Conservation Law Foundation • Earthjustice • Environmental Integrity Project • Sierra Club

December 18, 2017

Sharon DeMeo
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912
Demeo.Sharon@epa.gov

RE: Response to Statement of Substantial New Questions for Public Comment, Merrimack Station, NPDES Permit No. NH0001465

Dear Ms. DeMeo,

Sierra Club, Earthjustice, Environmental Integrity Project, and the Conservation Law Foundation (collectively, the "Environmental Organizations") submit these comments in response to the Statement of Substantial New Questions for Public Comment concerning Merrimack Station, NPDES Permit No. NH0001465. These comments build on the comments that our organizations previously submitted on the 2011 draft permit and the comments and reply comments submitted on the 2014 revised draft permit. We incorporate our prior comments by reference as if fully set forth herein.

RESPONSES TO STATEMENT OF SUBSTANTIAL NEW QUESTIONS

I. Responses to EPA Issues for Comment 6, 7, 8 (thermal discharges and Asian clams)

Applicable Legal Requirements

A. Thermal Discharges

1. Clean Water Act Section 316(a)

Heat is defined as a pollutant under the Clean Water Act ("CWA"). 33 U.S.C. § 1362(6). The point source discharge of pollutants to a water of the United States is prohibited by CWA § 301(a), unless authorized by an NPDES permit issued under CWA § 402. Permit limits for thermal discharges must, at a minimum, satisfy federal technology-based requirements, as well as any more stringent requirements based on state water quality standards that may apply. *See* 33 U.S.C. § 1311(b)(1)(C).

ED_002514_00000413-00001

CWA § 316(a) provides for an exception – a variance – from the general requirement that NPDES permits include effluent limits that, at a minimum, satisfy federal technology-based standards, and that also satisfy any more stringent requirements based on state water quality standards that apply. Section 316(a) authorizes the permitting agency to grant a variance and impose less stringent thermal discharge limits if the permittee can demonstrate that "any effluent limitation proposed for the control of the thermal component of any discharges…will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife." 33 U.S.C. § 1326(a). Any 316(a) variance must "assure the protection and propagation of a balanced, indigenous population ["BIP"] of shellfish, fish, and wildlife in and on the body of water." *Id.*; 40 C.F.R. § 125.70.

The permittee has the burden of proof in persuading the permitting authority that the non-variance limits are more stringent than is needed and that an alternative set of limitations will be sufficient to protect the BIP. 33 U.S.C. § 1326(a); 40 C.F.R. § 125.73(a).

2. <u>316(a) Variance Demonstration Requirements</u>

A "balanced, indigenous population" ("BIP") is defined by EPA regulations to mean "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." 40 C.F.R. § 125.71(c). Moreover, normally "such a community… may not include species whose presence or abundance is attributable to alternative effluent limitations imposed pursuant to section 316(a)." *Id.* To determine the BIP for a local waterway, EPA must consider what species would inhabit the receiving water body if it were not degraded by thermal discharges. For example, the presence of a large population of a heat resistant species that is caused by thermal discharges authorized under a previous 316(a) variance would indicate that the variance had not adequately protected and preserved the BIP.

The regulations and guidance allow for different types of 316(a) demonstrations which may include "any information [the permitting authority] deems relevant" and which may vary depending on site specific characteristics. 40 C.F.R. § 125.73(b).

An existing discharger may show that their proposed 316(a) variance is more stringent than necessary to protect and preserve a BIP by demonstrating the "absence of prior appreciable harm in lieu of predictive studies." 40 C.F.R. § 125.75(c)(1). Under this approach, normally referred to as a "Retrospective Analysis," an existing discharger must show that "no appreciable harm has resulted from the normal component of the discharge." 40 C.F.R. § 125.75(c)(1)(i). However, if there is some previous harm, the existing discharger may still obtain a 316(a) variance if it shows that the "desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless assure the protection and propagation" of a BIP. 40 C.F.R. §

125.75(c)(1)(ii). This approach is quite similar, if not identical, to the central BIP standard under 40 C.F.R. § 125.75(a). This type of showing is referred to as a "Prospective Analysis."

In 1977, EPA issued a technical guidance manual to guide the development of 316(a) demonstrations. Although forty years have elapsed since its creation, EPA has never updated this manual and continues to rely upon it in evaluating 316(a) variance requests. The EPA manual provides guidance for identifying the appropriate level of information in demonstrations and in scoping thermal, fisheries, and other surveys to support the assessment of potential adverse impacts.

Factual Background[1]

A. Thermal Discharges

1. Merrimack's 316(a) Variance

The current Permit includes a 316(a) variance that permits Merrimack to operate without complying with numeric effluent limitations on thermal discharge based on the level of control achievable through use of the best available technology. Instead the permit specifies that discharges should not violate any applicable water quality standards. Permit. I.A.1.b. In addition, the Permit also requires that thermal plumes from the station should not block the zone of fish passage, should not change the balanced indigenous population of the receiving water, and should have minimal contact with the surrounding shorelines. Permit Part I.A.1.g.

2. 2011 Draft Permit and EPA's Response

EPA issued a new Draft Permit for Merrimack Station on September 30, 2011. AR-609. The Comment period for the Draft Permit ended on February 28, 2012. After reviewing comments, EPA issued the Revised Draft Permit on April 18, 2014. AR-1136. The Comment period for the Revised Draft Permit ended on October 22, 2014. AR-1137.

In the Draft Permit, EPA rejected Merrimack's request for a CWA § 316(a) thermal discharge variance. EPA concluded that Eversource had not demonstrated that Merrimack Station's thermal discharge has not caused prior appreciable harm to Hooksett Pool's BIP of fish. *Clean Water Act NPDES Permitting Determinations for the Thermal Discharge and Cooling Water Intake Structures at Merrimack Station in Bow, New Hampshire,* NPDES Permit No. NH

[1] For a full background of Merrimack's recent permitting history see Comment Letter of Conservation Law Foundation regarding EPA's 2011 Draft Permit, AR 851 (Feb. 28, 2012), and Comment Letter of Earthjustice, Environmental Integrity Project, and Sierra Club to EPA's 2011 Draft Permit, AR 866 (Feb. 28, 2012) . Notably, Merrimack has been operating under a NPDES permit issued over twenty years ago. Comment Letter of Conservation Law Foundation at 7.

ED_002514_00000413-00003

0001465 ("Attachment D") at 121.[2]

To the contrary, EPA found that the evidence as a whole indicates that Merrimack Station's thermal discharge has caused, or contributed to, appreciable harm to Hooksett Pool's BIP of fish. Attachment D at 121. In addition, EPA found that Eversource had not demonstrated that thermal discharge limits based on applicable technology-based and water quality-based requirements would be more stringent than necessary to assure a BIP. And Eversource had not demonstrated that its proposed alternative thermal discharge limits would reasonably assure the protection and propagation of the BIP on Hooksett Pool. *Id.* After rejecting Eversource's request for a 316(a) variance, EPA determined that, based EPA's Best Professional Judgment ("BPJ") a closed-cycling cooling system using "wet" cooling towers would be the BAT standard for thermal discharges at the Merrimack Station. *Id.* at 122.

However, EPA never finalized the Revised Draft Permit and on August 2, 2017, in response to requests by Eversource, re-opened the public comment period for the Revised Draft Permit on a limited set of topics including, among other things, topics related to Merrimack River water temperatures and associated thermal impacts on aquatic species because Eversource presented new summaries of existing data and new arguments to EPA related to EPA's denial of the 316(a) variance.

In particular, at issue is the interpretation of a statistical summary of Merrimack River water temperature data provided by Eversource in a 2007 probabilistic thermal modeling report prepared by the biological consulting firm Normandeau Associates (the "Normandeau Report"). In a September 4, 2015 letter, Eversource argued EPA had misinterpreted the water temperature data, in part because the Normandeau Report was unclear. Eversource explained that the temperature data in the Normandeau Report Appendix A are not the 21-year average of the daily maximum temperatures for each day of the calendar year, but instead simply represent the maximum of the daily averages that occurred on a given calendar day. Eversource argues that EPA's misunderstanding is important because it contributed to EPA drawing inaccurate conclusions regarding Merrimack River water temperature data and, by extension, the nature and extent of the Merrimack River thermal plume.

In further support of its request that EPA reconsider its proposed denial of Eversource's request to renew the Merrimack 316(a) variance, on December 22, 2016, Eversource submitted a new temperature dataset for EPA's consideration, along with a CORMIX thermal plume modeling report.

