

SUPER LAW GROUP, LLC

January 7, 2020

Via email

Sharon DeMeo
U.S. Environmental Protection Agency – Region 1
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Re: **Merrimack Station, Bow, NH; NPDES Permit No. NH0001465**
Thermal Discharges

Dear Ms. DeMeo:

We are writing on behalf of Sierra Club and Conservation Law Foundation regarding EPA's process for renewing the NPDES permit for the Merrimack Station in Bow, New Hampshire. This letter concerns thermal discharge issues in the permit renewal process.

It has been more than eight years since EPA found that "compelling evidence of appreciable harm" to the Hooksett Pool requires denial of PSNH's application for a variance from applicable technology-based standards and determined that the Best Available Technology for thermal discharges is conversion of the Station's antiquated once-through cooling system to closed-cycle cooling. EPA should proceed to finalize those determinations and the 2011 draft permit without further delay.

If, however, EPA proposes to change its 2011 variance determination and/or substantially revise the permit's thermal discharge provisions, then the agency would have to comply with several mandatory obligations imposed by the Administrative Procedure Act (APA) and the Clean Water Act (CWA), as described below.

EXECUTIVE SUMMARY

Merrimack Station's antiquated once-through cooling system withdraws extremely large volumes of water – nearly 200,000 gallons a minute at its peak – from the Merrimack River and discharges waste heat back to a shallow, confined section of the river, resulting in thermal plumes that harm its fish populations, habitat, and aquatic ecology.

In 2011, EPA issued a draft NPDES permit for the Station. Based on the agency's independent assessment of "compelling evidence of appreciable harm to the balanced, indigenous fish community of Hooksett Pool" caused by the Station's thermal discharge, EPA stated that it must deny the company's application for a

variance under CWA section 316(a). The draft permit thus contains thermal discharge requirements commensurate with the Best Available Technology (BAT), closed-cycle cooling, that limit the amount of heat the Station may discharge to the river monthly and annually, as well as additional limitations on the thermal plume. EPA explained the extensive evidence, its decisionmaking process, and why the proposed requirements are necessary to protect water quality in the Hooksett Pool in an extremely detailed and comprehensive discussion spanning more than 200 pages of its permit determinations document.

In 2014, while making other changes to other aspects of the permit, EPA issued a new draft NPDES permit for the Station containing exactly the same thermal discharge provisions as the 2011 draft permit.

In 2017, without issuing a new draft permit, EPA sought public comment on a limited set of questions relating to the 2011 and 2014 draft permits. In particular, EPA stated that it was considering strengthening the permit to add shorter-term thermal conditions (in addition to the monthly and annual heat limits) in order to protect indigenous species that are especially sensitive to short-term temperature excursions. EPA also expressed concern that by heating the river during the winter the Station was increasing the reproductive success, growth, and abundance of an invasive species in the Hooksett Pool, the Asian clam.

In 2018, Granite Shore Power (GSP)¹ acquired the Station. Since then, rather than finalizing the NPDES permit, EPA has instead met with GSP frequently to discuss possible changes to the permit. Documents obtained through the Freedom of Information Act indicate that EPA and GSP have exchanged “discussion drafts” of new thermal discharge requirements for possible inclusion in a revised version of the Station’s NPDES permit. Those “discussion draft” provisions differ dramatically from the thermal discharge requirements in the 2011 and 2014 draft permits.

EPA should proceed to issue a final NPDES permit for Merrimack Station with thermal discharge requirements matching those in EPA’s 2011 and 2014 drafts. If, however, EPA proposes to depart from its previous drafts and issue a permit fundamentally different from what it proposed twice before, the agency must subject the new draft thermal discharge requirements – as well as any new evidence, rationale, and conclusions – to public notice and comment. A permit resembling the “discussion draft” recently exchanged between EPA and GSP would plainly not be a “logical outgrowth” of the 2011 and 2014 draft permits.

¹ Granite Shore Power LLC and GSP Merrimack LLC are referred to collectively as “GSP.”

Sierra Club and Conservation Law Foundation hereby request, and are legally entitled to, a formal opportunity to review (with the assistance of their technical experts) and submit comments on any new draft permit provisions that are not a logical extension of the prior drafts.

Furthermore, one set of effluent limitations contained in the Station's existing, 1992, permit – *i.e.*, the limitations restricting the Station's thermal plume, which were continued (with one addition) in the 2011 and 2014 draft permits – must be included in any future draft or final permit for the Station, regardless of any other thermal requirements EPA decides to include. The CWA's anti-backsliding rule prohibits renewed, reissued, or modified NPDES permits from containing effluent limitations less stringent than those in the previous permit. Accordingly, EPA is foreclosed from removing the thermal plume effluent limitations that have been in the Station's permit since at least 1992 (and which are also in all or virtually all other EPA-issued NPDES permits for power plants located on rivers in New England).

Finally, to avoid decisionmaking that is arbitrary and capricious and therefore impermissible under the APA, EPA must have supporting evidence in the record, make a reasoned determination, and provide an explanation that rationally connects the facts found to the choice made. These essential features of proper agency decisionmaking currently exist for the 2011 permit, but have not been provided for any substantially different permit.

**EPA SHOULD ISSUE A FINAL NPDES PERMIT
CONSISTENT WITH ITS 2011 THERMAL DETERMINATIONS
AND THE 2011/2014 DRAFTS, WITHOUT FURTHER DELAY**

For the following reasons, we ask that EPA proceed to finalize the thermal discharge permit requirements the agency first issued in draft form in 2011.

The Merrimack Station, built in the 1960s, utilizes an antiquated, once-through cooling system. Since 2001, virtually all new power plants have been required to have closed-cycle cooling systems.² But even before that requirement became law, the power industry was rapidly moving to closed-cycle cooling. Roughly three-quarters of the coal-fired power plants and all of the large combined-cycle power plants built in the 1980s and 1990s have closed-cycle cooling systems.³ As we enter the third decade of the 21st century, the Merrimack Station still lacks

² 40 C.F.R. § 125.84(b)(1).

³ 66 Fed. Reg. 28853, 28855-56 (May 25, 2001).

cooling technology that became commonplace in the last quarter of the last century.

Once-through cooling systems like that at the Station withdraw massive volumes of water from natural waterbodies and discharge their waste heat back to the same waterbody, creating thermal plumes that cause adverse environmental effects. The once-through cooling system at Merrimack Station withdraws nearly 200,000 gallons per minute (287 million gallons per day) from the Merrimack River and returns that water, heated well above ambient temperatures, to the River's Hooksett Pool, where it causes extensive harm to aquatic life and its habitat.

A. The Hooksett Pool's Aquatic Habitat Is "Particularly Vulnerable" to the Effects of the Station's Thermal Discharges.

The Merrimack River is an important public resource, prized by communities in New Hampshire and Massachusetts for its wildlife, aesthetic values, prominent role in the history of the region, and for the fishing, boating and other recreational opportunities it affords. The Hooksett Pool is a relatively shallow, short, and slow-moving river impoundment, extending approximately 5.8 miles downstream from Garvin's Falls Dam to Hooksett Dam. As EPA itself has explained: "These characteristics make the aquatic habitat in Hooksett Pool particularly vulnerable to the effects of Merrimack Station's thermal discharge."⁴

Because the river's flow in Hooksett Pond is sometimes less than the 200,000 gallons per minute withdrawn by the Station's cooling system, the Station has the capacity to utilize more than 100 percent of the river volume during coincident periods of low flow and maximum power generation.⁵ While the Station has not reported an incident recently where 100 percent of the pool's available flow was required for cooling water purposes, EPA calculated that the plant may have withdrawn approximately 95 percent of the available river flow at times.⁶ More typically, the Station redirects up to 62 percent of the available river flow under low-flow conditions. "EPA regards this to be a large fraction of the available river flow."⁷ The enormous volumes of water withdrawn from the river by the Station are discharged back into Hooksett Pool at temperatures up to 104°F (40°C) under peak

⁴ EPA Region 1 - New England, 2011 Fact Sheet, Attachment D, *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 0001465* (hereinafter, "2011 Thermal Determinations") at 37.

