

**Statement of Substantial New Questions for Public Comment****(Discussion of Substantial New Questions and Possible New Conditions for the Merrimack Station Draft NPDES Permit that are Now Subject to Public Comment During the Comment Period Reopened by EPA under 40 C.F.R. § 124.14(b))**

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## **I. Introduction**

Working together with the New Hampshire Department of Environmental Services (NHDES), the Region 1 Office of the United States Environmental Protection Agency (EPA or the Agency) has decided that it should exercise its discretion under 40 C.F.R. § 124.14(b) to reopen the comment period for the draft National Pollutant Discharge Elimination System (NPDES) permit for the Merrimack Station power plant in Bow, NH (NPDES Permit No. NH0001465) (the Draft Permit). The Merrimack Station power plant (referred to herein as either Merrimack Station, the Station or the Facility) is owned and operated by Public Service of New Hampshire (referred to either as PSNH, the Permittee or the Company), which is a subsidiary of Eversource Energy. EPA is working to reissue the NPDES permit under the Section 402 of the Clean Water Act (CWA). 33 U.S.C. § 1342.

EPA regulations state that:

[i]f any data[,] information or arguments submitted during the public comment period, including information or arguments required under § 124.13, appear to raise *substantial new questions* concerning a permit, the Regional Administrator may take one or more of the following actions:

- (1) Prepare a new draft permit, appropriately modified, under § 124.6;
- (2) Prepare a revised statement of basis under § 124.17, a fact sheet or revised fact sheet under § 124.8 and reopen the comment period under § 124.14; or
- (3) Reopen or extend the comment period under § 124.10 to give interested persons an opportunity to comment on the information or arguments submitted.

40 C.F.R. § 124.14(b)(1), (2) and (3) (emphasis added). In this case, EPA has determined that various data, information and arguments submitted during prior comment periods, or that were submitted or became known to EPA after the comment periods,<sup>1</sup> raise a number of substantial new questions concerning the Merrimack Station Draft Permit. In response, EPA has decided to issue a public notice reopening the comment period on the Draft Permit in order to provide the public with an opportunity to comment on the new information and the substantial new

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<sup>1</sup> While the text of 40 C.F.R. § 124.14(b) refers to the comment period being reopened because of data, information or arguments submitted “during the comment period,” EPA interprets this provision to recognize implicitly that EPA also has the discretion to reopen the comment period on the basis of new data, information, or arguments submitted or obtained *after* the public comment period but *before* issuance of the final permit. For example, if applicable laws or regulations change after closure of the comment period for a particular draft permit but before issuance of the final permit, EPA would conform the permit conditions to comply with the applicable law, *see* 40 C.F.R. § 122.43(b)(1), and would have the discretion to reopen the comment period to provide an opportunity to comment on the changes. As another example, if after closure of the comment period for a draft permit, EPA obtained new scientific data that the Agency concluded necessitated changes to the draft permit conditions or raised substantial new questions about the basis of those draft permit conditions, EPA would have the discretion to reopen the comment period to allow for public review and comment pertaining to the new data and its import for the draft permit conditions.

questions. EPA has also responded to the new information and questions by developing options for certain new (or revised) Draft Permit conditions, and by developing new (or revised) analyses in support of the Draft Permit conditions. In connection with the reopened comment period, EPA has prepared this Statement of Substantial New Questions for Public Comment (Statement) to describe the new information, the substantial new questions, the potential new permit conditions, and the new supporting analyses, so that the public can review the material and comment on it to EPA.

Therefore, EPA is issuing this Statement in conjunction with a Public Notice under 40 C.F.R. § 124.10 to inform the potentially interested public of (a) the reopening of the public comment period, (b) the particular substantial new questions that are at issue and that define the scope of the reopening of the comment period in accordance with 40 C.F.R. § 124.14(c), (c) how to access this Statement and other relevant materials for review in connection with the reopened comment period, and (d) when and where to submit comments to EPA and NHDES. In accordance with 40 C.F.R. § 124.14(c), the comment period for the Draft Permit is not being reopened “across the board.” As explained in this Statement, the comment period is only being reopened with respect to certain questions, issues and information, including the following:

- 1) new EPA regulations under CWA § 316(b), 33 U.S.C. § 1326(b), pertaining to cooling water intake structures at existing facilities, 79 Fed. Reg. 48300 (Aug. 15, 2014) (Final Rule) (2014 CWA § 316(b) Regulations);
- 2) questions about how the 2014 CWA § 316(b) Regulations should be applied to the Merrimack Station NPDES permit;
- 3) new information regarding the efficacy of cylindrical wedgewire screen technology for reducing impingement mortality and entrainment by cooling water intake structures;
- 4) new information concerning cylindrical wedgewire screen design (*e.g.*, wedgewire “half-screens”) that could facilitate deploying the technology at Merrimack Station;
- 5) new questions about what would constitute a reasonable schedule for retrofitting Merrimack Station to comply with CWA § 316(b) either by installing cooling towers to enable the facility to operate on a closed-cycle basis or by installing cylindrical wedgewire screens to operate in conjunction with open-cycle cooling;
- 6) new information concerning data reflecting Merrimack Station’s waste heat discharges and their effects on Merrimack River water temperatures;
- 7) new information concerning the presence of the Asian clam, an invasive freshwater mollusk, in the Merrimack River in the vicinity of Merrimack Station;
- 8) questions about whether any of this new information (*i.e.*, the thermal data and the Asian clam data) should lead to changes either to EPA’s decision to deny PSNH’s

request for renewal of its existing thermal discharge variance under CWA § 316(a), 33 U.S.C. § 1326(a), or EPA's analysis of how to apply New Hampshire water quality standards to the regulation of Merrimack Station's thermal discharges;

