an original minor license dated February 13, 2012 and other documents filed with FERC or the Department through October 23, 2012.

In accordance with 10 V.S.A. § 1004, the current application is subject to review under the Vermont Water Quality Standards (Standards) adopted by the Water Resources Panel effective December 30, 2011 (Standards, Section 1-01. Applicability and Definitions).

The Department held a public hearing on February 19, 2013 under the Department's rules governing certification (§13.11 of the Vermont Water Pollution Control Permit Regulations, dated February 26, 1974). The Department received written filings through February 22, 2013. No testimony was offered at the public hearing. Written comments on the draft certification were submitted by the Applicant. No other comments were received.

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

Findings

Background and General Setting

- 1. The project is located at the former Vermont Tissue Company mill on the Walloomsac River in the Town of Bennington.
- 2. The original paper mill dam was constructed in 1784 slightly upstream of the current dam. The mill changed uses several times. The existing dam was constructed ca. 1889 to power two 60 horsepower waterwheels. A fire ca. 1900 burned the mill to the ground. The mill was rebuilt and the waterwheels were converted to hydroelectric turbines to power lights in the mill around 1907. The mill operated until 1986. The dam and powerhouse are adjacent to the mill. Immediately upstream from the dam is the Paper Mill Bridge, a covered bridge built in 2000, replicating an historic bridge constructed in 1889.
- 3. The Walloomsac River is a tributary of the Hoosic River, a part of the Hudson River watershed. It rises on the western slope of the Green Mountains and drains an area of 156 square miles. From Bennington, it flows northwest to the Hoosic River near Hoosick Falls, New York.
- 4. The project utilizes runoff from an area of 94.5 square miles, or about 61 percent of the river's total watershed.

5. Where the project is located, the Walloomsac splits into two channels, forming an island in the river. The main, or primary, channel passes to the north side of the island adjacent to the mill. A smaller secondary channel passes south of the island and rejoins the main channel approximately 1,000 feet downstream (along the main channel) from the bifurcation.

Project and Civil Works

- 6. The primary dam (on the primary channel) is a 15-foot high concrete gravity structure, with an 85-foot ogee spillway. The spillway crest elevation is at 555.0 feet (msl). There is a low-level outlet with a 6-foot high by 8-foot wide, manually-operated, wooden slide gate located in the south (river-left) abutment.
- 7. The secondary dam, an 80-foot long by 6-foot high concrete gravity structure, spans the secondary channel on the far side of the island from the mill. The crest elevation is 555.33 feet msl.
- 8. A concrete intake/powerhouse structure, approximately 35 feet wide by 85 feet long, is adjacent to the north (river-right) end of the primary dam. Within the structure are two flumes that convey water to two turbines. Trash racks are in place over each flume opening. In addition, each flume contains two 8-foot wide stoplog bays. The structure is designed so that turbines can be mounted on the floor of the flumes with generators mounted on top of the powerhouse structure. There is currently no enclosure on the powerhouse to shelter the electrical equipment.
- 9. The intake flumes are each approximately 16 feet wide by 12 feet high. The normal depth of the water from the crest of the dam to the invert of the flume is 12 feet. During operation, water flows through the flumes to the units, which discharge into the turbine pit and thence to the tailrace.
- 10. Due to the morphology of the river, there is currently a large deep pool upstream of the dam on the trashrack side, and a depositional area at the left abutment on the opposite side.
- 11. The tailrace runs along the north bank of the river. It is approximately 35 feet wide and 225 feet long. Historically, the tailrace was separated from the bypass by a rip-rap and concrete wall that extended 40 to 50 feet downstream from the powerhouse at which point it merges with an approximately 175-foot long island that continues to separate the tailrace from the bypass. A breach in the tailrace wall approximately 20 feet downstream of the powerhouse currently allows flow from the bypass into the tailrace.
- 12. Flashboards approximately 4 inches in height will be installed on the primary spillway, using existing pin sockets, with the top of board elevation equal to the elevation of the secondary dam spillway, or 555.33 ft. msl. The flashboards will be engineered to fail when overtopped to a depth of 5.10 feet.
- 13. The proposed impoundment water surface elevation will be 555.41 feet, the sum of the crest elevation plus a one-inch spillage depth. The impoundment extends approximately 2,400 feet upstream and has a surface area of approximately 6.4 acres. The length and area will not change significantly with the addition of flashboards to the primary dam.
- 14. A 2¹/₂-foot by 2¹/₂-foot minimum flow stoplog or gate structure would be installed in the secondary spillway. The opening will convey 30 cfs at the minimum impoundment elevation and will be adjustable to provide conservation flows to the secondary bypass. New trashracks with 1¹/₄-inch clear spacing (matching the existing spacing) will be fabricated using 3/8-inch

steel. The racks will be angled to the river flow and will extend to full depth. The approach area of each opening is 192 sq. ft. and flow area between bars will be 148 sq. ft. Approach velocities for the shore side and river side turbines will be 0.96 fps and 0.84 fps respectively. The downstream training wall will be repaired in the original location and extend from the current reinforced concrete section at the toe of the tailrace to the stone wall portion approximately 45 feet downstream. It will be constructed of reinforced concrete in the same dimensions as the existing sections, approximately 2 feet wide and 8 feet high. The repair work will be conducted in the dry.

- 15. Two new Ossberger Model T vertical full Kaplan turbine-generating units will be installed in the existing infrastructure. Unit 1 (riverbank-side turbine) will discharge at a nominal head of 17 feet into the tailrace. In order to provide continuous flow to the bypass, Unit 2 (channel-side turbine) will discharge into the bypass at the toe of the dam through a new tailrace channel, at a nominal head of 13 feet.
- 16. Unit 1 will have an operating range of 24 to 185 cfs. The operating range of Unit 2 will be 21-162 cfs.
- 17. Both units will be fitted with automated systems that will operate during planned or unplanned plant shutdowns (e.g., the units trip offline). The final system design has not been determined, but it will either maintain flows or gradually ramp down flows in the tailrace and primary bypass.
- 18. An automated, 18-inch diameter valve will be installed in the floor of the Unit 1flume to allow conservation flows to be released into the tailrace channel. At full opening the valve will be capable of discharging approximately 29.2 cfs.
- 19. The generators and switchgear will be located in a new, wooden superstructure that will be built over the existing generator pedestals on top of the concrete powerhouse. The building will be approximately 25 feet wide by 35 feet long.
- 20. A 125-foot long, buried transmission line will be installed to connect the project to the electric grid.
- 21. Desilting of the intakes, flumes and tailrace will be required to redevelop the project. Removal of material from the flumes and tailrace can be accomplished in the dry. Removal of material upstream of the intakes is proposed to be done using a suction dredge in order to prevent a discharge of sediment to the river.

River Hydrology and Streamflow Regulation

- 22. In the headwaters of the watershed, there are three public water supplies including the Town of Bennington, Unabella Trailer Park and Chapel Mobile Home Park Inc. There is also a withdrawal at the Bennington Fish Culture Station, operated by the Vermont Department of Fish and Wildlife. There are no hydroelectric projects currently operating in the Walloomsac watershed.
- 23. Since October 1931, the U.S. Geological Survey has operated a surface water gaging station (No. 01334000) on the Walloomsac River in North Bennington. The gage is approximately 1.1 miles downstream of the project location where the drainage area is 111 square miles.

