BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re Merrimack Station Name of Permittee: Granite Shore Power Merrimack LLC NPDES Permit No. NH0001465	)	NPDES Appeal No. 20-_____

PETITION FOR REVIEW BY PERMITTEE GSP MERRIMACK LLC

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INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), GSP Merrimack LLC ("GSP" or "Permittee"),[1] the owner of Merrimack Station in Bow, New Hampshire, petitions the Environmental Appeals Board ("Board") for review of certain limited provisions of Clean Water Act ("CWA") National Pollutant Discharge Elimination System ("NPDES") Permit No. NH0001465 (the "Permit," (Att. 1)), which was issued on May 22, 2020, by the U.S. Environmental Protection Agency, Region 1 ("EPA" or the "Region").[2] The limited provisions for which GSP seeks review relate to § 316(b) of the CWA, 33 U.S.C. § 1326(b). Section 316(b) of the CWA addresses cooling water intake structures ("CWISs") and requires that "the location, design, construction, and capacity of [CWISs] reflect the best technology available [("BTA")] for minimizing adverse environmental impact" to aquatic organisms.[3] GSP is not seeking review of any provisions of the Permit other than those specific provisions related to § 316(b) that are identified below.[4]

CWISs are used by the overwhelming majority of power plants and other industrial facilities to extract water from nearby water sources to dissipate waste heat generated through their respective industrial processes. Over the years, reductions in impingement (the pinning of any life stage of fish and shellfish against the outer part of a CWIS or against a screening device during intake water

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[1] Although the Permit identifies the Permittee as Granite Shore Power Merrimack LLC, the legal name of the Permittee is GSP Merrimack LLC.

[2] By Order dated June 16, 2020, the Board extended the deadline to appeal the Permit to July 27, 2020.

[3] 33 U.S.C. § 1326(b).

[4] As the permittee, GSP reserves the right to file a response or responses to other petitions that are filed by other parties challenging the permit. *See* Order Granting Requests for Extension of Time, Denying the Region's Request to File a Consolidated Response, and Clarifying that General Electric May File a Response, *In re General Electric Co.*, RCRA Appeal Nos. 16-01, 16-02, 16-03, 16-04, and 16-05, at 4 (Dec. 15, 2016) (explaining that a permit holder, who files an appeal, is entitled to respond to "a separate petition that is contrary to the interests of the permit applicant").

withdrawal) and entrainment (the drawing into the intake water flow any life stages of fish and shellfish such that it enters and passes through a CWIS and into a cooling system) have emerged as the principle ways to regulate CWISs and satisfy § 316(b)'s BTA standard.

GSP seeks review and remand of three provisions of the Permit:

(1) the requirement to install and operate cylindrical wedgewire screens ("CWWS") from April 1 through August 15 (Parts I.E.1, 2, 4, and 7.a.-7.c.) without the ability incorporate other operational measures such as targeted flow reductions to reduce entrainment;

(2) the requirement to schedule Merrimack Station Unit 2 maintenance outages between May 15 and June 15, to the extent practicable (Part I.G.3); and

(3) the six-month deadline within which to install fish return sluices (Parts I.E.3 and 7.d.).

EPA included Parts I.E. 1, 2, 4, and 7a.-7.c. and Part I.G.3. in the Permit to address entrainment at the Station's CWIS. GSP does not dispute that CWWS are an effective method of reducing entrainment and could be part of the BTA for Merrimack Station. However, in light of recognized changes to the Station's operations and its substantially reduced water withdrawals in recent years, the requirement to install full-scale CWWS, without the opportunity under the Permit to analyze and incorporate other measures, is not supported by the administrative record[5] and should be remanded to the agency for further review. The CWWS requirement should be remanded because the Region required the CWWS (at a total cost of $10+ million[6]) based on outdated operational information for Merrimack Station.[7] Although Merrimack Station once operated as a baseload facility

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5 The documents and information that form the basis for this petition can be found in the Merrimack Station Administrative Record located at https://www.epa.gov/npdes-permits/merrimack-station-administrative-record. Documents located in the Administrative Record are identified by their document number (*e.g.*, AR-#).

6 *See* EPA's Response to Comments at III-101 (hereinafter, "RTC") (Att. 2).

7 The related 1:1 ratio design criterion for the CWWS set out in Part I.E.2. is independently problematic. The ratio has been incorrectly "flipped" or transposed. It requires the through-screen velocity to always be equal to or greater than the ambient sweeping current velocity. The Permit

(*i.e.*, operating at full load, all year long), EPA acknowledges that "Merrimack Station's operational profile has changed"[8] and that the Station has in recent years operated sparingly in April through August (the entrainment period considered by the Region).[9] Importantly, the alternative use of operational measures (*e.g.*, flow reductions) *in lieu of* the CWWS was considered by the agency, as the record reflects,[10] but the agency did not explain its decision to exclude such measures from the final permit. Indeed, the agency included flow reductions (in the form of outage scheduling) *in addition to* CWWS, without any justification for this duplicative requirement. Moreover, the record includes information that demonstrates that the reduced operations of the facility in recent years can provide substantial reductions in entrainment without the installation of costly CWWS[11]:

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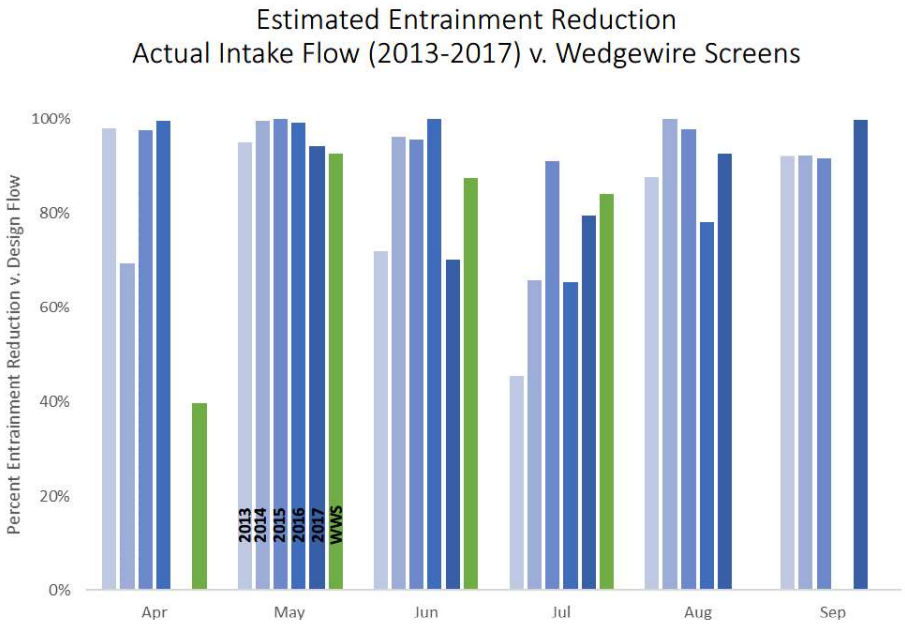
therefore mandates the exact condition it no doubt intended to prohibit to optimize the performance of CWWS. This must be corrected on remand.