⁵ 2011 Thermal Determinations at 37. In such conditions, water from the Station's discharge canal may flow upstream. *Id.* at 37-38.

⁶ 2011 Thermal Determinations at 38.

⁷ 2011 Thermal Determinations at 38.

summer conditions.⁸

B. The Station’s Existing Permit Is Based on a CWA § 316(a) Variance Granted by EPA in 1992 Without Independent Evaluation and Lacks Numeric Maximum Temperature Limits, but Includes Important Effluent Limitations on the Thermal Plume.

GSP currently operates Merrimack Station under the terms of a 1992 NPDES permit (the “1992 Permit”) that expired in 1997, but has been administratively continued for more than twenty-two years. The thermal discharge provisions in the 1992 Permit were based on a variance EPA granted in 1992 under CWA section 316(a), which permits the Station 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 (BAT). The 1992 Permit also regulates thermal discharges under New Hampshire water quality standards.

EPA has frankly admitted that “EPA’s previous 316(a) variance request determinations appear to have relied heavily on Merrimack Station’s interpretation of its own data in assessing thermal impacts to Hooksett Pool” and that the agency had not, until 2011, “conducted a detailed independent evaluation.”⁹

1. The 1992 Permit lacks numeric maximum discharge temperature limits.

The 1992 Permit contains no numeric maximum discharge temperature limits. As EPA admits, the absence of numeric maximum discharge temperature limits is “unusual, perhaps even unique” as compared with the permits for other large power plants in New England.¹⁰ EPA Region 1 has issued NPDES permits with numeric maximum discharge temperature limits for the Brayton Point station in Massachusetts, the Vermont Yankee station in Vermont, and the Seabrook Station and Newington Energy station in New Hampshire, among others.¹¹

⁸ 2011 Thermal Determinations at 38.

⁹ 2011 Thermal Determinations at 28; *see also id.* at 27 (agency’s prior CWA “§ 316(a) variance determinations seem to have relied predominantly on the plant’s assessment of the thermal discharge’s impacts to Hooksett Pool based on the facility’s assessment of its own data”).

¹⁰ 2011 Thermal Determinations at 27.

¹¹ 2011 Thermal Determinations at 27.

2. The 1992's Permit's "power spray module" conditions are inadequate, do not prohibit excess temperatures, and have not been complied with.

Instead of numeric temperature limits above which discharges are prohibited, the 1992 Permit contains other temperature-related provisions. One such permit provision requires that when temperature criteria specified in the permit are reached, the plant must operate its "power spray module" (PSM) system designed to cool the heated water in the Station's discharge canal before it reaches the main stem of the river.¹² This condition was originally included in the Station's 1979 NPDES permit, retained in later permits, and "intended to protect cold water fisheries."¹³

However, the PSM condition does not prohibit thermal discharges when certain temperature thresholds are exceeded; it only requires operation of the PSMs under such circumstances. Moreover, as EPA has acknowledged, the PSM system has "limited cooling capacity"¹⁴ and in-river temperature criteria in the PSM provision "have regularly been exceeded in the summer."¹⁵

3. The 1992 Permit contains important effluent limitations on the thermal plume designed to protect the Merrimack River and achieve compliance with water quality standards.

While it lacks numeric maximum temperature limits, the 1992 Permit does

¹² 2011 Thermal Determinations at 27. Specifically, the 1992 Permit states: "The power spray module system (PSM) shall be operated, as necessary, to maintain either a mixing zone (Station S-4) river temperature not in excess of 69°F, or a station N-10 to S-4 change in temperature (Delta-T) of not more than 1°F when the N-10 ambient river temperature exceeds 68°F. All available PSM's shall be operated when the S-4 river temperature exceeds both of the above criteria." *Id.*, 1992 Permit at 11.b.

¹³ 2011 Thermal Determinations at 27.

¹⁴ 2011 Thermal Determinations at 134 ("The limited cooling capacity of the PSM system is illustrated by the hypothetical permit conditions that PSNH says Merrimack Station could meet. According to PSNH, if a new permit were written with an enforceable limit on the ΔT between Stations N-10 and S-4, the allowed temperature differential would have to be *at least 19°F* in order for the plant to be able to comply with the permit at bounding low river flow conditions with the existing canal and PSM configuration. PSNH November 2007 CWA § 308 Response at ix.") (emphasis in original).

¹⁵ 2011 Thermal Determinations at vii. *Id.* at 28 ("[T]he permit record does not indicate that any attempt was ever made to verify that the target temperatures were being achieved. EPA's present review of over 20 years of temperature monitoring data has demonstrated that, at least during summer months, the target temperatures have not been maintained.").

contain important effluent limitations restricting the thermal plume. Specifically, the permit requires that “[t]he combined thermal plumes for the station shall: (a) not block the zone of fish passage, (b) not change the balanced indigenous population of the receiving water, and (c) have minimal contact with the surrounding shorelines.¹⁶

These effluent limitations are a common – indeed, nearly ubiquitous – feature of EPA-issued power plant NPDES permits in New England, especially for power plants that discharge thermal plumes into rivers, whether or not those permits contain numeric maximum temperature limits. (See further discussion below.)

The 1992 Permit also specifies that discharges should not violate any applicable water quality standards. The permit states:

The discharges shall not jeopardize any Class B use of the Merrimack River and shall not violate applicable water quality standards. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged at the frequency and level disclosed in the application, provided that such discharge does not violate section 307 or 311 of the Act or applicable water quality standards.¹⁷

Permit provisions like this, prohibiting violations of state water quality standards, are also a standard feature of NPDES permits, not only for thermal discharges from power plants but also for pollutant discharges from facilities of all kinds. They serve an important function by explicitly incorporating state water quality standards into NPDES permits, especially where the balance of the permit’s provisions does not otherwise assure compliance with those standards. In New Hampshire, applicable water quality standards for Class B waters like the Merrimack River include narrative protections for aquatic life, species diversity, habitat, and recreational uses like fishing, as well as numeric limits on dissolved oxygen.¹⁸

¹⁶ 1992 Permit, Part I.A (“Effluent limitations and Monitoring Requirements”) at I.A.1.g.

¹⁷ 1992 Permit, Part I.A (“Effluent limitations and Monitoring Requirements”) at I.A.1.b.

¹⁸ See, e.g., N.H. Rev. Stat. Ann. § 485-A:8(II); N.H. Code R. Env-Wq § 1703.01(b), 1703.07(b), 1703.19(a), (b).

C. In 2011, EPA Rejected Merrimack Station’s Request for a Thermal Discharge Variance and Issued a Draft NPDES Permit Setting Maximum Temperature Discharge Limits Based on the Best Available Technology, Closed-Cycle Cooling.

The Station’s former owner, Public Service of New Hampshire (“PSNH”), now doing business as Eversource Energy, requested renewal of its thermal discharge variance under CWA section 316(a) and requested a new permit “with thermal discharge conditions matching those in the existing permit.”¹⁹ In reviewing the Station’s renewal application and issuing a draft permit in 2011, EPA noted that, rather than merely relying on the company’s interpretation of its own data in assessing thermal impacts to Hooksett Pool (as it had done in the past), the agency “considered the plant’s data and analyses, but . . . also . . . conducted a detailed independent evaluation of existing and new information . . . [and] coordinated with both state and federal scientists and regulators.”²⁰

EPA’s “detailed independent evaluation” yielded numerous important conclusions and findings of fact, including that:

- PSNH failed to demonstrate that Merrimack Station’s thermal discharge has not caused appreciable harm to the Hooksett Pool’s “balanced indigenous population” of shellfish, fish, and wildlife in and on the body of water into which the discharge is made (hereinafter, the “BIP”);
- To the contrary, the “evidence as a whole indicates that Merrimack Station’s thermal discharge *has* caused, or contributed to, appreciable harm to Hooksett Pool’s BIP.” For example:
 - “The Hooksett Pool fish community has shifted from a mix of warm and coolwater species to a community now dominated by thermally-tolerant species”;
 - “The abundance for all species combined that comprised the BIP in the 1960’s has declined by 94 percent;” and
 - “The abundance of some thermally-sensitive resident species, such as yellow perch, has significantly declined.”