- 9) questions about how the final permit requirements (including effluent limits and compliance dates) should be affected by new EPA regulations promulgated under CWA §§ 301 and 304, 33 U.S.C. §§ 1311 and 1314, that set new effluent limitation guidelines (ELGs) to address certain pollutant discharges from Steam Electric Power Plants, including wastewater discharges from Flue Gas Desulfurization (FGD) air emissions control equipment, bottom ash transport water, and non-chemical metal cleaning wastes, 80 Fed. Reg. 67838 (Nov. 3, 2015) (Final Rule) (40 C.F.R. Part 423) (the 2015 Steam Electric ELGs);
- 10) questions about how, in the development of Merrimack Station's new NPDES permit, EPA should take into account (a) the Agency's action to stay certain provisions of the 2015 Steam Electric ELGs while it reconsiders the ELGs in response to several petitions seeking such reconsideration by EPA, *see* 82 Fed. Reg. 19005 (April 25, 2017), and (b) the currently stayed litigation challenging the Steam Electric ELGs (*see Southwestern Electric Power Co. v. EPA*, No. 15-60821 (5th Cir. Apr. 24, 2017));
- 11) questions about how, if at all, EPA should, when setting NPDES permit limits for Merrimack Station, take account of the substantial drop in the facility's overall capacity utilization, while recognizing that the units still run a great deal at certain times; and
- 12) questions about how, if at all, EPA should, when setting NPDES permit limits for Merrimack Station, take account of the current state-administered auction process through which PSNH is expected to divest of its electrical generating assets, including Merrimack Station.

These issues and questions are discussed in detail in this Statement of Substantial New Questions for Public Comment.

## **II. Background**

EPA last issued a new Final NPDES Permit to Merrimack Station on June 25, 1992. Administrative Record (AR) 236. The permit expired on July 31, 1997, but was administratively continued in 1997 as a result of PSNH's timely application for permit renewal. *See* 40 C.F.R. § 122.6(a). Since its 1997 application for permit renewal, PSNH supplemented the application in 2007 and 2010.

EPA issued PSNH a new Draft NPDES Permit for Merrimack Station on September 30, 2011 (the 2011 Draft Permit). AR-609. *See also* AR-608 (Fact Sheet for 2011 Draft Permit). The 2011 Draft Permit addresses various aspects of the power plant's operations affecting the Merrimack

River, including the Facility's withdrawal of water from the River for cooling uses and its discharges of a variety of pollutants to the river. Pollutants discharged, or potentially to be discharged, by the Facility to the Hooksett Pool section of the Merrimack River include waste heat, FGD wastewater, bottom ash transport water, non-chemical metal cleaning wastes, and many others. The comment period on the 2011 Draft Permit extended five months, from September 30, 2011, to February 28, 2012. After the public comment period for the Draft Permit closed, EPA began work to consider the voluminous and conflicting public comments that were submitted and develop the Final Permit. This involved not just reviewing comments, but also, in some cases, doing additional research on issues raised by the comments.

As EPA worked on the permit, it decided to issue for public comment a new, Revised Draft Permit proposing different effluent limits for Merrimack Station's FGD wastewater discharges. EPA came to this decision because it had learned that after the original Draft Permit was issued, the Facility installed a new, highly effective treatment system for its FGD wastewater, and this new treatment system was not reflected in either the 2011 Draft Permit's proposed effluent limits or its supporting record.

EPA issued the Revised Draft Permit on April 18, 2014, AR-1136, and provided a two-stage comment period pursuant to 40 C.F.R. § 124.14(a). In the first comment period, the public was invited to comment on the Revised Draft Permit. In the second comment period, the public was given the opportunity to comment on the comments submitted by others during the first comment period. The second public comment period ended on October 22, 2014, entailing an overall comment period of approximately 6 months. *See* AR-1137 (2014 Revised Draft Permit Public Notice). Once again, EPA received voluminous and conflicting public comments.

Since closure of the comment period for the Revised Draft Permit, EPA has been working to consider all of the public comments received on the 2011 Draft Permit and the 2014 Revised Draft Permit, and to develop the new Final Permit. At the same time, however, a variety of significant new developments relevant to the Merrimack Station permit have unfolded since closure of the public comment periods for the 2011 Draft Permit and the 2014 Revised Draft Permit. These new developments include the following:

1. Developments related to CWA § 316(b):
  - a. EPA promulgated the 2014 CWA § 316(b) Regulations, as mentioned above, which address requirements for cooling water intake structures at existing facilities, 79 Fed. Reg. 48300 (Aug. 15, 2014) (Final Rule);
  - b. Litigation challenging the 2014 CWA § 316(b) Regulations is underway, *see Cooling Water Intake Structure v. EPA*, No. 14-4645 (2d Cir. consolidated Dec. 18, 2014), but the regulations are currently in effect;
  - c. New information has been submitted to EPA regarding the efficacy of cylindrical wedgewire screen (CWS) technology for reducing impingement mortality and entrainment;

- d. PSNH submitted to EPA a report identifying a new CWS design concept (namely, CWS “half screens”) that could alter prior assessments of the viability of using CWSs at Merrimack Station; and
    - e. PSNH has indicated that it is doing additional analysis of the potential efficacy of wedgewire screen technology at Merrimack Station.
2. Developments related to the regulation of waste heat discharges under CWA § 316(a) and state water quality standards:
  - a. PSNH submitted additional thermal discharge data;
  - b. PSNH submitted a letter clarifying, and changing EPA’s understanding of, thermal discharge data previously submitted by the Company;
  - c. PSNH submitted a number of new scientific reports pertaining to the effects of Merrimack Station’s thermal discharges on aquatic life in the Merrimack River;
  - d. Data submitted by PSNH with its original comments on the 2011 Draft Permit unexpectedly indicated the presence of the Asian clam, an invasive species of freshwater mollusk, in the Merrimack River in the vicinity of Merrimack Station, and this prompted EPA to collect additional data on the presence of this species and to begin evaluating the import of that data for thermal discharge regulation; and
  - e. PSNH has indicated to EPA that in May 2017, the Company will submit additional Asian clam data and an assessment of the import of the data for the new NPDES permit. Although PSNH did not actually submit the data in May, the Company has maintained that it will submit this data eventually.
3. Developments related to the regulation of a variety of pollutant discharges regulated under the Steam Electric ELGs:
  - a. EPA promulgated the 2015 Steam Electric ELGs, 80 Fed. Reg. 67838 (Nov. 3, 2015) (Final Rule), which substantially revised the preexisting Steam Electric ELGs and, among other things:
    - i. set new effluent limits and compliance timelines for controlling discharges of FGD wastewater;
    - ii. set new effluent limits and compliance timelines for controlling discharges of bottom ash transport water; and
    - iii. discussed how to set effluent limits for discharges of non-chemical metal cleaning wastes.
  - b. Litigation challenging the 2015 Steam Electric ELGs was filed but is currently stayed through at least August 12, 2017, pending EPA reconsideration of the various aspects of the ELGs;