8 RTC at III-33.

9 *See, e.g.*, *id.* at III-34, n.14 ("[R]ecent generating data indicate that Merrimack Station typically operates very little in May and early June . . . . For example, . . . the combined average monthly flow for May based on DMR data from 2013 through 2019 was, at most, about 6% of the permitted flow. *See* AR-1717. Actual average monthly flows in June were less than 33% of permitted flow over this same period and less than 10% of permitted flow in 4 of 7 years."); *id.* at III-102 ("T]he average capacity factor in the months of April and May from 2012 through 2019, which best reflects Merrimack Station's current operation as a peaking unit, was 6.5% and 0.8%, respectively[.]"); *id.* at III-110 ("Operation of Merrimack Station has declined in recent years such that the actual cooling water withdrawal is substantially less than the design flow[.]").

10 *See, e.g.*, AR-1676 at 2.

11 AR-1746 at 3.



The record further contains data from 2018 and 2019, demonstrating that the Station operates only a small fraction of the time during the period EPA identified as the typical peak entrainment period (mid-May to mid-June).[12] But EPA failed to reconcile this information in the record with its final decision to require CWWS and not allow—in whole or in part—for the use of flow reductions. Indeed, EPA acknowledged operational measures as a viable approach in its Response to Comments and repeatedly stated that the Permittee is free to seek a future modification of the Permit at a later date to incorporate this compliance option.[13] Yet, the Region provides no reasoned explanation why

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12 *See* RTC at III-113, n.65 (recognizing mid-May to mid-June as the typical peak entrainment period); AR-1746 (identifying rolling 30-day average capacity factor from May 1 through September 30 from 2013 to 2018); AR-1717 (providing monthly generation data, in addition to other data, from 2012 through 2019).

13 *See, e.g.*, RTC at III-208 (providing that "while GSP is working on complying with th[e CWWS compliance] schedule, there is nothing that would prevent it from contemporaneously developing new information on another compliance option and submitting a permit modification request based thereon. For instance, GSP could choose to study how specific flow reduction strategies compare to the entrainment reductions achieved by wedgewire screens with a 3.0 mm slot size"); *id.* at III-226 ("[W]hile the Permittee is working on complying with this schedule, there is nothing that would prevent it from simultaneously developing new information on another compliance option and submitting a permit modification request based thereon."); *id.* ("EPA is well aware that a permittee may prefer to avoid fiscal expenditures necessary to make facility upgrades to comply with a NPDES

it elected to rely upon older operational and biological data in the Permit to mandate the use of CWWS exclusively and not provide for the consideration of operational measures that are less intrusive as part of the § 316(b) compliance provisions. EPA's failure to do so here is clear error and requires remand.

The May/June Unit 2 annual outage requirement in Part I.G.3—which is an additional requirement to the installation of CWWS—is likewise unreasonable. GSP cannot reasonably be required to install and operate full-scale CWWS for approximately 4.5 months each year, yet also be required to take offline Unit 2 (the larger of the two units at Merrimack Station) for two to four weeks within this same annual time frame. This amounts to "double-dipping" and is improper.[14] Instead, the Permit's § 316(b) provisions should allow the Permittee to analyze and utilize either (or both) CWWS and flow reductions (achieved through outage scheduling or some other mechanism). EPA concedes that the outage requirement is "unnecessary" in its Response to Comments given CWWS will be in use at this time.[15] If EPA determined that flow reductions achieved through targeted outage scheduling can reduce entrainment during the period of concern, it should have permitted the consideration of flow reductions as part of the Permit's § 316(b) compliance provisions. The Region attempts to sidestep this incongruence by claiming that "shifting the outage is not a component of the BTA for entrainment at Merrimack Station" but, instead, constitutes a "best management practice" or "BMP."[16] But labels do not change the reality of what the Permit requires. If the reductions in

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Permit, if possible. If the Permittee chooses to perform additional studies to support a request for a modification, it may do so and present them to support a request for a permit modification[.]").

[14] Although some combination of operational and technological measures (*e.g.*, intake flow reductions and a modified CWWS screen arrangement) could be BTA for entrainment, there is no basis in the record for requiring installation of full-scale CWWS along with the substantial flow reductions that would result from scheduling the annual outage during the peak entrainment period.

[15] RTC at III-34, n.14 ("EPA has determined that the BTA for entrainment is to operate wedgewire screens during this time period, which suggest rescheduling such an outage may be unnecessary.").

[16] *Id.* at III-66.

entrainment can be obtained through operational measures, perhaps including outage scheduling (as EPA concedes and the record reflects), the installation and operation of full-scale CWWS is not necessary to satisfy § 316(b)'s BTA standard. GSP seeks review and remand of these Permit provisions to allow the Region to properly analyze § 316(b) entrainment compliance options based on the current and anticipated operational profile of Merrimack Station, as reflected in the record.

GSP appeals Parts I.E.3 and 7.d. of the Permit (which requires new/upgraded fish return sluices) only insofar as they require construction and operation of the sluices within six months. GSP does not contest the requirement to construct and operate the fish return sluices. The Permittee requests review of only the unworkable six-month timeframe to design the sluices, obtain necessary regulatory permits, and procure, fabricate, and install the equipment. This deadline is not explained in or supported by the administrative record and is especially problematic given the likelihood of winter/freezing conditions during what would be the construction and installation phase in December 2020 through February 2021. These Permit provisions must also be remanded.

