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VIA E-MAIL
VIA FIRST CLASS MAIL

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Re: **Public Service Company of New Hampshire**
Merrimack Station, Bow, New Hampshire
Draft NPDES Permit No. NH0001465
Final Effluent Limitation Guidelines Voluntary Incentives Program for Flue Gas Desulfurization Wastewater – Technical Submission

Dear Mr. Webster, Attorney Stein, and Ms. DeMeo:

Public Service Company of New Hampshire d/b/a Eversource Energy ("PSNH" or the "Company") provides this letter and the enclosed confidential report from Enercon Services, Inc. ("Enercon Report"), in support of the Company's March 23, 2016, letter opting-into the Voluntary Incentives Program ("VIP") for the regulation of flue gas desulfurization ("FGD") wastewater at Merrimack Station.[1] Since submitting its August 18, 2014, Comments addressing the Environmental Protection Agency's ("EPA") Revised Draft National Pollutant Discharge Elimination System ("NPDES") Permit No. NH 0001465 ("Draft Permit") for Merrimack Station ("2014 Comments"), PSNH has continued to optimize its state-of-the-art FGD wastewater treatment system, comprised of the physical/chemical treatment system with its Enhanced Mercury and Arsenic Removal System (jointly, the primary wastewater treatment system or "PWWTS"), and its softening, evaporation, and

[1] Effective January 4, 2016, EPA established the VIP as part of the final Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category ("ELGs").

crystallization technology (the secondary wastewater treatment system or "SWWTS"). Although PSNH is extremely proud of its progress in pioneering this state-of-the-art technology, there are multiple variables within Merrimack Station's operations that complicate the modification of the SWWTS from a system designed for volume reduction to one that can reliably and consistently achieve the evaporative limits set forth in the VIP. While the SWWTS is extremely successful in doing its intended job of volume reduction, it does not achieve zero liquid discharge—nor was it designed to do so—and it continues to operate with a purge stream.

In addition, as described in PSNH's 2014 Comments, there continue to be operational challenges with the SWWTS that can result from any variation in the complex chemical and equipment sequential series of balances that comprise the upstream power production process. *See e.g.*, 2014 Comments at 36. The SWWTS cannot at this time consistently achieve the evaporative limits set forth in the VIP, particularly during periods of high demand, and, as a result, during this interim period, PSNH must have the flexibility to discharge directly from the PWWTS to the treatment pond and discharge canal when SWWTS operations are interrupted or the SWWTS is not available. As stated in our 2014 Comments, PSNH's PWWTS, with the addition of the enhanced filtration system, cost effectively and consistently removes identified constituents of concern and satisfies water quality standards established by the New Hampshire Department of Environmental Services ("NHDES").

PSNH hopes the information included in this letter and the attached report will be helpful to EPA, as Merrimack Station remains one of the few plants in the world with experience in managing the many challenges of this developing technology.

EPA Established the VIP to Allow Steam Electric Generating Plants Until December 31, 2023 to Meet Evaporative Based FGD Effluent Limits

For plants willing to opt-into the VIP, the ELGs established evaporative based limits that apply "as of December 31, 2023, to FGD wastewater generated on and after December 31, 2023." 80 Fed. Reg. 67,838, 67,858 (Nov. 3, 2015). Until such time, facilities opting into the VIP are subject to the Best Available Technology Economically Achievable ("BAT") total suspended solids ("TSS") effluent limitations, equal to Best Practicable Control Technology Currently Available for TSS, set forth at 40 C.F.R. § 423.12(b)(11). EPA recognized the necessity that plants opting-into the VIP be given until the conclusion of 2023 to "use the period in advance of this date to research, engineer, design, procure, construct, and optimize systems capable of meeting the limitations based on evaporation." *Id.* at 67,858-59.[2] EPA was unequivocal in its direction to permitting agencies in this regard—"[w]here a discharger chooses to participate in the voluntary incentives program and be subject to effluent limitations for FGD wastewater based on evaporation, the permitting authority must allow the plant up

[2] "Steam electric power plants agreeing to meet BAT limitations for FGD wastewater based on evaporation must comply with those limitations on arsenic, mercury, selenium, and TDS in FGD wastewater. For such plants, the BAT limitations based on evaporation apply as of December 31, 2023, to FGD wastewater generated on and after December 31, 2023. Plants opting to participate in the voluntary program can use the period in advance of this date to research, engineer, design, procure, construct, and optimize systems capable of meeting the limitations based on evaporation." 80 Fed. Reg. at 67,858-59 (footnote omitted).

to December 31, 2023, to meet those limitations; again, the permit must make clear that the plant must meet the final limitations by December 31, 2023." *Id.* at 67,883 (emphasis added).

