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

August 18, 2014

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

RE: Revised Draft Permit for Merrimack Station, NPDES Permit No.NH0001465

Dear Ms. DeMeo,

Earthjustice, Environmental Integrity Project, Sierra Club, and the Conservation Law Foundation (collectively, the "Environmental Organizations") submit these comments on the revised draft National Pollutant Discharge Elimination System ("NPDES") permit for Merrimack Station, NPDES Permit No. NH0001465. The revised NPDES permit must comply with the Clean Water Act's ("CWA") command to set effluent limits that eliminate a discharge if economically and technologically feasible to do so. The record reflects that Public Service of New Hampshire ("PSNH") has operated a vapor compression and evaporation ("VCE") and crystallizer system since 2012 that can eliminate the discharge of flue gas desulfurization ("FGD" or "scrubber") wastewater. Based on PSNH's installation and successful operation of the VCE and crystallizer system, EPA properly concluded that eliminating the discharge of Merrimack's FGD wastewater is technologically and economically achievable. Accordingly, EPA proposes to set a zero-liquid discharge limit for FGD wastewater at the Merrimack Station, based on a finding that the plant's use of the physical/chemical and VCE and crystallizer treatment systems is BAT, and eliminate from the plant's NPDES permit any authorization to discharge FGD wastewater.

In comments on the 2011 draft permit, the Environmental Organizations noted that the record supported finding that a zero-liquid discharge system was BAT for FGD wastewater. *See* Letter from Melissa A. Hoffer, Conservation Law Foundation to John Paul King, EPA at 31-37 (Feb, 28, 2012) and attached Expert Report from John Koon; Letter from Abigail Dillen, Earthjustice, to John Paul King, EPA at 2 (Feb. 28, 2012). In light of additional evidence in this record supporting the economic and technological achievability of a zero-liquid discharge system, we strongly support EPA's proposal and urge the agency to deny PSNH's request for authorization to discharge FGD wastewater that has been treated by only the physical/chemical treatment system (i.e., before treatment by the VCE and crystallizer system). Likewise, EPA should prohibit PSNH from circumventing the statutory requirement to eliminate the discharge of FGD wastewater by using the partially treated FGD wastewater to condition fly ash. Finally, EPA should work to discourage, and eliminate the environmental risks of, any attempt by PSNH

to circumvent a zero-liquid discharge limit through the indirect discharge of its FGD wastewater to publicly owned treatment works ("POTWs").

FACTUAL BACKGROUND

The Merrimack Station in Bow, New Hampshire, has 2 coal-fired units collectively rated at 470 MW and 2 oil-fired units rated at 50 MW. Revised Draft Permit at 1; Fact Sheet at 7. In 2011, PSNH began operating a new wet scrubber at Merrimack Station, even though PSNH had not yet obtained a NPDES permit authorizing the discharge of scrubber wastewater. Fact Sheet at 11, 38. The scrubber generates a new wastewater stream containing toxic pollutants present in the coal, such as mercury, arsenic, and selenium, as well as pollutants from the sorbent used in the scrubber, such as iron and aluminum. Fact Sheet at 11-12. In 2011, EPA Region 1 issued a draft NPDES permit for the Merrimack Station that, among other things, determined that the BAT limits for discharge of FGD wastewater should be based upon the use of a physical/chemical treatment system coupled with biological treatment. *Id.* at 3. When the permit was issued, PSNH was installing a physical/chemical treatment system. *Id.* at 19.

After release of the draft NPDES permit, EPA learned that PSNH was adding a secondary wastewater treatment system to the existing physical and chemical precipitation system. This secondary treatment system has two phases. The first phase is "'a vapor compression driven falling film evaporator followed by a steam driven forced circulation evaporator'" to concentrate the effluent from the primary treatment system." Fact Sheet at 21. This produces a brine solution and distillate. *Id.* The second phase uses an "additional forced-circulation crystallizer to further process the concentrated brine solution into a salt cake that can be hauled off-site for disposal and a condensate stream." *Id.* at 21-22. The condensate can be reused as FGD make-up water, leaving only a solid waste, the salt cake, resulting in a truly zero-liquid discharge system. *Id.* at 22. PSNH installed the secondary treatment system before being required to do so in its NPDES permit.