THRESHOLD PROCEDURAL REQUIREMENTS

1. Petitioner is the current permittee and has standing to petition for review of the Permit, as it is directly affected by the conditions of the Permit.

2. GSP Merrimack LLC acquired Merrimack Station on January 10, 2018, and EPA transferred the prior NPDES permit to GSP Merrimack LLC effective that same date.[17] The most recent public comment period closed on December 18, 2017,[18] and thus GSP Merrimack LLC was not able to submit comments during the open comment period. However, the prior permit holder submitted

[17] *Id.* at III-162.

[18] *Id.* at I-1.

comments on the § 316(b) issue,[19] and EPA attributed those comments to GSP Merrimack LLC.[20] EPA specifically solicited and received comments from the public on the impact on the permit of the Station's reduced operations in its 2017 "Statement of Substantial New Questions for Public Comment."[21] And GSP Merrimack LLC raised the BTA issues set out in this Petition with EPA, and EPA considered recent plant operations and associated flow reductions as a means of reducing entrainment, in lieu of CWWS,[22] but did not adopt that approach in the final permit:

> EPA explained that entrainment impacts are primarily of concern in April through July and that flow limits could potentially be developed for that period that would be comparable to the estimated reduction in entrainment that could potentially be achieved at Merrimack Station by using [C]WWS. EPA surmised that a weekly flow limit might work since entrainment peaks on a weekly basis. EPA indicated that the three most recent years of available data provide a good picture of how reduced operations might affect entrainment, including during the end of May and the beginning of June, when densities of entrainable organisms in the river are highest, but when the Station is often not operation.[23]

3. Thus, the issues set out herein were brought to the agency's attention, were considered by the agency, and are properly before the Board.[24]

4. The filing of this Petition for Review is timely, as it was received by the Board on July 27, 2020, the deadline established in the Board's June 16, 2020 Order Granting Consent Motion for Extension of Time and Increase Word Limits and Notifying the Parties of Electronic Service.

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19 *See, e.g.*, AR-1548.

20 *See* RTC at I-2.

21 *See* AR-1534.

22 *See, e.g.*, AR-1684; AR-1754 at 6-7; AR-1752 at 3; AR-1753 at 5; AR-1678 at 3.

23 AR-1753 at 5.

24 40 C.F.R. § 124.19(a)(4)(ii).

REGULATORY AND FACTUAL BACKGROUND

I. Regulatory Background

Section 316(b) of the CWA requires that "the location, design, construction, and capacity of [CWISs] reflect the best technology available for minimizing adverse environmental impact" to aquatic organisms.[25] For years, EPA has attempted to establish national standards for the implementation of § 316(b).[26] Those efforts have largely focused on reducing impingement (when any life stage of fish and shellfish are pinned against the outer part of an intake structure or against a screening device during intake water withdrawal) and entrainment (when any life stages of fish and shellfish are drawn into the intake water flow entering and passing through a cooling water intake structure and into a cooling system). In the absence of national standards, EPA uses its "best professional judgment" ("BPJ") to establish BTA to minimize impingement and entrainment on a case-by-case basis for CWISs at regulated facilities.[27]

As relevant here, in 2014 (while the renewal application for Merrimack Station's Permit was pending), EPA published a new final § 316(b) rule for CWISs.[28] The final rule became effective October 14, 2014,[29] and it was upheld by the U.S. Court of Appeals for the Second Circuit on July 23,

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25 33 U.S.C. § 1326(b).

26 *See, e.g.*, 41 Fed. Reg. 17,387 (Apr. 26, 1976); *Appalachian Power Co. v. Train*, 566 F.2d 451 (4th Cir. 1977); EPA, *Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: § 316(b)* (May 1, 1977); *Cronin v. Browner*, 898 F. Supp. 1052, 1054 (S.D.N.Y. 1995); *Riverkeeper, Inc. v. Whitman*, 32 Envtl. L. Rep. 20382, 2001 WL 1505497, at *1 (S.D.N.Y. Nov. 27, 2001) (discussing the litigation that resulted in the consent order requiring EPA to promulgate three phases of CWIS regulations); 69 Fed. Reg. 41,576 (July 9, 2004); *Riverkeeper, Inc. v. EPA*, 358 F.3d 174 (2d Cir. 2004); *Riverkeeper, Inc. v. EPA*, 475 F.3d 83 (2d Cir. 2007).

27 *See* 40 C.F.R. § 125.90(b).

28 79 Fed. Reg. 48,300 (Aug. 15, 2014).

29 *Id.* at 48,358.

2018.[30] The 2014 final rule applies to existing industrial facilities with the capability to withdraw greater than two million gallons per day (MGD) of water from a water of the United States when at least 25 percent of that water is used exclusively for cooling purposes.[31] The new regulations are codified under 40 C.F.R. Part 125, Subpart J, and 40 C.F.R. § 122.21, and establish categorical standards for determining and implementing BTA to minimize impingement and entrainment impacts of CWISs.

The final § 316(b) rule requires an existing facility with a CWIS with a design intake flow greater than 2 MGD to, among other things: 1) submit certain information or studies; 2) to select one of several approved compliance options to reduce fish impingement mortality at its CWIS; and 3) (for an existing facility with an actual intake flow (AIF) over 125 MGD) to conduct certain additional studies regarding entrainment of aquatic organisms to inform the development of a BTA standard for entrainment on a site-specific basis (akin to the BPJ process that existed prior to the final rule).[32]

For entrainment reduction, the final § 316(b) rule establishes regulations requiring the permitting authority to make a site-specific BTA determination—including a possible determination that no entrainment controls at a facility are necessary—after consideration of certain specified factors and based on all available entrainment data for a facility.[33] Specifically, 40 C.F.R. § 125.98(f) states that a permitting authority must consider the following factors in making such a site-specific determination:

> (i) Numbers and types of organisms entrained, including, specifically, the numbers and species (or lowest taxonomic classification possible) of Federally-listed, threatened and endangered species, and designated critical habitat (*e.g.*, prey base);
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> (ii) Impact of changes in particulate emissions or other pollutants

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30 *Cooling Water Intake Structure Coal. v. EPA*, 905 F.3d 49 (2d Cir. 2018).