---

[2] Except as otherwise specified, for the purpose of this comment letter, the owner and operator of Merrimack Station is referred to as "Eversource." The company had previously been known as Public Service of New Hampshire ("PSNH").

Finally, Eversource submitted a report by Normandeau comparing benthic life near the Merrimack Station over several decades. AR-870. In reviewing this report, EPA became aware of the presence of non-native organisms in Hooksett Pool, particularly the highly invasive Asian clam (Corbicula fluminea). EPA began an inquiry that included field investigations confirming the presence of Asian clams and noting, at least qualitatively, that they are abundant in and near the Merrimack plume, rarer downstream, and not observed upstream of Merrimack's plume. EPA also reviewed two academic journal articles reporting on studies concluding that, in the St. Lawrence and in the Connecticut River, Asian clams had higher winter survival rates within the influence of the power plants' thermal discharge than in ambient areas, and that the elevated temperatures appeared to affect the clam's reproductive success, growth, and abundance.

3. The Hickey Report and the Nedeau Report

Attached to this letter are two reports created in response to EPA's reopening of the comment period for the Revised Draft Permit's 316(a) thermal discharge limitations. The first is *Review of Available Water Temperature Data and Thermal Plume Characterizations related to Merrimack Power Station in Bow, NH* (Hickey, Shanahan 2017) ("Hickey Report") which analyzes Eversource's recent information submittals related to temperature data, the thermal plume in Hooksett Pool, and the request to reconsider a 316(a) thermal variance. The second is *Potential Role of Merrimack Station's Thermal Effluent on Asian Clams, Native Mussels, and Ecology of the Merrimack River* (Nedeau 2017) ("Nedeau Report") which analyzes Merrimack's effect on Asian Clams in Hooksett Pool, the Merrimack River, and connected waterways.

EPA Requests for Comment

EPA has invited public comment on the following three issues related to Merrimack's thermal discharges:

1) new information concerning data reflecting Merrimack Station's waste heat discharges and their effects on Merrimack River water temperatures;

2) new information concerning the presence of the Asian clam, an invasive freshwater mollusk, in the Merrimack River in the vicinity of Merrimack Station;

3) whether any of this new information (*i.e.*, the thermal data and the Asian clam data) should lead to changes either to EPA's decision to deny Eversource's request for reneweal of its existing thermal discharge variance under CWA § 316(a) or EPA's analysis of how to apply New Hampshire water quality standards to the regulation of Merrimack Station's thermal discharges.

ED_002514_00000413-00005

Comments

A. The New Information Is Insufficient to Alter EPA's Denial of a 316(a) Thermal Variance

1. The Normandeau Report

Eversource's clarification of the Normandeau Report should not alter EPA's denial of the 316(a) variance. The question of whether the data presented are 21-year averages or 21-year maximums or minimums is trivial and irrelevant. The underlying point is that neither 21-year averages nor 21-year extremes are a suitable basis for evaluating thermal discharge impacts. Eversource should produce the actual temperature data, not statistical summaries of it. The Normandeau Report's probabilistic models are not valid or credible substitutes for the underlying temperature data, which Eversource has failed to produce. The Normandeau Report is not suitable for evaluating dynamic thermal plumes and potential effects on aquatic species and therefore cannot support a conclusion that a 316(a) variance would assure the protection and propagation of a BIP.

Eversource's clarification that the tables in Appendix A of the Normandeau Report expressed the maximum and minimum temperature for each day over a 21-year period as opposed to the *average* maximum and *average* minimum temperature for each day over a 21-year period cannot cure the fundamental problem with relying on the Normandeau Report as support for a 316(a) demonstration. To the contrary, Eversource's need to clarify the data shows precisely why relying on the Normandeau Report's summary of data is misleading and imprecise.

The Normandeau Report contains a probabilistic thermal modeling evaluation and daily statistical summary tables for a 21-year period. Hickey Report at 8. To create each average daily entry, the average daily temperatures for each of 21 years on the same date are averaged. *Id.* However, daily statistical summaries "mask river temperature fluctuations over time making it impossible to see temperature fluctuations that would be apparent in the continuous temperature measurements." *Id.* For example, large, short term temperature variations that can harm aquatic organisms are not detectable in daily summary statistics. The Normandeau Report used these summaries to model the thermal plume in Hooksett Pool.

The Hickey Report concluded that "the Normandeau [Report's] probabilistic thermal modeling analysis [is] ill-suited for supporting a 316(a) demonstration and concur[ed] with EPA's rejection of the report." Hickey Report at 9. Specifically, there was not a need for a probabilistic thermal model of the study area, rather there was a need for a clear presentation of available temperature data. The "model is ill-suited to support a 316(a) demonstration because it uses long-term averaging and model prediction to replace presentation of temperature

measurements." *Id.* As a result, the Normandeau Report "has hidden peak water temperatures and temperature fluctuations experienced by aquatic species in Hooksett Pool from review." *Id.*

Moreover, a comparison of the model's predictions and the actual temperature data shows the limits of the model. According to the Normandeau Report's probabilistic thermal model there should be less than one day in every one-hundred year period that exceeds 90° F at two of the monitoring stations; however, a review of the average daily water temperature showed that, in 14 out of 20 years, temperatures exceeded 90° F on at least one day, and often more. Hickey at 9. This review of the field data from the Merrimack Station "strongly contradict[s] the probabilistic model predictions." *Id.* The model is simply not accurate at predicting the real-world characteristics of Merrimack Station's thermal plume.

Therefore, the clarification of the data underlying the Normandeau Report should not alter EPA's denial of the 316(a) variance because "the misunderstanding relative to maximum and minimum temperatures in Appendix A tables is inconsequential. However defined, the 21-year statistical summaries do not represent useful or appropriate temperature data submittals in a 316(a) demonstrations context." Hickey Report at 9-10.

2. <u>CORMIX Thermal Plume Modeling Technical Report</u>

EPA also invited comments on a CORMIX thermal plume modeling report submitted to EPA on December 22, 2016. The CORMIX modeling application in the report used the far-field component of the CORMIX model to predict the extent of the thermal plume in Hooksett Pool resulting from the Merrimack Station's thermal discharge. Based on this model, the CORMIX report asserts that the model "results are valid to inform the biological evaluations" of the "influence of Merrimack Station's thermal plume on habitat utilization by fish species present in lower Hooksett Pool." Hickey at 11.

After a preliminary review of the CORMIX model, the Hickey Report concluded that the thermal plume modeling application is "inadequate for delineating the thermal discharge plume in Hooksett Pool" for a number of reasons. Hickey Report at 10. These reasons include, but are not limited to: the model relies on averaged data over a 10-year period; CORMIX is a steady-state model and is incapable of simulating dynamic conditions; the model relies on assumptions regarding the river's characteristics that are not representative of Hooksett Pool; and the model was not calibrated to field data. Hickey at 10. Similar to Eversource's use of the probabilistic modeling in the Normandeau Report, a CORMIX thermal plume modeling analysis was unnecessary in light of the fact that Eversource has relevant temperature data taken from the Merrimack River. Instead of a model, Eversource need only present a "clear and compelling presentation of available Merrimack River temperature measurements" in order to map and analyze the thermal plume at the Merrimack Station. Hickey at 11.

In sum, the Hickey Report "strongly disagree[d] that the results of this modeling analysis are appropriate or sufficient to support a biological impact analysis [and found] that the CORMIX analysis did not contribute to thermal plume characterization." Hickey at 11. Therefore, EPA should disregard the CORMIX analysis and not alter its decision to deny Eversource's request for a 316(a) variance.

B. Merrimack Has Failed to Demonstrate that the Thermal Discharges Will Not Change the Balanced Indigenous Population of Hooksett Pool.

1. Merrimack's Retrospective Analysis is Insufficient

Eversource has failed to show, under a retrospective analysis, that "no appreciable harm has resulted from the normal component of the [past thermal] discharge" at the Merrimack Station. 40 C.F.R. § 125.75(c)(1)(i).

EPA has already determined that Eversource has failed to carry their burden in showing that, in the past, the Merrimack Station's thermal discharge had not harmed the Hooksett Pool BIP. Attachment D at 116. After reviewing each analytical index provided in Eversource's Fisheries Analysis Report, which included catch per unit effort, taxa richness, rank abundance, fish community similarity, length-weight relationships, and species guild biomass, EPA concluded that "Merrimack Station has failed to demonstrate that the plant's past and current thermal discharges have not resulted in prior appreciable harm to the [BIP]...in the Hooksett Pool." *Id.* To the contrary, EPA determined that the previous thermal discharges have "appreciably harmed" the BIP. *Id.* at 116, 121.