LEGAL STANDARDS FOR DETERMINING BAT

In the 1972 Clean Water Act amendments, Congress responded to the chronic failure of existing legislation to address water pollution effectively by replacing a water-quality based framework that allocated responsibility for pollution that had already occurred with a technology-based framework that prohibits the discharge of pollutants without a permit. *See Am. Frozen Food Inst. v. Train*, 539 F.2d 107, 116 (D.C. Cir. 1976). Technology-based limitations on discharges are the centerpiece of the Act. To achieve the Clean Water Act's goal of eliminating water pollution, 33 U.S.C. § 1251(a)(1), the Act requires facilities to meet a series of increasingly stringent, technology-based effluent limitations that "shall be achieved" by all point source dischargers, *id.* § 1311(b).

For pollutants the Clean Water Act classifies as either toxic (such as heavy metals) or "nonconventional" (such as nitrogen), the first standards were best practicable control technology ("BPT"), 33 U.S.C. § 1311(b)(1)(A), followed by the more stringent best available technology ("BAT"). *Id.* § 1311(b)(2)(A). BAT represents the best available technology that is economically achievable: a stringent treatment standard that has been held to represent "a commitment of the maximum resources economically possible to the ultimate goal of eliminating

all polluting discharges," *EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 74 (1980), including requiring the "elimination of discharge of all pollutants" if "such elimination is technologically and economically achievable." 33 U.S.C. § 1311(b)(2)(A).

NPDES permits may be issued only "upon condition that" they ensure, *inter alia*, that the requirements in 33 U.S.C. § 1311 are met. 33 U.S.C. § 1342(a)(1). Federal regulations promulgated by U.S. EPA also require that "[t]echnology-based treatment requirements under Section 301(b) of the [CWA] represent the minimum level of control that must be imposed" in a NPDES permit. 40 C.F.R. § 125.3(a). Although technology-based effluent limits are often based on national effluent limitation guidelines ("ELGs") promulgated by EPA, *see EI DuPont v. Train*, 430 U.S. 112, 127, 129 (1977), to the extent that promulgated guidelines "only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the Act." 40 C.F.R. § 125.3(c).

Because EPA's applicable effluent limitation guidelines at 40 C.F.R. Part 423 do not yet include BAT limits for FGD wastewater or landfill leachate,[1] in renewing the permit for the Merrimack Station the Agency must use its best professional judgment ("BPJ") to make a facility-specific determination of what BAT requires. 33 U.S.C. § 1342(a)(1)(B); 40 C.F.R § 125.3(a), (c)(2), (c)(3); *see also* Letter from James Hanlon, Director, EPA Office of Wastewater Management to EPA Water Division Directors, Regions 1-10 (June 7, 2010). A BPJ determination must consider the same factors that EPA considers when establishing industry-wide ELGs. *Tex. Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 929 (5th Cir. 1998) ("Individual judgments thus take the place of uniform national guidelines, but the technology-based standard remains the same."); *NRDC v. EPA*, 859 F.2d 156, 199 (D.C. Cir. 1988) (noting that the factors considered in setting the technology-based limits in a BPJ determination "are the same factors used in establishing effluent guidelines").[2]

Congress intended BAT to be "technology-forcing," *i.e.*, to drive the development and adoption of increasingly more effective pollution controls in order to "result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants." 33 U.S.C. § 1311(b)(2)(A); *see also NRDC v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987) (stating that "the most salient characteristic of this [CWA] statutory scheme, articulated time and again by its architects and embedded in the statutory language, is that it is technology-forcing"). Courts have thus recognized that Congress intended for EPA to look to the best operating facilities in the

[1] When EPA last revised the Part 423 ELGs in 1982, the agency expressly noted that it was reserving "flue gas desulfurization waters" for "future rulemaking." Steam Electric Power Generating Point Source Category; Effluent Limitations Guidelines, Pretreatment Standards and New Source Performance Standards, 47 Fed. Reg. 52,290, 52,291 (Nov. 19, 1982). EPA recently issued a proposed rule which would establish BAT-based effluent limits for FGD wastewater, landfill leachate and other coal combustion wastewater discharges. Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 78 Fed. Reg. 34,432, 34,462 (June 7, 2013). In the proposed rule, EPA found that the Part 423 ELGs are outdated and do not adequately address toxic pollution from discharges of coal combustion wastewater. *Id.* at 34,435.

[2] The BAT factors are "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate." 33 U.S.C. § 1314(b)(2)(A).

relevant class to determine technological availability. *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 226 (5th Cir. 1989) ("Congress intended these [BAT] limitations to be based on the performance of the single best-performing plant in an industrial field."); *see also NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988); *Kennecott v. EPA*, 780 F.2d 445, 448 (4th Cir. 1985) ("In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible.").