31 40 C.F.R. § 125.91(a).

32 *See id.* § 125.94(a), (c); *id.* § 122.21(r)(9)-(12).

33 *Id.* § 125.94(d).

associated with entrainment technologies;

(iii) Land availability inasmuch as it relates to the feasibility of entrainment technology;

(iv) Remaining useful plant life; and

(v) Quantified and qualitative social benefits and costs of available entrainment technologies when such information on both benefits and costs is of sufficient rigor to make a decision.[34]

In addition, the permitting authority may also consider several other factors in reaching a site-specific BTA determination for entrainment, which include:

(i) Entrainment impacts on the waterbody;

(ii) Thermal discharge impacts;

(iii) Credit for reductions in flow associated with the retirement of units occurring within the ten years preceding October 14, 2014;

(iv) Impacts on the reliability of energy delivery within the immediate area;

(v) Impacts on water consumption; and

(vi) Availability of process water, gray water, waste water, reclaimed water, or other waters of appropriate quantity and quality for reuse as cooling water.[35]

The weight given to the factors may vary depending upon the circumstances of an individual facility.[36]

As mentioned above, the permitting authority's consideration of these entrainment factors in making a BTA determination is to be "based on a [facility's] submission of certain . . . required information" relating to entrainment impacts at a facility.[37] Specifically, to ensure that the permitting

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34 *Id.* § 125.98(f)(2)(i)-(v).

35 *Id.* § 125.98(f)(3)(i)-(vi).

36 *Id.* § 125.98(f)(2).

37 *See* 76 Fed. Reg. 22,174, 22,204 (Apr. 20, 2011) (codified at 40 C.F.R. pts. 122 and 125).

authority has access to the information necessary to make an informed BTA determination about a facility's site-specific entrainment controls, the final § 316(b) rule requires any existing facility with "major cooling water withdrawals"—*i.e.*, greater than 125 MGD AIF—to complete four entrainment-related studies.[38] As to facilities falling below this 125 AIF threshold, EPA recognized in the rule that a BTA determination for entrainment could very well be "no other technologies beyond impingement control . . . because no other technologies are feasible and/or their benefits do not justify their costs."[39]

Costs must be considered in setting BTA for a given CWIS.[40] The U.S. Supreme Court in *Entergy Corp. v. Riverkeeper Inc.*[41] had previously confirmed that cost and benefit considerations are rational in determining BTA to minimize adverse environmental impacts. In doing so, the court held that the term "minimize" within § 316(b) "admits of degree and is not necessarily used to refer exclusively to the 'greatest possible reduction.'"[42] Instead, the agency is tasked with determining "the

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38 *See* 79 Fed. Reg. at 48,309; 40 C.F.R. § 122.21(r)(9)-(12).

39 76 Fed. Reg. at 22,005.

40 40 C.F.R. § 125.98(f)(2)(v).

41 556 U.S. 208, 224-26 (2009).

42 *Id.* at 219. Moreover, in *Entergy*, both Justices Scalia and Breyer explained that some consideration of costs and benefits is a part of "rational" and "reasonable" decision making, or at least that imposing enormous costs with very small benefits would be "unreasonable" and "irrational." *Id.* at 225-26, 231-35. Justice Scalia further provided that "whether it is 'reasonable' to bear a particular cost may well depend on the resulting benefits." *Id.* at 225-26. A decision imposing "massive costs far in excess of any benefit," according to Justice Breyer, would conflict with a test of reasonableness. *Id.* at 234. Allowing EPA to weigh costs and benefits "prevent[s] results that are absurd or unreasonable in light of extreme disparities between costs and benefits." *Id.* at 235. According to Justice Breyer, an absolute prohibition on cost-benefit analysis would bring about "irrational" results, because "it would make no sense to require plants to 'spend billions to save one more fish or plankton.'" *Id.* at 232-33. This is "particularly so in an age of limited resources available to deal with grave environmental problems, where too much wasteful expenditure devoted to one problem may well mean considerably fewer resources available to deal effectively with other (perhaps more serious) problems." *Id.* at 233.

extent of reduction that is warranted under the circumstances" at a given facility.[43]

Particularly relevant here, the 2014 final § 316(b) rule sets out a number of operational and technological options to address entrainment and/or impingement. CWWS is one such technological option. Less expensive operational options, such as flow reductions, are also discussed at length:

> Flow reduction is commonly used to reduce impingement and entrainment. For purposes of this rulemaking, EPA assumes that entrainment and impingement (and associated mortality) at a site are proportional to source water intake volume. Thus, if a facility reduces its intake flow, it similarly reduces the amount of organisms subject to impingement and entrainment.
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> . . .
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> Seasonal operation or seasonal flow reduction refers to the reduction or elimination of a quantity of water withdrawn either during periods of low demand for electricity output, or to coincide with certain biologically important periods. Most facilities that currently employ seasonal flow reductions do so to limit thermal impacts or to reduce entrainment, because entrainment often has a peak season, particularly during a local spawning season. Freshwater drum, for example, perform broadcast spawning during early summer when water temperatures reach about 65 degrees Fahrenheit.
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> During specific peak entrainment periods, a facility could scale back its operation (or perhaps not operate at all), thereby reducing or eliminating the volume of cooling water withdrawn. This could be accomplished through a combination of variable speed pumps or shutting down some portion of the pumping system. Seasonal flow reduction could also consist of operating a closed-cycle recirculating system as defined at § 125.92(c)(1) as once-through during part of the year and as a closed-cycle system during the peak entrainment season. (EPA notes that closed-cycle cooling has been rejected as noted in the previous section, and discussed in more detail below.) Facilities could also choose to schedule regular maintenance to occur during these high entrainment periods. These maintenance activities often require the facility to reduce or cease operations and can be timed to coincide with the most biologically productive periods.

43 *Id.* at 219.

. . .

