

**IN THE SUPREME COURT OF
THE STATE OF VERMONT**

VERMONT SUPREME COURT DOCKET NUMBER 2008-295

ENTERGY NUCLEAR VERMONT YANKEE DISCHARGE PERMIT 3-1199

APPEAL FROM

**ENVIRONMENTAL COURT OF VERMONT
DOCKET NUMBER 89-4-06 Vtec**

BRIEF OF THE APPELLANTS

David K. Mears
Patrick A. Parenteau
Environmental and Natural Resources Law Clinic
Vermont Law School
PO Box 96 164 Chelsea St.
South Royalton, VT 05068
802/831.1630
dmears@vermontlaw.edu
pparenteau@vermontlaw.edu

Attorneys for Appellants

STATEMENT OF THE ISSUES

Page

1. Whether the Environmental Court erred by failing to support its conclusions of law with specific findings on disputed issues of material fact.	10
2. Whether the Environmental Court erred by failing to apply the correct legal standards governing applications for variances under section 316 (a) of the Clean Water Act.	11-12
3. Whether the Environmental Court erred by failing to consider the cumulative effects of Vermont Yankee's thermal discharge on the biological community of Connecticut River as required by applicable federal regulations and case law.	32
4. Whether the Environmental Court erred in approving Entergy's application for a variance despite Entergy's failure to demonstrate that its discharge had not caused "prior appreciable harm" within the meaning of the Clean Water Act and applicable regulations; or that the alternative effluent limitation it proposed would assure the protection and propagation of a "balanced indigenous population of fish" (i.e. the "BIP") in the Connecticut River as required under Clean Water Act and applicable regulations.	18, 23
5. Whether the Environmental Court erred by excluding evidence showing prior appreciable harm to the BIP in the form of a letter from the U.S. Geological Survey Silvio O. Conte Anadromous Fish Research Laboratory dated July 2, 2007.	28
6. Whether the Environmental Court erred by failing to properly apply the Vermont Water Quality Standards with respect to (1) management standards for Class B waters under §3-04; (2) standards for coldwater habitat under §3-01; (3) mixing zone provisions under §3-01(B)(1); (4) anti-degradation under §1-03; and (5) protection of high quality waters under §1-03(C)(1).	36-37
7. Whether the Environmental Court exceeded the scope of its authority by amending the permit to include substantive conditions instead of denying Entergy's application or remanding the application to the Agency of Natural Resources for proper compliance with the public participation requirements of the Clean Water Act, 33 U.S.C. §§ 1251(e), and the Vermont Water Pollution Control Regulations § 13.8.	14

TABLE OF CONTENTS

	Page
STATEMENT OF THE ISSUES.....	i
TABLE OF CONTENTS.....	ii
TABLE OF AUTHORITIES	iv
STATEMENT OF THE CASE.....	1
SUMMARY OF THE ARGUMENT	7
ARGUMENT	10
I. THE ENVIRONMENTAL COURT ERRED IN FAILING TO ARTICULATE THE PROPER LEGAL STANDARDS AND FIND THE NECESSARY FACTS TO SUPPORT ITS CONCLUSIONS.....	10
II. THE ENVIRONMENTAL COURT ERRED IN USING A FLAWED DEFINITION OF “BODY OF WATER”	15
A. THE ENVIRONMENTAL COURT FAILED TO APPLY RELEVANT CASE LAW ON HOW TO DEFINE A BODY OF WATER	15
B. THE ENVIRONMENTAL COURT ERRONEOUSLY ACCEPTED ENTERGY’S FLAWED MODEL AND EVIDENCE OF ITS THERMAL PLUME.....	17
III. THE ENVIRONMENTAL COURT ERRED IN USING A FLAWED DEFINITION OF A “BALANCED, INDIGENOUS POPULATION” WHICH DOES NOT PROPERLY REFLECT THE COMMUNITY OF SPECIES IN THE CONNECTICUT RIVER	19
IV. THE ENVIRONMENTAL COURT ERRED WHEN ACCEPTING A FLAWED DETERMINATION OF THE “REPRESENTATIVE INDIGENOUS SPECIES”	21
V. THE ENVIRONMENTAL COURT ERRED IN FAILING TO CONSIDER THE HISTORICAL IMPACTS OF ENTERGY’S THERMAL DISCHARGES	23
A. EPA REGULATIONS AND GUIDANCE REQUIRE THAT THE ENTIRE HISTORY OF DISCHARGES BE ANALYZED, NOT JUST A FRACTION OF AN APPLICANT’S PAST DISCHARGES	23
B. THE ENVIRONMENTAL COURT DID NOT ANALYZE THE HISTORY OF VERMONT YANKEE’S DISCHARGES	25
C. ENTERGY FAILED TO OFFER A PLAUSIBLE ALTERNATIVE EXPLANATION FOR THE DECLINE OF AMERICAN SHAD	26

VI.	THE ENVIRONMENTAL COURT ERRED IN REJECTING IMPORTANT, PERSUASIVE EVIDENCE SHOWING THAT THE TURNERS FALLS DAM IS NOT RESPONSIBLE FOR THE DECLINE IN SHAD.....	28
	A. THE ENVIRONMENTAL COURT IMPROPERLY DETERMINED THAT THE PUBLIC RECORDS EXCEPTION, VERMONT RULE OF EVIDENCE 803(8), DID NOT APPLY TO THE CONTE LAB LETTER	29
	B. THE CONTE LAB LETTER MAKES CLEAR THAT TURNERS FALLS DAM IS NOT THE CAUSE OF THE DECLINE IN AMERICAN SHAD POPULATION	31
VII.	THE ENVIRONMENTAL COURT ERRED IN FAILING TO CONSIDER THE CUMULATIVE AND SYNERGISTIC EFFECTS OF THE PROPOSED DISCHARGE	32
VIII.	THE COURT ERRED BY FAILING TO PROPERLY APPLY THE VWQS	37
	A. STATE WATER QUALITY STANDARDS MUST BE CONSIDERED WHEN CONDUCTING A 316(A) ANALYSIS	37
	B. THE ENVIRONMENTAL COURT FAILED TO PROPERLY RULE ON AND APPLY THE MANAGEMENT STANDARDS FOR CLASS B WATERS UNDER VWQS §3-04	38
	C. THE ENVIRONMENTAL COURT ERRED BY CONCLUDING THAT CWA 316(A) AND VWQS 3-01(B)(1)(D) ARE EQUIVALENT AND AS A RESULT, THE COURT FAILED TO CONDUCT A PROPER ANALYSIS UNDER THE VWQS.....	39
	I. THE ENVIRONMENTAL COURT ERRED BY HOLDING THAT THE CONNECTICUT RIVER PROVIDES A “TRANSIENT HABITAT” UNDER THE VWQS	39
	II. THE ENVIRONMENTAL COURT FAILED TO STATE HOW A VARIANCE TO THE 1°F LIMIT ON THERMAL DISCHARGES COMPLIES WITH 3-01(B)(1)(D) AND OTHER PROVISIONS OF THE VWQS	40
	III. THE ENVIRONMENTAL COURT FAILED TO DETERMINE IF THE GRANTING OF ENTERGY’S AMENDMENT WOULD COMPLY WITH THE ANTI-DEGRADATION POLICY OF THE VWQS.....	42
IX.	THE ENVIRONMENTAL COURT ERRED BY NOT HOLDING ENTERGY TO ITS STRINGENT BURDEN OF PROOF	44
	CONCLUSION.....	46
	CERTIFICATE OF COMPLIANCE.....	47
	CERTIFICATE OF SERVICE.....	48

TABLE OF AUTHORITIES

CASES	Page
<u>Appalachian Power Co. v. Train</u> , 545 F.2d 1351 (4 th Cir. 1976).....	15
<u>Arnold v. Arnold</u> , 141 Vt. 118, 444 A.2d 890 (1982)	10
<u>Beech Aircraft Corp. v. Rainey</u> , 488 U.S. 153 (1988).....	30
<u>City of New York v. Pullman</u> , 662 F.2d 910 (2 nd Cir. 1981).....	29
<u>Davis v. New York City Housing Authority</u> , 166 F.3d 432 (2 nd Cir. 1999).....	10
<u>Fraley v. Rockwell Int'l Corp.</u> , 470 F.Supp. 1264 (S.D. Ohio 1979).....	30
<u>Houston v. Town of Waitsfield</u> , 162 Vt. 476, 648 A.2d 864 (1994)	7
<u>Huntington v. McCarty</u> , 174 Vt. 69, 807 A.2d 950 (2002).....	39
<u>In re Gulli</u> , 174 Vt. 580, 582; 816 A.2d 485, 489 (2002)	7
<u>In re Vermont National Bank</u> , 157 Vt. 306, 597 A.2d 317 (1991)	7
<u>Kelley v. Everglades Drainage Dist.</u> , 319 U.S. 415 (1943)	10
<u>Palmer v. Hoffman</u> , 318 U.S. 109 (1943).....	30
<u>Riverkeeper v. EPA</u> , 358 F.3d 174 (2 nd Cir. 2004).....	44
<u>Secretary, Agency of Natural Resources v. Irish</u> , 169 Vt. 407, 738 A.2d 571 (1999)	10
<u>State v. Pollander</u> , 167 Vt. 301, 304, 706 A.2d 1359, 1360 (1997)	7
 STATUTES	
3 V.S.A. § 814(b).....	4
10 V.S.A. § 1250.....	37
10 V.S.A. § 1251.....	40

16 U.S.C. § 757a.....	7
33 U.S.C. § 1251.....	1, 8, 14
33 U.S.C. § 1311.....	1
33 U.S.C. § 1313.....	37
33 U.S.C. § 1326.....	passim
33 U.S.C. § 1342.....	1
33 U.S.C. § 1362.....	1
97 Stat. 866 (1983).....	8

REGULATIONS

39 Fed. Reg. at 36,177	37
40 C.F.R. § 122.4.....	11, 34, 36, 37
40 C.F.R. § 125.71	19, 22
40 C.F.R. § 125.73	12, 24, 33
44 Fed. Reg. at 32,854	34
50 C.F.R. § 1500.7.....	33
Vermont Water Pollution Control Regulations § 13.....	14

RULES

12-004-052 Vt. Code R. § 1-01 (2000).....	1,38
12-004-052 Vt. Code R. § 1-03 (2000).....	42
12-004-052 Vt. Code R. § 1-04 (2000).....	2
12-004-052 Vt. Code R. § 2-04 (2000).....	11, 40
12-004-052 Vt. Code R. § 3-01 (2000).....	2, 11, 40, 41
12-004-052 Vt. Code R. § 3-04 (2000).....	8, 38

12-004-052 Vt. Code R. § 3-05 (2000).....	39
Appendix A, A Fish Habitat Designation, subsec. B.....	3, 39
Vt. Rule App. P. 4(b)	7
Vt. Rule Civ. P. 26(e).....	28
Vt. Rule Civ. P. 52(a).....	10
Vt. Rule of Evid. 803(8)	29

ENVIRONMENTAL PROTECTION AGENCY ENVIRONMENTAL APPEALS BOARD DECISIONS

<u>In re Dominion Energy Brayton Point, L.L.C., (NPDES Appeal No. 03-12), 2006 EPA App. LEXIS 9 (EAB Feb. 1, 2006).....</u>	16, 19, 21
<u>In re Seabrook, 1977 EPA App. LEXIS 16 (June 10, 1977)</u>	15, 33

SECTION 316(a) DETERMINATIONS

<u>Clean Water Act NPDES Permitting Determinations for Brayton Point Station's Thermal Discharge and Cooling Water Intake in Somerset, MA (NPDES Permit No. MA0003654) (July 22, 2002)</u>	21
<u>Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Mirant Kendall Station (NPDES Permit No. MA0004898).....</u>	21, 44

LEGISLATIVE HISTORY

S. REP. NO. 95-370 (1977) (Conf. Report).....	44
---	----

STATEMENT OF THE CASE

This case involves the appeal by the Connecticut River Watershed Council, Trout Unlimited (Deerfield/Millers 349 Chapter) and Citizens Awareness Network (Massachusetts Chapter) (collectively “CRWC”) of an Environmental Court decision authorizing Entergy Nuclear Vermont Yankee, LLC (“Entergy”) to increase the temperature of the heated effluent it discharges into the Connecticut River. The Environmental Court decision being appealed followed an extensive trial involving CRWC’s appeal of a permit amendment issued by the Vermont Agency of Natural Resources (“ANR”) under the National Pollutant Discharge Elimination System (“NPDES”) of the Clean Water Act (“CWA”), 33 U.S.C. § 1342.