A technology need not even be in commercial use to be available, so long as the technology has been studied and demonstrated, such as through the use of pilot studies. *See Am. Petroleum Inst. v. EPA*, 858 F.2d 261, 265 (5th Cir. 1988) (stating that under BAT, "a process is deemed 'available' even if it is not in use at all"); *FMC Corp. v. Train*, 539 F.2d 973, 983-84 (4th Cir. 1976) (finding EPA justified in setting BAT for chemical oxygen demand based on performance data from a single pilot plant). This contrasts with the less-stringent BPT guidelines, which are based on the average of the best-performing plants. *Chem. Mfrs. Ass'n*, 870 F.2d at 207-08. In considering available technologies, EPA must consider technologies that lead to zero-liquid discharges, in light of the statutory goal of eliminating water pollution. *NRDC*, 822 F.2d at 123. Congress intended BAT to "push[] industries toward the goal of zero discharge as quickly as possible." *Kennecott*, 780 F.2d at 448.

For purposes of setting effluent limitations guidelines, "economic achievability" is defined as costs that "can be reasonably borne by the industry." *Waterkeeper Alliance v. U.S. EPA*, 399 F.3d 486, 516 (2nd Cir. 2005); *see also Rybachek v. U.S. EPA*, 904 F.2d 1276, 1290-91 (9th Cir. 1990). For a facility-specific BPJ determination of BAT, a technology is economically achievable if the costs can be reasonably borne by the facility owner. *See Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 974 (5th Cir. 1986) (upholding two area-wide permits based on practices currently employed in those areas, despite industry's arguments about the increased cost to the industry if the permit limits were used as the basis for nation-wide effluent guidelines); *see also In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 544 (2006) (finding that EPA Region 1 adequately considered costs in setting BAT limits by taking into account the costs to the facility owner).[3]

ARGUMENT

I. EPA CORRECTLY DETERMINED THAT VAPOR COMPRESSION AND EVAPORATION AND CRYSTALLIZATION IS BAT.

The Clean Water Act mandates that BAT limits eliminate a discharge if, "on the basis of information available to [EPA] . . . such elimination is technologically and economically achievable." 33 U.S.C. § 1311(b)(2)(A). EPA's revised draft permit correctly concludes that a

[3] In setting BAT limits for FGD wastewater from Merrimack Station, EPA need not consider the cost to the entire industry of setting nation-wide effluent limitations based on a zero-liquid discharge standard. However, as we argued in our comments on the proposed ELG rule, the cost of eliminating the discharge of FGD wastewater (as evaluated in Option 5 of the proposed rule) can be reasonably borne by the industry as a whole. *See* Comments of Environmental Integrity Project, Earthjustice, Sierra Club, Conservation Law Foundation et al., on the Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, Docket ID No. EPA–HQ–OW–2009–0819 and EPA–HQ–RCRA–2013–0209, at 22-25, 84-88 (submitted Sept. 20, 2013) ("ELG Comments").

zero-liquid discharge limit for FGD wastewater, based on the use of a physical-chemical treatment plus VCE and crystallizer system, is BAT for Merrimack Station. We support EPA's reasoning that PSNH's installation and successful operation of a zero-liquid discharge system establishes that the VCE and crystallizer system is both technologically and economically achievable. As evidence of the technological achievability of the system, the record indicates that PSNH has operated the VCE and crystallizer system since at least June 2012 and has fine-tuned the system to overcome technical challenges. In support of finding that the system is economically achievable, the record indicates that PSNH installed and operated the system without it being required by its NPDES permit and notwithstanding increased O&M costs from the system. For all these reasons, we support EPA's determination that a zero-liquid discharge system is BAT for the FGD wastewater from Merrimack Station. It would be impermissible for EPA to determine that a technology which allows more pollution than a zero-liquid discharge system is BAT.

A. PNSH's Operation of a Vapor Compression and Evaporation and Crystallizer System at Merrimack since 2012 Demonstrates that the System is Technologically Achievable.