> EPA has identified flow reduction as one of the best ways to reduce both impingement and entrainment.[44]

Merrimack Station's permit renewal was ongoing at the time the 2014 regulations became final. For permit renewals in process, 40 C.F.R. § 125.98(g) authorizes EPA to rely "on some or all of the [entrainment] factors [in §125.98(f)(2)-(3)] . . . and the BTA standards for impingement mortality at § 125.95(c)" in determining BTA.[45] Further, for such permits, the permittee need not submit the information or studies delineated in 40 C.F.R. § 122.21(r) if there is sufficient similar information in the record to allow EPA to make an informed BTA determination.[46] Here, in its Response to Comments, EPA stated that it "agrees that the [2014 final § 316(b) rule] is effective and that the final BTA determination for Merrimack Station should be consistent with the new regulations. . . . To this end, EPA has considered the factors at 40 CFR § 125.98(f)(2) and (3) in rendering its determination[.]"[47] Further, pursuant to 40 C.F.R. § 125.98(g), the Region determined the record included sufficient similar information to that required by the final rule to make an informed BTA determination and therefore did not require further submission of the information delineated in 40 C.F.R. § 122.21(r).[48]

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44 79 Fed. Reg. at 48,331-32, 48,365 (citation omitted).

45 40 C.F.R. § 125.98(g).

46 *Id.* (providing that "whenever the Director has determined that the information already submitted by the owner or operator of the facility is sufficient, the Director may proceed with a determination of BTA standards for impingement mortality and entrainment without requiring the owner or operator of the facility to submit the information required in 40 CFR 122.21(r)").

47 RTC at III-6 (citation omitted); *see also id.* at III-88; *id.* at III-113.

48 *Id.* at III-227.

II. Factual Background

A. Merrimack Station and the Merrimack River

Merrimack Station is located in Bow, New Hampshire, and has a maximum total electrical output of approximately 481 MW. As one of the last coal-fired electric generating facilities in the region, its continued operation is critical for fuel diversity, especially in times when delivery of natural gas is constrained.[49] Merrimack Station consists of two primary steam-electrical generating units—Units 1 and 2—along with two smaller, jet-fuel-fired peaking combustion turbines. Unit 1 began operating in 1960 and has a rating of 108 MW; Unit 2 commenced operations in 1968 and has a rating of 330 MW.

Merrimack Station withdraws water from and discharges to the Merrimack River. The Merrimack River is a 117-mile-long river that originates at the confluence of the Pemigewasset and Winnipesaukee Rivers in Franklin, New Hampshire, flows southward into Massachusetts, and then flows northeast until it empties into the Atlantic Ocean in Newburyport, Massachusetts. The total watershed of the river is approximately 4,700 square miles, covering much of southern New Hampshire and a portion of northeastern Massachusetts. The Merrimack River is classified as both a water of the United States, as well as a water of the State of New Hampshire.

Merrimack Station withdraws cooling water from the Hooksett Pool portion of the Merrimack River, which is an approximately 5.8-mile long segment of the river bordered to the north by the Garvins Falls Dam and to the south by the Hooksett Dam. The Hooksett Pool has a total surface area of approximately 350 acres and a volume of 130 million cubic feet at full-pond level. The width of the Hooksett Pool varies between 500 to 700 feet and has typical depths ranging between six and ten feet

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[49] "According to ISO New England, the resource mix of the region's installed generating capacity has shifted dramatically towards natural gas as a result of economic and environmental factors. In 2019, coal made up about 0.5% of generation in New England." *Id.* at III-110 (citation omitted).

under most flow conditions. The Soucook and Suncook Rivers, along with the Bow Bog Brook, are all tributaries to the Hooksett Pool. Most of the shoreline along the Hooksett Pool is undeveloped.

B. Ownership and Operation of Merrimack Station

GSP has owned and operated Merrimack Station since January 10, 2018. Prior to that, Merrimack Station was owned and operated by Eversource, Inc. (d/b/a Public Service Company of New Hampshire) (hereinafter "PSNH"). On October 11, 2017, PSNH entered into a purchase and sale agreement for the sale of PSNH's thermal generating plants, including Merrimack Station, as part of the New Hampshire Public Utilities Commission's ("NHPUC") divestiture process.[50] The transfer of the Station to GSP Merrimack LLC occurred on January 10, 2018, and the NPDES permit for the Station was transferred by EPA to GSP Merrimack LLC effective that same day.

As EPA explained in its Response to Comments: "Unlike PSNH, which maintained its request for permit conditions based on the possibility of future baseload operations, GSP indicated a willingness to have a permit with appropriate permit conditions reflecting the Facility's current, and planned future, pattern of operations like a peaking plant that helps the region to meet intermittent periods of high demand for electricity."[51]

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50 In RSA 369-B:3a (2015), the New Hampshire Legislature found that divestiture of PSNH's generation plants is in the public interest, subject to the NHPUC's finding that it is in the economic interest of retail customers of PSNH. In 2015, PSNH and numerous other parties entered into a comprehensive settlement agreement (the "2015 Settlement Agreement") resolving myriad issues and setting forth the requirement and methodology for PSNH to divest all of its electric generating assets. By its Order No. 25,920 dated July 1, 2016, the NHPUC approved the 2015 Settlement Agreement. In that Order, the NHPUC also approved a companion "2016 Litigation Settlement" which held that "The Settling Parties and [NHPUC] Staff agree that in light of the economic benefits reasonably expected from divestiture, the prompt divestiture of PSNH's generation assets is in the economic interest of retail customers of PSNH." NHPUC, Order No. 25,920 at 44 (July 1, 2016). In its Order No 25,920, the NHPUC specifically stated that "the 2015 Settlement Agreement and 2016 Litigation Settlement serve the public interest[.]" *Id.* at 67.

51 RTC at II-12.

C. Procedural History of the Permit

The process to renew this NPDES permit has been a lengthy and complicated one. Prior to EPA's issuance of the new Permit for Merrimack Station on May 22, 2020, the facility operated pursuant to an NPDES permit issued by EPA to PSNH in 1992. With respect to § 316(b) compliance, that permit required all impinged aquatic organisms to be returned to the Merrimack River, that the permittee conduct impingement and entrainment monitoring at discrete times based on specific criteria, and that the permittee report the impingement of 50 or more organisms at any one time to certain state and federal agencies.[52] The 1992 Permit was set to expire in 1997, but it was administratively continued[53] based on PSNH's timely renewal application, for approximately 23 years while the EPA determined what terms and conditions to include in the new Permit.