The following hydrologic statistics for the project site are based on gage data for water years 1931-2011:

Mean annual flow	192 cfs
Annual runoff	27.58 inches
10 percent exceedance	395 cfs
50 percent exceedance	127 cfs
90 percent exceedance	49 cfs
February median flow	114 cfs (period of record 1931 through 2002)
August median flow	60 cfs (period of record 1931 through 2002)
7Q10	27 cfs (period of record 1932 through 2004)

Applicant Proposal for Licensing

- 24. The project will operate in a strict run-of-river mode.¹
- 25. A 1-inch depth of spillage will be maintained over the primary spillway at all times to support aesthetics.
- 26. Conservation flows in the primary bypass will consist of spillage and discharge from Unit 2. The allocation of flow between spillage and turbine discharge will vary with inflow.
- 27. Conservation flows to the secondary channel will be provided through the stop log structure installed in the secondary dam crest.
- 28. Conservation flows to the tailrace will be provided through the 18-inch valve or Unit 1, depending on inflow.
- 29. Conservation flows in the two bypass channels and tailrace will be provided as given in the following table.

Conservation Flows			
Channel	June 1 through September 30	October 1 through May 31	
	Inflow ≥ 108 cfs: 60 cfs	Inflow \geq 162 cfs: 114 cfs	
Primary Bypass	Inflow 73 to 107 cfs: inflow minus 48 cfs	Inflow 73 to 161 cfs: inflow minus 48 cfs	
	Inflow \leq 72 cfs: 1/3 of inflow	Inflow \leq 72 cfs: 1/3 of inflow	
Secondary	Inflow > 72 cfs: 24 cfs		
Bypass Inflow	Inflow \leq 72 cfs	s: 1/3 of inflow	
Inflow > 72 cfs: 24		2 cfs: 24 cfs	
Tailrace	Inflow \leq 72 cfs: 1/3 of inflow		

¹A true run-of-river project is one which does not operate out of storage and, therefore, does not artificially regulate streamflows below the project's tailrace. Outflow from the project is equal to inflow to the project's impoundment on an instantaneous basis. The flow regime below the project is essentially the river's natural regime, except in special circumstances, such as following the reinstallation of flashboards and project shutdowns. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period.

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30. Flows will be managed as described in the following schedules.

October 1 through May 31						
River	Description of Operations					
Inflow (cfs)						
0-72	Inflow is less than minimum operating range of turbines, 1/3 of inflow is					
0-72	released to each of three channels					
	Minimum capa	Minimum capacity of tailrace turbine is reached and flow is routed through				
73-74	that unit. Cons	ervation flow is	discharged at se	econdary dam. F	Remainder of	
	inflow is spille	ed over primary	dam.			
	Primary channel turbine minimum capacity is reached and the turbine			turbine		
75-162	discharge is in	creased until the	e conservation fl	ow in the main of	channel is	
	reached through a combination of turbine discharge and flow over the				over the	
	primary dam spillway.					
163-323	Flow through the tailrace turbine is increased until its maximum capacity is					
	reached. All conservation flow requirements are reached.					
324-377 Flow through the primary cha		anel turbine is increased until its maximum				
	Capacity is reached.					
378+	Both turbines are operating at maximum capacity and all additional flow is					
Flow Distribution						
Divor	riuw Distribution Tailwaaa Daimaay Daimaay Sacaadaay					
Inflow	Volvo	Turbing	I I IIIiai y Dom	Channel	Dom	
(cfs)	(cfs)	(cfs)	Snillway	Turbine	Spillway &	
(CIS)	(015)	(015)	(cfs)	(cfs)	Stoplogs	
			(015)	(CIS)	(cfs)	
0-72	0-24	0	0-24	0	0-24	
73-74	0	24	25-26	0-0	24	
75-162	0	24	6	21-108	24	
163-323	0	25-185	6	108	24	
324-377	0	185	6	109-162	24	
378+	0	185	6+	162	24+	

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June 1 through September 30					
River	Description of Operations				
Inflow (cfs)					
0-72	Inflow is less than minimum operating range of turbines, 1/3 of inflow is				
0-72	released to each of three channels				
	Minimum capacity of tailrace turbine is reached and flow is routed through				
73-74	that unit. Conservation flow is discharged at secondary dam. Remainder of				
inflow is spilled over primary dam.					
Primary channel turbine minimum capacity is reached and the			turbine		
75 108	discharge is in	creased until the	e conservation fl	ow in the main o	channel is
/5-108	reached throug	gh a combination	n of turbine discl	harge and flow o	over the
	primary dam spillway.				
100 260	Flow through the tailrace turbine is increased until its maximum cap			m capacity is	
109-209	reached. All conservation flow requirements are reached.				
270 377	Flow through the primary channel turbine is increased until its maximum				
210-311	capacity is reached.				
378+	Both turbines are operating at maximum capacity and all additional flow is				
5761	passed over the two spillways.				
		Flow Dist	ribution		
River	Tailrace	Tailrace	Primary	Primary	Secondary
Inflow	Valve	Turbine	Dam	Channel	Dam
(cfs)	(cfs)	(cfs)	Spillway	Turbine	Spillway &
			(cfs)	(cfs)	Stoplogs
					(cfs)
0-72	0-24	0	0-24	0	0-24
73-74	0	24	25-26	0-0	24
75-108	0	24	6	21-54	24
109-269	0	25-185	6	54	24
270-377	0	185	6	55-162	24
378+	0	185	6+	162	24+

- 31. Ramping rates (up and down) of 100 cfs/hr for Unit 1 and 81 cfs/hr for Unit 2 will be implemented. These rates will apply to planned unit shutdowns and startups, as well as unplanned shutdowns (e.g., station trips). In addition, only one unit will be brought on-line or taken off-line at a time during planned operations. Ramping rates and limits on operating both units will not apply during emergencies.
- 32. Ninety percent of instantaneous inflow will be released downstream during impoundment refills following maintenance drawdowns.
- 33. Once the project is operational and capable of varying flows and pond levels, the Applicant may conduct, in collaboration with the Agency, demonstration flow assessments of the secondary bypass and tailrace to determine if an alternate conservation flows for these channels are appropriate.
- 34. The Applicant and Town of Bennington have entered into a memorandum of agreement for renovation and operation of the gate in the left abutment. Operation of the gate is contingent on receiving any required regulatory approvals.