As detailed above, none of the new information provided by Eversource is relevant to, or should alter, EPA's determination that Eversource has failed to show that its previous thermal discharges did not harm the Hooksett Pool's BIP. Eversource's clarification of the daily maximum and minimum temperatures in Appendix A of the Normandeau Report does nothing to alter this conclusion. As the Hickey Report explains, "each year's statistical summaries do not represent useful or appropriate temperature data submittals in the 316(a) context." Hickey at 10.

In addition, the Hickey Report analyzed the reported temperatures in the Hooksett Pool and found that there is a good reason that the thermal plume's high summer temperatures have resulted in changes to the BIP – because of Merrimack's thermal discharge, temperatures in the Hooksett Pool in summer surpass important survival thresholds for native fish species. Hickey Report at 12-14. Specifically, the Report describes how often the temperatures in the thermal plume exceeds the applicable fish tolerance thresholds for American Shad and Yellow Perch. *Id.* The "exceedances of acute and average weekly fish tolerances for extended time periods at Merrimack River stations" suggest that the power station is altering the BIP of the Hooksett Pool. *Id.* at 14.

The Nedeau Report provides additional evidence that Merrimack Station's thermal discharges have harmed the Hooksett Pool BIP by supporting a strong population of Asian clams down stream of Merrimack Station. Nedeau Report at 3. The Asian Clam is an invasive species, not native to New Hampshire or New England. Even though biologists believed that the cold winter waters in northern New England would prevent the Asian Clam from spreading further north, the species have expanded throughout New England to a surprising extent. The Asian Clam has survived, and spread, by relying on thermal effluent in rivers that are otherwise too cool for over winter survival, and by acclimating and adapting to the cooler waters of southern New England. Nedeau Report at 1-2. Asian Clams were first reported within Merrimack Station's thermal plume in 2012 and it now appears that their population is widespread in the lower Merrimack River watershed. Nedeau Report at 2.

According to the Nedeau Report, "Merrimack Station provided a warm and stable thermal environment; ensured locally high Asian clam growth rate, abundance, and overwinter survival and therefore a more stable source population and provided an opportunity for Asian clams to acclimated and adapt to cooler waters." Nedeau Report at 3. Sampling revealed high densities of Asian Clams and larger individuals near the mouth of the discharge canal and smaller but substantial populations downstream at Hooksett Pool and below the Hooksett Dam. No Asian Clams have been found upstream of Merrimack Station. Nedeau Report at 3. This suggests that "the strong source of population of Asian clams downstream from Merrimack Station *exists solely because of the thermal pollution*." Nedeau Report at 3 (emphasis added). Thus, because a BIP "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), Merrimack's role in sustaining a source population of Asian clams within its thermal plume shows that the past thermal discharge has not protected the Hooksett Pool's BIP.

Moreover, in 2011, in its discussion of the fisheries analysis/retrospective EPA noted that "Merrimack Station does not assess impacts to aquatic communities other than fish in the Fisheries Analysis Report." Attachment D at 36. While Merrimack claimed that the past and current operations have resulted in no appreciable harm to the balanced, indigenous populations of non-fish aquatic organisms in the segment of the Merrimack River receiving the Station's thermal discharge, this assertion was based on studies from the 1970's. *Id.* at 36-37. EPA correctly found that relying solely on data collected more than 30 years ago is insufficient to determine the current status of benthic and other non-fish species and whether these species have been protected since then. *Id.*

The Nedeau Report reinforces and highlights Eversource's failure to show that there has been no appreciable harm to benthic species – specifically mussels. Based on available temperature data, the Nedeau Report found that the thermal effluent is warm enough to cause

mortality or sublethal stress for some life stages of freshwater mussels living within the thermal plume, to cause sensitive fish species (some of which may be important hosts for native mussels) to avoid the thermal plume, and to alter the river's thermal regime by eliminating the wintertime cold period and potentially disrupting natural cues for dormancy, breeding, and spawning. Significantly, Nedeau identifies temperature tolerance thresholds for various life stages of native mussels. When compared to the data interpretations in the Hickey Report, it is clear that these thresholds, like those for native fish species, are exceeded in the Hooksett Pool because of Merrimack. However, the magnitude of these effects remains unknown due to lack of data. Nedeau Report at 7.

Eversource has failed to carry its burden of providing adequate data to prove that there is no appreciable harm to the BIP. The available temperature data are inadequate for understanding (1) natural condition (upstream monitoring), (2) thermal regime (year-round continuous monitoring) within and outside (upstream and downstream) of the thermal plume, (3) the full spatial extent of the thermal plume under a variety of conditions (seasonal, at different river flows, etc), (4) how the spatial extent of the thermal plume relates to the distribution of mussels and mussel habitat, (5) data on other water quality parameters, such as dissolved oxygen, that could interact with temperature to affect mussels. Nedeau Report at 7.

In sum, Eversource has failed to carry its burden of showing that "no appreciable harm has resulted from the normal component of the [past thermal] discharge." 40 C.F.R. § 125.75(c)(1)(i). Nothing has changed since EPA first rejected Eversource's request for a 316(a) variance in 2011, and thus there is no reason that EPA renew a 316(a) variance now. In fact, the available data strongly support EPA's earlier determination that Merrimack Station has degraded the BIP of the Hooksett Pool.

2. Merrimack's Prospective Analysis is Insufficient

Eversource has failed to show that, under a prospective analysis, the "alternative effluent limitation 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. § 125.75(a), (c)(1)(ii).

EPA has previously determined that Eversource has failed to demonstrate that BAT- or WQS-based discharge limits would be more stringent than necessary to assure protection of the BIP or that its suggested alternative thermal discharge limit would reasonably assure the protection of the BIP. Attachment D at 121. The evidence supporting EPA's conclusion is substantial and well documented. *See id.* at 116-121. As described above, Eversource's new information is not relevant to, and should not alter, EPA's previous determination.

Moreover, the Hickey Report details further failings in Eversource's 316(a)

ED_002514_00000413-00010

demonstrations. Hickey Report at 5-6. Significantly, contrary to EPA's Guidance Manual, Eversource has never submitted a complete 316(a) demonstration because Eversource has not created or submitted a "comprehensive document that pulls the thermal plume information together and presents it clearly." Hickey at 5. More specifically, Eversource failed to include or provide the following four components in its demonstration as required by EPA's Guidance: (1) the discharge vicinity in the study domain; (2) the impact of additive or synergistic effects of heat combined with other existing thermal or other pollutants in the receiving waters; (3) detailed graphs of the discharge plum under multiple conditions; (4) tables or illustrations of ambient river flows and velocities and river temperature and thermal gradients over time. Hickey at 6-7. Eversource has failed to provide any of this information in its 316(a) demonstration. *Id.*

"Instead, [Eversource] appears to have substituted complex statistical models . . . in place of temperature data presentations and thermal plume characterizations that are recommended by" EPA Guidance. Hickey at 7. Hickey notes that the "lack of available water temperature measurement data in the administrative record is so severe that EPA was forced to rely on 21-year averaged statistical summaries in assessing thermal impacts." *Id.* This is "wholly insufficient to support characterization of thermal plums as part of a 316(a) demonstration." *Id*

In addition, Eversource's reliance on the CORMIX model is insufficient as a prospective analysis of the future effects of a 316(a) variance. As described above, the CORMIX model is inadequate for delineating the thermal discharge plume in Hooksett Pool for multiple reasons. Hickey at 12. *Supra* at 7-8. The "CORMIX far-field model does not appear to be an appropriate modeling tool for simulating a thermal plume resulting from a time-varying thermal discharge into a river with time-varying flows and non-uniform dimensions (i.e., with bends and large variations in width and depth)." Hickey at 11. Thus, using the CORMIX model at the Merrimack Station, with its time-varying flows, discharges, and non-uniform dimensions, is insufficient and inappropriate to support a BIP analysis. *Id.*

The Nedeau Report provides additional evidence that Merrimack Station's thermal discharges, if allowed to continue, will further harm the Hooksett Pool BIP by continuing to provide Asian Clams with the warm waters they require to establish a significant foothold in the watershed from which they can spread to connected waterways. Nedeau Report at 3-4. Notably, the Asian Clam's strong source population in Merrimack Station's thermal plume "puts the entire region at risk of further invasion" by allowing the species to acclimate and spread. Nedeau Report at 4. This is important because the Asian Clam has a detrimental effect on native freshwater ecosystems and native freshwater mussels. Nedeau Report at 4. Native freshwater mussels are among the most endangered faunal groups in the world and the decline and loss of native bivalves has enormous implications for ecosystem health. *Id.* at 4. The Nedeau Report provides further evidence that granting Eversource a thermal variance would continue the changes in, and further erode, the BIP of Hooksett Pool and beyond.