Evidence that PSNH has successfully operated the VCE and crystallizer system since 2012 demonstrates that eliminating the discharge of FGD wastewater at the Merrimack Station is technologically achievable. The Clean Water Act sets a low threshold for EPA to find that eliminating a discharge is "technologically achievable" and is BAT. As explained above in the Legal Standard section, *supra* page 4, a technology can be in use at only a single plant and be BAT. *Chem. Mfrs.* Ass'n, 870 F.2d at 226 ("Congress intended these [BAT] limitations to be based on the performance of the single best-performing plant in an industrial field."); *Kennecott*, 780 F.2d at 448 ("In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible."). Indeed, a technology can be BAT even if it is not in commercial use anywhere, so long as its feasibility has been demonstrated through pilot studies, or has been demonstrated to work in analogous circumstances in other industries. *See Am. Petroleum Inst.*, 858 F.2d at 265 (stating that under BAT, "a process is deemed 'available' even if it is not in use at all"); *FMC Corp.*, 539 F.2d at 983-84 (finding EPA justified in setting BAT for chemical oxygen demand based on performance data from a single pilot plant).

The VCE and crystallizer is BAT for Merrimack Station. As EPA notes, VCE and crystallizer systems are in use at another coal-fired power plant in the United States, Kansas City Power & Light's Iatan plant, as well as abroad, and two other US facilities, Duke Energy's Mayo and Roxboro Stations, are in the process of installing VCE systems. Fact Sheet at 17-18; *see also* attached ELG Comments at 19-21.[4] More importantly, PSNH has been operating the VCE and crystallizer system at Merrimack since at least June 2012. Fact Sheet at 18. PSNH, working with engineers from Burns & McDonnell, has overcome the technical challenges that some industry groups have alleged are obstacles to deploying zero-liquid discharge systems; for

[4] In our comments on the proposed ELG rule, we noted that the rulemaking record supports selecting Option 5, which would treat FGD wastewater through chemical precipitation, followed by VCE and crystallization. ELG Comments at 18-29, 84-88. We incorporate by reference that section of our ELG comments.

example, PSNH and Burns & McDonnell designed the VCE and crystallizer system to handle the highly corrosive wastewater that results from the presence of high concentrations of chlorides in the FGD wastewater. Fact Sheet at 33. Following the installation of the VCE and crystallizer system, PSNH and Burns & McDonnell engineers have adjusted the system to optimize performance, just as plants do with any complex pollution control system. *Id.* at 35-36 (noting that the Merrimack FGD wastewater treatment system was adjusted to deal with high pH, accumulation of solid-phase sulfates, and variations in the constituents of the incoming fuel). Based on this record evidence, the VCE and crystallizer system, which eliminates the discharge of FGD wastewater, is technologically achievable at Merrimack Station.

B. PNSH's Operation of a Vapor Compression Evaporation and Crystallizer System at Merrimack since 2012 Demonstrates that the System is Economically Achievable.

PSNH's successful operation of the VCE and crystallizer system since 2012 demonstrates that eliminating the discharge of FGD wastewater at the Merrimack Station is not only technologically achievable but also economically achievable. When EPA promulgates nation-wide effluent limitations guidelines for BAT, "economic achievability" is defined as costs that "can be reasonably borne by the industry." *Waterkeeper Alliance*, 399 F.3d at 516; *see also Rybachek*, 904 F.2d at 1290-91. Applying this standard in a site-specific BPJ determination means that the VCE and crystallizer system is economically achievable if the costs can be reasonably borne by PSNH. *See Am. Petroleum Inst.*, 787 F.2d at 974; *In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. at 544.

PSNH has already incurred the capital costs to build the VCE and crystallizer system and is continuing to operate the Merrimack plant notwithstanding any increased operating and maintenance expenses associated with the system. Fact Sheet at 41-42. PSNH incurred these costs without being required to do so in its NPDES permit. We agree with EPA, *id.* at 41-42, that PSNH's decision to spend the money to install and operate a VCE and crystallizer system at the Merrimack Station establishes that it is economically achievable to do so.

In the Fact Sheet accompanying the Draft Revised Permit, EPA notes that PSNH has refused to provide certain cost information, particularly the O&M costs for the VCE and crystallizer system. Fact Sheet at 42. In order to inform other, future regulatory actions, we encourage EPA to attempt to collect cost information from PSNH's filings with the New Hampshire Public Utilities Commission in Docket DE 11-250 related to recovery of costs associated with the FGD system. To the extent that EPA is not able to obtain actual capital and O&M cost data from PUC dockets, we encourage EPA to continue to seek such information from PSNH through information collection requests and other authorities the agency possesses. At the same time, regardless of any data collected through these methods, the VCE and crystallizer system is economically achievable at Merrimack Station for the reasons stated above.

II. EPA SHOULD USE ITS AUTHORITY TO PREVENT NEGATIVE WATER QUALITY IMPACTS FROM MERRIMACK DISCHARGING ITS FGD WASTEWATER TO POTWS THAT ARE NOT EQUIPPED TO HANDLE SUCH WASTEWATER.