Thus, the ELGs reflect EPA's recognition and judgment that significantly more time is needed for steam electric generating plants to implement and optimize evaporative technology. As discussed below and throughout the Enercon Report, PSNH's Merrimack Station and the industry as a whole require more experience before EPA's aspirational goals can be achieved. The Electric Power Research Institute ("EPRI") is researching new wastewater treatment and conservation technologies under its Program 185. The 2016 research plan has a $3.0MM budget for this year and will address the treatment of selenium, mercury, arsenic, and nutrients in FGD blowdown as well as other constituents such as boron and bromide. According to EPA's Technical Development Document,[3] only three plants in the United States have installed or are installing an evaporation system to treat FGD wastewater, Merrimack Station being one of them. There are significant variations in the few vapor evaporative systems that are currently in operation with no two systems identical.

Appropriately, EPA has recognized that evaporative technology has optimization challenges ahead of it—or at least in terms of what EPA wants this technology to achieve. Through the VIP, EPA sought to "accelerate the research into and demonstration of controls and processes intended to prevent, reduce, and eliminate pollution because, under it, plants will opt to employ control and treatment strategies to significantly reduce discharges of pollutants found in FGD wastewater."[4] The agency's selection of the 2023 compliance date as an industry-wide option is a recognition of the work that remains to be done in developing, understanding, and optimizing this new technology before compliance with evaporative limits can be met.

The ELGs Allow PSNH to Opt-Into the VIP In Order to Optimize its SWWTS and Achieve Evaporative Limits by 2023

As EPA acknowledged in its response to public comments concerning the ELGs, the fact that PSNH already has installed its SWWTS makes it no different than other steam electric generating plants subject to the rule. Specifically, EPA "has not excluded any plants from the ability to opt into the [VIP], and . . . plants that already use evaporation technology to treat their FGD wastewater may opt into the [VIP] . . . ." EPA, Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category: EPA's Response to Public Comments; Part 8 of 10, at 8-3 (September 2015). The VIP assures that true pioneers of evaporative technologies like PSNH have the time needed to optimize and engineer their wastewater treatment systems to consistently and reliably meet the ELGs' evaporative limits. The 2023 compliance date is a must for Merrimack Station for the many reasons stated in PSNH's 2014 Comments and the Enercon Report attached to this letter.

As EPA is aware from PSNH's 2014 Comments, the Draft Permit's limitations are impossible for PSNH to meet at this time (and therefore are arbitrary and capricious). But as a threshold matter, given EPA's promulgation of the ELGs before issuance of a final NPDES permit, the Draft Permit's FGD effluent limitations based on EPA's "best professional judgment" ("BPJ") are now a nullity.

[3] EPA, Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, at 7-14 (Sept. 2015).

[4] 80 Fed. Reg. at 67,858.

Region 1 is obligated to apply the uniform, technology-based final limits set out in the ELGs to regulated entities within the steam electric power generating industry, including Merrimack Station. EPA can no longer use its BPJ to establish a permit limit for Merrimack Station's FGD wastewater effluent.