The permit amendment at issue in this case authorizes Entergy to increase the temperature of the cooling water discharge by an additional one degree Fahrenheit (1°F) above the previous permit limit. As a result, Entergy is allowed heat the entire Connecticut River from top to bottom, side to side, as much as 6°F during certain summer months. This temperature increase is measured at a point 1.4 miles downstream from the discharge and there is evidence that its effects can be measured as far as the Holyoke Dam, over fifty miles downstream. P.C. at 795, 1044, 1055. CRWC is appealing the issuance of this permit amendment because scientific evidence suggests that by heating the Connecticut River, Entergy is harming the river ecosystem, particularly native coolwater and coldwater species such as American Shad and Atlantic Salmon.

CRWC’s appeal is grounded upon the Clean Water Act (“CWA”), 33 U.S.C. §§ 1251 et. seq., and Vermont’s Water Quality Standards (“VWQS”), 12-004-052 Vt. Code R. §1-01 et. seq. Section 301(a) of the CWA prohibits the discharge of any pollutants, including heat, unless authorized by a permit issued pursuant to the NPDES program. 33 U.S.C. § 1311(a); *Id.* § 1362(6). ANR administers the NPDES program under a delegation agreement with the

Environmental Protection Agency (“EPA”) and the Vermont Water Pollution Control Act (“WPCA”), 10 V.S.A. Ch. 47. Under this authority, ANR is required to impose effluent limitations that will ensure that state water quality standards are met, including those provisions relating to temperature. 12-004-052 Vt. Code R. § 1-04(A)(3); Id. § 3-01(B)(1).

The discharge of heated water is regulated under Section 316(a) of the CWA, which allows a discharger to seek less stringent effluent limitations under certain narrow circumstances. This so-called Section 316(a) “variance” is allowed only if the discharger can satisfy its burden to show that the effluent limitations “are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made.” 33 U.S.C. § 1326(a) (the “BIP standard”). In this case, as discussed in the Argument section below, a scientific evaluation of the impacts of Entergy’s discharge over time reveals that Entergy has not met that burden.

A brief summary of the history of the NPDES permits issued to the Vermont Yankee nuclear power plant is necessary to understand why Entergy should not be allowed any further increases in the temperature of its discharge. The U.S. Atomic Energy Commission first licensed operation of the Vermont Yankee nuclear power plant in early 1973. P.C. at 971. For the first two years of operation, the plant was required to recirculate all of the water used to cool the plant (“cooling water”). The plant was constructed to operate in what is referred to as “closed cycle” mode in which the heat absorbed by the cooling water is dissipated to the atmosphere through the use of cooling towers. P.C. at 1032-1034. After being routed through the cooling towers, the cooling water can be sent back through the plant. As a result, Vermont Yankee can operate without discharging any heated water into the River. P.C. at 1032-1034.

Operating the cooling towers, however, costs energy, and the operators of Vermont Yankee have sought and obtained approval from ANR to discharge some or all of the plant's cooling water directly into the Connecticut River in order to avoid those costs. Vermont Yankee first discharged cooling water into the Connecticut River starting in 1974 and continued through 1978, when the plant was authorized to discharge cooling water in order to obtain data about the environmental impacts. P.C. at 971, 1032-1034. After conducting a series of studies, Vermont Yankee submitted a report in 1978 to demonstrate that its discharge could meet the Section 316(a) standard (the "1978 Demonstration"). P.C. at 1047-1051. Relying on this report, the state granted Vermont Yankee a NPDES permit in 1978 to discharge cooling water to the Connecticut River during the winter period of October 15 through May 15 (the "Winter Period"), so long as the temperature increase did not exceed the ambient temperature of the river by more than 13.4°F.¹ P.C. at 971, 1032-1034. At this time, the plant continued to operate in the closed cycle mode with no thermal discharge to the Connecticut River during the summer period of May 16 through October 14 (the "Summer Period"). P.C. at 971, 1032-1034.

In order to further reduce the costs of running the cooling towers, in 1981, Vermont Yankee proposed to evaluate the environmental impacts of discharging heated water during the Summer Period. P.C. at 1034. From 1982 to 1985, Vermont Yankee was allowed to discharge cooling water into the river during the Summer Period for this purpose. P.C. at 973.

In 1985, the state revised the Vermont Water Quality Standards to change the habitat designation of the affected reach of the Connecticut River from warmwater to coldwater fish habitat. VWQS at app. A, A Fish Habitat Designation, subsec. B. The Vermont coldwater fish

¹ For this and all other Vermont Yankee NPDES permit temperature limits referenced in this brief, ambient river temperature is monitored at Upstream Station 7, a location 3.5 miles upriver of Vermont Yankee on the Vermont shore. The actual change in river temperature due to Vermont Yankee's thermal discharge is monitored at Downstream Station 3, located 0.65 miles downstream from Vernon Dam and 1.4 miles downstream from Vermont Yankee. P.C. at 961-962.

habitat temperature standards limited the increase in water temperature due to the Vermont Yankee discharge to 1°F above ambient. 12-004-052 Vt. Code R. § 3-01(B)(1)(b); P.C. at 1036. In accordance with this revised standard, Vermont Yankee's renewed 1986 NPDES permit included a new 1°F temperature increase for the Summer Period. P.C. at 974, 1036. The renewed permit also allowed for a five-year experimental program to allow for a further evaluation of the impacts of Vermont Yankee's discharge.

Relying on data attained through this program as well as the previous information used in the 1978 Demonstration, Vermont Yankee submitted a report to ANR in 1990 to demonstrate that the plant could discharge heated effluent during the summer months and still satisfy the Section 316(a) standard (the "1990 Demonstration"). P.C. at 1025. Subsequently, in 1991, ANR renewed Vermont Yankee's NPDES permit and authorized increased temperature limits for the Summer Period.² P.C. at 1125-1128. The 1991 permit authorized an increase in ambient temperature of between 2°F and 5°F. If the ambient temperature of the river was high, above 63°F, the temperature increase was limited to 2°F. If the ambient temperature was lower, below 55°F, the authorized temperature increase could be as high as 5°F. P.C. at 1125-1128.

On February 20, 2003, Vermont Yankee requested an amendment to the existing thermal effluent limitations, to allow it to increase the temperature of the Connecticut River by an additional 1°F during the Summer Period. P.C. at 1101-1102. In April 2004, Vermont Yankee submitted another Section 316(a) demonstration report to support this request. P.C. at 954.

² Entergy's NPDES permit was subsequently renewed on March 21, 1996 and again on July 11, 2001 but expired on March 31, 2006. The permit has remained in effect throughout this appeal because Entergy timely filed an application for renewal. Vermont Water Pollution Control Permit Regulations § 13.5(b)(1), 3 V.S.A. § 814(b); P.C. at 43. The renewal application was submitted in September of 2005 but ANR has not yet acted on the application. CRWC moved to stay the appeal of the permit amendment at issue in this case in order to allow consolidation of that appeal with the likely appeal of the renewed permit. The Environmental Court denied that motion in a decision dated November 24, 2008. P.C. at 53.

In response to Entergy's request, ANR issued a draft permit amendment and solicited public comment. P.C. at 1103. CRWC submitted comments raising a broad range of concerns about the ecological impacts of Entergy's thermal discharge on the Connecticut River including the impacts on American Shad and Atlantic Salmon. P.C. at 785, 793-795, 801-802, 804-805, 807-808, 1079-1083. Despite these comments, on March 30, 2006, ANR issued an amended permit authorizing Entergy to increase the temperature of its discharge.

In the amended permit, ANR split the Summer Period into two parts with the first part running from May 16 to June 15. During this first summer period, ANR did not authorize an increase in the thermal discharge limit. In the second part of the Summer Period, the period running from June 16 to October 14, the amended permit did allow an additional 1°F increase when ambient river temperatures were between 55°F and 78°F. P.C. at 32.

CRWC appealed ANR's decision to the Vermont Environmental Court on July 22, 2008. After motion practice regarding clarification and dismissal of issues, CRWC's Statement of Questions included nine issues. At the core of these questions are the same issues presented to this Court, namely, whether Entergy met its burden to show that authorizing an increase in the temperature of its discharge is consistent with the CWA Section 316(a) standard and the Vermont Water Quality Standards. Of particular note is that in the course of denying Entergy's motion to dismiss issues relating to the applicability of the Vermont Water Quality Standards, the Environmental Court ruled that the standards are applicable "to the extent they are not less stringent than the requirements in the federal Clean Water Act and do not otherwise conflict with the federal statute as applied to this proposed amendment." P.C. at 80.

On August 28, 2006, ruling on a motion by CRWC, the Environmental Court stayed the effect of the permit amendment. The Environmental Court cited the possibility of irreparable

harm to American Shad, the lack of any harm to Entergy other than financial, and the substantial possibility that CRWC could prevail on the merits. P.C. at 92-93. This stay was renewed on June 6, 2007 and remained in effect throughout the proceedings before the Environmental Court, until the court issued its decision approving Entergy's permit amendment. P.C. at 66.

On May 22, 2008, after two years of intensive litigation with extensive motion practice, discovery, and nine days of trial, the Environmental Court granted the permit in part and denied it in part. P.C. at 13. The Environmental Court approved the requested 1°F increase for the period from July 8 through October 14, but denied it for the period from June 16 through July 7 unless the discharge can be managed so that it results in an "actual measured temperature at the fishway sensor not to exceed 76.7°F." P.C. at 13. Further, the Environmental Court required a temperature sensor to be installed at the fish conduit and the discharge monitored so that the actual measured temperature at the fish conduit also did not exceed 76.7°F during the period from June 16 through July 7. P.C. at 13.

The Environmental Court's decision and order was modified in a decision issued on June 30, 2008 in response to a letter from Entergy that the court treated as a Rule 60(b) motion for relief from judgment. P.C. at 1-11. The Court denied Entergy's request to strike the added temperature condition but clarified the court's decision relating to that condition. P.C. at 1-11. CRWC then filed its own Rule 60(b) motion requesting that the Environmental Court remand the permit amendment back to ANR for proceedings consistent with the Clean Water Act including notice to EPA and an opportunity for public notice and comment. The Environmental Court denied that motion in a decision filed on November 24, 2008.