EPA's fact sheet states that PSNH could circumvent a zero-liquid discharge standard for its FGD wastewater by not operating the VCE and crystallizer system but instead sending the FGD wastewater to a local publicly owned treatment works. Fact Sheet at 49. PSNH itself acknowledges that POTWs are not designed to remove the toxic pollutants present in FGD wastewater from Merrimack, such as mercury and selenium. 2011 Draft Permit, Attachment E at 14. Moreover, EPA notes that a number of toxic pollutants, including persistent, bioaccumulative toxins, are present in FGD wastewater and will not be treated effectively in a POTW. Fact Sheet at 49 ("It is unclear whether these pollutants receive any treatment at the POTWs. These constituents are generally expected to pass through a typical municipal sewage treatment plant."). EPA has proposed to address this regulatory gap in the proposed ELG rule, but in the meantime there are currently no pretreatment standards for many of the pollutants present in the FGD wastewater from Merrimack. *See* 78 Fed. Reg. at 34,477 (noting that "all of the pollutants proposed for regulation under BAT/NSPS pass through," including arsenic, mercury, and selenium).

Unfortunately, PSNH has a record of shipping its scrubber wastewater off-site to POTWs. Indeed, in its rush to qualify for economic incentives for operating its scrubber, PSNH shipped Merrimack's scrubber wastewater off-site because it did not have a NPDES permit authorizing its discharge. Fact Sheet at 24. PSNH has continued shipping some of Merrimack's wastewater off-site, even after the VCE and crystallizer system was built and operational. *Id.* at 24-25. Most disturbingly, as recently as February 2013, PSNH was still sending off-site wastewater that had not gone through the VCE and crystallizer system. *Id.* at 25 (noting that in February 2013, PSNH sent 186,000 gallons of wastewater from Stream A[5] to Hooksett and 106,000 gallons to Allenstown). PSNH refused to explain to EPA why it has been sending this wastewater to POTWs, particularly wastewater not run through the VCE and crystallizer system, and instead offered an opaque statement that it was a "business decision" based on several factors. *Id.* at 26.

It is inconsistent with the purpose of the Clean Water Act for PSNH to circumvent the zero-liquid discharge limit at its own outfall by sending the wastewater to a POTW that will discharge the pollutants, untreated, into a waterway. This would merely change the location of the discharge; it would not eliminate the discharge. EPA should work to discourage such a circumvention of zero-liquid discharge and take all available actions to eliminate the environmental risks associated therewith. This is especially important given that multiple downriver municipalities in New Hampshire and Massachusetts depend on the Merrimack for drinking water.[6]

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[5] "The 'Treat Tank,' 'Final Effluent' and 'Stream A' wastestreams are synonymous. They refer to wastewater taken from after the primary treatment system. Stream B is wastewater from the evaporator of the secondary treatment system." Fact Sheet at 24, n. 14.

[6] *See, e.g.*, N.H. Dep't of Envt'l Servs., Designated Rivers ("The Lower Merrimack River flows through a region of rapid population growth and development that is heavily influenced by the Boston metropolitan area. Notably, it

To prevent Merrimack Station from sending FGD wastewater to POTWs that cannot treat the toxic pollutants in the FGD wastewater, EPA should take actions regarding both Merrimack Station's NPDES permit and the POTWs' NPDES permits. EPA should include a clause in the final Merrimack Station NPDES permit providing that EPA will reopen the permit to include the new pretreatment standards for FGD wastewater established by the forthcoming ELG rule. EPA should then reopen and revise Merrimack Station's NPDES permit as soon as the new pretreatment standards for FGD wastewater are finalized. In addition, EPA should require PSNH to submit to EPA Region 1 a report at the end of each month providing detailed information on any FGD wastewater sent to a POTW for treatment, including the name and location of the receiving POTW, the amount and pollutant characteristics of the wastewater, and such other information as is necessary.