¹⁹ 2011 Thermal Determinations at viii.

²⁰ 2011 Thermal Determinations at 28-29

- PSNH did not demonstrate that thermal discharge limits consistent with once-through (or open-cycle) cooling would reasonably assure the protection and propagation of the BIP.
- PSNH did not demonstrate that thermal discharge limits based on applicable technology-based and water quality-based requirements would be more stringent than necessary to assure the protection and propagation of the BIP.²¹

EPA therefore “determined that it *must reject* Merrimack Station’s request for a CWA § 316(a) thermal discharge variance.”²²

EPA’s 2011 analysis was described at length over more than 200 pages in a permitting determination document for the Station’s thermal discharges (and cooling water intake structures). In that assessment EPA found “*compelling evidence of appreciable harm to the balanced, indigenous fish community of Hooksett Pool.*”²³ EPA elaborated on this “compelling evidence” as follows:

EPA concludes that the capacity of the plant’s thermal discharge to adversely impact the balanced, indigenous fish community of Hooksett Pool is significant. The weight of evidence provided in Merrimack Station’s Fisheries Analysis Report and earlier reports points to a significant shift in the fish community away from what was the balanced, indigenous community of the 1960s and early 1970s, to the more heat-tolerant community that exists today. In addition, not only has the fish community composition changed substantially, but sampling data suggests that overall fish abundance has dropped significantly, as well. Such a shift in community and in overall abundance indicates a degraded habitat no longer able to support the fish community that existed in the 1960s, or early 1970s. Changes in the fish community exceed those expected from natural variation alone. Introductions of fish species since the 1970s, whether intentional or accidental, have no doubt affected the resident, indigenous fish community. However, since virtually all are warmwater species, their ability to compete successfully with temperature-sensitive indigenous species may also be a consequence of Merrimack Station’s thermal

²¹ 2011 Thermal Determinations at viii.

²² 2011 Thermal Determinations at ix (emphasis added).

²³ 2011 Thermal Determinations at 118 (emphasis added).

discharge.²⁴

EPA also summarized some of the more notable evidence of Merrimack Station's thermal effects on the balanced, indigenous community, including:

1. “During summer low-flow conditions, Merrimack Station's thermal plume can extend from the end of the Discharge Canal . . . approximately 2.9 miles to . . . just above Hooksett Dam. This represents approximately 50 percent of the surface area of Hooksett Pool. Elevated temperatures attributable to Merrimack Station's thermal discharge are also recorded . . . immediately downstream of Hooksett Dam.”
2. “Given the relatively shallow depths of Hooksett Pool (generally 10 feet or less), the thermal plume can affect one- to two-thirds of the water column in the deepest areas during summer conditions. Most, if not all, of the shallower areas along the shorelines can be affected by the thermal plume downstream from the discharge. These shallow shoreline areas are important habitat for juvenile fish.”
3. “Based on a 21-year data set . . . water temperature[s] reached or exceeded 100°F (37.8°C) . . . in July and August, with the highest temperature reaching 104°F (40.0°C).”
4. “The thermal plume extends across the entire width of Hooksett Pool during typical summer conditions. As a result, surface-oriented organisms, including larval yellow perch, white sucker, and American shad, which have limited or no ability to avoid stressful thermal conditions, are exposed to plume temperatures while drifting past the discharge canal that have been demonstrated in controlled studies to cause acute lethality to these species.”
5. “Under extreme low-flow conditions, Merrimack Station presently redirects up to 83 percent of the Merrimack River flow through the plant . . . Under these conditions, the discharged water can be up to 23.8°F (13.1°C) warmer than ambient temperatures in the river.”
6. “Following the start-up of Unit 2 in 1968, the plant's design

²⁴ 2011 Thermal Determinations at 118.

withdrawal rate was 286 [million gallons per day] of river water . . . At that rate, and using the same [lowest average discharge], the plant would have been withdrawing 75 percent of the total river flow under low-flow conditions. Shorter periods of extreme low flows have resulted in the withdrawal of even a greater percentage of the river's available flow for cooling [which] has caused the heated water from the discharge canal to flow upstream in Hooksett Pool . . .”

7. “Dissolved oxygen (‘DO’) studies revealed low-DO conditions immediately above Hooksett Dam. The study, conducted by PSNH, stated that the thermal plume from Merrimack Station caused stratification that contributed to low-DO conditions.”
8. “Once-abundant populations of coolwater species, such as yellow perch and white sucker, have significantly declined since the 1960s and 1970s. Heat-tolerant species such as bluegill, largemouth bass and smallmouth bass, now dominate.”
9. “Yellow perch and white sucker largely avoided areas of the Hooksett Pool experiencing elevated temperatures associated with Merrimack Station’s thermal discharge during August and September. . . .”
10. “Thermal conditions created by Merrimack Station’s plume are not protective of juvenile alewife during August and early September.”
11. “A comparison between the fish communities in Hooksett Pool and Vernon Pool (Connecticut River) demonstrates that temperature-sensitive species such as yellow perch have been competing successfully with introduced heat-tolerant species such as bluegill in the Vernon Pool, but not in the Hooksett Pool. Similarly, data collected by [New Hampshire Fish and Game Department] in 2007 suggests that the yellow perch population just upstream of Hooksett Pool is robust relative to other species, including bluegill.”
12. “The attraction of yellow perch to the thermal plume during colder months has been documented, which has potential implications for the species’ ability to successfully reproduce following prolonged exposure to the warmer water.”

13. “In addition to affecting fish directly, the rise in temperature of the cooling water has a significant effect on the plankton suspended in it downstream from the discharge, according to studies conducted in the 1960s for Merrimack Station. Zooplankton . . . which are important forage for larval and juvenile fish, were among the most susceptible. A significant fraction of the zooplankton forage base is likely exposed to high temperatures (often exceeding 100 degrees during the summer) and physical stressors, particularly under low-flow conditions when up to 83 percent of the river water is drawn into the plant, heated, and discharged back into the river.”²⁵

After rejecting PSNH’s request for a CWA section 316(a) variance, based on that “compelling evidence,” EPA determined that “converting the current open-cycle cooling system to a closed-cycle cooling system using ‘wet’ cooling towers” is the Best Available Technology (BAT) for thermal discharges at Merrimack Station.²⁶ EPA noted that closed-cycle cooling technology “could reduce the thermal discharge from Merrimack Station into Hooksett Pool by approximately 99.5%.”²⁷ Based on this determination, EPA developed a set of thermal discharge limits consistent with the use of closed-cycle cooling technology. In particular, EPA established heat limits, expressed as the maximum amount of BTUs (British Thermal Units) the Station may add to the river in each month of the year, as well as an annual limit. Those limits were included in the draft NPDES permit that EPA issued for public comment on September 30, 2011 (hereinafter, the “2011 Draft Permit”).

In addition, Part I.A.23 of the 2011 Draft Permit includes the effluent limitations on the thermal plume that are in the 1992 Permit with one additional restriction in subsection (d):

Any thermal plume from Outfall 004D (intake de-icing water) or 003 (Discharge Canal) at Merrimack Station shall (a) not block the zone of fish passage, (b) not change the balanced indigenous population of organisms utilizing the receiving water, (c) have minimal contact with the surrounding shorelines, and (d) *not cause acute lethality to swimming or drifting organisms, including those entering the discharge canal at Outfall 003.*²⁸

²⁵ 2011 Thermal Determinations at 118-120.

²⁶ 2011 Thermal Determinations at 122.

²⁷ 2011 Thermal Determinations at 122.