CRWC filed a notice of appeal to the Vermont Supreme Court on July 22, 2008. The Environmental Court ruled this notice premature, pursuant to V.R.A.P. 4(b), but held that it took effect as of the date of the Environmental Court's November 24, 2008 decision.

STANDARD OF REVIEW

The Vermont Supreme Court's standard of review of the Environmental Court's factual findings is whether they were "clearly erroneous, arbitrary or capricious." See Houston v. Town of Waitsfield, 162 Vt. 476, 479, 648 A.2d 864, 865 (1994) (citing In re Vermont National Bank, 157 Vt. 306, 312, 597 A.2d 317, 320 (1991)). This Court reviews questions of law de novo, with a non-deferential, on-the-record review. In re Gulli, 174 Vt. 580, 582; 816 A.2d 485, 489 (2002) (citing State v. Pollander, 167 Vt. 301, 304, 706 A.2d 1359, 1360 (1997)).

SUMMARY OF THE ARGUMENT

Allowing Entergy to increase the temperature of its discharge is inconsistent with state, regional and federal efforts to restore coldwater fisheries in the Connecticut River. Since 1967, the U.S. Fish and Wildlife Service and the states of Vermont, New Hampshire, Massachusetts and Connecticut have been working to restore anadromous fish to the Connecticut River, specifically focusing on the restoration of American shad and Atlantic salmon. Congress passed the Anadromous Fish Conservation Act in 1965, and by 1967, various state and federal agencies had agreed to pool their respective restoration funds and joined with their counterparts in the federal government in an agreement for an anadromous fisheries program for the Connecticut River Basin. See 16 U.S.C. § 757a (1965).

Despite four decades of effort from numerous federal and state agencies to restore the anadromous fish population in the Connecticut River, the populations of Atlantic salmon and American shad continue to decline. Returns of shad to Vernon Dam, just down river of Vermont

Yankee, peaked at 37,197 in 1991. P.C. at 801-802. After Vermont Yankee's first increased summer thermal discharge in 1991, returns began a gradual decline with a brief rise in 1995-96, and then a steep decline. By 2002, shad passing Vernon Dam into the lower Vernon Pool had fallen to one percent of what they were in 1991. P.C. at 791, 801-802.

When Congress passed legislation granting its consent to the interstate compact relating to the restoration of Atlantic salmon to the Connecticut River, it stated that "it is the purpose of this compact to restore Atlantic salmon to the Connecticut River in numbers as near as possible to their historical abundance." 97 Stat. 866 (1983). In the four decades since the salmon restoration program has begun, approximately seventy million dollars has been invested. In light of the public investment in recovering coldwater fisheries in the Connecticut River, it makes little sense to authorize an increase in the temperature of a cooling water discharge when that discharge may be an impediment to recovery efforts.

Approving such an increase is also contrary to the plain language and goals of the Clean Water Act and is inconsistent with the provisions of Vermont's Water Quality Standards. The Clean Water Act Section 316(a) has as its clear goal, the "protection and propagation of a balanced, indigenous population of fish, shellfish and wildlife." 33 U.S.C. § 1326(a). This language must be understood in the context of the overriding goal of the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). Vermont has designated the Connecticut River as a coldwater fishery and established a numerical standard limiting temperature increases in the river to one degree Fahrenheit ("1°F"). 12-004-052 Vt. Code R. § 3-01(B)(1)(b). Under the Vermont Water Quality Standards, that standard can only be exceeded under a narrow set of circumstances, and when

certain prerequisites have been met. Id. Yet ANR and the Environmental Court have authorized Entergy to increase the temperature of its discharge in order to allow Entergy to save costs.

For these reasons, in 2007, CRWC appealed ANR's decision to issue a permit allowing Entergy to increase the temperature of its discharge to the Vermont Environmental Court. CRWC objected to allowing Entergy to forego the use of available pollution control equipment in the form of existing, on-site cooling towers at the expense of the Connecticut River, solely for the purpose of avoiding the costs of running the cooling towers. CRWC's appeal to the Environmental Court was grounded in the text, implementing regulations and other court precedent interpreting Section 316(a) of the Clean Water Act. CRWC compiled evidence and retained experts to help the Environmental Court understand the impacts of Entergy's thermal discharge on the Connecticut River.

Yet after two years of extensive motion practice, a nine day trial, and the submission of extensive briefs by all parties, the Vermont Environmental Court issued a short opinion approving the permit amendment answering few, if any, of the important issues raised in the case. To the extent that the Environmental Court did suggest legal standards, the Court failed to make the basic factual findings necessary to apply those standards.

The most obvious error is that the Court failed to properly apply the Section 316(a) standard to determine whether Entergy could show that its thermal discharge would not disrupt the Connecticut River ecosystem. In the words of the statute, Entergy was required to show that the current limits in the permit were "more stringent than necessary to assure a balanced, indigenous population." 33 U.S.C. § 1326(a). Entergy failed to make that showing. In large part, this was because Entergy could not refute data presented by CRWC which clearly suggests that the increased temperature of its discharge in the early 1990's is an obvious explanation for

the collapse of American Shad populations in the years that followed. The Environmental Court did not, however, make a clear finding regarding Entergy's failure to demonstrate that its discharge was not the cause of the decline of American Shad populations and did not apply the Court's limited factual findings to the Section 316(a) "balanced and indigenous population of fish, shellfish and wildlife" or "BIP" standard. 33 U.S.C. § 1326(a).

Because the Environmental Court found that the permit amendment was not sufficiently protective, the Court should have explained the basis for its conclusion and denied the permit or remanded it to ANR for further consideration.

ARGUMENT

I. THE ENVIRONMENTAL COURT ERRED IN FAILING TO ARTICULATE THE PROPER LEGAL STANDARDS AND FIND THE NECESSARY FACTS TO SUPPORT ITS CONCLUSIONS.

The Environmental Court committed clear error when it failed to support its decision with relevant findings of fact and conclusions of law. This Court has held that "the trial court has a fundamental duty to support its conclusions, resolve the issues before it, and provide an adequate basis for appellate review." Secretary, Agency Natural Resources v. Irish, 169 Vt. 407, 419, 738 A.2d 571, 580 (1999); See also V.R.C.P. 52(a). This Court has also stated that, "[t]he purpose of V.R.C.P. 52 findings is to make a clear statement to the parties, and to the appellate court if appeal is taken, of what was decided and how the decision was reached." Arnold v. Arnold, 141 Vt. 118, 120, 444 A.2d 890, 891 (1982) (emphasis in original). Further, the Second Circuit held that what is adequate to serve the dual purposes of ensuring the trial court ascertain facts with due care and render a decision in accordance with the law depends on the importance of an issue, its complexity, the depth and nature of the evidence presented, and similar elements

that may vary from case to case. Davis v. New York City Housing Authority, 166 F.3d 432 (2nd Cir. 1999); See Kelley v. Everglades Drainage Distribution, 319 U.S. 415, 420-422 (1943).

For these reasons, the Environmental Court clearly erred when it failed to articulate the legal standards it was applying in support of its conclusions and failed to make the factual findings necessary to draw such conclusions. This failure is evident from a review of the Environmental Court's holdings on the major issues raised in the litigation. All parties submitted lengthy briefs arguing complex issues in depth, and a total of seventeen experts presented substantial evidence most of which the Environmental Court fails to discuss in its decision. Below are a few examples of contested issues heavily briefed by all parties that were inadequately addressed by the Environmental Court. Each example is discussed at more length later in the brief but is raised here to highlight the persistent inadequacy of the Environmental Court's reasoning.

One example involves the Vermont Water Quality Standards. Both parties extensively briefed the issue of whether, and how, the VWQS should apply to Entergy's thermal discharge. CRWC argued that the VWQS clearly apply, as the EPA's NPDES regulations specify that without exception, discharge permits must meet state water quality standards. P.C. at 325-327; See 40 C.F.R. §122.4(d). Entergy argued that if it demonstrated it was entitled to a variance under 316(a), then the VWQS either cannot apply or necessarily will be satisfied. P.C. at 515. In an initial ruling, the Environmental Court explicitly held that the VWQS applied, yet, in its final decision, the court failed to articulate any standards under the VWQS and did not make any findings as to whether Entergy's proposed alternative effluent limitation would comply with the requirements of the VWQS. The Court simply held that CWA 316(a) and VWQS 3-01(B)(1)(d)

were “equivalent,” even though the VWQS provide a separate procedure for determining compliance. See 12-004-052 Vt. Code R. § 2-04(A)(1); Id. § 3-01(B)(1)(d).

In another example, the Environmental Court erroneously failed to analyze the proposed 1°F increase in light of Entergy’s previous thermal discharges and all other cumulative and synergistic impacts on the BIP as required by the CWA. CRWC argued that all cumulative and synergistic impacts must be considered when analyzing whether Entergy’s proposed additional 1°F increase will satisfy 316(a). These impacts include Entergy’s past thermal discharges, any other pollutants in the body of water, and all other impacts on the protection and propagation of the BIP such as passage problems at Turners Falls Dam. P.C. at 323. EPA’s regulations expressly require a permit applicant to show that the alternative effluent limitation proposed, “considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected,” will assure the protection and propagation of the BIP. 40 C.F.R. § 125.73(a) (emphasis added); See also P.C. at 1117. EPA Regulations also require that, for purposes of determining whether or not prior appreciable harm has occurred, the permitting authority “shall consider the length of time in which the applicant has been discharging and the nature of the discharge.” 40 C.F.R. § 125.73(c)(2).

In spite of the significance of this issue and the clarity of EPA’s regulations, the Environmental Court explicitly declined to analyze any impacts on the BIP other than the 1°F increase. Without addressing CRWC’s arguments or acknowledging EPA’s regulations, the Environmental Court simply stated that because these other impacts were not Entergy’s responsibility, they were not to be considered. P.C. at 45. The Environmental Court thus considered the proposed 1°F increase in isolation from Entergy’s previous thermal discharges. Id. In light of the applicable law and presentation of evidence of other cumulative and

synergistic impacts and given the fact that Entergy is already allowed to heat the river to 6°F above its ambient temperature during the Summer Period, the Environmental Court should have analyzed the legal and factual implications of this issue.

As a final example, the Environmental Court also failed to support its conclusion that the collapse of the American shad population in the River was solely due to problems with the fish passage facility at Turners Falls Dam. P.C. at 44. CRWC argued that, while there may be serious problems with the Turners Falls Dam facility, there have been no changes to the fish passage facility during the period 1991 to 1999, and therefore nothing about Turners Falls Dam explains the dramatic decline of American Shad in the 1996 to 1997 timeframe. P.C. at 359, 800. Throughout the 1980s, the American shad returned to its historic spawning grounds all the way to Bellows Falls Dam, and in fact returns to Vernon Dam peaked at 37,197 in 1991. P.C. at 785, 792, 801-802, 1087. In 1991, returns began a gradual decline, with a brief rise in 1995-96 and then a steep decline from 1996 onward so that the runs above Vernon Dam are now virtually zero. P.C. at 791, 801-802, 941. The timing of this drop-off correlates precisely with the year of Entergy's first thermal variance in 1991. Further, Entergy's own expert, Dr. Barnthouse (P.C. at 693-694, 700), stated that any effect from the 1991 thermal variance would be expected to be observable five years later (i.e. 1996), when the 1991 year class would return as mature adults.