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Standards Designation

- 35. The Vermont Water Quality Standards (Standards) are promulgated by the Vermont Agency of Natural Resources (Agency) pursuant to 10 V.S.A., Chapter 47, Water Pollution Control. Vermont statutes (10 V.S.A. § 1252) provides for the classification of State waters as either Class A or Class B and authorizes the Agency to adopt standards of water quality to achieve the purpose of classification.
- 36. The Walloomsac River has been classified as Class B waters.
- 37. The Anti-Degradation Policy in the Standards requires that "[a]ll waters shall be managed in accordance with [Standards] to protect, maintain, and improve water quality." (Standards, Section 1-03A)
- 38. Class B waters are managed to achieve and maintain a high level of quality that supports the following designated uses: aquatic biota, wildlife and aquatic habitat; aesthetics; public water supply; irrigation of crops and other agricultural uses; swimming and other primary contact recreation; boating, fishing and other recreational uses. (Standards, Section 3-04A)
- 39. The waters of the Walloomsac River in the vicinity of the project are designated coldwater fish habitat for the protection and management of fisheries. (Standards, Section 3-05)
- 40. In Class B waters, the dissolved oxygen (D.O.) standard for coldwater fish habitat streams is not less than 7mg/L and 75 percent saturation at all times, nor less than 95 percent saturation during late egg maturation and larval development of salmonids in areas that the Secretary determines are salmonid spawning or nursery areas important to the establishment or maintenance of the fishery resource. At all times in all other waters designated as a coldwater fish habitat, the standard is not less than 6 mg/L and 70 percent saturation. (Standards, Section 3-04B.2)
- 41. The temperature standard for coldwater fish habitat limits increases to 1.0° F from ambient conditions. (Standards, Section 3-01B.1b)
- 42. The turbidity standard is 10 NTU as an annual average under dry weather base-flow conditions for coldwater fish habitat. (Standards, Section 3-04B.1a)
- 43. Under the Class B criterion for aquatic biota, wildlife and aquatic habitat, the Standards require "[n]o change from the reference condition that would prevent the full support of aquatic biota, wildlife, or aquatic habitat uses. Biological integrity is maintained and all expected functional groups are present in a high quality habitat. All life-cycle functions, including overwintering and reproductive requirements are maintained and protected." (Standards, Section 3-04B.4)
- 44. The Hydrology Policy in the Standards requires that "[t]he proper management of water resources now and for the future requires careful consideration of the interruption of the natural flow regime and the fluctuation of water levels resulting from the construction of new, and the operation of existing, dams, diversions, and other control structures." (Standards Section 1-02E.1)
- 45. The Hydrology criteria require that, for Class B waters that have not been classified as WMT 1, streamflows be protected in such a manner that the change from the natural flow regime "provide for maintenance of flow characteristics that ensure the full support of uses and comply with the applicable water quality criteria." There is a preference for study-based, site-specific streamflow protection standards; however, use of general hydrologic standards is also accepted. (Standards, Section 3-01C)

- 46. In 10 V.S.A. §1250, the Vermont Legislature enumerated the State water quality policy. The State's policy is to upgrade the quality of its waters and reduce existing risks to water quality over the long term and to protect and enhance the quality, character and usefulness of its surface waters. Further, it is the State's policy to allow beneficial and environmentally sound development.
- 47. On June 13, 2012, the USEPA approved a list, prepared by the Department under Section 303(d) of the Federal Clean Water Act, indicating waters considered to be impaired based on water quality monitoring efforts. No waters affected by the project are listed.

Water Chemistry

- 48. The Walloomsac River has been classified as Class B waters by the Vermont Water Resources Panel. Class B waters are of a quality which consistently exhibits good aesthetic value and provide high quality habitat for aquatic biota, fish and wildlife. Uses are public water supply with filtration and disinfection; irrigation and other agricultural uses; swimming; recreation and hydropower. The Walloomsac River downstream of the project meets Class B standards as determined by the Vermont Agency of Natural Resources.
- 49. There are five current direct stormwater discharge permits to the Walloomsac River upstream of the project.
- 50. The Bennington wastewater treatment plant is located approximately 1 mile downstream of the Project and has a permitted flow of 5,100,000 gallons/day and an average flow of 3,605,000 gallons/day.
- 51. The Applicant has agreed to conduct a dissolved oxygen study once the project is operating and address low dissolved oxygen levels by adding an aeration mechanism if standards are not met.

Aquatic Biota, Aquatic Habitat and Fisheries

- 52. Class B waters are managed to provide high quality habitat for aquatic biota (Standards, Section 3-03(A)). Aquatic biota are defined as "organisms that spend all or part of their life cycle in or on the water." (Standards, Section 1-01(B)) Included, for example, are fish, aquatic insects, amphibians and some reptiles, such as turtles.
- 53. The Walloomsac River is managed as a cold water fishery. Naturally reproducing populations of brook, brown, and rainbow trout are present, with brown trout being the most abundant in the lower Walloomsac. Brook, brown, and rainbow trout are also stocked in the spring to supplement the popular recreational fishery. Other fish species that have been collected during electrofishing surveys include blacknose dace, longnose dace, longnose sucker, white sucker, common shiner, golden shiner, slimy sculpin, brown bullhead, and creek chub.
- 54. The Vermont Agency of Natural Resources regularly samples four stations on the Walloomsac River. Three stations are located upstream of the dam, including one on the Roaring Branch, a major tributary. The fourth is downstream, between the project and the Bennington wastewater treatment facility. The Department's Biomonitoring Program reported in 2009 on fish and benthic macroinvertebrates for the four sites. The community assessments for fish and benthic macroinvertebrates were good or very good. The results show that the sites meet Standards.

- 55. Fish and Wildlife Department staff visited the site and inspected the bypass on May 12, 2010. The flow rate at the Walloomsac USGS gage on this day was 193 cfs (1.7 csm) or 164 cfs prorated to the project site.
- 56. The secondary bypass channel was mostly devoid of gravel and therefore suitable spawning habitat for trout. The bottom substrate was mostly exposed bedrock, interspersed with large cobble and boulder-sized angular rock. There was soft silt and sand along of the margins of this channel as well. This bottom type extended from the dam all the way down to the confluence of the main river channel. However, where this channel converged with the other two channels, the bottom substrate changed to a mixture of fine and coarse gravel and rubble suitable for trout spawning and egg incubation. The primary bypass channel had the best visible spawning and incubation habitat, with nearly all of the lower half of the channel length comprised of fine and coarse gravel. Bottom substrate closer to the dam was a mixture of ledge, large rock, and sand . The tail race channel had suitable bottom substrate for spawning and incubation, again focused primarily in the lower half of the channel. The upper channel was bordered on the north bank by concrete factory walls. Along the walls the river bottom was mostly large rock.

Fish Passage and Movement

57. The summer water temperature regime in much of the Walloomsac River downstream of the project commonly includes high temperature events that are stressful to trout. While this fact may cause trout to seasonally move upstream to the vicinity of the dam in search of cooler and more oxygenated water, it also means that downstream fish passage facilities would not provide trout above the dam with access to quality habitat.

Wildlife and Wetlands

- 58. An approximately 2.2 acre Class II wetland that is protected under the Vermont Wetland Rules exists along the shoreline in the project area.
- 59. The Agency has determined that the project as proposed will not have significant impacts on the wetland.
- 60. The area within the project boundary primarily comprises developed lands with buildings, parking lots and roads bounding the project boundary on three sides, and a densely forested island located downstream of the discharge from the turbines. Land in the vicinity of the project that has not been developed or cleared for agriculture is primarily hemlock-northern hardwoods, and mixed forests.
- 61. Wildlife resources in the project area are similar to those found in most of rural central and southern Vermont. Common mammals include several species of bats, coyote, white-tailed deer, fox, hare, woodchuck, red and gray squirrels, eastern chipmunk, moles, shrews, and several species of species of mice and voles. Common herptiles include species of snakes, turtles, frogs, toads and salamanders. The Agency has not identified any terrestrial wildlife resources that would be threatened by the project as proposed.

Rare and Endangered Species and Outstanding Natural Resources

62. The U.S. Fish and Wildlife Service on-line Species Report indicates there are no listed or proposed rare, threatened or endangered species known to be present in the project vicinity.

63. The Vermont Natural Heritage program notes two species of concern in the Bennington Quadrangle: the handsome sedge (*Carex formosa*) and the hairy honeysuckle (*Lonicera hirsuta*). Neither is found in the project area.