²⁸ 2011 Draft Permit (NPDES Permit No. NH0001465) at Part I.A.23, Page 25 of 29 (emphasis

Likewise, Part I.A.14 of the 2011 Draft Permit includes the effluent limitation prohibiting violations of state water quality standards, almost verbatim from the 1992 Permit, with the addition that neither discharges, *nor water withdrawals*, from the Station may impair designated uses or violate state standards:

Discharges and water withdrawals from Merrimack Station shall not jeopardize or impair any Class B use of the Merrimack River and shall not cause a violation of the water quality standards of the receiving water. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged at the frequency and level disclosed in the application, provided that such discharge does not violate Clean Water Act Sections 307 or 311, or applicable water quality standards.²⁹

D. In 2014, EPA Re-Issued the Draft NPDES Permit with No Changes to Any of the Thermal Discharge Requirements.

Three years later, in 2014, EPA issued a second version of the Merrimack Station's draft permit for public comment (hereinafter, the "2014 Draft Permit"). In the 2014 Draft Permit, EPA revised its determination of Best Available Technology for discharges of a wastewater stream *other* than thermal discharges from the Station's cooling system. Specifically, EPA determined that, based on public comments received during the comment period on 2011 Draft Permit and additional information the agency had gathered since then, vapor compression evaporation (VCE) technology is BAT for the Station's discharges of wastewater from its wet flue-gas desulfurization (FGD) scrubber. EPA thus gave public notice that it was reconsidering and revising particular provisions of the 2011 Draft Permit, specifically the effluent limits and reporting requirements for Outfall 003C at Part I.A.4 and for Outfall 003A at Part I.A.2 of the draft permit.

Significantly, despite having also received substantial comments from PSNH in objection to the thermal discharge determinations EPA made in 2011, EPA did *not* state in its 2014 public notice, or in the 2014 Draft Permit, or in its fact sheet, that EPA was reconsidering, revising, or reopening any of its thermal discharges determinations or permit provisions.

Indeed, the 2014 Draft Permit issued for public comment retains all of the

added).

²⁹ 2011 Draft Permit (NPDES Permit No. NH0001465) at Part I.A.14, Page 23 of 29.

thermal discharge effluent limitations – those based on closed-cycle cooling, as well as the effluent limitations that restrict the thermal plume and the prohibition against violating state water quality standards – verbatim from the 2011 Draft Permit.

E. In 2017, EPA Sought Public Comment on “New Questions” Related to Temperature Data and an Invasive Species in the Merrimack River, But Did Not Change Its Thermal Discharge Determinations, Did Not Issue a New Draft NPDES Permit, and Limited the Public’s Opportunity to Comment to Only Certain Issues.

In 2015, PSNH told EPA that it believed that the agency had misunderstood some of the company’s temperature data and acknowledged that “[a]dmittedly, any misinterpretation of the data by the agency is due to a lack of clarity in [PSNH’s] Report itself.”³⁰ Specifically, PSNH stated that certain temperature data that the company presented as though they were averages of daily maximum temperatures for each day of the calendar year, actually represented the highest daily maximum temperatures for each of those days over a 21-year period.³¹

After requesting more information from PSNH, EPA issued a 2017 public notice in which it stated that “it did, indeed, appear that the agency had misunderstood the earlier temperature data because of confusing aspects of how it was presented.”³² As a result, in 2017, EPA stated that it was “now re-evaluating its conclusions presented in the 2011 Draft Permit Determinations (AR-618) that were based on the agency’s original interpretation of the temperature data.”³³ Further, EPA explained:

PSNH’s clarifications about the data have also led EPA to reconsider the ways in which the effects of elevated temperatures can be usefully evaluated to support the development of thermal discharge limits that are adequately protective of the biological community in the affected receiving water. Thus, EPA has reevaluated the use of these data in its assessment of PSNH’s thermal variance request and presently concludes that the single-day data submitted by [PSNH’s consultant] can, in fact, provide one useful metric for assessing the effects of

³⁰ AR-1367.

³¹ AR-1367.

³² EPA Region 1 – New England, Statement of Substantial New Questions for Public Comment, Merrimack Station (NPDES Permit No. NH0001465) (hereinafter “2017 Statement of New Questions”) at 39.

³³ 2017 Statement of New Questions at 39.

Merrimack Station’s thermal discharge. While considering long-term averages has utility for evaluating thermal discharge impacts, looking *only* at long-term averages would obscure more extreme conditions that fish and other aquatic life might be exposed to over shorter, but still biologically significant periods of time.

For example, such shorter, but impactful periods could occur during the summer when the plant is in full operation during low river flow and high ambient temperature conditions. Such temperature and flow extremes would be masked by only considering the data averaged over the full 21-year period. Consequently, in response to PSNH’s clarification of the data it had submitted, *EPA is now also reevaluating the effects of shorter-term thermal conditions, particularly on species that may be especially sensitive to such temperature excursions in relation to their ability to survive and compete with more thermally-tolerant species.*³⁴

Thus, EPA “invite[d] additional public comment addressing the above-discussed issues and materials relevant both to EPA’s decision on PSNH’s CWA § 316(a) variance application and to EPA’s application of New Hampshire water quality standards with regard to thermal effects.”³⁵ In particular, EPA invited public comment on:

- the import of PSNH’s new data submissions for EPA’s application of CWA § 316(a) and New Hampshire’s water quality standards in developing thermal discharge standards for the Merrimack Station permit;
- the question of how shorter-term and longer-term thermal data should be factored into the evaluation under CWA § 316(a) and New Hampshire’s water quality standards of the effects of Merrimack Station’s thermal discharges on the Hooksett Pool and the development of thermal discharge limits for the Merrimack Station permit; and
- Specific thermal data and related material submitted by PSNH and its consultants, *i.e.*, AR-1352 (Attachments 2 and 3), AR-1367, AR-1298, and AR-1299 through AR-1307.³⁶

³⁴ 2017 Statement of New Questions at 39-40 (emphasis added).

³⁵ 2017 Statement of New Questions at 40.

³⁶ 2017 Statement of New Questions at 40-41.

In addition, in its 2017 public notice EPA stated that the agency had become “aware of the presence of non-native organisms in Hooksett Pool; in particular, the Asian clam (*Corbicula fluminea*) . . . notably concentrated in areas of Hooksett Pool with water temperatures directly affected by the plant’s thermal discharge.”³⁷ EPA stated that it “found this discovery worthy of further research because of the possibility that Merrimack Station’s thermal discharge was contributing to the presence and/or prevalence of the Asian clam in the Hooksett Pool and the potential relevance of such a finding to regulating the Facility’s thermal discharges” under the Clean Water Act and the requirements in New Hampshire water quality standards for the protection of local aquatic life.³⁸

EPA also noted that when the Station is operating, one of its most visible thermal effects can occur during periods in the winter when the river just upstream of the discharge canal is completely ice-covered, but the river is ice-free for miles downstream of the discharge canal, including in the waters of Amoskeag Pool below Hooksett Dam.³⁹ EPA reviewed scientific publications on the relationship between Asian clams and thermal discharges from power plants, which found that higher winter survival rates of Asian clams occurred 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.⁴⁰

EPA thus invited public comments addressing the presence of the Asian clam in the Hooksett Pool and the import of this information for setting thermal discharge limits for the Merrimack Station permit under the CWA and/or New Hampshire water quality standards.⁴¹

Significantly, nothing in the 2017 Statement of New Questions alerted the public that EPA had undertaken or might consider undertaking a complete reexamination of the “compelling evidence of appreciable harm to the balanced, indigenous fish community of Hooksett Pool” that the agency had independently evaluated in developing the 2011 Draft Permit and had not revisited in the 2014 Draft Permit. Indeed, the overall thrust of the thermal discharge questions in EPA’s 2017 Statement of New Questions suggested that the agency was considering

³⁷ 2017 Statement of New Questions at 41.

³⁸ 2017 Statement of New Questions at 41.

³⁹ 2017 Statement of New Questions at 41.

⁴⁰ 2017 Statement of New Questions at 42.