- c. In response to requests from EPA, PSNH wrote to EPA to indicate how Merrimack Station planned to comply with the requirements of the 2015 Steam Electric ELGs for FGD wastewater and bottom ash transport water;
  - d. EPA, however, has now issued a Federal Register notice postponing certain aspects of the 2015 Steam-Electric ELGs while it reconsiders them in response to several petitions seeking such reconsideration by the Agency, *see* 82 Fed. Reg. 19005 (Apr. 25, 2017); and
  - e. The postponement of the 2015 Steam Electric ELGs affects various provisions of the ELGs as well as PSNH's plan for complying with requirements governing discharges of bottom ash transport water, but does not affect the provisions of the ELGs applicable to PSNH's compliance plan for limiting FGD wastewater discharges.
4. Since issuance of the 2011 Draft Permit, the capacity utilization (*i.e.*, the frequency or rate of electricity-generating operations) of Merrimack Station Units 1 and 2 – the two large coal-burning generating units at the Facility – has substantially diminished. Despite overall reduced operations, however, these units still run at high levels during peak demand periods, typically on cold winter days and hot summer days.
  5. As required by New Hampshire law, PSNH is currently auctioning its electrical generating assets, including Merrimack Station.

In addition to these substantive developments, PSNH has requested on multiple occasions that EPA issue a revised draft permit and reopen the comment period for the permit. PSNH's requests have been based on specific legal and factual developments since the Draft Permit and/or the Revised Draft Permit were issued, such as those described above. *See* AR-1357 (Apr. 12, 2017 Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to David M. Webster, Sharon DeMeo and Mark A. Stein, EPA Region 1); AR-1352 (Dec. 22, 2016 Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to David M. Webster, Sharon DeMeo and Mark A. Stein, EPA Region 1); AR-1299 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to Eric Nelson, EPA Region 1 (Feb. 29, 2016) (response to EPA information request letter)), p. 5. In the December 22, 2016, letter, PSNH argued that case law under the Administrative Procedure Act and the Clean Water Act indicates that a new notice-and-comment period is necessary. AR-1352, p. 3.

In a contrary vein, in November 2016, the Sierra Club sued EPA alleging that the Agency has unreasonably delayed reissuance of the NPDES permits for both Merrimack Station and Schiller Station, another (primarily) coal-burning New Hampshire power plant, owned and operated by PSNH. On November 23, 2016, Sierra Club filed a petition in the United States Circuit Court of Appeals for the First Circuit seeking a writ of mandamus to require EPA to issue both NPDES permits by June 30, 2017. *See In re Sierra Club* (1st Cir., No. 16-2415), *Sierra Club's Petition for Writ of Mandamus and Addendum Pursuant to 28 U.S.C. § 1651, and Clean Water Act, 33 U.S.C. § 1369(I)(F)* (Nov. 23, 2016) (AR-1397, p. 28). On January 12, 2017, however, EPA



filed an opposition to the Sierra Club's petition. *In re Sierra Club* (1st Cir., No. 16-2415), *Opposition to Petition for Mandamus by Respondents the United States Environmental Protection Agency, Gina McCarthy and Curt Spalding*, (Jan. 12, 2017) (AR-1398). In its Opposition, EPA argued that reissuance of the Merrimack Station NPDES permit had not been unreasonably delayed in light of the facts of the case and the applicable law and that the court should not issue an order requiring permit issuance by a specific date. (PSNH intervened in the case and also opposed the Sierra Club's petition.) At the same time, EPA indicated that it recognized that the permit had been administratively continued for a long time and that issuing an updated permit to Merrimack Station was a priority. EPA further indicated that it was working toward a target of issuing new final permits for both Merrimack and Schiller Stations by no later than December 31, 2017. EPA also explained, however, that it was considering PSNH's request for the comment period to be reopened and that additional time would likely be needed to complete the Merrimack Station permit if EPA reopened the comment period. *See* Declaration of David M. Webster in Support of Opposition to Petition for a Writ of Mandamus at 12-13 (¶ 18), 72 (¶ 98(e)), *In re Sierra Club*, No. 16-2415 (1st Cir. Jan. 12, 2017).

On April 19, 2017, the First Circuit issued its Judgment denying Sierra Club's petition for mandamus. The court stated that (internal citations omitted):

[w]e conclude that, under the circumstances presented here, the "drastic remedy" of mandamus is not warranted. ... While the delays in reissuing these NPDES permits continue to be concerning and extensive, the EPA has issued draft permits to both facilities and is working on finalizing these complex permits, while balancing competing priorities with its limited resources. Sierra Club has not met its burden, on this record, of showing that the court should step in to reprioritize the EPA's work.

The EPA estimates that it will issue final permits to both facilities by the end of 2017. While we decline to enforce this schedule, we expect the EPA to work diligently to complete these permits.

*In re Sierra Club*, No. 16-2415 (1st Cir. decided April 19, 2017) (AR-1392). EPA is acutely aware that the Merrimack Station and Schiller Station permits have been administratively continued for a lengthy period and is eager to issue new final permits for both facilities as soon as possible. At the same time, EPA is also committed to providing a fair, legally sound process for the development of the permits, and to developing scientifically and legally sound permit conditions in both cases.