Despite this information, the Environmental Court asserted without factual or legal support that the collapse of the shad population was due to problems at the Turners Falls Dam fish passage facility, not Entergy's increasing thermal discharges. P.C. at 44. The Court failed to address CRWC's assertion that there have been no changes to the Turners Falls Dam facility between 1991-2002 to account for the drop-off in shad during that time, and that there is a clear

correlation between the timing of Entergy's 1991 thermal variance and the decline in shad.

P.C. at 44.

These and more examples of the Environmental Court's failure to apply the proper legal standards and find the necessary facts to support its conclusions are discussed further below. Because the Environmental Court failed to consider the arguments before it and failed to support its conclusion with findings of fact and statements of law, CRCW requests that this Court determine the legal standards the Environmental Court should have applied and remand the case to the Environmental Court to make factual findings consistent with the law.

Further, this Court should direct that, if on remand the Environmental Court determines that the permit issued by ANR does not satisfy the requirements of Section 316(a) or the Vermont Water Quality Standards, the proper decision is to deny the permit amendment application. If modifications to the permit are necessary to ensure that the applicable legal standards can be met, the permit should be remanded to ANR. The agency can then modify the permit in accordance with the notification and public participation requirements applicable to NPDES permits issued by the State of Vermont.

When the Environmental Court added new, substantive conditions to Entergy's permit in its May 22, 2008 Decision and Order, the court ignored the public participation requirements of the CWA and the Vermont Water Pollution Control Regulations ("VWPCR"). The public has never seen this modified permit and is entitled to review it before it takes effect. The CWA states that "public participation...shall be provided for, encouraged, and assisted by the [EPA] Administrator and the States" with respect to water pollution control regulations, effluent limitations, plans or programs established under the CWA. 33 U.S.C. §1251(e). Likewise, the VWPCR require public participation before any modification of a permit takes effect, without

exception. See, e.g., VWPCR §13.8 (“After notice and opportunity for a public hearing, any permit issued hereunder can be modified, suspended or revoked in whole or in part during its term for cause...”). Under Vermont’s delegation agreement with EPA, the State is also required to give EPA notice of any modified permit. Id.; See also id. § 13.4(f). If this Court determines to remand the permit to the Environmental Court, the remand order should direct the Environmental Court to comply with these requirements.

II. THE ENVIRONMENTAL COURT ERRED IN USING A FLAWED DEFINITION OF “BODY OF WATER”.

a. The Environmental Court failed to apply relevant case law on how to define a body of water.

The Environmental Court failed to make findings regarding evidence showing that Vermont Yankee’s thermal plume extends further down the Connecticut River than the section of river Entergy actually evaluated. This evidence should have been considered in light of the applicable law, which requires that the entire area impacted by a thermal discharge be used in determining what the relevant body of water is in a CWA 316(a) demonstration. The Environmental Court appears to have been aware that the proper way to determine the relevant body of water is an impact-analysis approach, see P.C. at 34, yet failed to critically evaluate Entergy’s model or to explain the lack of analysis. P.C. at 34, 43-44. This constitutes clear error.

Section 316(a) of the CWA requires effluent limitations to be “more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made.” 33 U.S.C. § 1326(a) (1972) (emphasis added). A logical first step in the process is to define the body of water into which the discharge is made. In most instances, an applicant for a variance

defines the body of water too broadly, obscuring localized impacts of discharges. See Appalachian Power Co. v. Train, 545 F.2d 1351, 1372 (4th Cir. 1976) (upholding EPA's rationale that § 316(a) was intended to protect a "particular spawning ground located just below the plant's discharge"); See also In re Seabrook, 1977 EPA App. LEXIS 16 at **35-36 (June 10, 1977) ("Seabrook I") (stating that it would be inappropriate to define the receiving water for a coastal discharge as "the Atlantic Ocean").

Here the opposite problem exists: the Environmental Court erred by accepting Entergy's narrow definition of the water body segment and its use of a model that only extended a short distance downstream from the discharge. Entergy's definition of the affected body of water does not take into account the full impact of the discharge on the biological community, which includes anadromous species that use substantial portions of the entire watershed. Brayton Point illustrates the proper way to define the affected body of water. See generally In re Dominion Energy Brayton Point, L.L.C. (NPDES Appeal No. 03-12), 2006 EPA App. LEXIS 9 at *204. There, EPA developed an "area-impacted" analytical approach that identified likely adverse biological effects associated with critical water temperatures and used that to minimize temperature increases in important habitat areas to assure protection and propagation of the BIP. Id. In other words, EPA determined the geographic boundaries of the relevant "body of water" by tracing the effects of the proposed temperature changes.

The Environmental Court properly stated that "it is necessary not only to predict the expected volume or area of habitat loss, but also to analyze whether the location and extent of the plume of heated water prevents any of the species making up the balanced indigenous community from carrying out all stages of their life cycle, and therefore assure the protection and propagation of the species within the community." P.C. at 34. Entergy, however, supplied the

Environmental Court with a flawed hydrothermal model that failed to measure the full impact of the proposed discharge. Inexplicably, given the language in the Order, the Environmental Court accepted Entergy's analysis, even while conceding that the model Entergy used to prepare predictive data for the 2004 § 316(a) Demonstration "did not reflect conditions below Vernon nor the location or locations at which water was passing over or through the dam at any given date." P.C. at 34. The Environmental Court's apparent decision to allow Entergy to evaluate the impacts of its discharge on an artificially constrained and limited "body of water" was thus in error.

b. The Environmental Court erroneously accepted Entergy's flawed model and evidence of its thermal plume.

The Environmental Court's failure to clearly define the scope of what is covered as the appropriate "body of water" is confusing since the court was aware that Vermont Yankee's thermal plume extended downstream at least fifty-plus miles to Holyoke Dam. Entergy's 1978 and 1990 Demonstrations revealed this to be true. P.C. at 795, 1044, 1055.

The most comprehensive analysis of the downstream effects of the discharge was performed in connection with the initial 1978 Demonstration. P.C. at 806-807, 1043, 1044, 1055. As part of the demonstration report, a dye study was used to trace how far and fast an actual body of water moved downstream from the point of discharge. In fact, Entergy itself interpreted the 1977 Guidance to require an evaluation of the downstream effect of impact of its discharge. P.C. at 1113. In spite of this, Entergy did not extend the geographic extent of its analysis. See, e.g., P.C. at 685-686, 689, 795, 799, 982-983, 985-992, 1076.

Entergy instead relied upon a model, the Swanson model³, which failed to consider the full downstream effect from actual temperature data. The Swanson model is intended to simulate how the heat from Entergy's discharge is assimilated within Lower Vernon Pool. P.C. at 685-689, 705-706, 793, 795, 802, 805-811, 929, 982-983, 985-992. As a result, it provided no useful information on the effects of the discharge below Vernon Dam. P.C. at 685-689, 705-706, 793, 795, 802, 805-811, 929, 982-983, 985-992. This focus on a small fraction of the Connecticut River contravenes EPA's decision in Brayton Point and the EPA's historical guidance.⁴

For this reason alone, Entergy's hydrothermal model is flawed and the Environmental Court erred in accepting it. The Environmental Court accepted this model without analysis or questioning the proper methods or size of the body of water modeled. The Court accepted the model in a single sentence approving the model as "accurate and reliable." P.C. at 34. This unsupported conclusion is troubling given the complexities inherent in evaluating the ecological impacts of a thermal discharge such as Entergy's. In fact, the EPA Guidance states that "the selection of the water body segment may pose a difficult problem." P.C. at 1117. In this case, despite significant questions regarding impacts downstream of Vernon dam, the Environmental Court accepted, without analysis, the premise of Entergy's model with its narrowly circumscribed body of water. Given that Entergy's discharge creates a heat plume extending as much as fifty miles downstream and the potential impacts of that temperature plume on shad and

³ The Swanson Model was the attendant hydrothermal model to Entergy's 2004 Demonstration used to predict the temperature distribution resulting from the proposed discharge. It is a purely simulated model developed by the Applied Science Associates which analyzed approximately 34,000 individual cells in the Lower Vernon Pool. P.C. at 685-689, 705-706, 793, 795, 802, 805-811, 929, 982-983, 985-992.

⁴ The EPA, in a 1977 manual, defined "water body segment" as "a portion of a basin the surface of which have common hydrologic characteristics (or flow regulation patterns); common natural physical, chemical and biological processes, and which have common reactions to external stress, e.g. discharge of pollutants." P.C. at 1120.

salmon population migration, this failure to critically evaluate Entergy's model in light of the law requiring a careful analysis of the appropriate "body of water" is clear error.

III. THE ENVIRONMENTAL COURT ERRED IN USING A FLAWED DEFINITION OF A "BALANCED INDIGENOUS POPULATION" WHICH DOES NOT PROPERLY REFLECT THE COMMUNITY OF SPECIES IN THE CONNECTICUT RIVER.

The Environmental Court committed error by failing to apply relevant evidence that Vermont Yankee's discharge impacted the "balanced and indigenous population of fish, shellfish, and wildlife" ("BIP"). The basis of the court's error is found in its failure to analyze CWA Section 316 and its implementing regulations with regard to the proper definition of the BIP. EPA's regulations clearly prohibit defining the "balanced and indigenous population" to include species whose abundance is attributable to prior discharges. The effect of EPA's regulations is to recognize that a power plant should not be able to degrade a river or other body of water and then rely upon the degraded nature of that river as the basis for relaxing the effluent limitations on temperature. Section 316(a) was not designed to allow a permit applicant to redefine the fish species constituting the BIP, and in so doing, gradually shift the aquatic ecosystem over time.

To the contrary, EPA regulations provide a broad, ecological definition of the term "balanced indigenous community" while at the same time explicitly prohibiting reliance on alternative effluent effects:

The term "balanced, indigenous community" is synonymous with the term "balanced, indigenous population" in the Act and means a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination by pollution tolerant species. Such a community may include historically non-native species introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modifications. Normally, however, such a community will not include species whose presence or abundance is attributable

to the introduction of pollutants that will be eliminated by compliance by all sources with section 301(b)(2) of the Act; and may not include species whose presence or abundance is attributable to alternative effluent limitations imposed pursuant to section 316(a).

40 C.F.R. § 125.71(c) (emphasis added).

Further, the EPA Environmental Appeals Board (“EAB”) stated that where an initial variance “by itself or with other pollutants and stressors . . . alters the ‘initial’ populations,” the applicant cannot “rely on information demonstrating that its second variance will maintain the new, but significantly degraded, populations.” In re Dominion Energy Brayton Point, L.L.C. (NPDES Appeal No. 03-12), 2006 EPA App. LEXIS 9, at **176-77 (EAB Feb. 1, 2006) (“Brayton Point EAB”).

In spite of this clear determination of the BIP standard by EPA, the Environmental Court concluded, again without explanation, that the BIP could be weighted toward warmwater species whose abundance is attributable to the increased river temperature from Entergy’s alternative effluent limitations “because an increase in the prevalence of the warm water representatives, as well as a decrease in the prevalence of cool water and cold water representatives, is indicative of the balance of the indigenous community.” P.C. at 37. This conclusory statement does not indicate that the Environmental Court weighed any of the evidence presented by any of the parties in briefs or at trial. This statement is also entirely inconsistent with Section 316(a) and EPA’s implementing regulations.