⁴¹ 2017 Statement of New Questions at 43.

strengthening the thermal discharge requirements in order to ensure compliance with New Hampshire water quality standards or that EPA might be developing additional reasons why a CWA section 316(a) variance was inappropriate for the Station. In particular, EPA's questions expressed concern that (i) looking only at long-term averages and ignoring single-day data would obscure more extreme conditions that especially sensitive fish and other aquatic life might be exposed to over shorter, but still biologically significant periods of time; and (ii) the Station's thermal plume was harboring the invasive Asian claim and thereby further altering the Hooksett Pool's indigenous aquatic communities.

While any draft determination remains open to change until finalized, EPA's 2017 Statement of New Questions raised only questions and did not provide any basis for or explanation of a change to EPA's 2011 and 2014 determinations to reject PSNH's variance application, did not propose any new approach to the thermal discharge permit provisions for the Station (other than potentially adding shorter-term limits), did not issue a new draft permit for public comment, and did not seek comment on the general content of or specific language for any new thermal discharge permit provisions. In contrast, the public notice expressly limited the scope of public comment. EPA's notice stated: "In accordance with 40 C.F.R. § 124.14(c), the comment period for the Draft Permit is *not* being reopened 'across the board.' It is, instead, only being reopened with respect to certain issues."⁴²

Accordingly, EPA has built an extensive record in support of the 2011 Draft Permit and the 2014 Draft Permit, has made rational decisions, and supplied explanations that connect its decisions to the facts found. EPA should proceed to issue a final NPDES permit for the Station containing thermal discharge requirements matching those in the 2011 Draft Permit and the 2014 Draft Permit.

**IF EPA PROPOSES GRANTING A VARIANCE AND/OR MAKING
SIGNIFICANT CHANGES TO THE PERMIT'S THERMAL DISCHARGE
PROVISIONS, THE AGENCY MUST COMPLY WITH MANDATORY
LEGAL REQUIREMENTS UNDER THE APA AND CWA**

As discussed above, EPA should proceed to issue a final NPDES permit for the Station, containing the thermal discharge provisions that are in the 2011 Draft Permit and the 2014 Draft Permit. However, if EPA proposes to take the permit in a different direction, the agency must: (i) subject the new permit provisions to public notice and public comment; (ii) comply with the CWA's anti-backsliding rule by not removing or weakening the thermal plume effluent limitations contained in

⁴² Joint Public Notice of The Reopening of the Public Comment Period for the Draft National Pollutant Discharge Elimination System (NPDES) Permit for Merrimack Station in Bow, New Hampshire (Aug. 7, 2017) (emphasis added).

the 1992 Permit; and (iii) avoid making any arbitrary and capricious decisions.

A. Since it Bought the Station in 2018, GSP and EPA Have Met Frequently, and Have Recently Exchanged Radically New “Discussion Draft” Provisions for Thermal Discharges.

Documents provided by EPA under the Freedom of Information Act (“FOIA”) indicate that, since GSP acquired the Station in 2018, GSP and EPA have met frequently – at least five times in person over the past fifteen months, as well as in numerous phone calls – to discuss the thermal discharge requirements (and other issues) in the Merrimack NPDES permit. After that series of meetings, it appears that EPA may propose a radical departure from the 2011 Draft Permit, the 2014 Draft Permit, and all the attendant public comment solicitations from the past decade. In particular, materials obtained through FOIA suggest that EPA is contemplating reversing its findings concerning the Section 316(a) variance and the permit’s thermal discharge requirements (among other issues not addressed here). In fact, EPA appears to have shared with GSP some “discussion drafts” embodying these departures from the 2011 and 2014 Draft Permits. The “discussion drafts” exchanged between EPA and GSP differ dramatically from the thermal discharge provisions in the draft permits EPA noticed for public comment in 2011 and 2014.⁴³ However, such approach to permitting thermal discharges would be unique and none of these discussion drafts have been subjected to public notice and comment.

These new developments implicate several mandatory requirements under the APA and CWA.

B. A Final Permit Containing the “Discussion Draft” Provisions Exchanged Between EPA and GSP Would Not Be a Logical Outgrowth of the 2011 Draft Permit or the 2014 Draft Permit.

As EPA is well aware, the APA, EPA’s regulations, the federal courts, and EPA’s Environmental Appeals Board (EAB) all require that a final permit issued by EPA must be a “logical outgrowth” of the draft permit; otherwise, EPA would have failed to give proper notice and allow the public the legally required opportunity for public comment.⁴⁴

⁴³ For example, the “discussion drafts” suggest that EPA may propose granting a CWA section 316(a) variance, reversing its 2011 and 2014 determinations to require closed-cycle cooling as BAT for thermal discharges, and base entirely new permit requirements on the Station’s “capacity factor” (CF) (*i.e.*, the Station’s ratio of an actual electrical energy output over a given period of time to the maximum possible electrical energy output over that period).

⁴⁴ 5 U.S.C. § 553(b), (c); 40 C.F.R. §§ 124.6(d), 124.10(a)(1)(ii). The first judicial decision using the “logical outgrowth” language was a First Circuit case involving an EPA air quality transportation

Although EPA has issued two draft permits for public comment (in 2011 and 2014), and has sought comment on “significant new questions” (in 2017), the thermal discharge provisions in the “discussion drafts” represent a dramatic departure from the 2011 and 2014 drafts.⁴⁵ EPA did not describe such new approach in the 2017 notice, nor could it have been predicted from the limited set of questions on which EPA sought comment in 2017.

As discussed above, the 2011 and 2014 draft permits were based on EPA’s decision to reject PSNH’s request for a CWA section 316(a) thermal variance. EPA’s decision to reject the variance was based on a detailed analysis of the “compelling evidence of appreciable harm to the balanced, indigenous fish community of Hooksett Pool” that the agency had independently evaluated and explained in more than 200 pages in the 2011 Thermal Determinations.

If EPA proposes to view this evidence differently or to arrive at a different conclusion from all of this evidence, it must subject its new interpretation to public notice and comment. Or, if EPA proposes to find, on the basis of new information, that reduced operations at the Station will assure that the Hooksett Pool’s BIP has been, or will be, restored to complete health, the agency must give the public notice of any such opinion and an opportunity to comment. Indeed, while noting in 2017 that EPA was “considering whether [the] changed operating profile should trigger changes to the permit limits being developed for the Facility’s NPDES permit,” EPA also stated that “[a]t present, EPA has determined that the changing operating scenario does *not* provide a basis for altering what would otherwise be the permit limits [and] . . . given that the Facility still operates at high rates in hot summer and cold winter conditions, its extensive operations during those periods can still potentially have serious environmental effects.”⁴⁶ Equally important, if EPA wants

control plan for the Boston area. *South Terminal Corp. v. EPA*, 504 F.2d 646, 659 (1st Cir. 1974). See also, e.g., *NRDC v. EPA*, 279 F.3d 1180, 1186 (9th Cir.2002); *In re D. C. Water and Sewer Auth.*, NPDES Appeal Nos. 05-02, 07-10, 07-11, 07-12, 2008 EPA App. LEXIS 15, *112 (EAB March 19, 2008) (holding that “new language in the Final [NPDES] Permit was not a logical outgrowth of the language in the previous draft and, accordingly, [Friends of the Earth and Sierra Club] were denied the opportunity to provide meaningful comments,” and remanding the permit to EPA Region 3).

⁴⁵ For example, the “discussion drafts” exchanged between EPA and GSP suggest that EPA may propose wholly new permit requirements such as: Capacity Factor (CF) limits averaged over a 45-day (or other) period; “chronic” in-river temperature limits measured downstream from the discharge point; “acute” in-river temperature limits; and/or a “Rise in Temperature” limit from ambient upstream temperature. Those potential requirements differ dramatically from the proposed thermal requirements that EPA noticed publicly and are obviously not a “logical outgrowth” of the prior draft permits.

⁴⁶ 2017 Statement of New Questions at 68-69 (emphasis added).

to propose a very different set of thermal discharge requirements in the Station's NPDES permit, based on the Station's operational profile or anything else, then those new proposed requirements must also be subjected to public comment.