### **III. EPA Determination to Reopen the Public Comment for Certain Issues**

As indicated in its above-mentioned court filings in *In re Sierra Club*, EPA has been considering PSNH's requests for the comment period for the Draft Permit to be re-opened. Indeed, given the developments discussed above, EPA would have been considering whether reopening the comment period was advisable even apart from PSNH's requests.

As suggested above, competing considerations are at stake. On one hand, EPA is eager to complete development of the Final Permit for Merrimack Station as expeditiously as possible. On the other hand, EPA must ensure a fair, legally sound administrative process for developing the permit. Ensuring a sound process is not only the right thing to do because it comports with the law and generates the information needed to produce the best permit decisions possible, but it is also likely the fastest route to a new Final Permit taking effect. This is because in the event of permit appeal, a reviewing court could remand the permit to the Agency for additional proceedings if there are procedural flaws in the permit's development.

EPA waited to make its final decision about whether to reopen the comment period until PSNH responded to EPA's queries about how and when the Company planned to comply with the 2015 Steam Electric ELGs' new effluent limits for bottom ash transport water discharges. *See* AR-1377 (Sept. 21, 2016, Email from Mark Stein, EPA Region 1, to Linda T. Landis, Senior Counsel, Eversource Energy). PSNH provided its response on February 17, 2017. *See* AR-1378 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to Mark A. Stein, EPA Region 1). (Because Eversource designated it as Confidential and Proprietary Business Information (CBI), this letter is part of the confidential portion, rather than the public portion, of the administrative record for this permit.) *Having considered PSNH's response, as well as a great deal of other relevant information, EPA has decided that it should reopen the comment period with regard to certain issues. The issues to be addressed by this reopening of the comment period have been discussed above and are detailed farther below.*

EPA's NPDES permit development procedures are governed by the CWA, EPA regulations promulgated pursuant to the CWA, *see* 40 C.F.R. Parts 122 and 124, and the Administrative Procedure Act (APA), 5 U.S.C. §§ 551, *et seq.* The APA provides overarching standards governing federal administrative practices for activities such as rulemakings and the development of permits or licenses. More specifically, EPA regulations at 40 C.F.R. § 124.14 address whether a comment period may be reopened in response to changed NPDES permit conditions and/or new information, data or arguments being added to the administrative record. The regulation gives the permitting agency discretion regarding whether to reopen the comment period in a particular proceeding, stating that the comment period "may" be reopened if new data, information or arguments appear to raise "substantial new questions." 40 C.F.R. § 124.14(b). This discretion, however, is not unlimited. *See, e.g., In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 147; (EAB, 2006) ("While the Board often defers to the permit issuer's discretion in these matters, the Board nonetheless will look at the change in the draft permit and, based on the significance of the change, will determine whether reopening the public comment period is warranted in a given circumstance.").

When an earlier proposed permit condition is changed, or a new condition is added, for the final permit, additional public comment is not necessary if the new or changed permit condition is deemed a "logical outgrowth" of the proposed conditions and the supporting record, including the comments received. *See, e.g., Ne. Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 951-52 (D.C. Cir. 2004). In addition, adding new information to the record does not trigger additional notice-and-comment unless the new information raises "substantial new questions," *see* 40

C.F.R. § 124.14(b) and (b)(3), and it is “critical” to the basis of the final permit conditions. *See also In re City of Attleboro*, 14 E.A.D. 398, 463 (EAB 2009).

The analysis under the APA runs along the same lines as that which EPA applies under 40 C.F.R. § 124.14. The APA also does not always require a public comment period to be reopened when, after the comment period for the draft permit has closed, permit conditions are changed for the final permit, or new analysis or factual material is added to the administrative record for the permit. The policy underlying the APA recognizes that it is desirable for agencies to consider public comments on a proposed action and to respond, when appropriate, by conducting additional research, writing additional analysis, and/or making appropriate changes to proposed permit conditions (or other types of proposed actions). *See Int’l Harvester Co. v. Ruckelshaus*, 478 F.2d 615, 632 n.51 (D.C. Cir. 1973). If additional notice-and-comment was needed in every case in which a draft permit condition was altered or factual material was added to the record, it could be a disincentive to agencies responding appropriately to public comments or other developments. Moreover, the administrative process might never end if every appropriate adjustment to a proposed action or the record supporting it necessarily triggered the need for an additional comment period. *See Conn. Light & Power Co. v. Nuclear Regulatory Com.*, 673 F.2d 525, 533 (1982); *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1031 (1978).

Therefore, under the APA, each specific condition in a final permit, and all the analysis and factual material in the record supporting the final permit, does not necessarily need to have been available for review during the public comment period. What is critical is that the public has been notified of the relevant, material issues and given an opportunity to comment on them at a time when the comments could potentially influence the permitting agency’s final action. Like EPA’s Environmental Appeals Board, the federal courts apply the “logical outgrowth” test to determine when additional opportunity for comment must be allowed in response to new or changed permit conditions being included in a final permit. Under this test, additional comment is not needed when the new or changed permit condition is considered a logical outgrowth of the draft permit condition and the supporting record. *See, e.g., Hudson Riverkeeper v. EPA*, 358 F.3d 174, 202 (2d Cir. 2004). Conversely, if the new or changed permit condition is not a logical outgrowth – *i.e.*, commenters could not have foreseen that the final permit condition was a possibility and therefore commented on it – then the permit is procedurally flawed and an opportunity to provide additional comment on the condition may be required.

When new information (*e.g.*, data, studies or analysis) is added to the administrative record after closure of the public comment period, additional public comment will not be required unless the new information raises substantial new questions or is critical to basis of the final permit conditions. In some cases, new information added to the record in response to comments may address existing questions rather than new ones. Moreover, even if the new information raises new questions, additional comment is not needed if the new questions are insubstantial or the new information is not critical to the final permit decision.