For instance, the Court did not analyze why the warm water species are growing in abundance and the cold water species are declining, despite the fact CRWC presented valid scientific evidence linking the change to Vermont Yankee’s discharge. P.C. at 785, 787, 791-793. The Environmental Court clearly erred when it summarily dismissed this evidence and disregarded the clear regulatory language intended to protect aquatic ecosystems.

IV. THE ENVIRONMENTAL COURT ERRED WHEN ACCEPTING A FLAWED DETERMINATION OF THE “REPRESENTATIVE INDIGENOUS SPECIES.”

The issue of the proper definition of the “BIP” is closely related to the question of whether Entergy chose the proper “representative indigenous species” or “RIS.” The Environmental Court committed error by relying on Entergy’s use of a RIS which included a large number of thermally tolerant species. When the RIS is weighted towards thermally tolerant species, an analysis of the thermal discharge on the selected species will naturally show less impact than if the RIS was properly weighted to the native, less thermally tolerant species.

For this reason, the proper method for selecting the RIS in a 316(a) demonstration is to focus on the most sensitive species. In Mirant Kendall, EPA Region One selected the most sensitive species, and the most sensitive portions of their life cycles, in developing the RIS. Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Mirant Kendall Station (NPDES Permit No. MA0004898), (“Mirant Kendall”), at 55, available at http://www.epa.gov/region1/npdes/mirantkendall/assets/pdfs/draftpermit/Kendall_Determin-Doc_06_08_04.pdf (last visited Feb. 25, 2009). The temperature values and time periods identified were used for comparison between the species of interest in order to determine which resident species appeared to have the lowest thermal threshold. *Id.* at 55-74. Yellow perch was the resident fish species most sensitive to temperature for all of its life stages in the Charles River and was therefore identified as an indicator species in this site-specific investigation.

Similarly, in Brayton Point, EPA Region One selected temperatures based on the most sensitive species present at each location in the water column during each season, determining it was proper to select “reasonable, yet protective temperature values for the most sensitive life stage of the most sensitive species.” Clean Water Act NPDES Permitting Determinations for

Brayton Point Station's Thermal Discharge and Cooling Water Intake in Somerset, MA (NPDES Permit No. MA0003654) (July 22, 2002), at 6-36, available at <http://epa.gov/region01/braytonpoint/pdfs/BRAYTONtableofcontents-chapter1.PDF> (last visited March 3, 2009). The Region acknowledged that it took a conservative approach and explained its reasons for doing so. *Id.* at 6-36 - 6-37 ("EPA chose threshold temperatures that represented an acceptable level of impact but did not represent a zero impact temperature."); See also Brayton Point EAB, 2006 EPA App. LEXIS 9, at *217 (selecting threshold temperatures based on the most sensitive species present).

Focusing on the most sensitive species is not a recently imposed requirement. In the 1977 Guidance, EPA defined the term "representative important species," or RIS, to mean "species which are representative, in terms of their biological needs, of a balanced, indigenous community of shellfish, fish and wildlife in the body of water into which a discharge of heat is made." P.C. at 1120; 40 C.F.R. § 125.71(b). The 1977 Guidance provides that in developing the RIS, "the most thermally sensitive species (and species groups) should be identified and their importance should be given special consideration." P.C. at 1115.

The Environmental Court did not, however, discuss either the Mirant Kendall or Brayton Point cases, nor EPA's guidance. The Environmental Court did not provide anything beyond a cursory explanation for its decision to allow a RIS which was weighted toward thermally tolerant species. Although the Environmental Court appreciated that "Atlantic salmon are a cold water species, and are the most thermally sensitive of the representative important species," P.C. at 38, the Court accepts a RIS which includes a number of species which are thermally tolerant. In the RIS used by Entergy, four of the nine species are warmwater species and three of those are predators of juvenile salmon and shad. P.C. at 709-710, 719-720, 850-851, 861-863, 865, 909-

910, 959, 1065(a)-(t)-1067. To make matters worse, the largemouth bass is also in the RIS, at ANR's insistence, for purposes of the 2004 Demonstration. P.C. at 959, 1065(a)-(t). The largemouth has the highest thermal tolerance of any species in the Connecticut, and is a major predator of juvenile salmon and shad. P.C. at 750-751, 754-755, 760, 787-788, 798-99, 838, 848, 851, 864.

The Environmental Court held that Entergy's RIS was "adequately representative of the complete balanced indigenous community that uses the Connecticut River affected or potentially affected by the thermal discharge from Vermont Yankee, as it includes species representative of the range of thermal sensitivity and other ecological requirements of that community." P.C. at 36. This statement ignores the fact that the RIS is not meant to be an arithmetic mean of thermal sensitivity of a community. The analysis is supposed to ensure that the "most thermally sensitive species" are protected, not some imaginary average fish. By allowing Entergy to use species in the RIS with a range of thermal sensitivity, the Environmental Court improperly allowed Entergy to downplay the role of thermally sensitive species like Atlantic salmon and American shad.

This Court should hold that the RIS must be defined in a manner which protects thermally sensitive species and that Entergy should be required to demonstrate that such species have not been and will not be harmed by Entergy's discharge. This case should be remanded to the Environmental Court for a decision consistent with this requirement.

V. THE ENVIRONMENTAL COURT ERRED IN FAILING TO CONSIDER THE HISTORICAL IMPACTS OF ENTERGY'S DISCHARGES.

a. EPA Regulations and Guidance require that the entire history of discharges be analyzed, not just a fraction of an applicant's past discharges.

The Environmental Court committed clear, reversible error when it did not analyze whether Vermont Yankee's past discharges had an effect on the current decline of salmon and

shad in light of evidence showing a correlation between the discharges and the decline. The law on its face is clear that the entire history of a discharger must be considered. Instead of applying this clear mandate, the Environmental Court accepted, without analysis, the limited history presented by Entergy.

EPA's regulations require that, for purposes of determining whether or not prior appreciable harm has occurred, the permitting authority "shall consider the length of time in which the applicant has been discharging and the nature of the discharge." 40 C.F.R. § 125.73(c)(2). Further, the 1977 Guidance makes clear that the scope and timeline for each demonstration should be developed on a case by case basis that reflects the particular circumstances and history of each discharge. See, e.g., P.C. at 1110-1111 (noting that the 1977 Guidance is a "starting point" for discussions between the applicant and the permit authority; and, that the states are not "rigidly bound" by its contents).

Entergy's entire § 316(a) analysis was limited to the period 1991-2002. P.C. at 963-965. Entergy's demonstration was based on the flawed premise that it only had to consider the effect of the 1°F increase in isolation of the fact that river temperatures had already been increased well above that level as a result of the previous variances in 1978 and 1991. Indeed, all of Entergy's experts based their opinions that the 1°F increase is "de minimis" on the fact that it appears small in relation to the previous variances (i.e., the 5°F summer period increase authorized in 1991 and the 13.4°F increase for the winter period authorized in 1978). P.C. at 971, 974, 1032-1034, 1036, 1127. By this logic, an endless series of variances could be justified on the basis that each is smaller than previous ones. This kind of boot-strapping makes a mockery of the cumulative effect analysis required by EPA's regulations, which clearly contemplate consideration of the entire "history and nature" of the discharge.

Nowhere do EPA's regulations, nor the 1977 Guidance, suggest that it would be appropriate to confine a retrospective analysis to the period dating from the last variance a facility may have received. In fact, without establishing a proper thermal baseline (i.e., one that does not already include the effect of Vermont Yankee's discharge) it is impossible to measure what effect the existing discharge has had on the biological community. Without that kind of historical perspective it is not possible to say with any confidence that there has been "no prior appreciable harm." This is especially true in light of the evidence discussed below of the substantial decline in the shad population that has occurred.

This Court should reverse the Environmental Court's decision due to its failure to apply the proper legal standard, requiring Entergy to demonstrate that its past discharges have not caused harm.

b. The Environmental Court did not analyze the history of Vermont Yankee's discharges.

Compounding, or perhaps as a result of, its failure to properly articulate the correct standard for evaluating Entergy's demonstration, the Environmental Court then ignored the history of Entergy's discharge. The Environmental Court did give a thorough history of Vermont Yankee's discharge permits and amendments, walking the reader through five pages of permits and limitations, P.C. at 29-33, but then proceeds to ignore this history in its application of the law.

A brief recitation of some of that history here may be helpful in understanding why the Environmental Court's decision is lacking in this regard. Vermont Yankee has been discharging heated condenser cooling water into the Connecticut River since its 1974-1978 experimental discharges, and was granted a NPDES permit in 1978 to allow discharges from October 15 through May 15. P.C. at 971, 1032-1034. It has been continuing, through a series of variances,

to discharge heated effluent since. A renewed NPDES permit in 1986 allowed a new 1°F temperature increase for the Summer Period. P.C. at 974, 1036, 1127. Vermont Yankee received a subsequent five-year NPDES permit in 1991 allowing for an increase during this summer period – and a further increase in temperature at Station 3 in the range of 2°F to 5°F depending on the ambient temperature of the river. P.C. at 1127. Now, Vermont Yankee operates under such modes year-round. P.C. at 792, 1127, 1132-1133, 1138-1139.

Although the Environmental Court acknowledges this history, after its own recitation of this timeline the court simply concluded by stating that “[t]he time series trend analysis required by ANR is useful in assessing the ecological effects of the thermal discharge from Vermont Yankee, not merely in connection with the additional heat sought to be discharged by this amendment application.” P.C. at 33. The Environmental Court never again addressed the history or nature of Vermont Yankee’s discharges. Later in its opinion, the Environmental Court found that the 1°F increase will assure protection and propagation of the RIS, but never analyzed or articulated its findings regarding the history of discharges or their effects on the BIP and RIS, nor explained why Entergy was allowed to utilize an analysis that ignores thirteen years of discharges.

The Environmental Court clearly erred by failing to require Entergy to evaluate the impacts of its discharges prior to 1990 and so its decision should be reversed.

c. Entergy Failed To Offer A Plausible Alternative Explanation for the Decline of American shad.

The significance of the Environmental Court’s failure to properly consider the full history of the impacts of Entergy’s discharge can be seen even more clearly when considering the compelling evidence suggesting that Entergy’s discharge during the summer, as authorized by its

1990 permit, may be the cause of a dramatic decline in American Shad populations that has occurred since that time.

The collapse of the shad population began after the Vermont Yankee plant increased its summer discharge in 1991. P.C. at 792, 801-802, 1127. Fish passage facilities were installed at Turners Falls Dam in the early 1980s, and had allowed the American shad to return to its historic spawning grounds all the way to Bellows Falls Dam. P.C. at 785, 792, 800, 801-802. As noted *supra*, after improvements to the Turners Falls Dam fish passage facility in 1983, returns to Vernon Dam peaked at 37,197 in 1991 (and at 60,089 at Turners Falls Dam in 1992). P.C. at 801-802. But after Vermont Yankee's increased summer discharge in 1991, returns began a gradual decline, with a brief rise in 1995-96, and then a steep decline so that runs above Vernon Dam are now virtually zero. P.C. at 791, 801-802, 941. These facts are not disputed, indeed, they come from Entergy. As ANR observed: "The shad population has shown significant declines in population during the period from 1991-2002." P.C. at 585.