If the public is given an opportunity to comment on a new draft permit, Sierra Club and Conservation Law Foundation intend to engage technical experts to review the permit provisions and EPA's supporting rationale for proposing them, and to submit comments based on their evaluation. If the new proposed permit were to include requirements similar to those in the EPA-GSP "discussion drafts," then the issues warranting public comment might include issues such as the following, among others:

- Whether the permit should be based on a Capacity Factor limit and, if so:
 - what the CF% should be,
 - over what time period should it be measured,
 - when should it apply, and
 - should compliance with that limit exempt the Station from any other limits?;
- Whether a Capacity Factor limit would allow the Station to run at high capacity for significant periods of time and discharge a similar amount of waste heat during those times as a baseload facility;
- Whether the periods of time in the summer when the Station is most likely to run at high capacity (despite a Capacity Factor limit) correspond with when ambient temperatures are at their highest;
- How the periods of time in the summer when the Station is most likely to run at high capacity despite a Capacity Factor correspond with times when fish or other aquatic organisms sensitive to high temperatures will be present in or near the Station's thermal discharges;
- Whether exempting the Station from "chronic" temperature limits when Capacity Factor limits are met in the summer would allow river temperatures to exceed fish threshold tolerances;
- Whether there should be downriver temperature limits, and, if so:
 - where should they be measured,
 - what times of year should they be applied, and
 - how should they be expressed and calculated)?
- Whether the Station's thermal discharges should be monitored at monitoring station S-0 (at the end of the Station's discharge canal), or monitoring station S-4 (approximately half a mile downstream), or both;

- Whether EPA has a sufficient basis to correlate temperatures at S-4 with temperatures at S-0 and other locations in Hooksett Pool;
- If there is a temperature limit imposed at the discharge point:
 - what should this temperature limit be,
 - how should be expressed and calculated,
 - and how often should the company monitor the temperature?;
- Whether ascertaining permit compliance based only on S-4 temperatures will prevent acute lethality/mortality to larvae or other drifting or swimming organisms, including the zooplankton forage base, that may come in contact with hot water leaving the discharge canal;
- Whether ascertaining permit compliance based only on S-4 temperatures will protect shallower areas along the shorelines that provide important habitat for juvenile fish;
- Whether ascertaining permit compliance based only on S-4 temperatures will protect other locations in the river where “suitable habitat is needed for various lifestage requirements, including gonadal development, spawning, egg and larva development, and foraging and refugia for juveniles and adults,” as is necessary to protect the BIP;
- How compliance with the S4 temperature limits can be measured if the Station is allowed to remove the temperature monitoring probe from S-4 during winter months;
- Whether there should be a Delta-T limit, and, if so:
 - what the limit should be,
 - when it would be effective,
 - and what two points in the river would be compared?
- Whether “acute” temperature limits that apply only in certain months of the year would be sufficient to protect aquatic organisms from excessive heat;
- Whether the permit requirements would sufficiently address the problem of “cold shock” for fish that find refuge in the heated discharge during winter and are then harmed or killed when warm water suddenly disappears because the Station powers down;
- Whether the permit requirements would sufficiently prevent other impacts of elevated temperatures on indigenous fish populations and

- lifestages that are accustomed to cold water in winter;
- Whether the permit requirements would sufficiently address the problem of higher winter survival rates of Asian clams within the influence of the power plants' thermal discharge than in ambient areas, caused by elevated temperatures that affect the clam's reproductive success, growth, and abundance;
 - Which temperature limits would apply in the winter months, when the Station has been operating at its highest capacity recently;
 - Whether GSP has submitted, and EPA has analyzed, *all* of the 15-minute-interval temperature data that the company has for the years 2013-2017, or only such data for the warmer months of the year.

In 2016, when PSNH wanted EPA to change the thermal provisions in the draft NPDES permit, the company told the agency:

Region 1 needs to revisit and substantially revise its analysis of the aquatic organisms in the Hooksett Pool and its evaluations of what impact, if any, thermal discharges from Merrimack Station have on the BIP. The revisions required for Region 1's thermal analyses and permit determinations to comply with the law cannot reasonably be considered a "logical outgrowth" of the 316(a) conclusions set out in the 2011 Draft Permit. [¶] For all of these reasons, PSNH requests that Region 1 issue a new draft permit for Merrimack Station for public notice and comment. A new draft is compelled by . . . the corrected temperature data analysis affecting Region 1's 316(a) determinations [and] the extensive new information considered by the agency specific to this permit. . . . Allowing PSNH and the public the opportunity to comment on a revised draft that reflects and is fully responsive to these significant developments is not only legally required, it is especially appropriate here given the significant public interest in the Merrimack Station NPDES permit and the likelihood of litigation.⁴⁷

EPA has two choices under the law – it can proceed to finalize a NPDES permit that is similar enough to the 2011 and 2014 draft permits that it is a "logical outgrowth," or, if EPA proposes to make dramatic changes like those being discussed with GSP, then the agency must subject that new permit to public notice and public comment as the company itself requested.

⁴⁷ Letter from Eversource Energy to U.S. Environmental Protection Agency – Region 1 (Dec. 22, 2016) (AR-1352) at 7-8.

C. The Clean Water Act’s Anti-Backsliding Rule Prohibits Removal of The Thermal Plume Effluent Limitations That Have Been in the Station’s Permit Since at Least 1992.

The Clean Water Act was enacted to reduce and eventually eliminate the discharge of pollutants.⁴⁸ Accordingly, the Act prohibits permit writers from relaxing effluent limitations in subsequent permits. Specifically, the CWA’s anti-backsliding provisions, in section 402(o) of the Act and EPA’s regulations, forbid NPDES permits from being “renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.”⁴⁹

The 1992 Permit contains several effluent limitations⁵⁰ that restrict the thermal plume. As noted above, the three limitations that provide restrictions on the Station’s thermal plumes are set forth in Part I.A.1.g. of the existing permit, which provides:

The combined thermal plumes for the station shall ... not block the zone of fish passage;

The combined thermal plumes for the station shall ... not change the balanced indigenous population of the receiving water; and

⁴⁸ 33 U.S.C. §1251.

⁴⁹ 33 U.S.C. § 1342(o)(1); 40 C.F.R. § 122.44(l)(1); *see, e.g., Citizens for a Better Env’t-California v. Union Oil Co. of California*, 861 F. Supp. 889, 900 & n.4 (N.D. Cal. 1994) *aff’d*, 83 F.3d 1111 (9th Cir. 1996); *New Jersey Public Interest Research Group v. New Jersey Expressway Auth.*, 822 F. Supp. 174, 185 (D.N.J. 1992). There are certain exceptions to the anti-backsliding rule, which are not applicable here. Nevertheless, even where an exception does apply, CWA section 402(o)(3) includes a safety clause that “acts as a floor” and provides an absolute limitation on backsliding, by “prohibit[ing] the relaxation of effluent limitations in all cases if the revised effluent limitation would result in a violation of applicable effluent guidelines or water quality standards, including antidegradation requirements.” U.S. Env’tl. Prot. Agency, NPDES Permit Writers’ Manual, at 7-4 (Sept. 2010), https://www3.epa.gov/npdes/pubs/pwm_chapt_07.pdf.

⁵⁰ CWA section 502(11) defines “effluent limitation” to mean “any restriction established by . . . the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters . . . including schedules of compliance. Both that definition and EPA’s regulatory definition of “effluent limitation” at 40 C.F.R. § 122.2, are broad and include narrative limitations; neither requires an effluent limitation to be expressed as a numeric limit. *NRDC v. EPA*, 673 F.2d 400, 403 (DC Cir. 1982), *cert. denied sub nom. Chemical Mfrs. Ass’n v. EPA*, 459 U.S. 879 (1982) (“Section 502(11) defines ‘effluent limitation’ as ‘any restriction’ on the amounts of pollutants, not just a numerical restriction.”).