Finally, even when post-comment period changes to permit conditions are not a logical outgrowth of the draft permit, or new information is added to the record, the APA does not require additional comment if it would serve no purpose. *See* 5 U.S.C. § 553(b). For example, if

new statutory law or a court decision mandates a particular change to the final permit conditions, then taking comment on that new permit condition might serve no purpose because the agency has no choice but to include the new condition in the final permit. *See Lake Carriers' Ass'n v. EPA*, 652 F.3d 1, 10 (D.C. Cir. 2011); *United States v. Garner*, 767 F.2d 104, 120 n.24 (5th Cir. 1985).

There are many Environmental Appeals Board (EAB) and federal court cases addressing whether a comment period should be reopened and the decisions go both ways, often turning on highly case-specific factual analyses. EPA has carefully considered the facts in this case, as well as the applicable law, and has decided to reopen the comment period to address new data, new information, potential new Draft Permit conditions, and the substantial new questions specified below.

#### **IV. Issues to Be Addressed During the New Comment Period**

##### **A. New Information Raising Substantial New Questions Pertaining to Permit Requirements for Cooling Water Intake Structures Under CWA 316(b)**

###### **1. Background: The 2011 Draft Permit's Requirements Under CWA § 316(b)**

The 2011 Draft Permit included a variety of requirements under CWA § 316(b) that address Merrimack Station's cooling water intake structures. CWA § 316(b) creates the "best technology available" (or "BTA") standard for cooling water intake structures, specifying that:

###### **(b) Cooling water intake structures**

Any standard established pursuant to [section 1311 of this title](#) or [section 1316 of this title](#) and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

At the time of the 2011 Draft Permit, there were no national BTA standards in place for existing facilities. Therefore, in accordance with 40 C.F.R. § 125.90(b), EPA determined the BTA for Merrimack Station's cooling water intake structure on a case-specific, Best Professional Judgment (BPJ) basis. EPA's determination is documented in its "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" (September 2011) (the 2011 Draft Permit Determinations). *See* AR-618, Chs. 10-12.

Ultimately, the BTA proposed by EPA for Merrimack Station's Draft Permit consisted of adding closed-cycle cooling capability at the Facility for use on a seasonal basis (from April 1 through August 31, based on when the highest densities of aquatic life are present). By using closed-cycle cooling during the specified period, the Facility could greatly reduce both its water withdrawals from the Merrimack River and the entrainment and impingement of aquatic life that those withdrawals entail. Closed-cycle cooling operations were required only from April 1 to August 31 according to the BTA determination because based on the biological data, EPA

concluded that *entrainment* only needed to be addressed during that time period since entrainable life stages of local aquatic species are largely absent from the Hooksett Pool from September 1 through March 31. Therefore, the 2011 Draft Permit's proposed conditions under CWA § 316(b) would allow the use of open-cycle cooling from September 1 through March 31. Still, because the data indicated that *impingement* mortality was a concern during those cooler weather months, the 2011 Draft Permit also proposed certain intake screen operations and fish return system improvements to reduce impingement mortality during that period. *Id.*, pp. 346-347. These improvements included steps such as the use and optimization of a low pressure screen spray wash, specific upgrades to the fish return sluice to safely transport impinged fish back to the river, and specific travelling screen rotation requirements.

EPA's BTA determination was based on an evaluation of various technological alternatives in light of a multitude of factors, including, among other things, the degree to which each alternative could reduce the adverse environmental effects of the Facility's cooling water intake structure operations (*e.g.*, harm to aquatic organisms from entrainment and impingement), cost, engineering feasibility, secondary or indirect environmental and energy effects, and comparative costs and benefits. *See* AR-618, Chs. 11 and 12. EPA also found that the proposed intake requirements would satisfy New Hampshire's applicable water quality standards and could not be made significantly less stringent without running afoul of those state standards. *Id.*, pp. 345-346.

In its 2011 Draft Permit Determinations, EPA also discussed the interplay of the Draft Permit's proposed cooling water intake structure requirements with its thermal discharge limits. EPA explained that despite the permit's *seasonal* closed-cycle cooling requirements under CWA § 316(b), the Facility was expected to use closed-cycle cooling *year-round* in order to meet the permit's thermal discharge limits. This results from the fact that the same technology, closed-cycle cooling, can be used to greatly reduce both adverse intake effects and thermal discharges without significantly inhibiting the Facility's ability to generate electricity. EPA further explained that if the Facility operates closed-cycle cooling year-round to meet thermal discharge limits, it would also be regarded to be in year-round compliance with CWA § 316(b)'s BTA requirements for controlling both entrainment and impingement mortality, and major upgrades to the Facility's travelling screens would be unnecessary, though certain improvements to the fish return system and the travelling screen operational requirements would still be required. *Id.*, pp. 346-348.

As mentioned above, in the analysis supporting its BTA determination for Merrimack Station, EPA evaluated a number of technological alternatives, including closed-cycle cooling and *cylindrical wedgewire screens* (CWSs). *See, e.g., id.*, pp. 273-280. EPA ultimately rejected CWS technology as the BTA for Merrimack Station, concluding as follows:

[i]n sum, under certain environmental conditions, wedgewire screen technology may be capable of substantial reductions in entrainment and impingement mortality at facilities with certain characteristics. EPA concludes, however, that the necessary conditions for an effective wedgewire screen installation are not present at Merrimack Station on a consistent and reliable basis during the period

when fish eggs and larvae are present. Indeed, this problem contributed to PSNH's decision only to propose wedgewire screens with a mesh size of 1.5 mm or greater and, at that, only to deploy the screens for four months each year (from April to July). Even during this period, PSNH recognized that low water levels could be problematic and suggested that wedgewire screen operation could be limited to times in which adequate submergence is present (Enercon 2009). As discussed above, EPA has identified a number of problems that are likely to undermine the effectiveness of wedgewire screens at Merrimack Station and, therefore, EPA rejects this technology as an option for the BTA at this facility.