Erosion

- 64. The shoreline comprises mixed land uses and land cover types ranging from commercial to residential and forested. Specifically, the shoreline consists of the existing mill foundations and training walls of the civil works together with the dam itself and the banks of the impoundment, tailrace and bypass reach.
- 65. The north bank immediately downstream of the mill building is bare and subject to stormwater that has created a gully in the bank.
- 66. No ground disturbing earthwork is proposed except as needed to renovate the intake gates and tailrace and to bury the new transmission line.

Recreational Use

- 67. The impoundment of the dam is used for canoeing and kayaking as documented by the Department's stream geomorphic assessment. The area by the covered bridge is a popular for fishing, as is the stream downstream of the dam.
- 68. There is no river segment identified for inclusion in the National Wild and Scenic River System, no state equivalent designation, no impacts to the National Trails System or designated or proposed Wilderness, and no regionally or nationally important recreation area in the vicinity of the project.
- 69. There are no formal recreation facilities at the project, nor is there a designated portage route around the dam. Because the project boundary does not include any of the surrounding land, opportunities for development of recreational facilities are extremely limited.
- 70. The Applicant has proposed to develop upstream river access and a canoe/kayak takeout on land adjacent to the project and controlled by the Applicant. The access is located on the island formed by the two river channels, and is an existing river access point that has been used informally for many years. There is parking adjacent to the access.
- 71. The Applicant does not control land that would be suitable for development of a portage and canoe/kayak put-in. The Applicant has proposed that a public park owned by the Town of Bennington (Hinsdillville Green) be used as a put in location, and the Town has indicated its willingness to allow access to the river through the park for the purpose of launching boats.
- 72. The portage route would follow the town road across the covered bridge, then follow Vermont Route 67A to the park, crossing it to the river. No improvements at the put-in point are planned. The total length of the portage is about 975 feet, with 585 feet along the state highway.

Aesthetics

- 73. The Standards require that Class B waters be managed for good aesthetic value or excellent aesthetic value if it is attainable. This is applicable to the primary and secondary bypass reaches. Flows through these reaches must be adequate to meet Standards.
- 74. At the Agency's request, the Applicant has agreed to maintain 1-inch depth of spillage over the dam and into the primary bypass at all times to meet aesthetics standards.

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State Comprehensive River Plans

75. The Agency, pursuant to 10 V.S.A. Chapter 49, is mandated to create plans and policies under which Vermont's water resources are managed and uses of these resources are defined.

Hydropower in Vermont, An Assessment of Environmental Problems and Opportunities (May 1988)

- 76. 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 a tremendous impact on Vermont streams. Artificial regulation of natural stream flows and the lack of adequate conservation flows at the sites were found to have reduced to a large extent the success of the state's initiatives to restore the beneficial values and uses for which the affected waters are managed.
- 77. Because it was not operating as a hydroelectric facility at the time of the study, the Vermont Tissue Mill was not assessed.

1993 Vermont Recreation Plan

- 78. The 1993 Vermont Recreation Plan (Department of Forests, Parks and Recreation), through extensive public involvement, identified water resources and access as top priority issues. The planning process disclosed that recreational use of surface waters is increasing, resulting in greater concern about water quality, public access to Vermont's waters, and shoreland development.
- 79. The plan's 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, cultural 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.

- 80. Another priority issue identified in the Recreation Plan is the loss or mismanagement of scenic resources. The plan notes "[t]he protection of the scenic and visual resources in Vermont is paramount if Vermont is to maintain its renowned charm and character."
- 81. The Scenic Resources Protection and Enhancement Policy in the Recreation Plan is:

It is the policy of the State of Vermont to initiate and support programs that identify, enhance, plan for, and protect the scenic character and rural traditions of Vermont.

Analysis

Water Chemistry

- 82. Available data indicate that waters in the vicinity of the project meet water quality standards for D.O. and temperature.
- 83. Upstream of the project, the Walloomsac is a fairly productive, low gradient river. Currently, natural reaeration occurs at the dam, so it is likely that any D.O. deficits are fully mitigated. By condition of this Certification, D.O. monitoring downstream of the dam shall be required in accordance with a monitoring plan approved by the Department. If the monitoring results

indicate that mitigation is necessary, the Applicant will be required to design and implement appropriate mitigation measures.

- 84. The project impoundment extends about 2,400 feet upriver. It may experience elevated temperatures since it is slow flowing and shallow and there is minimal shade.
- 85. Any temperature impacts caused by the impoundment already exist due to the presence of the dam and development and operation of the project will not change the existing condition.

Flow and Water Level Management

- 86. Run-of-river operations will support aquatic habitat and aesthetics below the project tailrace.
- 87. Adequate bypass flows are necessary to address year-round habitat needs and enable fish movement through the primary bypass reach. The *Agency Procedure for Determining Acceptable Minimum Stream Flows* (July 14, 1993) describes how conservation flows are determined. The August median flow (or ABF) based on the USGS gage in North Bennington is 70 cfs (0.63 cfs/mi² of drainage area). The drainage area at the project is 94.5 square miles which equates to an ABF flow of 60 cfs. The aquatic base flow of 60 cfs will provide high quality aquatic habitat in this reach.
- 88. The primary bypass channel contains considerable spawning and incubation habitat. Therefore, additional, seasonal flows will be necessary to provide for spawning and incubation in this channel. Both brook and brown trout were found in the primary channel. Rainbow trout do occur in the Walloomsac River but are uncommon and never comprise a significant component of fish collected in surveys. Therefore, flow needs to accommodate spawning and incubation will apply only for brook and brown trout, which spawn in the fall with the eggs incubating during the winter and hatching in the spring. The applicable conservation flow is the February median flow (114 cfs) during the period October 1 May 31.
- 89. The Agency recognizes that the tailrace channel contains some spawning and incubation habitat. However, it appears most likely that the tailrace channel was created by dredging to facilitate the historic project configuration and is not a naturally formed channel. The allocation of flow to the tailrace channel results in a corresponding decrease in flow available to the primary and secondary bypasses, so the best long-term approach for managing the aquatic habitat at the site is to favor the primary and secondary channels, and allocate only enough of the conservation flow to the tailrace to prevent stranding. The Applicant has proposed a year-round conservation flow of 24 cfs in the tailrace. The Agency has determined, based on flow observations, that this flow will be sufficient. The Applicant may propose an alternative flow based on results of a study conducted once the project is operational.
- 90. During a June 30, 2010 site visit, Agency staff observed a flow of approximately 24 cfs in the secondary bypass channel and determined this to be a suitable year-round conservation flow for that channel. The secondary bypass channel is mostly devoid of gravel and contains suitable spawning habitat only in the vicinity of the point where it rejoins the primary bypass and tailrace. However, this portion of the channel also receives flow from the primary channel. Therefore, the additional seasonal standards for spawning and incubation are not necessary in this channel. The Applicant may propose an alternative flow based on results of a study conducted once the project is operational.
- 91. Flows will be managed as described in the schedules in Finding 30.