Confronted with these facts, Entergy presented a hypothesis to explain the decline in shad populations. Entergy's theory is that "the American shad population in Vernon Pool has declined due to the dual-headed monster of a coast-wide drop in shad returns and decreased passage efficiency at Turners Falls Dam." P.C. at 490. Contradicting Entergy's theory, CRWC offered evidence that no operational change at Turners Falls Dam cited by Entergy could have had any impact. P.C. at 785, 793-795, 800, 802, 804-805, 807-808, 1079-1083. There were in fact no changes in Turners Falls Dam between 1991 and 1999, and no measurable effect on shad passage caused by any changes since 1999.

In contrast, Dr. Jones' testimony offers a compelling possible explanation for the decline in shad populations. His comparison of the shad runs from 1983 to present found that "in the

mid-1990s (approximately one shad generation after Vermont Yankee began their 1991 summer discharge) the passage rates at Turners Falls began a dramatic decline.” P.C. at 785, 793-795, 800, 801-802. His conclusion is based, in part, on and supported by the biologists at the Silvio O. Conte Anadromous Fish Research Laboratory (“Conte Lab”). P.C. at 804-805, 807-808, 1079-1083.

Despite this testimony, the Environmental Court apparently accepted Entergy’s unsupported theory, stating that “the decline in the percentage of [shad] counted... is not likely due to the added heat in the river from the current summer thermal regime at Vermont Yankee, after it is well mixed at Station 3, as the Vermont Yankee summer thermal regime was designed to keep the temperatures at Station 3 and below within their naturally occurring natural variation.” P.C. at 42. The assertion, however, that the thermal regime was designed to keep temperatures within their natural variation does not logically (or legally) lead to the conclusion that no prior harm has occurred. It is to avoid these leaps of logic that the law requires the evidentiary burden to fall on Entergy to prove by a preponderance of evidence that no prior appreciable harm has occurred. In light of the Environmental Court’s failure to properly determine whether Entergy had demonstrated that there was “no prior appreciable harm” in light of the decline in American shad populations, this Court should reverse the Environmental Court’s decision.

VI. THE ENVIRONMENTAL COURT ERRED IN REJECTING IMPORTANT, PERSUASIVE EVIDENCE SHOWING THAT THE TURNERS FALLS DAM IS NOT RESPONSIBLE FOR THE DECLINE IN SHAD.

A letter from scientists at the Department of the Interior’s U.S. Geological Survey Silvio O. Conte Andromous Fish Research Laboratory (“Conte Lab”) to CRWC supports the conclusions that the precipitous decline in the American shad population in the Connecticut

River is not due to problems with the Turners Falls Dam, as the Environmental Court erroneously determined. The Environmental Court improperly excluded this letter from evidence.⁵

a. **The Environmental Court improperly determined that the public records exception, Vermont Rule of Evidence 803(8), did not apply to the Conte Lab letter.**

CRWC argued at trial that because the letter was a record, report, statement, or data compilation of a public office or agency, it should be admitted under Vermont Rule of Evidence 803(8), the public records exception. P.C. at 777. Entergy countered that because this letter did not represent the “official” opinion of the Department of the Interior, and because the letter contained some opinions based on fact as well as objective facts themselves, it was inherently untrustworthy and should be excluded. P.C. at 781. While the Environmental Court did not articulate whether or not it believed the letter to be trustworthy, it determined that no hearsay exceptions applied. P.C. at 781.

In the 1981 case cited by Attorney Zoli during trial, P.C. at 781, City of New York v. Pullman, 662 F.2d 910 (2nd Cir. 1981), the Second Circuit held that an interim staff report did not have a sufficient indicia of reliability, in part because it was not a final agency report proffering the official findings of the agency, but rather “the tentative results of an incomplete staff investigation.” Id. at 915. In that case, however, unlike in the Conte Letter, the findings set forth in the report were not based on any independent testing or analysis by the government agency, or even tests which had been verified by the agency. The staff in Pullman relied exclusively on

⁵ In addition to the other reasons cited here, the Environmental Court also improperly ruled that the letter from Conte Lab should be excluded because CRWC violated discovery under Vermont Rule of Civil Procedure 26(e) by failing to supplement its response with the list of unanswered questions sent to Conte Lab on May 29, 2008. P.C. at 777. CRWC was not required to submit its letter of unanswered questions to Entergy, as it did not know if there would be any response at all, or if any response would come before trial.

hand-outs from the parties to that case which essentially consisted of data derived from tests conducted by the appellants themselves. Id. The information and analysis contained in the Conte Lab letter was the result of independent investigation of the scientists at the lab, not the result of any information provided by CRWC or any other party to this case.

More importantly, in 1988, seven years after the Pullman decision, the United States Supreme Court considered the scope and application of Rule 803(8). See Beech Aircraft Corp. v. Rainey, 488 U.S. 153, 161 (1988). The Court held that “factually based conclusions or opinions are not on that account excluded from the scope of Rule 803(8)”, and that the rule should be interpreted broadly and liberally by courts. Id. at 162, 169.

While the “trustworthiness” criteria is a safeguard to be applied in the discretion of the trial court, the Advisory Committee Notes to Rule 803(8) cited by the Supreme Court indicate four factors to be considered in determining the trustworthiness of a document proffered under that Rule: (1) the timeliness of the investigation; (2) the investigator’s skill or experience; (3) whether a hearing was held; (4) possible bias when reports are prepared with a view to possible litigation. Id. at 168 (citing Palmer v. Hoffman, 318 U.S. 109 (1943)); See also Advisory Committee’s Notes on Fed. Rule Evid. 803(8). Further, the Supreme Court noted that other concerns of the Rules of Evidence, such as relevance and prejudice, are to be an additional means for a trial court to evaluate such reports. Id. The Court cited to a case where a report was ruled inadmissible under Rule 803(8) on the basis that it was prepared by an inexperienced investigator in a highly complex field of investigation. See Fraley v. Rockwell Int’l Corp., 470 F.Supp. 1264, 1267 (S.D. Ohio 1979).

In the instant case, despite what Entergy argued at trial, there is absolutely no indication that the letter from two Research Fisheries Biologists employed at Conte Lab, and endorsed by

the Branch Chief of the U.S.G.S., Stephen P. Garabedian, Ph.D., is untrustworthy or represents a “mini coup by government staff members”. See, e.g., P.C. at 779. While it may or may not represent the official opinion of the Department of the Interior as a whole, it clearly represents the opinions of the scientists for U.S.G.S. whose duty it is to research anadromous fish and more specifically the Turners Falls Dam. There is no indication that these scientists are inexperienced or have any type of ulterior motives in offering their research and opinions here. In fact, their expertise aligns precisely with the questions CRWC posed to them. In addition, while the scientists were aware of the pending litigation when they prepared this letter, the research contained therein was not done expressly for this litigation. In fact, most of the investigation done into the fishway at Turners Falls Dam and expressed in the letter took place during 1999-2005, prior to this litigation.

Further, Entergy’s argument at trial that the most important reason the letter was inherently untrustworthy because the scientists involved in drafting the letter were not available for cross-examination has no merit. The Supreme Court directly stated in Beech Aircraft Corp. that “cross-examination [is] not indispensable in regard to official investigatory reports”. Id. at 169, FN 12. In that case, the opinion testimony proffered under Rule 803(8) would not have been subject to cross-examination, yet the Supreme Court held that it could still be considered trustworthy, as long as the opinions contained therein were based on “factual investigation”. Id. at 170.

b. The Conte Lab letter makes clear that Turners Falls Dam is not the cause of the decline in the American shad population.

The Conte Lab letter provides important context reinforcing the testimony of CRWC’s expert witnesses regarding the failure of Entergy to show that its discharge was not impacting shad migration. The letter, authored by Dr. Theodore Castro-Santos and Dr. Alexander Haro,

both Research Fisheries Biologists for Conte Lab, has high probative and persuasive value in countering the suggestion that Turners Falls Dam and not Entergy's thermal discharges are responsible for the steep decline in shad population since the mid-1990s. After ruling out overfishing and predation by striped bass as causes of the shad decline, the Environmental Court simply asserted without support that the decline is not likely due to the added heat in the river, instead blaming problems with fish passage facilities at the Turners Falls Dam. P.C. at 43-44.

The scientists from Conte Lab believe it is unlikely that the reduction in passage at Turners Falls can be attributed to changes in configuration or operation of the passage facilities there. P.C. at 1080-1081. The scientists also believe that further information on the extent of the thermal influence of the plant would be necessary, since the further downstream this influence extends, the more opportunities to affect the ecology of the river. P.C. at 1081.⁶ The Environmental Court erred in excluding this evidence.

VII. THE ENVIRONMENTAL COURT ERRED IN FAILING TO CONSIDER THE CUMULATIVE AND SYNERGISTIC EFFECTS OF THE PROPOSED DISCHARGE.

As the statute and guidance documents of the CWA make clear, the cumulative and synergistic effects of Entergy's proposed thermal discharge and its previous discharges, other pollutants from other sources, and all other impacts on the protection and propagation of the BIP are to be considered in determining whether the proposed effluent limitations are more stringent than necessary. See 33 U.S.C. § 1326(a); P.C. at 1117. The Environmental Court ignored this clear Congressional directive to consider all cumulative and synergistic effects on the BIP and instead evaluated Entergy's alternative effluent limitations in isolation from any other impacts on the species.

⁶ There is evidence that the thermal plume extends as far downstream as Holyoke Dam, over fifty miles downstream from Vernon Dam. P.C. at 795, 1044, 1055.

First, CWA § 316(a) states that in considering variance applications the permit authority must take into account “the interaction of such thermal component with other pollutants” to assure the protection and propagation of the BIP. 33 U.S.C. § 1326(a). As the 1977 Guidance cautions: “Seemingly slight impacts in the different areas used by such species may result in effects, which if considered cumulatively, would be intolerable.” P.C. at 1117.

Second, EPA regulations state that a discharger’s request for a § 316(a) variance “must show that the alternative effluent limitations desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of the BIP.” 40 C.F.R. § 125.73(a) (emphasis added). Although the regulations do not define the scope of cumulative effects that must be considered, it is reasonable to assume that the term would include all past, present and reasonably foreseeable effects. Cf. 50 C.F.R. § 1500.7 (defining “cumulative impact” to mean “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions”) (Regulations of the Council on Environmental Quality).

The requirement to consider cumulative effects in the context of a § 316(a) demonstration has been settled law since the first Seabrook decision in 1977 where the Administrator ruled:

The RA [Regional Administrator] ruled that a determination of the effect of the thermal discharge cannot be made without considering all other effects on the environment, including the effects of the intake (i.e., entrainment and entrapment); the applicant must persuade the RA that the incremental effects of the thermal discharge will not cause the aggregate of all relevant stresses (including entrainment and entrapment by the intake structure) to exceed the 316(a) threshold. I believe this is the correct interpretation of Section 316(a). The effect of the discharge must be determined not by considering its impact on some hypothetical unstressed environment, but by considering its impact on the environment into which the discharge will be made; this environment will necessarily be impacted by the intake. When Congress has so clearly set the requirement that the discharge not interfere with a balanced indigenous

population, it would be wrong for the Agency to put blinders on and ignore the effect of the intake in determining whether the discharge would comply with that requirement.