Courts, the Environmental Appeals Board, and EPA have uniformly confirmed that the Clean Water Act ("CWA") does not allow for permit limits based on the agency's BPJ once national guidelines are established. *See e.g., NRDC v. EPA*, 859 F.2d 156, 200 (D.C. Cir. 1988) (further providing that CWA section 402(a)(1) "preclude[s] the establishment of BPJ permit limits once applicable effluent guidelines are in place"); *NRDC v. EPA*, 822 F.2d 104, 111 (D.C. Cir. 1987) (noting that a state or permit writer may set limitations utilizing its BPJ authority only when there is no national standard that has been promulgated for a point-source category); *Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 203 (2d Cir. 2004) ("It is, of course, true that once the EPA promulgates applicable standards, regulation of those facilities subject to those standards on a [BPJ] basis must cease . . . ."); *Citizens Coal Council v. EPA*, 447 F.3d 879, 891 n.11 (6th Cir. 2006) (noting that BPJ applies only when "EPA has not promulgated an applicable guideline"); Letter from Jim Hanlon, Director, Office of Wastewater Management, to Water Division Directors Regions 1-10, Att. A, at 1 (June 7, 2010) (commonly referred to as the "Hanlon Memorandum") (acknowledging that BPJ-based limits are only to be included in permits "until such time [as the ELGs are] promulgated"); *see also* H.R. Rep. No. 92-911, at 126 (1972), *reprinted in* A Legislative History of the Water Pollution Control Act Amendments of 1972 at 813 (1973) (providing that permits with BPJ limits may be issued only "prior to" the promulgation of nationally applicable effluent guidelines).

Because EPA now has established ELGs (including the VIP and its 2023 compliance date for achieving the evaporative based limits), these provisions must be included in any final permit issued for Merrimack Station. *In re: Certainteed Corporation*, NPDES Appeal No. 15-01, 2015 WL 10091224, at *1 (EAB May 7, 2015) ("If EPA has developed industrial category-wide (or subcategory-wide) effluent limitations—referred to as 'effluent limitation guidelines' []—such limits must be included in that facility's permit.") (citing 40 C.F.R. § 125.3(c)(1) & *E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112 (1977)); 80 Fed. Reg. at 67,883 ("[T]he permitting authority must allow the plant up to December 31, 2023, to meet those limitations . . . ." (emphasis added)). The ELGs reflect EPA's judgment that facilities, like PSNH, seeking to develop, implement, and optimize evaporative systems require additional time to achieve the limits set forth in the ELGs. And if PSNH's Merrimack Station—with its solid head-start on the industry, state-of-the-art system, and team of dedicated and talented engineers—cannot reach a zero liquid discharge on a consistent basis, then it is a fair assumption that no other utility can do so either at this time.

PSNH Must Be Permitted to Discharge Directly From its PWWTS During Optimization of its Wastewater Treatment System

As detailed in the Enercon Report and throughout PSNH's August 18, 2014, Comments to the Draft Permit, the SWWTS installed at Merrimack Station does not and cannot at this time reduce FGD wastewater to zero liquid or effluent that meets the evaporative limits set forth in the ELGs. These limitations on the SWWTS are not surprising, given it was not designed to be a so-called "zero liquid discharge" system. The vapor compression evaporative technology is first and foremost a volume reduction system. In attempting to maximize the system's volume reduction capabilities, PSNH continues to experience the optimization and operational issues detailed in the Enercon Report,

resulting from the necessarily complex array of equipment and chemical processes and reactions, all of which is made even more challenging by sporadic plant operations.

Continued optimization, equipment adaptation, and greater operational experience, as well as time for each of these activities to occur, are essential for PSNH to meet the proposed limits set forth in the VIP by 2023. During optimization, PSNH must be able to discharge directly from the PWWTS to its treatment pond and discharge canal when the SWWTS shuts down or is otherwise unavailable. As discussed below, EPA can be confident that discharges from the PWWTS satisfy the ELGs' interim TSS limits allowed under the VIP through 2023. Indeed, the PWWTS, with the addition of the enhanced filtration system, is an extremely effective and dependable FGD wastewater treatment system.

The PWWTS removes the overwhelming majority of constituents of concern from the FGD waste stream generated by the scrubber.[5] In particular, with the addition of the Enhanced Mercury and Arsenic Removal System, the PWWTS removes 99.997 percent of the already small amounts of mercury present in the FGD waste stream, as well as 98 percent of selenium and arsenic. EPA itself has recognized that these resulting mercury levels are "low" and represent "a tiny fraction . . . of the total mercury previously released to the atmosphere" prior to the scrubber installation.[6] EPA likewise has recognized the efficiency, effectiveness and long-standing success of chemical precipitation at reducing suspended solids and dissolved solids, including metals. *See* EPA, Steam Electric Power Generating Point Source Category: Final Detailed Study Report, at 4-50 (Oct. 2009) (noting that the "data show that chemical precipitation is an effective means for removing many metals from the FGD wastewater").