- 92. The two bypasses and the tailrace are dissimilar in size and character and are likely to have different flow requirements when inflow is less than the minimum operating capacity of the turbines. Initially, flow can be evenly divided among the three channels. This is only an approximation, so once the project is operational and capable of varying flows and pond levels, the Applicant shall be required by condition of this Certification, to conduct demonstration flows to enable observations under low flow conditions. Based on these observations, the flow distribution will be refined. The project is being designed and constructed in a way that enables this flexibility.
- 93. Physical channel conditions are expected to be maintained since high flow conditions will continue to occur periodically and will not be significantly affected by the project.
- 94. Run-of-river operation will result in an impoundment water level that is maintained within a narrow range during normal operations, supporting aquatic habitat in the impoundment.
- 95. During impoundment refilling following maintenance activities, releasing 90 percent of instantaneous inflow will protect downstream habitat.
- 96. The ramping rates proposed by the Applicant will provide protection for habitat in the primary bypass and tailrace during non-emergency unit start-up and shut-down operations.
- 97. By conditions of this Certification, the Applicant shall be required to maintain run-of-river operation and provide conservation and aesthetic flows as described above. Further, the Applicant shall be required to develop a flow and water level management plan that details the civil works, equipment and operating protocols that will be used to meet these requirements.

Fish Passage, Impingement and Entrainment

- 98. The Vermont Fish and Wildlife Department has determined that downstream fish passage facilities are not warranted at this project at this time, due to unfavorable conditions for salmonids downstream of the dam. By condition of this Certification, the Department is reserving the ability to require development of passage in the future if the status of fish populations or fishery management objectives change.
- 99. The proposed trashrack design will minimize impingement and entrainment of resident fish. Implementation of the proposed design prior to project operation will be required by condition of this Certification.

Rare and Endangered Species and Outstanding Natural Resources

100. No rare and endangered species or outstanding natural resources are known to occur in the vicinity of the project.

Erosion

- 101. Recreational use of project lands may cause some localized erosion. Proper recreation planning limits the risk of significant erosion, but the Department will maintain continuing jurisdiction over this issue and require modifications where found necessary to abate erosion.
- 102. Sediment contribution from the bare section of the north bank immediately downstream of the mill building could be abated with implementation of proper stormwater management and bank revegetation treatments.

- 103. Construction work, including sediment removal from the impoundment and tailrace, reconstruction of the tailrace retaining wall and installation of the buried transmission line, may result in soil erosion and mobilization of sediment.
- 104. The Applicant will be required by condition of this Certification to obtain prior Department approval of all maintenance and repair activities, including those necessary to begin project operation, that may have a material effect on water quality. An erosion prevention and sediment control plan will be a component of the required filing.

Debris Disposal

105. The Applicant does not provide information on the handling and disposal of trashrack debris and other project related debris. The depositing or emission of debris and other solids to state waters is regulated by state solid waste laws and Standards, Section 3-01(B)(7). Debris may also impair aesthetics and boating. A debris disposal plan shall be required as a condition of this Certification.

Recreational Use

- 106. The licensing of this project would ensure the continued presence of the dams and the navigational barriers that they create, for the term of the license.
- 107. There are not suitable locations within the project boundary for recreational facility development, including a canoe/kayak portage. However, the Applicant has developed public access and recreation facilities on land which it controls adjacent to and outside of the project boundary. Those facilities include a canoe/kayak takeout.
- 108. The Town of Bennington has indicated its support for use of a municipal park as a canoe/kayak put-in, but has not proposed formal establishment of those facilities for the life of the license.
- 109. These facilities are beyond the scope of the FERC license, and consequently, this Certification. However, paddlers may use these facilities, which are connected by public roads, to carry around the dams.

Aesthetics

- 110. One inch of spillage across the full length of the primary spillway will be adequate to support aesthetics at the primary dam and bypass. Conservation flows in the tailrace and secondary bypass channels will be adequate to support aesthetics in those channels. Run-of-river operation will support aesthetics downstream.
- 111. Precise control of the impoundment elevation will be necessary to consistently provide the required flows over the spillway. Details on the equipment necessary to fulfill this requirement, and its operation, will be addressed in the flow management plan.
- 112. Aesthetics will be addressed by flow management conditions in this Certification.

Anti-Degradation

113. Pursuant to §1-03, Anti-Degradation Policy (Policy), of Vermont's Water Quality Standards and the Department's Interim Anti-Degradation Implementation Procedure dated October 12, 2010 (Procedure), the Department must apply the Policy and Procedure during the review of applications for any permit for a new discharge if during the application review process compliance with the Standards is evaluated pursuant to applicable state or federal law. This includes water quality certifications required by Section 401 of the Clean Water Act for a federal license or permit.

- 114. The Agency has reviewed the proposed project for compliance with the Policy and Procedure. . Discharges subject to water quality certifications issued by the Department for flow modifying activities are reviewed under Section VIII of the Procedure. Class B waters are affected by this project and are high quality waters subject to anti-degradation review.
- 115. There is an existing dam and impoundment that have changed the natural condition of the river at the project location. Development of the project will modify the flow regimes of the primary, secondary and tailrace channels. However, aquatic habitat and aesthetics will be fully supported by provision of conservation flows. Run-of-river operation will ensure that no changes in water quality occur downstream. Although there is some possibility that over time the installation and operation of the project might degrade downstream D.O., available data indicate that this is currently not a problem. The Applicant will be required to perform monitoring to determine if downstream D.O. is being degraded due to project operation. If that is the case, the Applicant will be required to propose and implement mitigative measures to eliminate any degradation and prevent future degradation.
- 116. The Secretary finds that development and operation of the project will not result in any change in existing physical and water quality conditions beyond those that have already taken place as a result of prior development at the site. Accordingly, the Secretary finds that the project meets the requirements of the Policy and Procedure relating to the protection and maintenance of high quality waters.
- 117. In conducting anti-degradation review, the Secretary must also determine whether there will be an elimination of any existing uses and whether any Outstanding Resource Waters will be impacted by the project. There are no Outstanding Resource Waters impacted by this project. Recreational uses of the Walloomsac River include fishing, swimming, and boating. While recognizing that there is an existing dam and impoundment that have changed the natural condition of the river at the project location, the Secretary has determined that based on the required controls for this project these existing recreational uses, and the water quality necessary to support these uses, will be maintained and protected. In addition, waters potentially affected by the project have existing uses of aquatic biota and wildlife that utilize or are present in the waters and habitat that supports existing aquatic biota, wildlife and plant life.
- 118. By condition of this Certification, the Department retains continuing jurisdiction over the project, and may reopen this Certification to assure compliance with the Standards and to respond to any changes in classification or management objectives for affected waters affected by the project.

Decision and Certification

The Department has examined the project application and bases its decision in this Certification upon an evaluation of the information contained therein that is relevant to the Department's responsibilities under Section 401 of the federal Clean Water Act and has examined other pertinent information deemed relevant by the Department, sufficient to permit the Department to certify that there is reasonable assurance that operation and maintenance of the Vermont Tissue Mill Hydroelectric Project as proposed Water Quality Certification Vermont Tissue Mill Hydroelectric Project Page 16 of 19

by the Applicant and 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, 33 U.S.C. §1251 et seq., as amended, and other appropriate requirements of state law.

- A. **Compliance with Conditions.** The Applicant shall provide notice to the Department of any proposed change to the project that would have a significant or material effect on the findings, conclusions or conditions of this Certification, including any changes to operation of the project. The Applicant shall not make any such change without approval of the Department.
- 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 spilled at the primary and secondary dams. The following conservation flow requirements shall be maintained at all times except during drawdowns conducted in accordance with Condition C below.