Seabrook I, 1977 EPA App. at *19.

EPA codified this interpretation in the 1979 revisions to the thermal discharge rules. 44

Fed. Reg. at 32,854. As EPA explained in the preamble:

Several commenters argued that applicants should not be required to analyze cumulative effects of thermal discharges together with other sources of impact upon the affected species as required by proposed [125.72(a)]. This issue was addressed in the Administrator's first Seabrook decision which concluded that analysis of cumulative effects is required.

Id.

In its order, the Environmental Court gave a one sentence treatment to this issue. The Environmental Court said that "Vermont Yankee is not responsible for impediments to fish migration caused by dams or the design of fish passage facilities, it simply must be operated so as not to exacerbate those problems, and to allow the shad that succeed in passing above Turners Falls Dam to proceed to pass above Vernon Dam." P.C. at 45. This is the Environmental Court's only analysis of cumulative effects. As discussed below, CRWC presented relevant evidence showing how different cumulative and synergistic impacts affect the BIP. This evidence was not weighed by the Environmental Court and no findings of fact were made regarding this evidence.

Entergy fails to consider even the possibility that the sharp decline of those species is due at least in significant part to the cumulative impact of Vermont Yankee's discharge since its 1990 Demonstration. P.C. at 795, 827, 849. CRWC directly addressed these claims with testimony supported by the Conte Lab letter. This evidence should have been considered and analyzed by the Environmental Court.

Moreover, there are a number of cumulative impacts missing from Entergy's analysis. First, ignoring Seabrook, Entergy fails to account for the impingement and entrainment impact its cooling water intake structure is having on the primary species of concern, namely juvenile salmon and shad.⁷ Entergy's own data shows that juvenile salmon and shad are entrained and impinged by Vermont Yankee's intake. P.C. at 968. This is a source of mortality and stress on the BIP that must be factored into the analysis. Given the severely reduced populations of the salmon and shad in this reach of the river, any source of mortality must be presumed significant until proven otherwise. P.C. at 748, 755, 758, 759, 789.

Second, there are a number of discharges to the Connecticut River upstream of the Vermont Yankee discharge. P.C. at 1076. These discharges were never considered by Entergy, or by ANR, despite the fact that CRWC included a list of sources in its comments on the draft permit. These sources add to the stress on the aquatic biota and should have been part of the cumulative impact analysis. Again, it is Entergy's responsibility to identify and evaluate these discharges.

Third, predation is another source of mortality for juvenile salmon and shad that Entergy failed to consider. Entergy points to predation by striped bass in the lower Connecticut as a potential cause of the decline in shad but completely ignores the very real threat of predation from largemouth bass, smallmouth bass and walleye, which are increasing in both Lower Vernon Pool and downstream of Vernon Dam. P.C. at 754-755, 787-788, 798-799, 863-864, 876. Cold winter temperatures limit the ability of smallmouth and largemouth bass to dominate water bodies and prey on salmon smolts. P.C. at 754-755, 787-788, 798-799, 863-864, 876. Because

⁷ Entergy should be well aware of the issue of impingement and entrainment as they are a party to a recently argued Supreme Court case on whether EPA may consider cost-benefit analyses in determining "best technology available for minimizing environmental impacts" from intake of water to cool industrial facilities. See Entergy v. Riverkeeper (No. 07-588, consolidated with Nos. 07-589 and 07-597).

Vermont Yankee discharges large volumes of hot water during the winter, the bass population has increased opportunities to prey on salmon smolts downstream of the facility. P.C. at 787-788, 863, 876.

Fourth, cumulative analysis also requires looking ahead, including consideration of climate change impacts. There is no longer any doubt that climate change is happening. See generally Climate Change 2007, The Fourth Assessment: Report of the United Nations Intergovernmental Panel on Climate Change (2007); see also P.C. at 555, 758, 759, 788-789, 841, 842, 849. Indeed there was a solid scientific consensus about this even before Entergy undertook its 2004 Demonstration. There is also no question that neither Entergy nor ANR gave any consideration to climate change in the context of this variance. Yet there is already evidence that climate change is having an impact on atmospheric temperatures in the Northeast including the Connecticut River Basin. See e.g., Union of Concerned Scientists, Climate Change in the U.S. Northeast: A Report of the Northeast Climate Impacts Assessment 11 (Oct. 2006), available at http://www.climatechoices.org/assets/documents/climatechoices/NECIA_climate_report_final.pdf (last visited Oct. 5, 2007) (“[U]nder a lower-emissions scenario, end-of-century temperatures are projected to rise on average by 5.8°F in winter and 5.1°F in summer . . .”).

There is, however, no mention in the Environmental Court’s decision of climate change, impingement and entrainment, predation, nor of upstream discharges. There is no mention of the current law requiring consideration of cumulative impacts, much less an application of it. This failure to address these factors is clear and reversible error.

VIII. THE COURT ERRED BY FAILING TO PROPERLY APPLY VERMONT WATER QUALITY STANDARDS.

a. State Water Quality Standards must be considered when conducting a 316(a) analysis.

The VWQS apply to Entergy's proposed discharge in addition to the 316(a) requirements, since the EPA's NPDES regulations specify that without exception, discharge permits must meet state water quality standards. 40 C.F.R. §122.4(d). While the Environmental Court determined that the VWQS were indeed applicable, it then failed to articulate any standards under the VWQS and did not make any findings as to whether Entergy's proposed alternative effluent limitation would comply with the VWQS. P.C. at 78-80.

EPA's NPDES regulations state: "No permit may be issued: . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." 40 C.F.R. § 122.4(d). EPA has consistently interpreted the CWA to require consideration of state water quality standards in the context of a 316(a) determination. In the preamble to the original thermal discharge rules published in 1974, EPA explicitly stated:

[W]ater quality standards compliance alone does not constitute a sufficient showing of entitlement to alternative effluent limitations under section 316(a). However, the regulations provide that such compliance is one element to be considered in the 316(a) proceeding, since such standards do represent a serious Federal/State effort to describe appropriate water quality limits.

39 Fed. Reg. at 36,177 (emphasis added).

The purpose of the VWQS is to implement the CWA policies and those of the state, including the control of "the discharge of wastes to waters, prevent degradation of high quality waters and prevent, abate or control all activities harmful to water quality" and to "assure the maintenance of water quality necessary to sustain existing aquatic communities." 10 V.S.A. § 1250. In addition, the CWA specifies that "the term 'water quality standards' includes thermal

water quality standards.” 33 U.S.C. § 1313(h). For these reasons, it is clear that the Environmental Court erred in failing to consider the VWQS when determining whether to authorize an increase in a temperature limit in Entergy’s NPDES permit.

b. The Environmental Court failed to properly rule on and apply the management standards for Class B waters under VWQS §3-04.

As a Class B water under Section 3-04 of the VWQS, the Connecticut River must be “managed to achieve and maintain a level of quality that fully supports” designated uses such as the “aquatic biota, wildlife, and aquatic habitat.” 12-004-052 Vt. Code R. § 3-04 (2008). Section 1-01(B)(19) defines “full support of uses” as “the achievement of the level of water quality necessary to consistently maintain and protect existing and designated uses.” 12-004-052 Vt. Code R. § 1-01(B)(19) (2008). Section 3-04(A)(1) further provides that full support of the “aquatic biota” in Class B waters requires that “high quality aquatic habitat” must be “sustained.” 12-004-052 Vt. Code R. § 3-04(A)(1) (2008).

It is clear that existing and designated uses of the river include coldwater habitat for anadromous species such as the Atlantic salmon and American shad. It is uncontested that the numbers of these fish species have been in decline for several years. P.C. at 784-786. No finding was made by the Environmental Court under Section 3-04 as to whether or not the alternative effluent limitation would “achieve and maintain a level of quality” sufficient for these species of fish. The court acknowledged that that there will be habitat loss if Entergy’s alternate effluent limitation is approved yet categorized this loss as “de minimis.” P.C. at 34. The Vermont Water Quality Standards do not have a “de minimis” exception – what the Environmental Court was required yet failed to do was to consider whether or not “high quality aquatic habitat” will be “sustained” under Section 3-04(A)(1). This also is reversible error.

c. The Environmental Court erred by concluding that CWA 316(a) and VWQS 3-01(B)(1)(d) are equivalent and as a result the court failed to conduct a proper analysis under the VWQS.

In its analysis of the VWQS, the Environmental Court began by saying that 316(a) and 3-01(B)(1)(d) are “equivalent.” P.C. at 28. The VWQS, however, provide a separate procedure for determining compliance and an analysis under 316(a) of the CWA is not a substitute for this procedure.

i. The Environmental Court erred by holding that the Connecticut River provides a “transient habitat” under the VWQS.

As noted above, the Connecticut River is designated as a coldwater habitat. See VWQS, at app. A, Fish Habitat Designation, subsec. B. Section 3-05 provides that coldwater designations may be “seasonal.” 12-004-052 Vt. Code R. § 3-05 (2008). Although the Connecticut River was designated a cold water habitat for the benefit of the Atlantic salmon, no seasonal designation was given to the river. See P.C. at 762-763, 1036.

The Environmental Court ignored the designation of the river as coldwater habitat and instead concluded without support that “the Connecticut River near Vernon does not provide resident life cycle for any cold water fish species” and is more of a “cool water to warm water habitat,” because the coldwater fish that live in the Connecticut are “transient.” P.C. at 29. There is, however, no category for “cool water to warm water habitat” under the VWQS. Waters are managed as either warm water or cold water. Also, the VWQS do not differentiate between transient and permanent habitat. By reading the word “transient” into the VWQS, the court implies that a river supporting migratory species can be managed differently than a cold water habitat containing year-round resident species. The only way this could be allowed under the VWQS is if the water body is designated as “seasonal.” As mentioned above, ANR has not given the Connecticut River a seasonal designation so it should not be treated as such.

Further, the term “transient” is not a statutorily based designation. The Environmental Court cannot write words and definitions into a statute. As this Court has noted, “[i]t is inappropriate to read into a statute something which is not there unless it is necessary in order to make the statute effective.” Huntington v. McCarty, 174 Vt. 69, 73, 807 A.2d 950, 954 (2002). By adding the word “transient” to its limited analysis of the VWQS, the court reduced the stringency and effectiveness of the standards concerning the management of cold water habitats such as the Connecticut River. This result is clear error and the Environmental Court should be reversed on this point as well.

ii. The Environmental Court failed to state how a variance to the 1°F limit on thermal discharges complies with 3-01(B)(1)(d) and other provisions of the VWQS.

The Vermont Water Quality Standards place careful limits, in the form of mixing zone requirements, on the spatial extent of the ecological disruption resulting from any given discharge. The Environmental Court did not make any effort, however, to evaluate whether these mixing zone requirements could be satisfied, consistent with the application of the Section 316(a) standard.

The VWQS define a mixing zone as a length or area within the waters of the state required for the dispersion and dilution of waste discharges adequately treated to meet federal and state treatment requirements and within which it is recognized that specific water uses or water quality criteria associated with the assigned classification for such waters may not be realized. 10 V.S.A. § 1251. Under the VWQS, “in conjunction with issuance of a permit” concerning Class B waters, the mixing zone “shall not exceed 200 feet from the point of discharge.” Id. The VWQS also require that permit conditions allowing discharges of waste within a mixing zone shall not constitute a barrier to the passage or movement of fish or prevent

the full support of aquatic biota, wildlife, and aquatic habitat uses in the receiving water outside the mixing zones; not kill organisms passing through the mixing zone; and protect and maintain the existing uses of the waters. 12-004-052 Vt. Code R. § 2-04(A)(2) (2008).