In addition, EPA should also take actions relating to the POTWs' NPDES permits to address this problem. First, EPA should determine whether the POTWs receiving FGD wastewater from the Merrimack Station are violating their NPDES permits by doing so (and should immediately inform the POTW operators of its intent to undertake this determination). Between 2012 and 2014, Merrimack Station sent FGD wastewater to 5 POTWs: S. Portland, Attleboro, Lowell, Hooksett, and Franklin. Fact Sheet at 24-25. As the table below indicates, it is our understanding that EPA Region 1 is the permitting authority for all of these facilities except the S. Portland POTW.[7]

Table 1. POTWs that Receive FGD Wastewater from Merrimack Station and Have NPDES Permits Issued by EPA Region 1

POTW	NPDES Permit Date	Permit Number	Expired?
Attleboro	6/9/2008	MA0100595	Yes
Franklin	6/19/2009	NH0100960	Yes
Hooksett	8/5/2013	NH0100129	No
Lowell	9/1/2005	MA0100633	Yes

As the agency that issued the NPDES permits for these facilities, EPA should determine whether receiving Merrimack Station's FGD wastewater results in a violation of any permit terms, such as terms prohibiting the pass through of pollutants[8] and/or prohibitions on the discharge of toxic amounts of pollutants or toxic components that will result in demonstrable harm to aquatic life.[9] EPA should also investigate whether the POTWs are complying with any reporting requirements

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provides drinking water to the city of Nashua and surrounding towns as well as to downstream communities in Massachusetts, including the cities of Lowell and Lawrence."), *available at* http://des.nh.gov/organization/divisions/water/wmb/rivers/merri_river_lower.htm.

[7] EPA Region 1 issues NPDES permits for facilities located in Massachusetts and New Hampshire.

[8] *See* NPDES Permit No. MA0100633, Lowell Regional Wastewater Utilities at 7; NPDES Permit No. NH0100129, Town of Hooksett, New Hampshire at 5; NPDES Permit No. MA0100595, Attleboro Water Pollution Control Facility at 9; NPDES Permit No. NH0100960, Winnipesaukee River Basin Program Wastewater Treatment Plant at 8.

[9] *See* NPDES Permit No. MA0100633, Lowell Regional Wastewater Utilities at 8; NPDES Permit No. NH0100129, Town of Hooksett, New Hampshire at 6; NPDES Permit No. MA0100595, Attleboro Water Pollution Control Facility at 8; NPDES Permit No. NH0100960, Winnipesaukee River Basin Program Wastewater Treatment Plant at 5.

that may be triggered by the receipt of FGD wastewater from Merrimack Station, such as requirements to inform EPA Region 1 when new pollutants are introduced from an indirect discharger or when there is a substantial change in the pollutants introduced to the POTW.[10]

Second, if EPA concludes that the current NPDES permits for these POTWs do not include terms that adequately address the receipt and discharge of FGD wastewater, then EPA Region 1 should modify the permits for these 4 POTWs and include new permit conditions to prohibit or adequately treat FGD wastewater from Merrimack Station. 40 C.F.R. § 122.63(a)(2) authorizes EPA to modify a NPDES permit under the following circumstances:

> Information. The Director has received new information. Permits may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance.

The NPDES permits for the Attleboro, Franklin, and Lowell POTWs were issued prior to 2012, when the Merrimack scrubber came online and began generating scrubber wastewater, and when Merrimack began sending this wastewater to POTWs. All of the information in the record regarding shipments of FGD wastewater from Merrimack to these 3 POTWs constitutes information "not available at the time of permit issuance," 40 C.F.R. § 122.63(a)(2), since the POTW permits were issued before the scrubber wastewater was generated and shipped to the POTWs. Additionally, EPA states in the Fact Sheet that it believes that limits may be needed because the POTWs are not designed to adequately treat the toxic metals in the FGD wastewater, and thus the information "would have justified the application of different permit conditions," *id.*, namely, limits on receiving FGD wastewater.

Third, EPA should insist that each POTW that has received FGD wastewater from Merrimack Station revise its local pretreatment standards to prohibit Merrimack Station from sending FGD wastewater to the POTW. POTWs must adopt local pretreatment requirements to address local conditions and submit the plan for approval by the relevant permitting authority. *See* 40 C.F.R. § 403.8. The POTW is required to issue a permit, or the equivalent of a permit, to each industrial source discharging to the POTW. EPA should follow through on its suggestion, Fact Sheet at 49, of using local pretreatment standards to address the indirect discharge of FGD wastewater, which contains dangerous toxic pollutants that cannot be adequately treated by POTWs. As noted above, EPA has already found, in the proposed ELG rule, that toxic pollutants in FGD wastewater (including arsenic, mercury, and selenium) pass through POTWs in the absence of effective pretreatment, *see* 78 Fed. Reg. at 34,477, and EPA must not allow POTWs to continue to discharge Merrimack's FGD wastewater without adequate treatment or in a manner that causes or contributes to a violation of state water quality standards. EPA should make it clear in the Fact Sheet for this permitting action that the measures relating to POTWs

[10] *See* NPDES Permit No. MA0100633, Lowell Regional Wastewater Utilities at 7; NPDES Permit No. NH0100129, Town of Hooksett, New Hampshire at 5; NPDES Permit No. MA0100595, Attleboro Water Pollution Control Facility at 8; NPDES Permit No. NH0100960, Winnipesaukee River Basin Program Wastewater Treatment Plant at 4-5.

described above will apply to any POTW that has not yet received indirect discharges from Merrimack Station may receive such discharges in the future.