The Region issued its first draft of the renewed NPDES permit for public notice and comment in 2011.[54] The permit holder at the time (PSNH) sought a permit that reflected the operation of Merrimack Station as a baseload or near-baseload facility. In light of this request, EPA proposed requiring the installation and annual operation of closed-cycle cooling technology from April 1 through August 31, the use of a low-pressure spray wash to remove impinged organisms, and the installation of a new fish sluice return system, as BTA pursuant to § 316(b). PSNH objected to these draft permit terms—based on biological monitoring conducted in the Hooksett Pool over a number of years—as not necessary to address impingement or entrainment stemming from Station operations.

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52 *See* AR-580 at 2, 15-16.

53 *See* 40 C.F.R. § 122.6(a) (providing that an expired permit continues in force until a new permit is issued so long as the permittee timely submitted a complete application for a new permit).

54 AR-609.

EPA updated a portion of the 2011 draft permit in 2014 (prior to issuance of the agency's final § 316(b) rule) to revise the regulation of certain wastewater discharges from the facility.[55] Public comment was solicited on only these isolated wastewater permit terms, and the § 316(b) regulatory provisions were not at issue in this 2014 draft.

In 2017, seeking yet more input from the public, EPA issued a "Statement of Substantial New Questions for Public Comment."[56] In this notice, EPA acknowledged that both the regulatory landscape and facts associated with the renewal of the NPDES permit for Merrimack Station had changed substantially. EPA explained that it had "determined that various data, information and arguments submitted during prior comment periods, or that were submitted or became known to EPA after the comment periods, raise a number of substantial new questions concerning the [2011] Merrimack Station Draft Permit."[57] EPA noted that "a variety of significant new developments relevant to the Merrimack Station permit have unfolded since closure of the public comment periods for the 2011 Draft Permit[.]"[58] Among other things, EPA based its decision to reconsider on the following "substantive developments"[59]:

1. "[N]ew regulations" promulgated by EPA in 2014 "that apply to existing facilities with cooling water intake structures, such as Merrimack Station," which "are now in effect and govern the Final Permit for Merrimack Station."[60]

55 AR-1136.

56 AR-1534.

57 *Id.* at 3 (citation omitted).

58 *Id.* at 6.

59 *Id.* at 8.

60 *Id.* at 14.

2. The Station's change in operational profile since 2011. "[S]ince issuance of the 2011 Draft Permit, [the] capacity utilization rate has dropped considerably. Whereas the Facility used to operate as a baseload plant, it now operates more as a peaking plant."[61]

3. The sale of Merrimack Station to a new owner. "As required by New Hampshire law, PSNH is currently auctioning its electrical generating assets, including Merrimack Station."[62]

In light of these new developments, EPA re-opened the public comment period in 2017. While EPA recognized this additional process would delay issuance of the final permit, which had "been administratively continued for a lengthy period[,]" EPA explained that it "is also committed to providing a fair, legally sound process for the development of the permit[], and to developing scientifically and legally sound permit conditions[.]"[63]

Although GSP did not own the Station during the periods for public comment, once it acquired the Station, it engaged with EPA in discussions about the Station's operations and provided information requested by EPA in order to support the issuance of a new permit. This additional information and discussion, which included operational data and discussion of § 316(b) compliance options, is part of the administrative record.[64]

PERMIT CONDITIONS PRESENTED FOR REVIEW

GSP contends that the following Permit conditions are based on clearly erroneous findings of fact and conclusions of law or are an abuse of discretion: (1) Parts I.E.1, 2, 4, and 7.a.-7.c., which require the installation and annual operation between April 1 and August 15 of CWWS at Merrimack Station for the withdrawal of water from the Merrimack River; (2) Part I.G.3., which requires the scheduling of the annual Merrimack Station Unit 2 maintenance outage to occur between May 15 and

61 *Id.* at 68.

62 *Id.* at 8.

63 *Id.* at 9.

64 *See, e.g.*, RTC at III-207; AR-1752; AR-1754; AR-1890.

June 15, to the extent practicable; and (3) Parts I.E.3 and 7.d., which provide a six-month deadline within which to install fish return sluices.

STANDARD OF REVIEW

The Board has authority to review an NPDES permit decision that is either (i) based on a clearly erroneous finding of fact or conclusion of law, or (ii) involves an important matter of policy or exercise of discretion that warrants further review.[65] When evaluating a challenged permit decision for "clear error," the Board examines the administrative record that serves as the basis for the permit to determine whether the EPA Regional Administrator exercised his or her "considered judgment" in issuing the permit.[66] When the Board is presented with technical issues, it must determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region "is rational in light of all information in the record."[67] With respect to technical issues, the Board "takes a careful look at technical issues and will not hesitate to order a remand when a Region's decision on a technical issue is illogical or inadequately supported by the record."[68]

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65 40 C.F.R. § 124.19(a)(4).

66 *See, e.g.*, *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 417-18 (EAB 1997) (remand because permitting authority's rationale for certain permit limits was not clear and therefore did not reflect "considered judgment" required by regulations); *In re Austin Powder Co.*, 6 E.A.D. 713, 720 (EAB 1997) (remand due to lack of clarity in permitting authority's explanation). Specifically, the Region "must articulate with reasonable clarity the reasons for his conclusions and the significance of the crucial facts in reaching those conclusions." *In re Carolina Power & Light Co.*, 1 E.A.D. 448, 1978 WL 18218, at *3 (EAB 1978); *see also Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 48 (1983) ("We have frequently reiterated that an agency must cogently explain why it has exercised its discretion in a given manner.").

67 *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2002) (remanding of NPDES permit for further analysis and explanation by the Region).

68 *See, e.g.*, *In re NE Hub Partners, LP*, 7 E.A.D. 561, 568 (EAB 1998).

ARGUMENT

I. Parts I.E.1, 2, 4, and 7.a.-7.c. and Part I.G.3 of the Permit should be remanded because those provisions do not properly take into account Merrimack Station's changed operational profile.