In the management of cold water fish habitat, “the total increase from the ambient temperature due to all discharges and activities shall not exceed 1.0°F except as provided for in paragraph (d) below.” 12-004-052 Vt. Code R. § 3-01(B)(1)(b). The Secretary may, by permit condition, specify permit limits that exceed the 1°F limit on discharges to Class B waters only when it is shown that:

- (1) “The discharge will comply with all other applicable provisions of these rules”;
- (2) “A mixing zone of 200 feet in length is not adequate to provide for assimilation of the thermal waste”; and
- (3) “After taking into account the interaction of thermal effects and other wastes, that change or rate of change in temperature will not result in thermal shock or prevent the full support of uses of the receiving waters.”

Id. (emphasis added).

The Environmental Court’s limited analysis of the VWQS recited that the mixing zone is 200 feet and that the Connecticut River, as a Class B water, is subject to the standards under Section 3-01(B)(1)(b). P.C. at 28. The court then stated that this limitation was the reason Entergy was seeking a variance under Section 3-01(B)(1)(d). P.C. at 29. This statement by the Environmental Court is where its analysis of the VWQS and the mixing zone issue ends. The court never mentions the VWQS again nor applies the criteria for exceptions from the two hundred foot default mixing zone.

The Environmental Court’s failure to evaluate whether the amended permit is consistent with the mixing zone provisions of Vermont’s water quality standards is clear error. The

Environmental Court made no effort to read the mixing zone standard -- established to protect uses established under the VWQS, in this case an indigenous coldwater fishery -- in concert with the Section 316(a) standard. The Section 316(a) standard is, on its face, intended to achieve “the protection and propagation of a balanced and indigenous population of fish, shellfish and wildlife.” 33 U.S.C. § 1326(a). The Environmental Court has an obligation to try to give meaning to both this provision and the mixing zone requirements of the VWQS. Since the State of Vermont has established a two hundred foot mixing zone as the default for protecting the river ecosystem, the Environmental Court’s acceptance of a “mixing zone” that extends at least 1.4 miles downstream from the discharge at least raises an important factual question. The Environmental Court did not, however, attempt to answer these questions and so committed reversible error.

iii. The Environmental Court failed to determine if the granting of Entergy’s amendment would comply with the anti-degradation policy of the VWQS.

ANR has stated that the anti-degradation policy of the VWQS is applicable to the “full support of uses of the receiving waters” of Section 3-01(B)(1)(d)(3). See P.C. at 196. Section 1-03 states that “[a]ll waters must be managed in accordance with these rules to protect, maintain and improve water quality.” 12-004-052 Vt. Code R. § 1-03 (2008). Also, the “existing uses of waters and the level of water quality necessary to protect those existing uses shall be maintained and protected...” Id. To determine what uses should be protected and maintained, “the Secretary shall consider at least the following factors:”

- (a) aquatic biota and wildlife that utilize or are present in the waters;
- (b) habitat that supports existing aquatic biota, wildlife, or plant life;
- (c) the use of waters for recreation or fishing;
- (d) the use of water for water supply, or commercial activity that depends directly on the preservation of an existing high level of water quality; and

(e) with respect to the factors considered under paragraphs (a) and (b) above, evidence of the use's ecological significance in the functioning of the ecosystem or evidence of the use's rarity."

12-004-052 Vt. Code R. §1-03(B) (2008) (emphasis added). In addition, the anti-degradation provision specifies that the high quality of water must also be maintained: "Waters the existing quality of which exceeds any applicable water quality criteria provide important environmental, economic, social and other benefits to the people of the state...In all cases, the level of water quality necessary to maintain and protect all existing uses as well as applicable water quality criteria shall be maintained." 12-004-052 Vt. Code R. §1-03(C)(1) (2008).

It is uncontested that the numbers of Atlantic salmon and American shad in the river have been in decline for years. P.C. at 784-786. Major regional efforts have been undertaken to restore the Atlantic salmon to the river. P.C. at 784-786. Such concerns should trigger an anti-degradation analysis by the court to determine whether the granting of Entergy's alternative effluent limitation is consistent with Section 1-03(B). The Environmental Court failed, however, to consider the anti-degradation policy of the VWQS and did not consider the question of how allowing the temperature of the Connecticut River to increase will be consistent with the high quality water requirements of the VWQS. Due to the Environmental Court's incomplete analysis, it is unclear whether Entergy's alternate effluent limitation will comply with the VWQS. This Court should reverse the Environmental Court's decision granting a permit to Entergy and remand this case, requiring the Environmental Court to evaluate whether granting an increase to the temperature of Entergy's discharge violates the anti-degradation provisions of the Vermont Water Quality Standards.

IX. THE ENVIRONMENTAL COURT ERRED BY NOT HOLDING ENTERGY TO ITS STRINGENT BURDEN OF PROOF.

CWA Section 316(a) puts the burden squarely on Entergy, as the permit applicant, to prove its thermal discharges will protect fish and wildlife in the body of water into which the discharge is made. Under Section 316(a), the owner of any point source seeking to have alternative effluent limitations imposed - in this case, Entergy - has the burden to demonstrate that the proposed effluent limitations are “more stringent than necessary to assure the protection and propagation of a balanced, indigenous population (“BIP”) of shellfish, fish, and wildlife in and on the body of water into which the discharge is made.” 33 U.S.C. §1326(a) (1972). Only when Entergy has demonstrated that the proposed effluent limitations are more stringent than necessary may the Administrator or the State impose less stringent alternate effluent limitations that will nonetheless assure the protection and population of the BIP. *Id.*

Entergy improperly suggested to the Environmental Court that CRWC carries the burden to “convincingly negate” Entergy’s evidence. *See, e.g.*, P.C. at 426. Entergy cites no authority for shifting the burden from Entergy as the permit applicant to CRWC. The Environmental Court did not address this argument by Entergy and CRWC’s opposing argument, and failed to define the burden on Entergy at all.

All available law on the subject - from the text and legislative history of the CWA and Section 316(a), to EPA’s regulations and guidance, to decisions such as Seabrook I and Riverkeeper v. EPA, 358 F.3d 174 (2d Cir. 2004), and EPA’s own Section 316(a) decisions - establish that Entergy alone bears the burden of persuasion. It is Entergy that has the burden to persuade this Court that the evidence taken as a whole establishes “beyond any question”⁸ that (1) the existing effluent limits are “more stringent than necessary” to protect the biological

⁸ S. REP. NO. 95-370, at 642 (1977) (Conf. Rep.) Sen. Muskie.

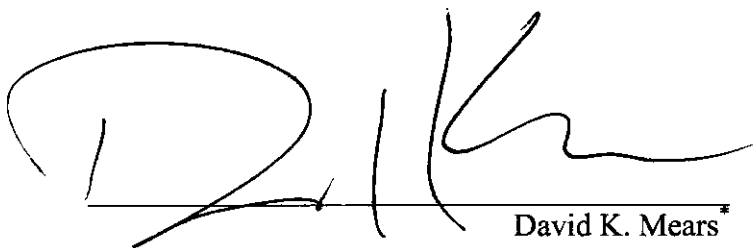
community, including key indigenous species, particularly Atlantic salmon and American shad (P.C. at 707, 798-799, 831, 1041-1042, 1092-1093), and (2) that the proposed alternative effluent limit will “assure the protection and propagation” of a balanced indigenous population with viable populations of those species.

EPA said in its very first Section 316(a) determination in Seabrook I, that this burden is “stringent”, and as recently made clear in Mirant Kendall⁹, the Court should take a “rigorous and conservative” approach to examining the evidence and err on the side of protecting the river and retaining the existing thermal standard. The Environmental Court failed to take such an approach and its failure to do so constitutes clear error. The Court ignored the clear goal of the Clean Water Act to err on the side of protecting the river and instead gave Entergy the benefit of the doubt. The Environmental Court viewed Entergy’s proposed alternative effluent limitation in isolation from any other impacts on the BIP. The court also invented a standard not found in the Clean Water Act and held that because the Connecticut River comprises only a “transient” habitat for cold water species, and since the habitat loss from the additional thermal discharge would be “de minimis,” that the protection and propagation of the BIP would be assured. P.C. at 29, 47. Particularly given the collapse of the shad populations, these conclusions are unsupported by the facts, even when viewed in favor of Entergy. These conclusions fail completely when considered from the perspective of whether Entergy met its burden to show that the current limits are more stringent than necessary for the “protection and propagation of a balanced indigenous population of fish, shellfish and wildlife.” 33 U.S.C § 1326(a).

⁹ Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Mirant Kendall Station (NPDES Permit No. MA0004898) (“Mirant Kendall”).

CONCLUSION

For the foregoing reasons, CRWC respectfully requests that this Court determine the legal standards the Environmental Court should have applied, and remand this case to the Environmental Court with instructions to apply those standards and find the facts necessary to support its conclusions.

A handwritten signature in black ink, appearing to read 'DK', is written over a horizontal line.

David K. Mears*
Patrick A. Parenteau
Environmental and Natural Resources Law Clinic
Vermont Law School
PO Box 96 164 Chelsea St.
South Royalton, VT 05068
802/831.1630
dmears@vermontlaw.edu

* We gratefully acknowledge the substantial contributions of Student Clinicians Jeffrey Davis, Hayley Mauskopf and April Quinn to this brief.

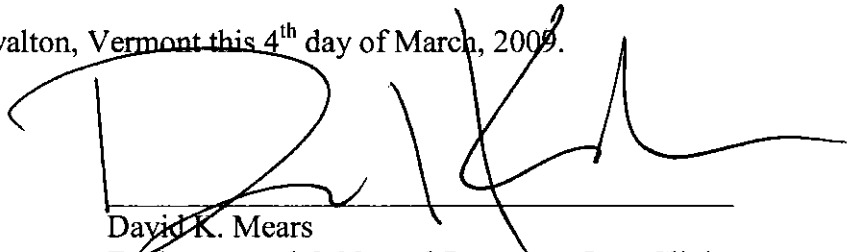
**STATE OF VERMONT
SUPREME COURT OF VERMONT**

)	
)	Supreme Court
In Re: Entergy Nuclear Vermont Yankee)	No. 2008-295
Discharge Permit)	
Permit Number: 3-1199)	Appealed From:
)	Environmental Court
)	89-4-06 Vtec

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY that the *Brief of the Appellants* on behalf of Connecticut River Watershed Council ("CRWC"), Trout Unlimited (Deerfield/Millers 349 Chapter), and Citizens Awareness Network (Massachusetts Chapter), in accordance with V.R.A.P. 32(a)(7)(C) and Appellant's Motion to Submit Overlength Brief filed on February 23, 2009, is under the proposed word limit of 15,000 words. The brief was written using Microsoft Word software, and according to the software word count tool there are 14,328 words in the brief.

DATED at South Royalton, Vermont this 4th day of March, 2009.



David K. Mears
Environmental & Natural Resources Law Clinic
Vermont Law School
PO Box 96, 164 Chelsea St.
S. Royalton, VT 05068
802-831-1627
dmears@vermontlaw.edu