ED_002514_00000413-00011

With respect to prospective harm in and beyond the Hooksett Pool, we take this opportunity to draw EPA's attention to two more studies that further support EPA's concerns about the impact of Merrimack's thermal plume on the spread of invasive Asian clams in the Merrimack. The first study (Mitchell et al., 1996) is attached to this comment letter. It examines density of quagga and zebra mussels in the thermal plume of the Nanticoke Generating Station on the Canadian side of Lake Erie, concluding that the mussels are found in greater abundance in the plume, particularly along the bottom in the reach of the winter plume, and the authors hypothesize that invasive quagga mussels in Lake Erie benefit from the plume and that it appears that the Nanticoke plume was likely one of the first sites colonized by the mussels – that thermal plume may have been a major launching point for the quagga mussel invasion of North America.

Mitchell and his co-authors identified an even earlier study of invasive Asian Clams in Virginia. Graney et al., 1980. "The influence of thermal discharges and substrate composition on the population structure and distribution of the Asiatic clam, Corbicula fluminea, in the New River, Virginia." Nautilus, 94:130–135. This study observed that Asian clams reached higher densities in the thermally enriched waters of a thermal discharge in Virginia. Twenty-seven years ago, they suggested that plumes from such discharges may provide Asian Clams a warm water refuge from winter temperatures that allowed them to extend their northern range and acclimate to new conditions. Thus, EPA's concerns about the potential role of the Merrimack thermal plume in supporting the survival and spread of invasive species are well-supported by the literature.

Eversource also has failed to carry its burden by not addressing the thermal implications of its recent operating history as a "peaker" plant that runs intermittently. As EPA observed in 2011, abrupt shutdowns in the colder seasons could cause "cold shocks", i.e., a relatively rapid reduction in discharge temperature, which can lead to the physiological impairment of fish and even to death. Attachment D at 349. EPA noted that studies "show that acclimation to cooler temperatures, at least for fish, is considerably slower (e.g. days versus hours) than acclimation to warmer temperatures." *Id.* In this regard, Merrimack's practice of operating sporadically in the winter months poses a threat to the BIP.

Thermal shock is an important consideration and one that has been masked by Eversource's daily averaging of the continuous data set. Even with an averaged data set, however, there is evidence that Merrimack's sporadic operations greatly affect water temperatures in the Hooksett Pool. Hickey Report Figures 11-13 show sharp changes in water temperature that correspond with reduced discharge from Merrimack. And these figures are based on temperature changes in summer months, when the difference between discharge temperatures and ambient temperatures is much less that in winter. Eversource has not provided data for the winter months when the change in temperature from shutting down operations would

likely be even greater than the average changes observed in the summer months. Again, Eversource has failed to provide adequate data – in this case, to determine whether its operating history causes thermal shocks that harm the BIP.

Eversource has failed to carry its burden with a prospective analysis that its alternative discharge limitations were reasonable to protect the BIP or that BAT and WQS standards would be more stringent than necessary to assure protection of the BIP. Indeed, not only has Eversource failed to carry its burden of showing that it can assure protection of a BIP, the preliminary comparison of river temperatures with known thermal tolerances for native species in the Hickey Report strongly suggests that the existing variance has degraded the BIP and will pose continuing and rising harms to the BIP. EPA should, again, reject Eversource's request for a § 316(a) thermal discharge variance.

II. Responses to EPA Issues for Comment 1, 2, 3, 4, and 5 (new 316b regulations, cylindrical wedgewire screens, reasonable retrofit schedule)

Applicable Legal Requirements

A. New Regulations for Minimizing Adverse Environmental Impact at Cooling Water Intake Structures.

1. Clean Water Act Section 316(b)

Cooling water intake structures ("CWIS") can cause or contribute to a variety of adverse environmental effects including "entrainment" (drawing small organisms into the mechanism, killing or injuring them) and "impingement" (trapping larger organisms against intake points). Cooling water intake structures must comply with technology-based requirements under CWA §316(b).

Section 316(b) provides for a technology standard that requires "the location, design, construction, and capacity of cooling water intake structures reflect the best technology available [("BTA")] for minimizing adverse environmental impacts." 33 U.S.C. § 1326(b). For existing sources, section 316(b)'s limitations are technology-based performance requirements analogous to those derived for point sources under Section 301. Although section 316(b) came into effect in 1972, since 1976, when EPA proposed its first 316(b) regulation, the provision has been the subject of extensive litigation.

At the time EPA issued its Draft Permit in 2011, there were no effective § 316(b) national categorical standards to apply to the CWISs at Merrimack. Attachment D at 221. As a result, EPA's BTA determination for Merrimack was governed by 40 C.F.R. § 125.90(b) which provides that "[e]xisting facilities that are not subject [to other requirements] must meet

requirements under section 316(b) of the CWA determined by the Director on a case-by-case best professional judgment (BPJ) basis." *See also* 40 C.F.R. § 122.44(b)(3). While neither the CWA nor EPA regulations dictate a specific methodology for developing permit limits based on a BPJ determination of BTA, EPA is guided by its own precedent and by the federal courts' interpretation of the § 316(b). Attachment D at 225-26.

EPA previously determined in its Draft Permit that the BTA for Merrimack's CWISs, using its best professional judgment, was closed-cycle cooling on a seasonal basis. Attachment D at 309.

After EPA issued the 2011 Draft Permit, in 2014 EPA promulgated new regulations under CWA § 316(b) that apply to existing facilities with CWISs such as Merrimack. *See* 79 Fed. Reg. 48300 (Aug. 15, 2014) (codified at 40 C.F.R. § 12221(r) and part 125, Subpart J). Although the rules are being challenged in court, the regulations are now in effect. *See* 40 C.F.R. §§ 122.43(b)(1), 125.91(a) and 125.94(a)(1).

EPA Requests for Comment

EPA has invited public comment on the following five issues related to Merrimack's cooling water intake structure:

1. new EPA regulations under CWA § 316(b), 33 U.S.C. § 1326(b), pertaining to cooling water intake structures at existing facilities, 79 Fed. Reg. 48300 (Aug. 15, 2014) (Final Rule) (2014 CWA § 316(b) Regulations);

2. questions about how the 2014 CWA § 316(b) Regulations should be applied to the Merrimack Station NPDES permit;

3. new information regarding the efficacy of cylindrical wedgewire screen technology for reducing impingement mortality and entrainment by cooling water intake structures;

4. new information concerning cylindrical wedgewire screen design (e.g., wedgewire "half-screens") that could facilitate deploying the technology at Merrimack Station;

5. new questions about what would constitute a reasonable schedule for retrofitting Merrimack Station to comply with CWA § 316(b) either by installing cooling towers to enable the facility to operate on a closed-cycle basis or by installing cylindrical wedgewire screens to operate in conjunction with open-cycle cooling.

ED_002514_00000413-00014

Comments

A. EPA's New Regulations Should Not Affect the Proposed, BPJ-based 316(b) Determination that EPA Reached in 2011 (Issues 1 and 2).

The new CWA § 316(b) regulations do not affect EPA's BTA determination at Merrimack.

Of course, EPA must make a BTA determination in renewing this permit. The new regulations provide that, "[i]n the case of any permit issued after July 14, 2018, at a minimum, the permit must include conditions to implement and ensure compliance with the impingement mortality standard at § 125.94(c) and the entrainment standard at § 125.94(d), including any measures to protect Federally-listed threatened and endangered species and designated critical habitat required by the Director." 40 C.F.R. § 125.98(b)(2).

However, the new regulations do not require EPA to reopen its BTA determination, nor do they provide incentive or justification for doing so. To the contrary, the regulations invite Region 1 to finalize the determination made in 2011:

> In the case of permit proceedings begun prior to October 14, 2014 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). The Director's BTA determination may be based on some or all of the factors in paragraphs (f)(2) and (3) of this section and the BTA standards for impingement mortality at § 125.95(c). In making the decision on whether to require additional information from the applicant, and what BTA requirements to include in the applicant's permit for impingement mortality and site-specific entrainment, the Director should consider whether any of the information at 40 CFR 122.21(r) is necessary.