Petitioner seeks review and remand of Parts I.E.1, 2, 4, and 7.a.-7.c. and Part I.G.3. of the Final Permit. In the subparts of Part I.E., the Region incorrectly concludes that CWWS must be deployed annually at Merrimack Station from April 1 through August 15 to reduce entrainment. An annual outage of Merrimack Station's Unit 2 between May 15 and June 15 is required, to the extent practicable, in Part I.G.3. These requirements are based on clearly erroneous findings of fact or conclusions of law. Specifically, the Region: (a) failed to fully and appropriately take into consideration the drastic reductions in Merrimack Station operations in recent years during these annual time periods, and (b) erred in concluding installation of a technology that will likely cost in excess of $10 million *and* an annual outage of Unit 2 between May 15 and June 15 are warranted or justified in light of these operational reductions.[69]

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[69] The design criteria in Part I.E.2. of the Permit requiring GSP to maintain a "ratio of through-screen velocity to ambient sweeping current velocity . . . at 1:1 or greater under all river and plant operating conditions when the [CWWS] are deployed" must also be remanded to EPA. As written, the provision is clearly erroneous because the Region transposed the two related variables. The provision relates to a component of CWWS effectiveness referred to as "hydraulic bypass." As stated in its Response to Comments:

> Hydraulic bypass occurs when [CWWS] are perpendicularly aligned to the prevailing current in the waterbody and the strength of these natural currents cause organisms to be swept past the screens instead of passing through them. *It occurs when the ratio of sweeping flow velocity to through-slot flow velocity of the wedgewire screens is 1:1 or greater*.

RTC at III-72 (emphasis added); *see also id.* at III-114, n.67 (discussing a "sufficient sweeping flow" and an "effective ratio of ambient to through screen velocity (and therefore, hydraulic bypass)"). The above-emphasized language states the acceptable ratio relationship, but Part I.E.2. of the Permit mandates the exact opposite design criteria. This must be corrected or omitted as unnecessary because the 0.5 foot-per-second or less through screen velocity requirement is already explicitly stated in Part I.E.2. of the Permit.

EPA is required to exercise its "considered judgment" when making a BTA determination.[70] The agency must adopt an approach that is "rational in light of all information in the record."[71] EPA must explain with reasonable clarity the reasons supporting its conclusions and the significance of the record facts upon which it relied.[72]

Here, these permit provisions do not reflect the relevant and more recent data in the Administrative Record. The record shows that GSP's operation of the Station during the peak entrainment period is minimal,[73] yet EPA failed to consider this critical information in setting BTA as CWWS and also including the annual outage requirement, but not providing for consideration of operational measures such as targeted flow reductions in the § 316(b) compliance provisions. Instead, the Permit provisions are based on outdated data (from 2006-2007[74]) and an outdated proposal from the prior permit holder that is more appropriate for a baseload facility, and they ignore GSP's proposal to include reduced operations in May-June[75] to address entrainment.

The record clearly reflects the Station's reduced operations during the period EPA identified as critical for entrainment.[76] And, EPA recognized that reduced Station operations (and thus reduced

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70 *See In re Charles River Pollution Control Dist.*, 16 E.A.D. 623, 626 (EAB 2015).

71 *Id.*

72 *Id.*

73 RTC at III-34, n.14 (citing AR-1717).

74 *See id.* at III-30, n.10 (citing AR-6).

75 *See, e.g.*, AR-1678 at 3.

76 S*ee* RTC at III-34, n.14 ("[R]ecent generating data indicate that Merrimack Station typically operates very little in May and early June . . . . . Actual average monthly flows in June were less than 33% of permitted flow over this same period and less than 10% of permitted flow in 4 of 7 years."); *id.* at III-80 ("Merrimack Station has recently exhibited reduced operations during spring and summer when entrainment densities are highest."); *id.* at III-102 ("[T]he average capacity factor in the months of April and May from 2012 through 2019, which best reflects Merrimack Station's current operation as a peaking unit, was 6.5% and 0.8%, respectively[.]"); *id.* at III-110 ("Operation of Merrimack Station

intake flows from the CWIS) in mid-May to mid-June will "reduce adverse impacts from entrainment."[77] In fact, EPA admits that "the combined average monthly flow for May based on DMR data from 2013 through 2019 was, at most, about 6% of the permitted flow."[78]

This approach of basing BTA on flow reductions was raised with EPA, as the record reflects.[79] But EPA failed to consider this relevant factor when setting BTA, and instead set BTA as if the Station still operated in baseload mode during the entrainment period. This is clear error. In fact, EPA essentially double counted and required *both* CWWS and outage re-scheduling, when both are clearly not necessary or justified.

In making permit decisions, EPA cannot ignore recent relevant data,[80] and it must consider the entire record.[81] Here, EPA failed to do so. The record demonstrates that Merrimack Station's

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has declined in recent years such that the actual cooling water withdrawal is substantially less than the design flow[.]").

77 *Id.* at III-66; *see also id.* at III-80 (providing that Merrimack Station "operates at relatively low capacity from April through June" which, along with other things, "support[s] the conclusion that entrainment will be substantially reduced from existing conditions").

78 *Id.* at III-34, n.14 (citing AR-1717); s*ee also supra* note 76.

79 *See, e.g.*, AR-1753 at 5.

80 *Motor Vehicle Mfr. Ass'n v. State Farm Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) ("[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action[.]"); *Brewer v. Madigan*, 945 F.2d 449, 456 (1st Cir. 1991) (same); *Dist. Hosp. Partners LP v. Burwell*, 786 F.3d 46, 57 (D.C. Cir. 2015) ("[A]n agency cannot *ignore* new and better data." (emphasis in original)); *Dow AgroSciences LLC v. Nat'l Marine Fisheries Serv.*, 707 F.3d 462, 473 (4th Cir. 2013) ("[W]hen an agency acknowledges that its data are either outdated or inaccurate, it should, at the very least, analyze the new data or explain why it nevertheless chose to rely on the older data."); *Sierra Club v. EPA*, 671 F.3d 955, 968 (9th Cir. 2012) (Reviewing authority "should not silently rubber stamp agency action that is arbitrary and capricious in its reliance on old data without meaningful comment on the significance of more current compiled data.").