Conservation Flows			
Channel	June 1 through September 30	October 1 through May 31	
	Inflow \geq 108 cfs: 60 cfs	Inflow \geq 162 cfs: 114 cfs	
Primary	Inflow 73 to 107 cfs: inflow minus	Inflow 73 to 161 cfs: inflow minus	
Bypass	48 cfs	48 cfs	
	Inflow \leq 72 cfs: 1/3 of inflow	Inflow \leq 72 cfs: 1/3 of inflow	
Secondary	Inflow > 72 cfs: 24 cfs		
Bypass	Inflow \leq 72 cfs	s: 1/3 of inflow	
	Inflow > 72 cfs: 24 cfs		
Tailrace	Inflow \leq 72 cfs: 1/3 of inflow		

- C. **Impoundment Water Level Management.** Crest spillage of 1.0-inch depth shall be maintained at the primary dam at all times. The impoundment shall not be drawn below the fixed crest of the primary dam unless special approval is granted by the Department under Condition O below, or for a safety-related emergency. In the latter case, the Department shall be notified within 24 hours.
- D. **Flow Management During Impoundment Refill.** During refilling of the project impoundment after an approved dam maintenance operation or an emergency drawdown, at least 90 percent of instantaneous inflow shall be released below the project.
- E. Flow and Water Level Management Plan. The Applicant shall develop and file with the Department a flow and water level management plan detailing how the project will be operated to achieve compliance with Conditions B, C and D of this Certification. The flow and water level management limitations described in Finding 30 will be followed and the ramping protocols described in Finding 31 shall be incorporated into the plan. The plan shall include

information on how the project will be managed to control lag times and avoid related noncompliance with the conservation flow and ramping requirements, including during planned and unplanned unit shutdowns and startups. The plan shall be subject to Department review and approval. The Department reserves the right of review and approval of any material changes made to the plan.

- F. **Monitoring Plan for Impoundment and Flow Management.** The Applicant shall develop a plan for continuous monitoring and reporting of flow releases at the project (spillage and turbine discharge), impoundment levels and inflows. The plan shall include procedures for reporting deviations from prescribed operating requirements to the Department, explaining the reasons for those deviations and indicating measures to be taken to avoid recurrences. The Applicant shall maintain continuous records of flows and impoundment levels and provide such records upon request by the Department. The plan shall be developed in consultation with the Department and the U.S. Fish and Wildlife Service. The plan shall be subject to Department review and approval. The Department reserves the right of review and approval of any material changes made to the plan.
- G. **Dissolved Oxygen.** The Applicant shall conduct a study to determine if project operation is degrading downstream D.O. concentrations. The study shall be conducted following commencement of project operation in accordance with a study plan. The study plan shall be developed in consultation with the Department and shall include a schedule. The study plan shall be subject to Department review and approval. Project operation shall not commence prior to approval of the plan by the Department. If the study documents that D.O concentrations are being degraded, the Applicant shall propose, subject to Department review and approval, changes in project design or operation to mitigate the impact. The Applicant shall implement any project design and operation changes approved by the Department within the timeframes specified by the Department. Failure to implement any required changes may result in a reopening of this Certification.
- H. **Trashracks.** Prior to initial operation of the project, trashracks shall be installed on the intake that meet the specifications described in Finding 14 of this Certification. Design for any trashrack replacement is subject to prior review and written approval by the Department, after consultation with the Vermont Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.
- I. Fish Passage. Within four years after being notified by the U.S. Fish and Wildlife Service or the Vermont Department of Fish and Wildlife that upstream or downstream fish passage facilities, or both, are needed, the Applicant shall construct, operate and maintain such facilities. The agencies will determine the need for passage based on the status of fish populations in the Walloomsac River and management objectives that call for implementation of upstream or downstream passage measures at the project for resident or migratory species. Upon such time that fish passage implementation is required, the design shall be subject to approval by the Department and the U.S. Fish and Wildlife Service. The annual period for operation must be included in the proposed design. Once passage facilities are operational, the Department may request, at any time, adjustment to the annual period for operation based on new information about movement periods for the target species.

Water Quality Certification Vermont Tissue Mill Hydroelectric Project Page 18 of 19

- J. **Turbine Rating Curves.** 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 commencement of project operation.
- K. **Forebay and Impoundment Dredging.** The Applicant shall develop a detailed plan describing the methods to be used to remove sediment from the forebay and impoundment. The plan shall be developed in consultation with the Department and shall be subject to Department approval prior to commencement of dredging operations. The Department approved sediment removal plan and all amendments thereto as approved by the Department shall be incorporated by reference as conditions of this Certification.
- L. **Public Access.** The Applicant shall allow public access to the project lands for utilization of public resources, subject to reasonable safety and liability limitations. Such access should be prominently and permanently posted so that its availability is made known to the public. Any proposed limitations of access to State waters to be imposed by the Applicant shall first be subject to written approval by the Department. In cases where an immediate threat to public safety exists, access may be restricted without prior approval; the Applicant shall so notify the department and shall file a request for approval, if the restriction is to be permanent or long term, within 14 days of the restriction of access.
- M. Recreational Facilities. The Applicant shall construct and maintain river access consistent with a recreation plan approved by the Department. The plan shall be filed with the Department within one year of license issuance and shall include an implementation schedule. Where appropriate, the recreation plan shall include details on erosion control. The plan shall be updated at intervals not exceeding ten years or a written statement provided that indicates the basis for there being no need to upgrade the facilities or otherwise modify the plan. Modifications to the recreation plan shall also be subject to Department approval over the term of the license. The Department approved recreation plan and all amendments thereto as approved by the Department shall be incorporated by reference as conditions of this Certification.
- N. **Debris Disposal.** The Applicant shall develop a plan for proper disposal of debris associated with project operation, including trashrack debris. The plan shall be developed in consultation with the Department, and a draft shall be submitted to the Department for review at least 60 days prior to commencement of project operation. The final plan shall be subject to Department approval. The Department reserves the right of review and approval of any material changes made to the plan at any time.
- O. **Construction, Maintenance and Repair Work.** Any proposals for project construction, maintenance or repair work, including drawdowns below the fixed dam crest to facilitate these activities, shall be filed with the Department for prior review and approval, if said work may have a material adverse effect on water quality or cause less-than-full support of a designated use of State waters. An erosion prevention and sediment control plan shall be included in the filing.
- P. **Commencement of Operation.** The Applicant shall notify the Department within two weeks of project completion and commencement of operation.

- Q. **Record Drawings.** The Applicant shall provide the Department with a set of as-built plans for the record within one year of the completion of construction.
- R. **Compliance Inspection by Department.** The Applicant shall allow the Department to inspect the project area at any time to monitor compliance with Certification conditions.
- S. **Posting of Certification.** A copy of this Certification shall be prominently posted within the project powerhouse.
- T. **Approval of Project Changes.** Any change to the project that would have a significant or material effect on the findings, conclusions or conditions of this Certification, including project operation, must be submitted to the Department for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.
- U. **Reopening of License.** The Department may request, at any time, that FERC reopen the license to consider modifications to the license as necessary to assure compliance with the Standards.
- V. **Continuing Jurisdiction.** The Department reserves the right to alter or amend this Certification over the life of the project when such action is necessary to assure compliance with the Standards and to respond to any changes in classification or management objectives for the affected waters.

Appeals

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the Applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court is 2418 Airport Road, Suite 1, Barre, VT 05641 (Tel. 802.828.1660).