*Id.* at 280. While rejecting wedgewire screens as the proposed BTA for Merrimack Station on site-specific grounds, EPA has not generally opposed this technology. Indeed, EPA Region 1 has selected (or proposed) wedgewire screens as part of the site-specific BTA for other facilities, such as the [General Electric Aviation](#) power plant in Lynn, MA (GE Aviation) and [PSNH's Schiller Station](#) power plant in Portsmouth, NH (Schiller). *See* AR-1419, pp. 29-32 (GE Aviation Final NPDES Permit) and AR-1410, pp. 16-18 (Schiller Draft NPDES Permit).

The public comment period for Merrimack Station's 2011 Draft Permit closed on February 28, 2012. EPA received a large volume of conflicting public comments addressing, among other things, EPA's proposed BTA determination under CWA § 316(b). The Agency has been considering these comments and will provide written responses to the significant ones in conjunction with issuing a new Final NPDES Permit to Merrimack Station.

That said, a number of legal and factual (or informational) developments raising substantial new questions related to the permit's CWA § 316(b) requirements have occurred since the initial comment period closed on February 28, 2012. As discussed below, EPA wants to provide the public an opportunity to comment on these new developments and questions and how they might affect the Final Permit's requirements under CWA § 316(b).

## 2. The 2014 CWA § 316(b) Regulations

As mentioned above, in 2014, EPA promulgated new regulations under CWA § 316(b) that apply to existing facilities with cooling water intake structures, such as Merrimack Station. *See* 79 Fed. Reg. 48300 (Aug. 15, 2014) (Final Rule) (codified at 40 C.F.R. § 122.21(r) and Part 125, Subpart J). Although they are currently being challenged in federal courts, *see Cooling Water Intake Structure Coalition v. EPA*, Case No. 14-4645 (2d Cir.) (consolidated), these regulations are now in effect and govern the Final Permit for Merrimack Station. *See* 40 C.F.R. §§ 122.43(b)(1), 125.91(a) and 125.94(a)(1).

Therefore, one reason that EPA is reopening the comment period for the Merrimack Station permit is to *invite public comment regarding the import of the 2014 CWA § 316(b) Regulations for the Final Permit for Merrimack Station. In other words, EPA is reopening the comment period to allow for public comment regarding what cooling water intake structure requirements should be included in the Final Permit in light of the 2014 CWA § 316(b) Regulations.* In this regard, EPA notes that PSNH has already submitted at least some of its views about how the new

regulations should be applied to the Facility's Final Permit. *See* AR-1231 (PSNH October 2014 Response to Comments on the Revised Draft NPDES Permit for Merrimack Station). While EPA will consider these already submitted comments, *the Agency also invites PSNH to submit additional comments to confirm, supplement or supplant its earlier comments concerning the import of the 2014 CWA § 316(b) Regulations for the terms of the Merrimack Station Final Permit.*

EPA crafted the 2014 CWA § 316(b) Regulations to allow for site-specific determinations of the BTA for minimizing impingement mortality and entrainment at regulated facilities. *See* 40 C.F.R. §§ 125.94(c) and (d). This approach was a response to the unique character of CWA § 316(b)'s BTA standard, which combines a technological criterion with an environmental impact-focused criterion. *See* 79 Fed. Reg. 48300, 48314 (Aug. 15, 2014) (Final Rule). Specifically, CWA § 316(b) requires use of "the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b). EPA's approach to the regulations also recognizes the central importance of site-specific considerations in determining the scope of adverse environmental impacts from a particular facility's cooling water intake structure operations, and the availability, cost, energy implications, and environmental performance of various technologies if used at that particular facility. 79 Fed. Reg. at 48313-14, 48337-52.

Thus, the 2014 CWA § 316(b) Regulations call for a site-specific determination of the BTA for controlling entrainment at each facility. *See* 40 C.F.R. §§ 125.94(d). Furthermore, with regard to controlling impingement mortality, the new regulations provide a menu of specific technologies deemed to satisfy the BTA standard (*e.g.*, closed-cycle cooling, measures that reduce through-screen intake velocity to a maximum of 0.5 feet per second (fps), modified travelling screens<sup>2</sup>), but allow the facility to choose its own preferred technology. Moreover, the regulations do not limit facilities to using only the specified technologies. Instead, these technologies are offered as "pre-approved" options that a facility may select, but facilities also are free to propose other technologies for approval on a site-specific basis if specific standards are met. *See* 40 C.F.R. §§ 125.94(c)(6) and (7).

*a. Ongoing Permit Proceedings, Permit Application Materials, and BTA Factors*

In order to generate the basis for each permit's BTA determination, the 2014 CWA § 316(b) Regulations generally require facilities seeking an NPDES permit to authorize their cooling water intake structure operations to submit a variety of types of information as part of their permit applications. *See* 40 C.F.R. § 122.21(r). Permitting agencies are then to use this information, among other things, to develop the necessary site-specific permit requirements for controlling impingement mortality and entrainment.

For permit proceedings already underway on the effective date of the 2014 CWA § 316(b) Regulations, however, the regulations authorize the permitting agency to decide on a facility-specific basis whether it needs the information submissions detailed in 40 C.F.R. § 122.21(r), or whether it already has enough information to advance the permit proceeding without

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<sup>2</sup> *See* 40 C.F.R. §§ 125.94(c)(1), (3) and (5).

backtracking for additional information submissions. Thus, the regulations state as follows with regard to “ongoing permitting proceedings”:

*(g) Ongoing permitting proceedings.*

In the case of permit proceedings begun prior to October 14, 2014[,] whenever the Director has determined that the information already submitted by the owner or operator of the facility is sufficient, the Director may proceed with a determination of BTA standards for impingement mortality and entrainment without requiring the owner or operator of the facility to submit the information required in 40 CFR 122.21(r). The Director’s BTA determination may be based on some or all of the factors in paragraphs (f)(2) and (3) of this section and the BTA standards for impingement mortality at § 125.95(c). In making the decision on whether to require additional information from the applicant, and what BTA requirements to include in the applicant’s permit for impingement mortality and site-specific entrainment, the Director should consider whether any of the information at 40 CFR 122.21(r) is necessary.