81 *In re City of Taunton Dep't of Pub. Works*, 17 E.A.D. 105, 112 (EAB 2016) ("[T]he record must demonstrate that the permit issuer . . . ultimately adopted an approach that 'is rational in light of all information in the record.'" (citation omitted)); *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2002) (Reviewing authority "look[s] to determine whether the . . . approach ultimately adopted by the Region is rational in light of all information in the record." (citation omitted)).

most recent operations achieve the entrainment reductions (reductions from baseload operation, which periodically includes outages) without the installation of costly CWWS. This entrainment reduction achieved by decreased operations is more than sufficient to meet the § 316(b) standard, without the need for CWWS equipment. At a minimum, the § 316(b) compliance provisions in the Permit should have allowed for utilization of targeted flow reductions in the final design of the BTA. The regulations clearly contemplate flow reductions as BTA, yet EPA defaulted to CWWS without further analysis. This is arbitrary and capricious decisionmaking.[82]

II. The six-month deadline to install fish return sluices is unworkable and not supported by the record.

Parts I.E.3 and 7.d. of the Permit require new fish return sluices to be installed and operational within six months of the effective date of the Permit. The effective date of the Permit is September 1, 2020, meaning the sluices must be operational no later than March 1, 2020. This schedule is not explained or supported by the administrative record. In actual fact, the schedule is impractical. GSP cannot possibly design the sluices, procure the necessary materials, apply for and obtain required regulatory permits (*e.g.*, CWA § 404 dredge and fill permit), and construct the sluices, within 180 days. Indeed, issuance of required regulatory permits is completely out of GSP's control. This should be accounted for in the schedule.[83]

As stated above, there is no information in the administrative record that demonstrates or explains how this six-month schedule can reasonably be satisfied. EPA did not propose this schedule/deadline for sluice installation in any draft permit, nor did the agency solicit specific feedback

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82 *See supra* notes 80, 81.

83 It is also important to point out that the fish sluices and CWWS issues are linked, meaning GSP could not have completed the design of the new sluices upon issuance of the Permit; nor can the Petitioner take steps to install the fish sluices until the CWWS issues raised herein are fully resolved. The configuration, scope, and overall design of the fish sluices will differ depending upon the installation and utilization of full-scale CWWS or other screens at Merrimack Station.

on what would constitute a reasonable schedule.[84] The prior permit holder's consultant, Enercon, Inc., did discuss fish return system upgrades in certain submitted reports and included an approximate six-week "Upgrade Fish Return System" period in certain proposed § 316(b) *construction* schedules.[85] However, as noted, these documents address only the construction phase (and do not account for delays as a result of weather conditions) and do not include any specific mention of fish sluice equipment in the "Design Engineering Phase" of the draft schedule or account in any way for time to complete required regulatory permitting.[86] No commenter explained or endorsed that the sluices can be designed, procured, permitted, and installed within the required six months. And, EPA has not explained how this schedule is possible, especially in the winter months.[87]

The fact that installation is to occur between September 1, 2020, and March 1, 2020, makes this Permit requirement even more unreasonable. In New Hampshire, the ground is typically frozen from December through February. And portions of the Hooksett Pool of the Merrimack River—including the area in which the fish sluices will be installed—are often frozen/icy in this same

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84 *See* RTC at III-36, n.17 ("The Final Permit now includes a 6-month compliance schedule to install a new fish return. . . . This a change from the 2011 Draft Permit, which did not include a compliance schedule. . . . When EPA issued the 2011 Draft Permit, it expected to include a schedule for the necessary compliance steps in an enforceable document outside of the NPDES permit, consistent with prior agency practice and interpretation of the CWA. . . . [T]he agency has changed its interpretation of the Act . . . . Therefore, EPA has added a compliance schedule to the Final Permit for installation of the new fish return.").

85 AR-4 at Att. B, pg. 2.

86 *See id.*

87 Notably, EPA's sole reference to how it established the six-month fish return sluices compliance schedule states: "The schedule considers aspects of the schedule that Enercon proposed for the installation of fine-mesh traveling screens (including new fish return troughs). *See* AR-4 at 90 [or AR-4 at Att. B., pg. 5]." RTC at III-36, n.17. Yet, the Region makes no attempt to explain what "aspects" it supposedly considered from a draft schedule that: (1) references fish return troughs in only one "Construction Phase"; (2) makes no specific mention of fish return equipment in the "Design Engineering Phase" of the draft schedule; (3) does not at all address required regulatory permitting for the installation; and (4) proposes earth work that specifically avoids winter/freezing construction limitations.

timeframe. These conditions will complicate the design-phase of the installation, and they will likely prevent the construction phase of the project.

EPA is required to explain with reasonable clarity the reasons supporting its conclusions and the significance of the record facts upon which it relied.[88] The Region has not fulfilled this requirement with respect to the six-month fish sluice compliance schedule. A reasoned review of these Permit requirements supports a longer period of time to install and commence operating the fish sluices, and Parts I.E.3 and 7.d. of the Permit must therefore be remanded for the agency to consider a reasonable schedule for compliance.

CONCLUSION

For the reasons stated herein, Petitioner asks this Board to remand Parts I.E.1, 2, 4, and 7.a.-7.c., I.G.3, and I.E.3 and 7.d. of the Permit.

88 *In re Charles River Pollution Control Dist.*, 16 E.A.D. at 626.

STATEMENT REGARDING ORAL ARGUMENT

Petitioner does not believe oral argument is necessary to address the issues raised in the Petition.

STATEMENT OF COMPLIANCE WITH WORD LIMITATION

I hereby certify that this Petition for Review, including all relevant portions, contains fewer than 18,000 words, in accordance with this Board's June 16, 2020 Order Granting Consent Motion for Extension of Time and Increase Word Limits and Notifying the Parties of Electronic Service. Not including the transmittal letter, caption, table of contents, table of authorities, figures, signature block, table of attachments, statement of compliance with the word limitation, and certification of service, this Petition contains 8,275 words.

Dated: July 27, 2020

Respectfully submitted,

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LIST OF ATTACHMENTS

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Petition for Review was served by email on the following persons, this 27th day of July, 2020:

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