The combined thermal plumes for the station shall ... have minimal contact with the surrounding shorelines.

These thermal plume limitations serve important functions. For example, as EPA explained at length in the 2011 Thermal Determinations, diadromous fish that pass into and through the Hooksett Pool are an important component of the Hooksett Pool's BIP.⁵¹ In addition, shallower areas along the shorelines that can be affected by the thermal plume are important habitat for juvenile fish.⁵²

And these limitations are far from unique. Indeed, virtually all NPDES permits issued by EPA Region 1 for power plants located on rivers in New England contain thermal plume limitations that are identical or nearly identical to those contained in the Merrimack Station's 1992 Permit. For example, in the 1990 NPDES permit for the Schiller Station on the Piscataqua River in Portsmouth, New Hampshire (which is also now owned by a GSP affiliate), EPA included exactly the same three thermal plume effluent limitations, verbatim, that are in the 1992 Merrimack Permit.⁵³ When EPA renewed the Schiller Station's NPDES permit on April 6, 2018, it retained all three thermal plume limitations and added a fourth – that the “thermal plumes from the station shall . . . not interfere with spawning of indigenous populations.”⁵⁴ Likewise, the NPDES permit for the Newington plant

⁵¹ See, e.g., 2011 Thermal Determinations at 33 (“In addition to resident species, diadromous species that once migrated freely through this reach of the Merrimack River are also considered part of the [BIP]. Diadromy is the collective term used for fish species that spend part of their life cycle in fresh water and part in salt water. There are three forms of diadromy, two of which – anadromy and catadromy – are represented by fish species found in the Merrimack River. Anadromous species are born in fresh water, mature in salt water, and return to fresh water to spawn. Conversely, fish born in salt water, mature in fresh water, and return to salt water to spawn are called catadromous species. Anadromous species that commonly inhabit Hooksett Pool during part of their life cycle are Atlantic salmon, American shad, and alewife. Blueback herring and sea lamprey may occasionally be present, as well. Only one catadromous species, American eel, is at times present in the pool.”)

⁵² 2011 Thermal Determinations at 119; see also *id.* at 39 (“Near-shore shallows are widely recognized as important habitat for juvenile fish.”)

⁵³ See Schiller Station, NPDES Permit No. NH0001473 (issued Sept. 11, 1990) at I.A.h:

“The combined thermal plumes for the station shall: (a) not block zone of fish passage, (b) not change the balanced indigenous population of the receiving water, and (c) have minimal contact with the surrounding shorelines.”

⁵⁴ Schiller Station, NPDES Permit No. NH0001473 (issued April 6, 2018) at I.A.10.b:

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimal contact with surrounding shorelines.”

(also on the Piscataqua River and owned by a GSP affiliate) has the same three thermal plume effluent limitations as Merrimack, plus the fourth one that EPA added at Schiller.⁵⁵ Similarly, in Massachusetts, EPA included those four thermal effluent plume limitations in the NPDES permits for the Mirant Canal Station⁵⁶ (on Cape Cod Canal), the Mystic Station⁵⁷ (on the Mystic River), and the Pepperrell Power Plant⁵⁸ (on the Nashua River).

These standard permit conditions were included in the EPA-issued NPDES permits for those five other New England power plants (and possibly others) regardless of whether the permits include numeric maximum temperature limits. For example, the current Schiller permit requires that “The 95° F temperature limit shall not be exceeded at any time (instantaneous maximum).”⁵⁹ Likewise, the Mirant Canal Station’s permit imposes a maximum instantaneous temperature limit on the non-contact condenser cooling water discharge.⁶⁰ Thus, the permits include effluent limitations on the thermal plume even if there are maximum temperature limitations at the discharge point or another specific location.

⁵⁵ Newington Generating Station, NPDES Permit No. NH0023361 (issued Oct. 25, 2012) at I.A.5.b:

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimal contact with surrounding shorelines.”

⁵⁶ Mirant Canal Station, NPDES Permit No. MA0004928 (issued August 1, 2008) at I.A.15.b:

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimal contact with surrounding shorelines.”

⁵⁷ Mystic Station, NPDES Permit No. MA0004740 (issued Aug. 17, 2001) at I.A.15.b:

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimum contact with surrounding shorelines.”

⁵⁸ Pepperrell Power Plant, NPDES Permit No. MA0032034 (issued Sept. 8, 2006) at I.A.13:

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimum contact with surrounding shorelines.”

⁵⁹ Schiller Station, NPDES Permit No. NH0001473 (issued April 6, 2018) at I.A.1, Note 3.

⁶⁰ Mirant Canal Station, NPDES Permit No. MA0004928 (issued August 1, 2008) at I.A.2.

In 2011 and 2014, EPA proposed adding a fourth effluent limitation to the Merrimack Station’s NPDES permit: “Any thermal plume from Outfall 004D (intake de-icing water) or 003 (Discharge Canal) at Merrimack Station shall . . . (d) not cause acute lethality to swimming or drifting organisms, including those entering the discharge canal at Outfall 003.”⁶¹ This is an important requirement given EPA’s very valid concern that “[s]ince the highest water temperatures from the plant exist closest to the discharge point, the potential for the thermal plume to cause acute lethality or impairment to drifting organisms, such as fish larvae, is most likely to occur in the waters near the discharge.”⁶² In addition, the thermal plume effluent limitation that was added to the Schiller permit in 2018, and is in the other power plant permits discussed above, but is not in the Merrimack permit – “The thermal plumes from the station shall . . . not interfere with spawning of indigenous populations” – should also be added to the Station’s permit given that EPA’s recognition that suitable habitat for spawning is critical to protecting balanced, indigenous community of Merrimack River.⁶³

Accordingly, the CWA’s anti-backsliding rule forecloses EPA from removing the thermal plume effluent limitations from the Station’s NPDES permit, and the additional thermal plume effluent limitation proposed for the Station in 2011 and 2014, as well as the one included in the permits for the Schiller, Newington, Cape Cod Canal, Mystic, and Pepperell plants should be added to the Station’s permit.

The Station’s 1992 Permit also includes standard language prohibiting violation of state water quality standards:

The discharges shall not jeopardize any Class B use of the Merrimack River and shall not violate applicable water quality standards. . . .⁶⁴

A provision of this type is commonplace in EPA-issued NPDES permits for power plants (and other types of facilities). For example, the current Schiller permit states: “Discharges and water withdrawals shall not cause a violation of the

⁶¹ 2011 Draft Permit at Part I.A.23; 2014 Draft Permit at Part I.A.23.

⁶² 2011 Thermal Determinations at 83.

⁶³ 2011 Thermal Determinations at 37 (“EPA believes that all resident fish species identified as being part of the balanced, indigenous community historically had sufficient suitable habitat in Hooksett Pool to support them throughout every life stage. Suitable habitat is needed for various lifecycle requirements, including gonadal development, spawning, egg and larva development, and foraging and refugia for juveniles and adults.)

⁶⁴ 1992 Permit, Part I.A (“Effluent limitations and Monitoring Requirements”) at I.A.1.b.

water quality standards or jeopardize any Class B use of the Piscataqua River.”⁶⁵ The Newington permit provides: “Discharges and water withdrawals shall not either cause a violation of the water quality standards or jeopardize any Class B use of the Piscataqua River.”⁶⁶ And the NPDES permit for the Kendall Station states: “The discharges shall not cause a violation of any applicable water quality standards (WQS) or degrade the aquatic habitat quality.”⁶⁷

Accordingly, the water quality standards effluent limitation must be retained in the Station’s NPDES permit to comply with the anti-backsliding rule and EPA’s longstanding practice.

As noted above, EPA and GSP have exchanged “discussion drafts” of the thermal discharge provisions for possible inclusion in a renewed NPDES permit for the Merrimack Station. It is not clear from the public record whether EPA currently intends to keep, eliminate, or modify the effluent limitations restricting the thermal plume and prohibiting violations of water quality standards because the “discussion drafts” exchanged between EPA and GSP did not include the pages of the permit that would presumably contain those limitations. What is clear is that the law forbids EPA from eliminating or including any effluent limitations less stringent than those in the 1992 Permit.