State of Vermont Agency of Natural Resources

David K. Mears, Commissioner Department of Environmental Conservation

BY:

Peter LaFlamme, Director Watershed Management Division

ATTACHMENT III

Site Photographs













ATTACHMENT IV

Copies of newspaper articles

Waterworks proposed to power Bennington College

By TRICIA N. HAYES

The possibility of generating hydroelectricity to power the Bennington College campus and some homes is a license away, if Bill Scully gets his way.

In June, Scully and wife Maria Scully purchased the former Vermont Tissue mill on the Walloomsac River next to the Paper Mill covered bridge.

The couple hopes to restore the historic 12,000-square-foot-building with 27-foot-tall ceilings, and refurbish the dam and hydroelectric power station to generate 250 kilowatts annually. The dam predates the entrance of Vermont into the Union as the 14th state. It powered the mill until its decommissioning in the 1950s.

"It is about clean, renewable energy that will lessen our dependence on foreign fossil fuels," said Bill Scully. The site could generate as much as 50 percent of the college's energy needs and help it meet its goals in its new biomass project.

In January, the couple approached the town for approval of their hydro project, since the Federal Agency of Natural Resources (ANR) looks to the local governing body for its acceptance of the project. At the same time, the town was seeking approval for its own inline hydro project to provide drinking water.

Approval for the town's project came from the federal agency in just under six months. The Scullys' project also must win approval from the ANR, which is hampered by the lack of a formal application process for this type of project.

Central Vermont Public Service (CVPS) welcomes the project, since it would lessen the cost of power purchased at peak periods and reduce the amount lost in delivering power over transmission lines to remote places. CVPS has lobbied to increase approvals for small hydro generating plants from 100 to 250 kilowatts to encourage such projects.

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Vermont regulations trail behind many other state initiatives for hydro. It wasn't until this past January that the legislature passed the 401 Clean Water Act recognizing hydro as a legitimate source of power. "There hasn't been a permit issued in five years," said Scully. To meet some of the requirements, Scully has enlisted the assistance of the Bennington Regional Commission, which is funding some of the testing required by the ANR.



Bill Scully hopes to refurbish the plant and generation system at the former Vermont Tissue mill in Bennington to generate hydroelectricity.

"The site, in fact, has two dams," said Scully. "The one at the abandoned mill, which we hope to restore, and another is a natural bedrock dam just on the other side of the bridge." Anglers fish at both sites, he said.

The site was placed on the U.S. Environmental Protection Agency's (EPA) brown fields list, identifying it as land that may be compromised by the presence of a hazardous substance, pollutant or contaminant that could deter expansion, redevelopment or reuse. Cleaning up and reinvesting in such properties protects the environment, reduces blight and takes development pressures off green spaces and working lands, according to the EPA.

Iobbied to increase approvals for small hydro
generating plants from 100 to 250 kilowatts to
encourage such projects."The Vermont Tissue site has been tested
and found to contain dioxins, a heterocyclic,
organic, anti-aromatic compound that can be
removed by power washing and painting the
building," said Scully.

On a recent visit to the site, almost a week after any significant rain, water was streaming over the 80-foot-wide dam at the rate of 80 cubic feet per second. According to Scully, it was one foot deep, although he had witnessed over three feet spilling into the river during spring runoff and heavy rains. On those occasions, said Scully, "it will flood the mill and cover Route 67,

spreading dirt and gasoline to nearby wetlands. "By replacing the works, the flooding would be controlled and resolve these issues," he sud.

If the project is approved, Scully plans to purchase the turbines and build his own efficient generation systems. "I am hopeful that the review process will be speedy, allowing us to go forward within the next year," said Scully.

The generation of hydro power is substantially cheaper than solar generation. "The difference is \$3.50 per kilowatt for hydro compared to \$8 per kilowatt for solar," he said. "There is also a difference in the cost of the turbines and generation equipment compared to solar panels. Additionally, hydro generates electricity 14 hours a day, not just when the sun is out."

The previous mill owner abandoned plans to reestablish the hydro, a prospect Sculy hopes won't befall them. "Bennington is a mill town and our mills should be running," said Sculy the couple has many enterprises. They opened North Bennington's Pangea Restaurant eight years ago, the Lounge a year later and board Powers Market four years ago. They started the Italian restaurant Allegro in Bennington near three years ago; Bill Scully also is director of food services at Bennington College.



SATURDAY-SUNDAY, MARCH 13-14, 2010

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See DONOR, page 5A



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Kucinich, an Ohio has held hearings aid animal treatod safety.

"How can the ublic have confience in the safety f the food they eat inspections at ants aren't con-

Bill Scully stands beside the dam at the Papermill Covered Bridge in Bennington on Monday. Scully hopes to create a hydro-power project there.

More efficient power source? Businessman wants to start hydro-electric project locally

NEAL P. GOSWAMI Staff Writer

owner is hoping to retrofit the cohesive permit process. existing infrastructure to gener-

Bennington College's needs.

BENNINGTON - The ny, AOE Inc., purchased the dam still no clear application." waters of the Walloomsac River and six acres of property from have spilled over the dam at the Pepper and MacLeod LLC, for former Vermont Tissue Paper \$200,000 in June 2009, said his ous owner walked away from the site since it was constructed in efforts to bring the dam back years-long effort he was facing in 1887. Electricity has not been online through another compagenerated by the dam since 1958, ny. Carbon Zero LLC, have been however. Now, the dam's new stymied by the state's lack of a sites around the world and he

ate enough power to meet half of these was never even an applica- the state of Vermont. Very

tion process in Vermont. You unhappy for a number of rea-

Scully said he was only able to in six months." purchase the dam after the previ-

walked away from the table and "Until Dec. 15 of this last year said he would not do business in

William Scully, whose compa- couldn't apply," he said. "There's sons," Scully said. "He went to New Hampshire and went online

> Rep. Joseph L. Krawczyk Jr., R-Bennington, vice chairman of the House Natural Resources and Energy Committee, said leg-"The guy had done 26 hydro islation he has introduced -- with co-sponsors on both sides of the aisle - will streamline the per-



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Thursday, May 3, 2012

A IMMediaNews Group NEWSPAPER

A view of the spillway over the Paper Mill Bridge Dam over the Walloomsac River in Bennington, Vt., which local entrepreneur Bill Scully is working to commission as Vermont's first hydroelectric dam in 25 years.

NG A DA

Vermont entrepreneur pushes local hydroelectric project as clean energy solution

By TELLY HALKIAS

By TELLY HALKIAS In "The Rime of the Ancient Mariner," Samuel Taylor Coleridge expressed humanity's historic frustration with the ubiquity of nature's greatest asset: "Water, water, everywhere, Nor any drop to drink." But drinking isn't on the mind of one North Bennington, Vt., citizen, Rather, Bill Scully, owner of several award-winning restaurants, is demonstrating that with patience, persistence

and personal investment, one man can make a difference in the pursuit of clean energy and sustainable resources. Scully is attempting to convert the existing dam across the Walloomsac River at the now defunct Vermont Tissue Co. Mill into a func-tional power source for his community. In 2009, he purchased the mill building and dam at the Paper Mill Village Bridge in Bennington and is pulling together private and public con-

FR

cernis to commission Vermont's first hydroelec-tric dam in 25 years. "Water is the ultimate clean source of ener-gy, and while once fueled only by water, Vermont now gets 15 percent of its electric power from hydro," Scully said. "With a lot of work, we can harness it. Past that, there are major bureaucratic and regulatory burdens we

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CONTINUED FROM PAGE 1

must meet to get it done right. We want to show that hydroelectric should be seriously considered as part of the global renewable energy package by starting here, at the grass roots.'