40 C.F.R. § 125.98(g). This provision applies to the Merrimack Station permit proceeding because the proceeding commenced prior to October 14, 2014.

EPA has considered whether any of the 40 C.F.R. § 122.21(r) information submissions are necessary for this proceeding and has decided that they are not. EPA has sufficient information in the record to determine the BTA requirements for the Merrimack Station permit. EPA has collected this information from PSNH’s permit application materials as well as from Company responses to EPA requests for information. *See, e.g.,* AR-4, AR-6. In addition, EPA has obtained information from research and analysis by EPA’s staff and contractors. Moreover, since issuance of the 2011 Draft Permit, EPA has garnered additional information from the comments and related material submitted by members of the public, including PSNH. This information includes material submitted by PSNH during the comment period on the 2011 Draft Permit that ended on February 28, 2012, and after closure of the original comment period. In light of all of this information, EPA concludes that it can address the appropriate factors under the statute and regulations without additional information submissions under 40 C.F.R. § 122.21(r). In fact, directing PSNH to make those submissions now would unnecessarily delay completion of the Final Permit for Merrimack Station. Therefore, EPA declines to call for new submissions from PSNH under 40 CFR 122.21(r). At the same time, *EPA will consider any public comments submitted during the current comment period on either side of this issue (i.e., whether or not additional submissions under 40 C.F.R. § 122.21(r) are needed).*

When rendering a BTA determination in an ongoing permit proceeding, 40 C.F.R. § 125.98(g) also grants the permitting agency discretion whether or not to consider each of the factors specified in 40 C.F.R. § 125.98(f)(2) and (3). As the regulation states, “[t]he Director’s BTA determination may be based on some or all of the factors in paragraphs (f)(2) and (3) of this section and the BTA standards for impingement mortality at § 125.95(c).” Although EPA’s 2011 Draft Permit pre-dated promulgation of the 2014 CWA § 316(b) Regulations, EPA’s analysis effectively considered all of the § 125.98(f)(2) and (3) factors, as well as the technologies



specified in 40 C.F.R. § 125.94(c), in rendering its proposed BTA determination. This is evident in Chapters 10-12 of the 2011 Draft Permit Determinations. AR-618, Chs. 10-12.

EPA also expects to consider the § 125.98(f)(2) and (3) factors, as well as the BTA standards for controlling impingement mortality specified in § 125.95(c), in rendering its BTA determination for Merrimack Station's Final Permit. EPA's site-specific determination of the BTA for controlling entrainment and impingement mortality at the Facility will comply with 2014 CWA § 316(b) Regulations, but if these regulations were remanded by a court, the Agency's site-specific determination would still hold as a BPJ-based determination of the BTA under 40 C.F.R. § 125.90(b). *EPA invites comments during the new comment period regarding whether or not it should consider each of the factors specified in § 125.98(f)(2) and (3) and, if so, how it should consider and weigh those factors. Similarly, EPA invites comments regarding whether or not it should consider the BTA standards for impingement mortality at § 125.95(c) in making its final BTA determination for the Final Permit.*

3. New Information Concerning BTA Alternatives for Controlling Entrainment, Particularly with Regard to Cylindrical Wedgewire Screens

Even apart from the 2014 CWA § 316(b) Regulations, EPA has received a substantial amount of new information related to the BTA proposed in the 2011 Draft Permit. Public comments submitted to EPA on this subject during the comment period for the [2011 Draft Permit](#), AR-609, and [2014 Revised Draft Permit](#), AR-1136, constitute one type of such new information. These public comments are part of the administrative record for the permit and are available on EPA's website.

In addition, and more specifically, EPA has received or collected new information that raises substantial new questions about the potential for fine-mesh (or "narrow slot"), cylindrical wedgewire screens to qualify as the BTA for controlling both entrainment and impingement mortality at Merrimack Station. As discussed above, for the 2011 Draft Permit, EPA carefully evaluated, but ultimately rejected, cylindrical wedgewire screen technology as the BTA for Merrimack Station based on a variety of site-specific considerations. *See* AR-618, pp. 271-280. Although EPA acknowledged that wedgewire screen technology could possibly be capable of achieving substantial reductions in impingement and entrainment under certain environmental conditions, EPA did not propose wedgewire screens as the BTA for the Merrimack Station Draft Permit because, at the time, it appeared that the conditions necessary for an effective wedgewire screen installation would not exist in the Hooksett Pool on a consistent and reliable basis. *See id.*, pp. 271-280. EPA expressed concern that PSNH's proposed design to serve Merrimack Station's cooling water intake structures, while accommodating the potential limitations of the physical setting (*e.g.*, water depth, current, rate of sediment deposition), would require so many screens and would occupy such a large area of the river, that it would excessively interfere with public uses of the waterway.<sup>3</sup>

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<sup>3</sup> In its 2007 report responding to an EPA request for information, AR-6, PSNH's consultant Enercon estimated that 24 to 36 CWW screens 5 feet in length and 3 feet in diameter would be required. In its 2009 report providing a supplemental response to EPA's request for information, AR-4, Enercon estimated that 44 to 76 CWW screens 80

In addition to these physical factors, EPA noted significant uncertainty about the extent to which wedgewire screens could reduce entrainment of fish eggs and larvae at the Facility. This uncertainty grew from questions about whether adequate ambient currents (*i.e.*, sweeping flows) would be present to enable/assist organisms to escape/avoid the screens, and whether the particular species and life stages of organisms present in the river would be able to avoid or survive contact with the screens in light of through-screen velocities, ambient currents, and the swimming abilities and overall hardiness of the species in question. Moreover, EPA was concerned that the “slot size” proposed for the wedgewire screens would be too large to successfully exclude organisms from being entrained, and further that if the slot size was reduced sufficiently for that purpose, then not only might the organisms be harmed due to contacting the screens, but the screens would be more prone to fouling and an excessively large installation would be required.