40 C.F.R. § 125.98(g).

For Merrimack, EPA should clearly determine that the information already submitted is sufficient. The 2011 proposed BTA determination was clearly documented and based on a thorough and methodical analysis. EPA determined in 2011 that the information submitted was sufficient, and that is still true today.

Further, the new § 316(b) regulations do not significantly affect EPA's decision-making process. EPA did not set a standard for entrainment in the rule; instead, it effectively codified

ED_002514_00000413-00015

the case-specific best professional judgment decision-making process already used by EPA in New Hampshire. EPA's rule leaves entrainment BTA decisions to permit writers to be made on a site-specific basis (*see* 40 C.F.R. § 125.94(d)), using the same factors that have historically been used by EPA in making BTA determinations. *See* 40 C.F.R. § 125.98(f)(2)-(3)). And in lieu of setting a firm impingement standard, EPA has created a discretionary set of seven options for permit writers to choose from. In essence, the first six options reduce to achieving a through-screen velocity of less than 0.5 feet per second, installing modified traveling screens with a fish return system, use of an existing offshore velocity cap, or otherwise achieving a 76% reduction in impingement mortality. The impingement standard is completely discretionary, however, because the seventh "option" is to use "any combination of measures approved by the Director as BTA on the basis that it is demonstrated to 'minimize impingement mortality of all non-fragile species.'" See 40 C.F.R. § 125.94(c)(6).

It should be noted that EPA is currently in violation of its Clean Water Act obligations to issue NPDES permits for terms that do not exceed five years and to reissue and fully review those permits every five years. *See* 33 U.S.C. § 1342. The new rule does not change these obligations and does not require any significant reconsideration on the part of EPA. Now that the rule is final, EPA must complete the BTA determination process and issue Eversource's overdue permit as quickly as possible.

B. The availability of wedgewire-half screens is not demonstrated in-situ and, in any case, remains inferior to the closed-cycle cooling option that EPA already selected and that is required in light of EPA's Denial of a 316(a) Thermal Variance (Issues 3 and 4).

EPA should not reopen the 2011 BTA determination because the permittee is now proposing to study a new compliance option, wedgewire-half screens. This determination is long overdue and cannot be further delayed for more studies because, as noted above, EPA is already in violation of its duty to timely renew this permit. Further, as EPA noted in the Statement of Substantial New Questions for Public Comment, even under EPA's new interpretation of the law, the new regulations "require compliance as soon as practicable" with Section 316(b). SSNQPC at 23. Slowing down the BTA determination process to await new information when EPA has already reached a decision is not consistent with EPA's legal duties.

Further, under the best conditions cylindrical wedgewire-half screens will not be nearly as effective in reducing impingement and entrainment as the cooling towers that EPA has already proposed as BTA. And the 2011 determination to require seasonal use of cooling towers harmonizes with the requirement to install cooling towers to comply with Section 316(a) of the Act.

There is also considerable uncertainty about whether wedgewire-half screens will

function in the Hooksett Pool. The permittee has not yet conducted studies to estimate the impingement and entrainment levels to be expected under actual conditions in the Hooksett Pool at the appropriate depth and location. The permittee has not conducted a detailed flow study in the vicinity of the intake. And most importantly, the permittee has not considered the biofouling potential of the Asian Clam to affect operation of narrow slot width wedgewire-half screens. The USGS has noted that "[t]he most prominent effect of the introduction of the Asian clam into the United States," like that of zebra mussels, "has been biofouling, especially of complex power plant and industrial water systems." USGS, "Corbicula Fluminea Fact Sheet," http://nas.er.usgs.gov/queries/factsheet.aspx?speciesid=92 (last visited December 15, 2017).

Perhaps the largest uncertainty, however, relates to ambient velocities in the Hooksett Pool and whether they will create adequate sweeping flows for these screens to function under all conditions – particularly under summer low flow conditions.

For wedgewire screen technology to be effective in reducing entrainment, screen systems must be designed with: (1) sufficiently small screen slot size to physically block passage of the smallest lifestage to be protected; (2) low through-slot velocity; and (3) relatively high-velocity ambient current cross-flow to carry organisms and debris around and away from the screen. Only where all of these conditions are present are wedgewire screens effective at reducing entrainment. EPA has acknowledged that for wedgewire screens to perform effectively and avoid fouling, "locations also need to have an adequate source water sweeping velocity." 76 Fed. Reg. 22174, 22000 (April 20, 2011).

Insufficient velocity will greatly increase the impingement and entrainment rate. Larvae are fragile organisms and can be easily damaged by impacts with wedgewire-half screens, particularly on a repeated basis. Wedgewire-half screens are designed to be oriented parallel to that flow to decreased impingement and reduce fouling. But this actually increases screen-to-organism contact times because organisms must travel the full length of the screen before returning to the water body. *See* EPA, *Technical Development Document for the Proposed Section 316(b) Phase II Existing Facilities Rule 2-19* (2011) at 6-40. In low current (ambient flow) conditions, larvae will not be moved away from or along the screen by water movement, so they will likely suffer multiple screen encounters as they are repeatedly moved by the current towards the screen, until they are exhausted and pass through or are impinged upon the screen.

Because the Merrimack is dammed both above and below the station, water velocity in the Hooksett Pool is dependent on release rates of the upstream and downstream dams. But these dams are managed for multiple purposes, and releases are not optimized to provide the desired velocities near Merrimack Generation station. The ambient flow in the river is not guaranteed to meet Merrimack's needs for adequate sweeping velocities.

At best, wedgewire screens remain unproven; they may not be at all feasible in the Hooksett Pool. And even if feasible, their operational effectiveness is entirely dependent on river conditions that Merrimack Generating Station cannot control. There may be needs of other users, for power, storage, water level maintenance, or other purposes that render wedgewire screens highly ineffective.

Overall, the performance of a wedgewire-half screen system that has not yet been designed, of an unknown slot-width size, in environmental conditions that have not been fully assessed, cannot be considered equivalent to closed-cycle cooling. In contrast, cooling towers are available, proven, and considerably more effective than wedgewire-half screens at minimizing both entrainment and impingement, as well as thermal discharges. They are the best technology available.

C. Environmental Organizations agree with EPA that a reasonable schedule for retrofitting Merrimack's cooling system must achieve full compliance with Sections 316(a) and (b) as soon as reasonably practicable and no deviation from that standard should be considered at Merrimack (Issue 5).

Environmental Organizations agree with EPA's view that federal regulations require compliance with the BTA determination "as soon as practicable." See 40 C.F.R. §§ 125.94(b)(1), (2); 125.98(c).

With respect to the provision in the new regulations that requires EPA to consider "measures to maintain adequate energy reliability and necessary grid reserve capacity during any facility outage," consideration of such measures should neither delay EPA's finalization of the 2011 BTA determination, nor extend the schedule for compliance because of Merrimack's current generating profile. For several years, Merrimack has operated as a peaking facility. This has two implications, both of which EPA has already correctly identified. *See* SSNQPC at 26.

First, construction of a cooling tower should not affect Merrimack's operations. There would be some disruption to Merrimack when the new cooling system is tied in to the existing system, but that process, which should only take a few weeks at most, can be scheduled at any time during the approximately 9 months of the year that Merrimack doesn't run. *See id.*

Second, since Merrimack is no longer a baseload facility it has no significant effect on local grid reliability. If Merrimack were needed to ensure adequate capacity, the Regional Transmission Operator (RTO) would address that during upcoming capacity planning and capacity auctions, and EPA could consider that new information when it arises as a basis for permit modification. *See id.*

ED_002514_00000413-00018

As noted above, EPA is currently in violation of its Clean Water Act obligations to issue NPDES permits for terms that do not exceed five years and to reissue and fully review those permits every five years. *See* 33 U.S.C. § 1342. The new rule does not change these obligations and does not require any significant reconsideration on the part of EPA. Now that the rule is final, EPA should finalize the 2011 BTA determination – seasonal use of cooling towers – and require compliance as soon as practicable, on the 35-month schedule that EPA proposes, or on a more accelerated schedule if practicable.

III. Responding to EPA Issues for Comment 9 and 10 (Steam Electric Effluent Limitation Guidelines)

A. EPA must ensure continued progress under the voluntary incentives program by current and future owners of Merrimack Station and evaluate whether water quality based effluent limits are needed.

In the Statement of Substantial New Questions, EPA proposes to set aside its BPJ-based determination that zero liquid discharge of FGD wastewater is BAT for Merrimack and instead impose the following TBELs: (1) TSS limits only on FGD wastewater discharged prior to December 31, 2023 pursuant to the BPT limits for legacy wastewater, and (2) arsenic, mercury, selenium, and TDS limits consistent with the Voluntary Incentives Program, beginning December 31, 2023.