Scully said he had considered a project like this for years before finally acting by purchasing the entire mill facility at the dam. He started to work on the long conversion process, including all the state and federal permits necessary for commissioning. His motivation was multifold.

"I began to think of how good Vermont has been to me in terms of my business success and wanted to give something back," Scully said. "But I also thought of what the future holds for our children and grandchildren. Setting an example is sometimes how these issues of the environment must be approached. I've gotten a lot of encouragement along the way."

Over two years into the permitting, Scully's many supporters, from scientists to government officials, are cheering him on.

Dr. Tim Schroeder, professor of geology at Bennington College, said critical ecological changes were already made to the river years ago when the dam was constructed. Its reuse in a sustainable way is desirable in terms of bringing back an otherwise moribund structure.

"The system will use an existing



COURTESY VERMONT PUBLIC RADIO Bill Scully stands on the site of the old Vermont Tissue Co. Mill Dam, which he hopes to commission.

dam with few modifications to generate electricity," Schroeder said. "The dam in the Walloomsac (River) at the paper mill was originally constructed as a hydroelectric facility, but ceased to be used as such many years ago. The only real way in which this dam will modify the river flow is to divert a portion of the water that currently flows over the dam through a turbine to generate electricity. This should constitute a very small change to the overall hydrology and ecology of the river."

Schroeder added that water-rich rural New England has a very high rate of flow through its watersheds, and a relatively low population density using that water. This suggests conditions ideal for conversion of the dam back to power generation.

State Rep. Brian Campion is one of the project's most vocal supporters in Montpelier. He said Scully's determination and force of will are vital to the elaborate and sometimes frustrating permitting process. In the end, Scully's community of North

FROM PAGE ONE

Bennington will lessen its reliance on oil and nuclear power.

"Bill brilliantly identified the opportunity before him - harnessing the power of water to create energy," Campion said. "However, he unfortunately was met with many roadblocks; some so great that they would have caused many of us to forgo our plans."

Scully acknowledged that four years - in which his personal investments will be the primary source of funding --- was a modest estimate in terms of getting the dam up and running.

"There are currently 1,200 unused dams in Vermont," Scully said. "Why? Adding hydroelectric energy back into the equation will create a far more dynamic and sustainable portfolio than what we currently have. But yes, the process can be long and challenging at times."

Campion said that is what makes Scully's resolve necessary to the future success of such endeavors. He emphasized that the entrepreneur's leadership is what will convince other private citizens to step up to benefit local communities and the environment.

"Thankfully Bill's persistence and intelligence has him moving toward reaching his goal and, by doing so, crafting a blueprint for an energycreation-model for the state of Vermont," Campion said. "In addition to the financial and environmental benefits of Bill's work, he has also shown countless Vermonters young and old --- the power one person can have to make a change."

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LOCAL MONDAY, JANUARY 7, 2013

t. Town says pigs in residence must go

ESSEX (AP) - A Vermont Manor neighborhood. woman considers her pigs to be pets, but town officials where she lives say they're farm animals and have no business living 100 pounds. She's given them in a residential neighborhood.

Thursday gave Florence Gruber and Alan Tsefrekas until Jan. 22 to remove an estimated 30 to 40 miniature potbellied pigs from their home in the Pinewood

pigs use litter boxes and that the must go. adult animals weigh in at 50 to names like Larry, Nadia, Olive The Essex zoning board on and Snow White Sleepy Girl. But a town official said Gru-

ber was violating town regulations by keeping pigs in a residential area, and neighbors who had lost count of how many pigs have complained about the pigs she had - at least 30, maybe 40.

and the condition of the proper-Gruber told the board her ty told board members the pigs were living downstairs and this."

> "You have neighbors; that's said. "It's about consideration for people in the neighborhood."

Gruber last month told the Burlington Free Press that she

upstairs, and that the house smelled of bleach. Gruber said

needed perhaps a month to find N.J. Gruber said she ended up new homes for them. "We want to get rid of all of began breeding them.

them except two or three," she

A New Jersey court last spring order Gruber to find new the issue," resident Marie Sadler she knew she couldn't keep so homes for the roughly 30 pigs many pigs in her house, but she had in a house in Paulsboro, with so many pigs after she

them except two or three," she She moved to Vermont when counted 47 pigs, said Zoning said. "We never intended to Tsefrekas invited her to live with Administrator Sharon Kelley.

The newspaper said the pigs keep this many in a situation like him, with both of them mistakenly believing the pigs were allowed to live with them, she said.

3A

Town officials began investigating the pigs after Tsefrekas was observed dumping animal waste in a ravine behind the house. A town official who visited the home in November

From the front

Bennington agrees to buy hydro-electric credits from local businesses

HYDRO, from page 1A

"(We're) trying to take an old site that wasn't really doing anything," Scully said, "try to bring the building back ... as an occupied space (and) come up with a renewable energy source.

ctually two) at the Paper Mill gigawatts given river flow. Village Covered Bridge hasn't produced power since 1958, but Scully said by telephone Sunday project is being designed to nent reach for fish.

summer to early fall. A comment (various permitting agencies period for a federal license ends and) Vermont Fish & Wildlife, Jan. 17.

resulting in estimated annual The existing dam (there are power production of 1.454

doesn't generate a lot of cash."

Along with Yankee, Entergy's

other merchant plants include

that work could start soon to get improve water quality and fish the project operational by late habitat. "We sat down with ... and we asked: 'What do you The project will use a 360- want?" Scully said the hope was kilowatt capacity generator, to serve as a model for future hydro projects, which can often face opposition on environmen-

tal grounds. "It's going to (cre-Because of the site's unique ate) stronger fisheries," he said, river channels, the future hydro through work to a new perma-

"We don't make our own energy" in Vermont, he said. "I just

think it's time we started making our own energy," Scully said

An earlier agreement with the open a flood gate as a safety use measure in a state of emergency. (Carbon Zero would never have

that authority itself.) The property was previously because of industrial pollutants energy" in Vermont, he said. "I which have since been cleaned up to residential standards. allowing the former mill buildtown of Bennington will also ing to someday be converted Twitter or email ewright@benallow public safety officials to into dual industrial/residential

Scully said hydro was the sole renewable power source not subsidized under Vermont state designated a Brownfields site law. "We don't make our own including dioxin and PCBs, just think it's time we started making our own energy."

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Analyst: 'Unlikely' Entergy will continue Vermont Yankee plant

VANKEE, from page 1A

utility stocks and issues reports on whether or not UBS' customers should consider buying, - shair stoke in

the metropolitan area. Entergy's nuclear portfolio

nort through

more congested areas," he said. kee open.

The New England market, "New England has a lot of gas close Yankee,

other merchant peans includes Fitzpatrick and Indian Point in however, of which Yankee is a capacity on paper, but does it

major factor may contribute to administration of the region's Smith, who said he believes the

"If push came to shove, would

"Power prices are higher in Entergy's decision to keep Yan- wholesale electricity markets," legislation was crafted to force would even allow Entergy to Entergy to close Yankee."It's a tax that is unpalatable

What could keep Entergy from