Furthermore, the NHDES, following a comprehensive anti-degradation review of both the Merrimack River and PSNH's FGD wastewater, determined that effluent from the PWWTS satisfied applicable water quality standards that assure protection of human health and the environment. Water quality-based limits are developed by states and primarily focus on the potential impact every proposed surface water discharge may have on the quality of the receiving water. States establish water quality-based limits for pollutants at levels that ensure the safety of individuals who drink from the waterway, fish in it, and/or recreate on it. Accordingly, NHDES's determination that effluent from the PWWTS at Merrimack Station satisfied applicable water quality standards necessarily means these effluent discharges do not detrimentally impact the Merrimack River.

In sum, while optimizing the system as necessary to achieve the evaporative based limits by the end of 2023, PSNH must be able to discharge directly from its highly effective PWWTS to its treatment pond and discharge canal when SWWTS operations are interrupted or the SWWTS is not available. To ignore the industry-wide challenges facing steam electric generating plants using

[5] *See* 2014 Comments at i-iv (Executive Summary), 72-79 (excerpts attached); *see also* Comments of PSNH on EPA's 2011 Draft NPDES Permit for Merrimack Station, at 149-153 (Feb. 28, 2012). William Kennedy, P.E., a respected expert on wastewater treatment within the industry and one of PSNH's consultants, corroborates the fact that the PWWTS at Merrimack Station is one of the best in the country. Mr. Kennedy's Comments Regarding the Proposed NPDES Permit for Public Service of New Hampshire's Merrimack Station are included as Exhibit 6 to PSNH's 2014 Comments.

[6] *See* EPA's 2014 Fact Sheet to the Draft Permit at 34.

evaporative systems, or more specifically, to ignore the operating realities at Merrimack Station detailed in PSNH's 2014 Comments and the attached Enercon Report, would be the quintessence of arbitrary and capricious decision-making.

Conclusion

As demonstrated in PSNH's 2014 Comments concerning the Draft Permit, and as explained in the attached Enercon Report, PSNH and the industry must overcome many challenges to successfully achieve the evaporative based limits set forth in the ELGs. PSNH is continuing to optimize its wastewater treatment systems at Merrimack Station to achieve the best possible environmental end result, while maintaining safe plant operations and providing reliable power to its customers.

In order to successfully optimize and adapt its wastewater treatment systems to meet the evaporative-based limits by December 31, 2023, PSNH must have the flexibility to discharge its FGD effluent directly from the PWWTS subject to the interim limits established in the VIP. Region 1 should include in the final NPDES permit for Merrimack Station the following standards set out in the ELGs for the VIP:

1) BAT TSS effluent limitations for FGD wastewater generated at the facility prior to December 31, 2023, equal to Best Practicable Control Technology Currently Available for TSS at 40 C.F.R. § 423.12(b)(11);[7] and

2) BAT effluent limitations set out in the table following 40 C.F.R. § 423.13(g)(3)(i) for FGD wastewater generated at the facility on or after December 31, 2023.[8]

The VIP's interim limits are essential for PSNH to perform the necessary optimization, adaption, and adjustments to its wastewater treatment system to achieve the evaporative-based limits in 2023.

We appreciate the opportunity to provide the attached Enercon Report updating EPA concerning the status of PSNH's optimization efforts. PSNH hopes this information is helpful to EPA, and respectfully requests and expects this correspondence and enclosed Enercon Report will be included as part of the administrative record for the pending NPDES permit reissuance for Merrimack Station. Further, because the Enercon Report includes proprietary information concerning PSNH's wastewater treatment system, the report should be treated as Confidential Business Information and not released to third-parties.

[7] *See* 40 C.F.R. § 423.13(g)(3)(ii).

[8] *See id.* § 423.13(g)(3)(i).

Very truly yours,

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