Because the ELGs are final and effective, EPA Region 1 does not have discretion to set less stringent technology-based effluent limits for FGD wastewater at Merrimack based on its best professional judgment. However, Region 1 must also include additional provisions in the NPDES permit for Merrimack Station to ensure ongoing progress toward compliance under the Voluntary Incentives Program. First, EPA must include provisions in the permit to ensure commitment by current and future owners of the Merrimack plant to participate in the Voluntary Incentives Program and meet the limits established at 40 C.F.R. § 423.12(g)(3)(i). Although the current owner of the facility has submitted a letter expressing its intention to comply with the limits in the Voluntary Incentives Program (AR-1343), Merrimack Station was recently sold at auction to a new owner, Granite Shore Power, LLC.[3] EPA must ensure that the new owner of the plant likewise commits to the Voluntary Incentives Program, consistent with the signatory

[3] *See* David Brooks, *Eversource chooses buyers for N.H. power plants, including Bow's Merrimack Station*, CONCORD MONITOR, available at http://www.concordmonitor.com/power-plants-eversource-sale-13074495. The New Hampshire Public Utility Commission has approved this auction sale. State of New Hampshire Public Utilities Commission, DE 17-124, Public Service Company Of New Hampshire D/B/A Eversource Energy, Sale Of Generating Facilities Order Approving Sale Of Thermal Generation Facilities, Order No. 26,078 (Nov. 28, 2017), available at https://www.puc.nh.gov/regulatory/Docketbk/2017/17-124/ORDERS/17-124_2017-11-28_ORDER_26078.PDF.

requirements of 40 C.F.R § 122.22, and is held accountable for achieving the standards at 40 C.F.R § 423.13(g)(3)(1) by December 31, 2023.

Second, a letter submitted by Eversource (AR-1354) indicates that the plant is currently not able to comply with the limits at 40 C.F.R § 423.13(g)(3)(1), but that steps are being taken to optimize the secondary wastewater treatment system in order to meet those limits. Although Eversource expresses confidence that these limits can be met by December 31, 2023, it has indicated that it plans to halt compliance efforts with the bottom ash ELG standards.[4] Therefore, EPA should include an interim compliance schedule in the permit to gather information about adjustments being made to the secondary wastewater treatment system and ensure that steady progress is being made towards meeting the Voluntary Incentives Program limits by the end of 2023.

Although the Statement of Substantial New Questions addresses only technology-based effluent limits for FGD wastewater, EPA's proposed technology-based limits will allow FGD wastewater to be discharged subject only to extremely lax total suspended solids limits for "legacy" FGD wastewater,[5] and therefore requires EPA to conduct an anti-degradation analysis and examine whether any water-quality based effluent limits are needed for this new discharge. As Region 1 is aware, the current NPDES permit for Merrimack does not allow any discharge of FGD wastewater. To allow this highly toxic wastewater to be discharged to the Merrimack River without any limits on toxic metals creates a high potential to affect existing uses in the river.

As EPA notes in its Statement of Substantial New Questions, in the 2011 draft permit, "discharges from the slag settling pond were also subject to water quality-based limits for total recoverable aluminum, arsenic, copper, mercury, and selenium based on New Hampshire DES's antidegradation analysis, which was triggered by the proposed FGD wastewater discharges."[6] In the 2014 draft permit, "[t]he water quality-based reporting requirements for chlorides, and the reporting requirements and effluent limits for aluminum, arsenic, copper, mercury and selenium, were removed from Outfall 003A because these water quality-based requirements were based on the presence of FGD wastewater in the slag settling pond, but under the 2014 Revised Draft Permit the FGD wastewater discharges would be eliminated." *Id.* at 55.

---

[4] *See* AR-136.2.

[5] Region 1 should also be aware that EPA's best available technology determination for legacy FGD wastewaters has been challenged by several of the undersigned organizations in court and that briefing on that challenge will conclude in early 2018. *See, e.g.*, Opening Brief of Petitioners Environmental Integrity Project, Sierra Club, and Waterkeeper Alliance, Inc. at 21-25, *Sw. Elec. Power Co. v. EPA*, No. 15-60821 (5th Cir. Dec. 5, 2016), ECF Doc. 00513785014. Should the court remand that portion of the ELG rule to EPA, Region 1 would again be in the position of needing to revise this draft NPDES permit.

[6] Statement of Substantial New Questions at 54-55.

Given that Eversource intends to discharge FGD wastewater until the Voluntary Incentive Program limits apply in December 2023, EPA should reinstate the WQBELs included for this outfall in the 2011 draft permit. Although Eversource states that it will discharge FGD wastewater that has been processed in the plant's Primary Wastewater Treatment System,[7] if the permit contains no limits on this discharge other than for total suspended solids there is nothing to prevent Eversource or the plant's new owner from bypassing the primary wastewater treatment system or reducing the effectiveness of that treatment system as a cost-savings measure. EPA must therefore impose WQBELs at Outfall 003 based on its 2011 analysis. Alternatively, if Eversource were to agree to binding conditions in its permit relating to the operation of the primary wastewater treatment system, EPA would still need to conduct an anti-degradation analysis based on that effluent. Since no such anti-degradation analysis is available in the record, nor EPA's conclusions based upon it, EPA must supplement the administrative record to evaluate whether discharges of treated FGD wastewater require water quality based effluent limits.

B. EPA Must Impose a Compliance Date of November 1, 2020 for Elimination of Bottom Ash Transport Water Discharges at Merrimack Station.

Merrimack Station also discharges bottom ash transport water, which the ELGs require to be eliminated as soon as possible beginning November 1, 2020 and no later than December 31, 2023.[8] The compliance date for any particular facility is to be determined by the permitting authority. As Region 1 correctly explains, the 2015 Rule set out the basic procedure for permitting authorities in determining that compliance date.

> First, the presumptive compliance date (or "as soon as possible" date) is November 1, 2018. Next, the permitting authority may determine a later compliance date, but no later than December 31, 2023, and only if it receives information from the discharger justifying the later date. Finally, after receipt of such justification, the permitting authority may set a compliance date later than the presumptive date only after considering the factors set forth above.[9]

The factors that a permitting authority is required to consider include:

---

[7] *See* AR-1354, at 2.

[8] EPA's final rule to postpone certain ELG compliance dates moves the presumptive "as soon as possible" date from November 1, 2018 to November 1, 2020. *Postponement of Certain Compliance Dates for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, 82 Fed. Reg. 43,494 (Sept. 18, 2017). Several of the undersigned parties have challenged this postponement in federal district court. *See Clean Water Action v. Pruitt*, D.D.C. Civil Action No. 17-cv-00817, Proposed Am. Compl. ¶¶ 104-11.

[9] Statement of Substantial New Questions at 58.

> (a) Time to expeditiously plan (including to raise capital), design, procure, and install equipment to comply with the requirements of the final rule; (b) Changes being made or planned at the plant in response to greenhouse gas regulations for new or existing fossil fuel-fired power plants under the Clean Air Act, as well as regulations for the disposal of coal combustion residuals under subtitle D of the Resource Conservation and Recovery Act; (c) For FGD wastewater requirements only, an initial commissioning period to optimize the installed equipment; and (d) Other factors as appropriate.[10]

EPA seeks comment on the deadline for Merrimack Station to comply with the bottom ash ELG and notes that the current owner and operator of the plant, Eversource, has proposed a compliance date of December 31, 2022. Critically, Eversource's justification for this deadline, contained in a February 17, 2017 letter (AR-1378), is withheld from the public administrative record in this matter as confidential business information.[11]

EPA does not propose a particular compliance deadline nor provide any reasoning as to why any particular compliance date is appropriate, other than to indicate, noncommittally, that "EPA was considering th[e] information [submitted by Eversource] and was contemplating whether to set December 31, 2022, as the final compliance date, taking into account the listed factors."[12]

Eversource's proposed December 31, 2022 compliance date should be rejected by EPA. First, it is more than two full years after the presumptive "as soon as possible" date in the current regulations (and more than four years after the presumptive "as soon as possible" date at the time that Eversource submitted the information). EPA has cited no reason that Eversource cannot comply by November 1, 2020, much less a justification that stands up to scrutiny. EPA must make an independent determination as to the appropriate compliance date based on an examination of the validity of the information submitted by the permittee and exercising its own judgment.