Finally, EPA should urge the State of Maine to take similar actions regarding the S. Portland POTW, namely: investigate whether receiving FGD wastewater from Merrimack Station violated any terms of the existing NPDES permit; revise the NPDES permit to include permit terms to prohibit receiving FGD wastewater if such terms do not exist in the current permit; require the S. Portland POTW to revise its local pretreatment standards, and include such revised conditions in any permit or similar document that the POTW has issued to PSNH. EPA should also ensure that Maine, and other states in New England, take these actions regarding any POTWs that receive FGD wastewater from Merrimack Station in the future.

III. EPA SHOULD PROHIBIT PSNH FROM DISCHARGING LEACHATE CONTAINING POLLUTANTS FROM ITS FGD WASTEWATER USED TO CONDITION FLY ASH.

Under the draft permit, PSNH could circumvent a zero-liquid discharge limit for FGD wastewater not only by sending the wastewater to a POTW after treatment by its physical/chemical treatment system, but also by using the brine concentrate to condition fly ash rather than running the concentrate through the crystallizer that is the second phase of the VCE and crystallizer system. If instead the wastewater is run through both phases of the secondary treatment system, there is no need to dispose of brine concentrate, as the crystallizer produces a salt cake and the distillate can be reused in the FGD system. Put differently, if PSNH operates both phases of the VCE and crystallizer system, no brine concentrate is produced, thereby eliminating the problem of leachate containing pollutants from brine concentrate applied to fly ash.[11]

As the Clean Water Act requires elimination of discharges if economically and technologically achievable, and EPA has found that eliminating FGD wastewater discharges is achievable at Merrimack Station, EPA must set BAT limits that actually eliminate the discharge of FGD wastewater from Merrimack Station. Thus, limits on the discharge of leachate must be based on a zero-liquid discharge limit of Merrimack's FGD wastewater. The leachate limits should be set at a level that prohibits the addition of pollutants from brine concentrate that comes from FGD wastewater.

EPA can achieve this through two means. First, the final revised NPDES permit for Merrimack should expressly prohibit applying brine concentrate to fly ash destined for a landfill. *See generally* 40 C.F.R. § 122.45(h). Second, EPA should set effluent limits for landfill leachate based on the characteristics of that leachate when the fly ash is not conditioned with brine concentrate. If EPA does not have data on the composition of the leachate in the absence of fly ash treated with brine concentrate, EPA should require PSNH to submit the data necessary for EPA to make such a determination, and then EPA can revise the leachate effluent limits. Setting

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[11] As mentioned above, after the FGD wastewater is treated by the physical and chemical treatment system, it enters the secondary wastewater treatment system, which consists of two phases: (1) a vapor compression and evaporation phase; and (2) a crystallization phase. Fact Sheet at 21-22. The brine concentrate is the liquid left after both the physical and chemical treatment system and the VCE system, but before the crystallization phase. *Id.*

a leachate effluent limit in this fashion will ensure that any addition to the leachate discharges of pollutants from the fly ash treated with brine concentrate would violate the NPDES permit. This would ensure the elimination of the discharge of Merrimack's FGD wastewater, as required by the Clean Water Act.