D. Any New Thermal Discharge Decisions to Be Made by EPA Must Be Supported by Record Evidence, a Rational Basis, and an Explanation that Logically Connects the New Decisions Made to the Facts Found.

The Clean Water Act prohibits the discharge of heat or any other pollutant from a point source to a water of the United States unless authorized by an NPDES permit.⁶⁸ The permit limits EPA establishes for thermal discharges must satisfy federal technology-based requirements and any more stringent requirements based on applicable state water quality standards.⁶⁹ CWA section 316(a) allows EPA to

⁶⁵ Schiller Station, NPDES Permit No. NH0001473 (issued April 6, 2018) at I.A.10.a.

⁶⁶ Newington Generating Station, NPDES Permit No. NH0023361 (issued Oct. 25, 2012) at I.A.5.a.

⁶⁷ GenOn Kendall, LLC (formerly Mirant Kendall, LLC), NPDES Permit No. MA0004898 (issued Dec. 17, 2010) at I.A.5.

“The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimal contact with surrounding shorelines.”

⁶⁸ 33 U.S.C. § 1311(a), 1362(6).

⁶⁹ See 33 U.S.C. § 1311(b)(1)(C), (b)(2)(A).

grant a variance and impose less stringent thermal discharge limits *only* if the permittee demonstrates 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 [‘BIP’] of shellfish, fish, and wildlife.”⁷⁰ Nevertheless, permit conditions based on a section 316(a) variance must “assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water.”⁷¹

The permittee has the burden of proof in persuading the permitting authority both 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.⁷² “[T]he burden of proof in a 316(a) case is a stringent one.”⁷³ Alternative thermal discharge limitations must “assure” the protection and propagation of the BIP.⁷⁴ As EPA has acknowledged, when considering a section 316(a) variance application, the Agency “may not speculate as to matters for which evidence is lacking,”⁷⁵ and that if “deficiencies in information are so critical as to preclude reasonable assurance, then alternative effluent limitations should be denied.”⁷⁶

An existing discharger may base its thermal demonstration on a showing that there has been no “appreciable harm” to the BIP from “the thermal component of the discharge taking into account the interaction of such thermal component [of the discharge] with other pollutants and the additive effect of other thermal sources.”⁷⁷ Alternatively, an existing discharger can attempt to show that “despite the occurrence of such previous harm, the desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless assure the protection and

⁷⁰ 33 U.S.C. § 1326(a).

⁷¹ 33 U.S.C. § 1326(a); 40 C.F.R. § 125.70.

⁷² 33 U.S.C. § 1326(a); 40 C.F.R. § 125.73(a).

⁷³ *In the Matter of Public Serv. Co. (“Seabrook”)*, 1 E.A.D. 332, 346 (E.P.A. June 10, 1977), 1977 EPA App. LEXIS 16, at *31.

⁷⁴ 2011 Permitting Determinations at 24.

⁷⁵ *Seabrook*, 1977 EPA App. LEXIS 16, at *31.

⁷⁶ *Seabrook*, 1977 EPA App. LEXIS 16, at *33 (quoting 1974 Draft EPA § 316(a) Guidance). *See also In the Matter of: Public Service Company of Indiana, Inc., Wabash River Generating Station, Cayuga Generating Station*, 1 E.A.D. 590 E.P.A. Nov. 19 10, 1979), 1979 EPA App. LEXIS 4, *34-40 (permit remanded to where variance-based thermal discharge limitations were issued despite lack of data regarding thermal effects under worst case, low-flow conditions).

⁷⁷ 40 C.F.R. § 125.73(c)(1)(i).

propagation of . . . [the BIP].”⁷⁸ Here, GSP has taken the former approach, arguing that there has been no appreciable harm to the Hooksett Pool, an argument that EPA soundly rejected in an extensive, independent analysis documented in more than 200 pages in the 2011 Thermal Determinations.

As with any administrative decisionmaking by a federal agency, EPA’s section 316(a) and thermal permitting determinations must conform to the APA and be based on “reasoned decisionmaking.”⁷⁹ “Not only must an agency’s decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.”⁸⁰ A court must reject an agency decision that, *inter alia*, is based on explanation “that runs counter to the evidence before the agency” or lacks “a satisfactory explanation . . . including a rational connection between the facts found and the choice made.”⁸¹

When EPA preliminarily determined, in 2011, that PSNH failed to demonstrate that the Station’s thermal discharge has not caused appreciable harm to the BIP, that the “evidence as a whole indicates that [the] Station’s thermal discharge has caused, or contributed to, appreciable harm to [the] BIP,” and that PSNH did not demonstrate that thermal discharge limits based on technology-based and water quality-based requirements would be more stringent than necessary to assure the protection and propagation of the BIP, the agency did so based on an extensive record, its own independent analysis of data supplied by the applicant, and coordination with state and federal scientists and regulators. EPA supplied a detailed explanation of its process and its reasoning, including a rational connection between the facts found and the choice made. And the agency described in detail the extensive “compelling evidence of appreciable harm to the balanced, indigenous fish community of Hooksett Pool.”

In 2014 and in 2017, EPA issued new public notices relating to aspects of the Station’s NPDES permit, but did not change its conclusions that the Station’s thermal discharges have harmed the BIP and that the technology-based and water quality-based requirements set forth in the 2011 and 2014 draft permits are necessary to assure protection of the BIP compliance with New Hampshire water quality standards.

⁷⁸ 40 C.F.R. § 125.73(c)(1)(ii).

⁷⁹ See *Allentown Mack Sales & Serv. v. NLRB*, 522 U.S. 359, 374 (1998) (quoting *Motor Vehicle Mfrs. Ass’n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (1983)).

⁸⁰ *Id.*

⁸¹ *Grosso v. Surface Transp. Bd.*, 804 F.3d 110, 116 (1st Cir. 2015) (quoting *State Farm*, 463 U.S. at 43); see also *Southcoast Hosps. Grp., Inc. v. NLRB*, 846 F.3d 448, 453 (1st Cir. 2017).

If EPA plans to reconsider its 2011 decision to deny a section 316(a) variance, or if EPA is considering new thermal discharge requirements for the Station, the APA requires the agency to explain how the extensive record that supported its 2011 conclusions will support any new conclusions. In the absence of supporting record evidence, a rational basis, and an explanation logically connecting the decisions to the facts, agency action will be held unlawful and set aside as arbitrary and capricious under the APA.⁸²

CONCLUSION

EPA should proceed, without further delay, to: (i) finalize its proposed denial of the Station's request for a CWA section 316(a) variance; (ii) issue a final NPDES permit containing thermal discharge requirements based on closed-cycle cooling, as it proposed in 2011; and (iii) retain the 1992 Permit's effluent limitations restricting the thermal plume and prohibiting violations of water quality standards.

If, however, EPA proposes to grant a variance and/or include substantially different requirements in the permit, then EPA must: (i) subject those new decisions to public notice and public comment; (ii) retain the 1992 Permit's effluent limitations restricting the thermal plume and prohibiting violations of water quality standards; and (iii) support any new conclusions with an evidentiary basis in the record, reasoned decisionmaking, and a rational explanation connecting the decisions made to the facts found.

The permitting process for Merrimack Station has taken far too long already. EPA should not, at the behest of a new owner of the Station, further delay issuance of the permit and disregard years of work and analysis by the agency. Changing course now, as the "discussion drafts" suggest, would amount to an unwarranted windfall to the company, which acquired the Station knowing full well that EPA had made a proposed determination that BAT and state water quality standards required converting the Station's cooling system to closed-cycle cooling (and whose bid and purchase price for the Station must have factored in that risk). EPA should not delay any further and should not allow Station's "appreciable harm" to the Merrimack River to continue any longer.

Sincerely,

Reed Super
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⁸² 5 U.S.C. § 706(2)(a).

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