Even more fundamentally, EPA cannot make a bottom ash compliance date determination based on information withheld from the public. EPA's approach to Eversource's proprietary submission regarding the status of its secondary wastewater treatment system for FGD wastewater was to provide a redacted version in the administrative record, which allows for public review to the greatest extent possible. However, EPA has made no similar attempt to summarize or redact Eversource's justification regarding the bottom ash compliance date justification. The undersigned organizations have collectively reviewed dozens of NPDES permit applications concerning the appropriate ELG compliance dates for various facilities and

---

[10] Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67,837, 67,883 (Nov. 3, 2015) (internal footnotes omitted).
[11] Statement of Substantial New Questions at 59.
[12] Statement of Substantial New Questions at 59.

have never encountered a justification submitted by a permittee being withheld from the public as confidential business information. EPA cannot base a decision on the bottom ash compliance date for Merrimack without any rationale and without publicly disclosing the basis for its decision. As a legal matter, on the present record there is no basis to impose any compliance deadline other than November 1, 2020.

Moreover, there is compelling evidence that Eversource can, in fact, comply by November 1, 2020. As shown in the table below, in 24 other NPDES permit renewals, permitting authorities have proposed or finalized earlier compliance deadlines for bottom ash limits, demonstrating that it is, as a general matter, feasible for plants to achieve earlier compliance.[13]

State	Facility	Permit Number	Status	Date	Bottom Ash Compliance Date
FL	Crystal River North Station Units 4 & 5	FL0036366	Draft	8/26/2016	2/1/2020
IA	George Neal	IA0004103	Draft	10/5/2017	121/1/2020
IA	Ottumwa Generating Station (IP&L)	IA9000101	Draft	9/27/2017	6/1/2021
IA	IPL Lansing Generating Station	IA0300100	Final	6/1/2016	12/31/2021
IL	Hennepin Power Station	IL0001554	Draft	11/9/2016	4/1/2019
IN	A.B. Brown Generating Station	IN0052191	Final	2/28/2017	11/1/2018
IN	Clifty Creek Station	IN0001759	Final	3/28/2017	4/1/2022
IN	Merom Generating Station	IN0050296	Final	8/5/2016	11/1/2018
IN	Michigan City Generating Station	IN0000116	Final	3/30/2016	11/1/2018
IN	Petersburg Generating Station	IN0002887	Final	8/25/2016	11/1/2018
IN	F.B. Culley Generating Station	IN0002259	Draft	1/12/2017	11/1/2018
MI	Belle River Power Plant	MI0038172	Final	1/27/2017	12/31/2021
MO	Sioux	MO0000353	Final	4/1/2017	5/1/2021
NC	Allen Steam Station	NC0004979	Draft	10/28/2016	2/28/2021
NC	Belews Creek Steam Station	NC0024406	Draft	1/15/2017	5/31/2021
NC	Marshall Steam Station	NC0004987	Final	9/9/2016	1/31/2021
NC	Mayo Steam Electric Generating Plant	NC0038377	Draft	8/25/2016	11/1/2018
NC	Rogers Energy Complex (aka Cliffside)	NC0005088	Draft	9/21/2016	12/31/2020
NC	Roxboro Steam Electric Generating Plant	NC0003425	Draft	1/21/2017	4/30/2021
ND	Leland Olds Station	ND-0025232	Final	3/31/2017	11/1/2018
PA	Brunner Island	PA0008281	Draft	4/5/2017	1/1/2022

[13] The information in this table is based on data compiled by the Sierra Club.

SC	A.M. Williams Station	SC0003883	Final	11/16/2016	11/1/2018
VA	Chesterfield Power Station	VA0004146	Final	9/23/2016	11/1/2018
WI	Alma Site	WI0040223-08-0	Final	4/1/2017	1/1/2021

In addition, the Statement of Substantial New Questions reveals that Eversource already recycles wastewater from the slag settling pond, which primarily consists of bottom ash transport water, as make-up water in the Facility's FGD scrubber.[14] Because the 2015 Steam Electric ELGs allows for the discharge of bottom ash transport water when it is used in an FGD scrubber,[15] Eversource could potentially capture bottom ash transport water before it is sent to the slag settling pond and use it as FGD makeup water. This potentially provides a pathway for earlier compliance with the bottom ash ELGs compared to installation of a dry or closed-loop handling system for bottom ash. This change in operation could affect the characteristics of the FGD wastewater and, in turn, the need for water-quality based effluent limits on that wastewater, as noted above.

EPA's Statement of Substantial New Questions also reveals that in a letter dated April 20, 2017, Eversource "indicated to EPA that it will hold off on pursuing that plan [to comply by December 2022] in light of the postponement of the compliance deadline" and that it "plans to wait for the results of EPA's reconsideration of the ELGs before deciding on how to proceed."[16] That letter refers to the April 12, 2017 announcement by Administrator Pruitt that he would administratively stay the deadlines for an indefinite period of time,[17] which EPA has now withdrawn and replaced with a two-year postponement of the deadlines for the FGD and bottom ash standards.[18] In its rulemaking finalizing the two-year postponement, EPA emphasized that the standards for which it delayed the compliance deadlines remain in effect, despite the agency's ongoing reconsideration process.[19] Because the December 31, 2022 deadline that

---

[14] Statement of Substantial New Questions at 59, n.16.
[15] 40 C.F.R. § 423.13(k)(1)(i).
[16] *See* Statement of Substantial New Questions at 60, citing AR-1362 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to Mark Stein, Senior Assistant Regional Counsel, EPA Region 1).
[17] *See Postponement of Certain Compliance Dates for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, 82 Fed. Reg. 19,005 (Apr. 25, 2017) (notice signed by the Administrator on April 12).
[18] 82 Fed. Reg. at 43,496.
[19] 82 Fed. Reg. at 43,496 ("This maintains the 2015 Rule as a whole at this time, with the only change being to postpone specific compliance deadlines for two wastestreams."); see also U.S. EPA, Response to Comment Document, EPA-HQ-OW-2009-0819, SE06669, at 8 (The only thing the Postponement Rule does is revise the 2015 ELG Rule's new, more stringent compliance dates for two wastestreams discharged from existing sources (bottom ash transport water and flue gas desulfurization wastewater). Otherwise, it leaves the Rule unchanged."); *id.* at 12 ("EPA's action to postpone certain compliance dates in the 2015 rule . . . does not otherwise

Eversource had already requested is more than two years after the new presumptive "as soon as possible" date of November 1, 2020, that two-year postponement of the compliance deadline does not justify any later compliance date than what Eversource has already proposed, which as we noted above, EPA cannot accept based on the current state of the record.

In the April 20 letter, Eversource asserts that it will delay work toward compliance with the bottom ash standard so long as EPA is reconsidering that standard. EPA must not condone any cessation of efforts to comply with the bottom ash standard, which remains in effect, albeit with a delayed compliance date. To stop work on compliance with a standard that remains in effect, merely because it is being reconsidered, would effectively eliminate that standard before any evidentiary record has been put forward to justify doing so. Moreover, EPA has made clear that the bottom ash and FGD standards may not change at all as a result of the reconsideration process,[20] consistent with its obligation not to predetermine the outcome of its rulemaking process.

III. Responses to EPA Issues for Comment 11 and 12 (Changes at Merrimack Station)

A. EPA must not consider any drop in output at Merrimack Station.

EPA must not give any consideration for any current "substantial drop" in Merrimack's operation in determining NPDES permit limits for the facility, for three main reasons.

First, NPDES permits are set based on the facility's potential pollution, not historical performance. Unless coupled with operation restrictions, discharge limits may not be set based on what level of operation EPA suspects Merrimack *might* engage in, but only on what level of operation it is *allowed*.

Second, as EPA implicitly recognizes, while Merrimack's *annual* capacity factor may be lower in recent years than in years further back, it still operates quite heavily for short periods of time in the winter and in the summer. Setting limits based on annual output would improperly ignore Merrimack's high level of operations, and concomitant environmental impacts, during those periods of time. This would be particularly troublesome given the seasonality of the thermal impacts described above, where it is precisely the thermal pollution Merrimack causes during the winter that provides a toehold for invasive species and threatens the balanced indigenous population of aquatic species in the Merrimack river.