IV. VAPOR CRYSTILLIZATION AND EVAPORATION WILL LEAD TO SIGNIFICANT PUBLIC HEALTH AND ENVIRONMENTAL BENEFITS.

The Clean Water Act forbids EPA from basing a BAT determination on a cost-benefit analysis. *See, e.g., Am. Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 1053 n.54 (1981) ("a cost-benefit analysis is not required at all" for BAT); *CPC Int'l Inc. v. Train*, 540 F.3d 1329, 1341-42 (8th Cir. 1976) (BAT guidelines are "governed by a standard of reasonableness without the necessity of a thorough cost-benefit analysis"); *Reynolds Metals Co v. EPA*, 760 F.2d 549, 565 (4th Cir. 1985) ("no balancing is required" for BAT); *Rybachek v. EPA*, 904 F.2d at 1290-91 (EPA "need not compare [control] cost with the benefits of effluent reduction"); *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 799-800 (6th Cir. 1995) (rejecting industry demand for cost-benefit analysis because BAT "does not require cost-benefit analysis" and "EPA need only find … that the cost of the technology is reasonable").[12] Once EPA has found that a zero-liquid discharge limit is economically and technologically achievable at Merrimack, EPA is compelled by 33 U.S.C. § 1311(b)(2)(A) to conclude that eliminating the discharge is BAT. While accounting for the benefits of the zero-liquid discharge system is thus legally irrelevant, we nonetheless note that as a practical matter, the VCE and crystallizer system will have significant public health and environmental benefits.

The zero-liquid discharge system will save large quantities of water. The system can reuse the distillate from the brine concentrator and condensate from the crystallizers as FGD makeup water, thereby saving approximately 100,000 gallons per day. Fact Sheet at 22.

Moreover, eliminating discharges of mercury to the Merrimack River will be one step toward lowering mercury levels in the River, for which there are fish consumption advisories due to high levels of mercury in fish. Fact Sheet at 9. As a result of excessively high mercury concentrations, there is a TMDL for the Merrimack River. *Id.*

The zero-liquid discharge system will create benefits for downstream drinking water systems as well. EPA has acknowledged that ZLD systems such as the system installed at

[12] The Supreme Court's recent discussion of cost analysis under a separate Clean Water Act provision, 33 U.S.C. § 1326, in *Entergy Corp. v. Riverkeeper, Inc*., 556 U.S. 208 (2009), reinforces this long-settled law. The question in *Entergy* was whether Section 1326, which requires the use of the "best technology available for minimizing [the] environmental impact" of cooling water intake structures allowed EPA discretion to apply cost-benefit analysis to set that particular technology-based standard; the Court held that it did. 556 U.S. at 219-220. Having settled that question based on its reading of the statutory text of Section 1326, the Court, in dicta, went on to compare the Section 1326 standard with BAT. In doing so, it emphasized that the Section 1326's goal of "minimizing" environmental impact is "relatively modest" compared with BAT's goal of "eliminating the discharge of all pollutants," meaning that it was more reasonable to allow cost benefit balancing in connection with the Section 1326 standard than with the more stringent BAT standard. *See id.* at 221-222. *Entergy* ultimately affirmed that only certain specific Clean Water Act standards "authorize cost-benefit analysis," and the BAT analysis does not fall within this group.

Merrimack are the only systems that address the high levels of boron, bromides, and TDS in FGD wastewater. Bromide discharges "upstream from a drinking water intake [have] been associated with the formation of trihalomethanes, also known as THMs, when it is exposed to disinfectant processes in water treatment plants." 78 Fed. Reg. 34,432, 34,477 (June 7, 2013). These disinfection by-products have been linked to bladder and other cancers. The attached report of Dr. Jeanne vanBriesen documents that disinfection by-products created when bromide is present in the source water are especially harmful, and are extremely difficult and costly to remove from the public water supply. VanBriesen Report at 17-18, 20-22. Operating the zero-liquid discharge system at Merrimack will ensure that bromides in the FGD wastestream do not enter the Merrimack River and create dangerous disinfection by-products in public drinking water supplies.

CONCLUSION

For the foregoing reasons, EPA should issue a final NPDES permit for Merrimack Station that:

- finds that BAT for discharges of FGD wastewater from Merrimack Station is the physical/chemical and vapor compression and evaporation and crystallization system installed at Merrimack;
- removes outfall 003C and prohibits the discharge of FGD wastewater to the Merrimack River;
- denies PSNH's request to discharge FGD wastewater that has been treated by only the physical/chemical treatment system;
- includes a clause authorizing EPA to reopen and revise the permit to include the new pretreatment standards for FGD wastewater when finalized in the forthcoming ELG rule;
- revises the NPDES permit for each POTW receiving FGD wastewater from Merrimack, if the existing permit does not adequately address FGD wastewater;
- notes that Merrimack will have to receive new permits from local POTWs if, as EPA should insist, the POTWs revise their local pretreatment standards to prohibit the indirect discharge of FGD wastewater;
- requires PSNH to send to EPA monthly reports on FGD wastewater sent off-site to a POTW; and
- prohibits the discharge of leachate containing any pollutants from brine concentrate applied to fly ash, and sets limits on leachate discharges consistent with this prohibition.

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,

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