---

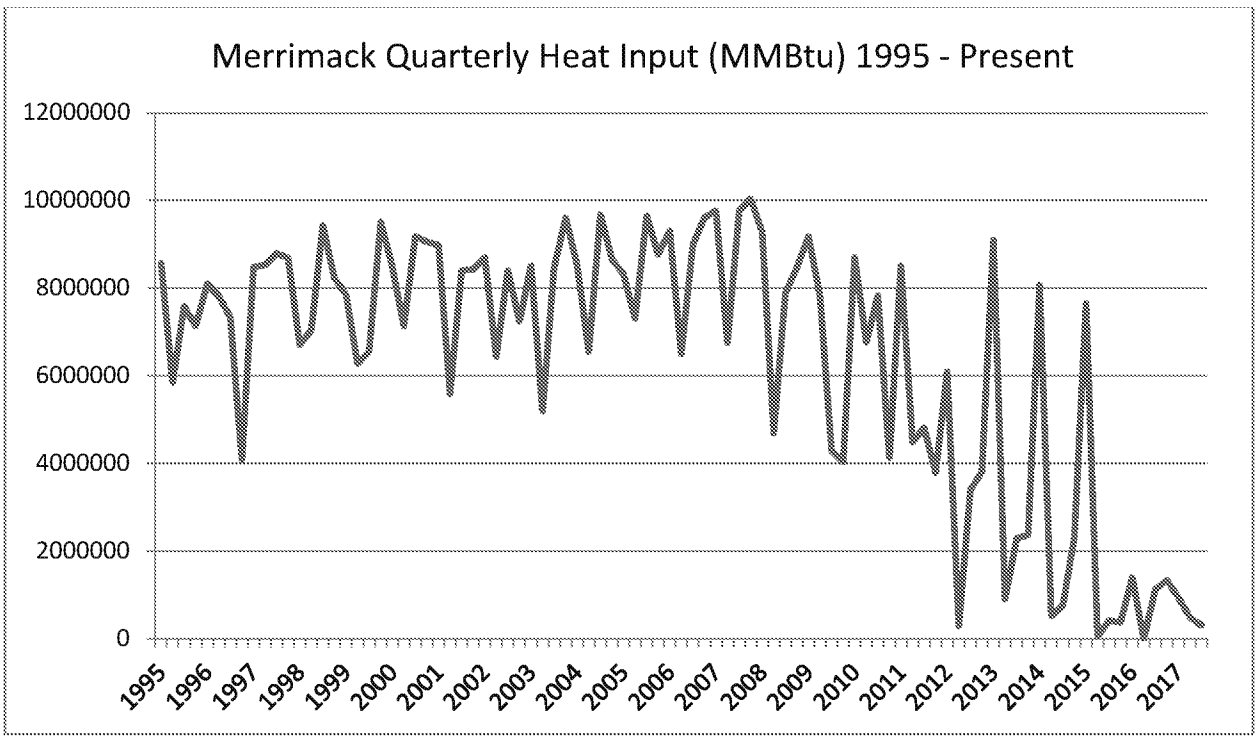
amend the effluent limitations guidelines and standards for the steam electric power generating point source category.")

[20] *See* Response to Comment Document, *supra*, at 6 ("It is possible that the costs, impacts and benefits of the rule may be unchanged after EPA completes its new rulemaking."); *id.* at 18 (dismissing concerns about negative water quality impacts of the delay as "speculative at this point in time as EPA has yet to alter any of the effluent limitations in the 2015 Rule").

ED_002514_00000413-00025

Third, the unfortunate fact is that EPA is extremely slow in issuing NPDES permits for large facilities in New Hampshire, and for Merrimack in particular. These comments are submitted as part of the third round of comments solicited by EPA on this one permit, in a process that started over five years ago. Indeed, Merrimack has been operating under a permit that expired two decades ago, and was issued a *quarter-century* ago. Although Commenters certainly hope that EPA will finalize this permit soon, and will thereafter hew to the five-year permit review cycle mandated by Congress, the history of this permit and this plant raises the possibility that whatever permit EPA does finalize for Merrimack may govern the plant's operation for many years to come. Just as Merrimack's operation has changed considerably in the past, it is possible that it will vary considerably in the future.

Figure 1: Merrimack Quarterly Heat Input, 1995-Present[21]



As such, it would be both irresponsible and contrary to law for EPA to set NPDES permit limits for Merrimack based on an assumption that, because the facility currently operates at a relatively low capacity utilization, certain wastestreams and pollution levels are unlikely to be relatively high in the future and therefore need not be limited.

Further, even an enforceable permit mechanism to "lock in" Merrimack's operation levels from 2016 and 2017 would be insufficient to prevent adverse impacts on the river's

[21] Data taken from EPA's Air Markets Program Data, *available at* https://ampd.epa.gov/ampd/.

ecosystem. The only way for EPA to take into consideration any "substantial drop" in Merrimack's operations would be to ensure that such reduced operations are written into the permit itself through operation restrictions. However, Merrimack's current relatively low annual capacity factor is coupled with significant swings in operation, including quarterly heat inputs characteristic of operations when Merrimack operated more continuously. Restricting Merrimack to operate in the future as it does currently would do little to nothing to address the negative environmental impacts the plant poses to the receiving waters discussed elsewhere in these comments. Accordingly, EPA should not give consideration to Merrimack's current overall capacity utilization as it finalizes the plant's long-overdue NPDES permit.

B. EPA must not consider the Merrimack auction.

EPA cannot take into account the completed auction and imminent sale of Merrimack Station in setting NPDES permit limits for Merrimack Station, for multiple key reasons.

First and foremost, as discussed above, none of the considerations that EPA, as permitting authority, must undertake in setting substantive NPDES permit conditions and limits include any reference to the particular owner of a facility. Whichever corporate entity owns Merrimack Station does not play into, for example, EPA's obligations to use its best professional judgment to set technology-based effluent limitations, or to assess water quality-based effluent limitation needs; nor does the ownership of the facility impact EPA's obligation to undertake assessments of best available technology (or best technology available) for control standards at the facility. Ultimately, the substance of the NPDES permit hinges on the pollution profile and impacts of the plant itself, not whoever owns it.

Second, the auction process has been completed and the New Hampshire Public Utilities Commission has entered an order approving the sale of Merrimack Station and Eversource's other fossil-fired generating plants to Granite Shore Power LLC, with the sale's finalization anticipated to occur early in 2018.[22] As such, there is little to no remaining uncertainty as to the owner of Merrimack.

Finally, even if such indications were relevant, the new owner of Merrimack Station has provided no indication that it intends to accept federally-enforceable operation restrictions that would have any meaning for the pollution impacts EPA must address in this NPDES permit. If, for example, Granite Shore Power LLC wished to retire Merrimack, or to eliminate the intake of water for cooling purposes and the discharge of heated water, those decisions may ultimately need to be reflected in a modification to Merrimack's NPDES permit. However, absent such

[22] *See* New Hampshire PUC Order No. 26,078 (Nov. 28, 2017), Docket DE 17-124, *available at* https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-124/ORDERS/17-124_2017-11-28_ORDER_26078.PDF.

decisions, the change in ownership at Merrimack can have no substantive impact on the permit that EPA finalizes.[23]

CONCLUSION

Please do not hesitate to contact the undersigned if you have any questions about these comments. Thank you in advance for your consideration of these important issues.

Sincerely,

Edan Rotenberg
Mike DiGiulio
Super Law Group, LLC
180 Maiden Lane, Suite 603
New York, NY 10038
212-242-2355 (office)
edan@superlawgroup.com
mike@superlawgroup.com

Casey Roberts
Sierra Club Environmental Law Program
1536 Wynkoop St., Suite 312
Denver, Colorado, 80202
(303) 454-3355
casey.roberts@sierraclub.org

Zachary M. Fabish
Sierra Club Environmental Law Program
50 F Street, NW - 8th Floor
Washington, DC 20001
(202) 675-7917
zachary.fabish@sierraclub.org

Thomas Cmar
Earthjustice
1101 Lake Street, Ste. 405B
Oak Park, IL 60301
tcmar@earthjustice.org
(312) 257-9338

[23] Nor should EPA further delay issuance of this NPDES permit based on the possibility that Granite Shore Power LLC might at some future date decide that it wishes to operate Merrimack in a way fundamentally different than does Eversource. This permit is already decades overdue, and additional delay only serves to extend and exacerbate the environmental harm that Merrimack causes.

ED_002514_00000413-00028

Abel Russ
Environmental Integrity Project
1000 Vermont Ave NW, Suite 1100
Washington, DC 20005
(802) 482-5379
aruss@environmentalintegrity.org

Caitlin Peale Sloan
Conservation Law Foundation
62 Summer Street
Boston, MA 02110
(617) 850-1770
cpeale@clf.org

ED_002514_00000413-00029