EPA is now reconsidering wedgewire screens as the possible BTA for Merrimack Station in light of public comments and new information. In this regard, new information suggests that an effective screen array potentially *can* be implemented in the Hooksett Pool section of the Merrimack River, and that this technology may be more effective at reducing the Facility’s entrainment than previously thought. To begin with, data has been submitted suggesting that the conditions in Hooksett Pool can, in fact, accommodate an appropriate wedgewire screen installation. In particular, a newly proposed screen design variation (*i.e.*, “wedgewire half-screens”) would result in a smaller installation without excessive interference with public uses of the river. *See* AR-1231, Exhibit 4; AR-1352, Attachment 1; and AR-1361. Furthermore, additional data has been submitted suggesting that adequate sweeping flows are likely to exist during the time period when the majority of eggs and larvae are present. *See* AR-1231, Attachment 1 to Exhibit 4. As EPA notes below, PSNH has indicated that it is planning to conduct a pilot-scale study of wedgewire screens in the Hooksett Pool during the summer of 2017 which will include study of water velocity using Acoustic Doppler Current Profiling. *See* AR-1361. All of this suggests that despite the physical limitations in Hooksett Pool, wedgewire screens could potentially be viable at Merrimack Station.

As stated above, EPA’s analysis for the 2011 Draft Permit, AR-618, pp. 273-280, notes significant uncertainty about the effectiveness of wedgewire screens for reducing the entrainment of fish eggs and larvae based on the information available to EPA at the time of the Draft Permit. In particular, EPA had based its review of biological effectiveness primarily on the ability of narrow-slot wedgewire screens to prevent entrainment eggs and larvae too large to fit through the slot. *See id.* Because the primary mechanism for entrainment prevention was assumed to be physical exclusion, EPA determined that a slot size no larger than 0.5 mm would be required to reduce entrainment based on comparison of slot size to egg diameter and larval head capsule width for species in the Hooksett Pool. *Id.*, p. 278. Laboratory investigations, field studies, and new analysis performed on a wider number of species and range of conditions since the issuance of the Draft Permit have provided new information about two additional mechanisms by which

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inches in length and 2 feet in diameter would be required. The ranges in the number of CWW screens reflect differences in slot size.

wedgewire screens may reduce entrainment: hydraulic bypass and larval avoidance. *See* AR-1418; AR-1420; AR-1421; AR-1231, Attachment 1 to Exhibit 4; AR-1399, Appendix 3 to Exhibit 1; AR-1352, Attachment 1 to Attachment 1 (and references therein). This new information suggests that wedgewire screens with slot sizes larger than 0.5 mm may be able to reduce the entrainment of fish larvae at Merrimack Station more effectively than previously thought.

First, additional information has been submitted suggesting that the ambient “sweeping” current velocities affect the probability that an organism will encounter the screen. (The term “sweeping current” or “sweeping flow” refers to the current moving downstream past the screens and is important for moving organisms past and away from the wedgewire screen system.) At higher ambient velocities, a substantial number of eggs and larvae may not encounter the screens due to hydraulic bypass. This factor could improve the effectiveness of wedgewire screens for reducing entrainment and increasing the survival of larvae in particular, because larvae are less likely to survive contact with the screens. It is possible that, during the peak entrainment period in the Hooksett Pool, the sweeping flow may be sufficient to enable a substantial number of eggs and larvae to avoid entrainment by bypassing the wedgewire screens entirely.

Finally, new information is available indicating that some larvae may actively avoid entrainment and that larval avoidance is influenced by sweeping flow and larval length. The information suggests that larval avoidance increases with larval length and as the ratio of sweeping current velocity to through-screen velocity increases. This information may be particularly relevant to the possible use of wedgewire screens at Merrimack Station because the majority of entrainment is comprised of post-yolk sac larvae. PSNH is now urging that rather than needing a specific minimum sweeping flow velocity, lesser sweeping flow velocities are acceptable as long as the ratio of intake velocity to sweeping flow velocity is maintained at 1:1 or greater. If the effectiveness of wedgewire screens is influenced more by larval length and sweeping flow, it is possible that larger wedgewire screen slot sizes (*i.e.*, greater than 0.5 mm) could be more effective at Merrimack Station than previously thought. If so, then aquatic life could be protected from entrainment with a relatively smaller screen array which would be less prone to fouling, all while allowing the Facility to withdraw a sufficient volume of water for its cooling. EPA notes, however, that these studies have focused on slot sizes of 2 and 3 mm, and that larger slot sizes (*e.g.*, 6 to 9 mm) are unlikely to be as effective to reduce entrainment through hydraulic bypass and larval avoidance.

In light of the information discussed above, cylindrical wedgewire screen technology appears potentially capable of reducing entrainment at Merrimack Station to a greater degree than previously estimated. In addition, previous logistical and engineering concerns (*e.g.*, low water depths, interference with public uses of the river by a large screen array) may be surmountable. Taking these considerations into account, together with the fact that cylindrical wedgewire screen technology is much less costly than closed-cycle cooling, EPA is now reevaluating whether wedgewire screens should be EPA’s preferred BTA technology for controlling entrainment at Merrimack Station in light of the costs and benefits of the options. While closed-cycle cooling would still be expected to reduce entrainment to a greater degree than wedgewire screens, EPA is reconsidering under CWA § 316(b) whether the greater cost of closed-cycle

cooling is warranted in light of the potentially better-than-previously-estimated performance of wedgewire screens and the possible resolution of logistical and engineering issues. *See* 40 C.F.R. §§ 125.94(d) and 125.98(f). Also, to be clear, given that entrainment is expected to be a minor issue from September 1 to March 31, a new BTA determination favoring wedgewire screens would only require use of the technology *for controlling entrainment* from April 1 to August 31, just as the BTA proposed for the 2011 Draft Permit only required closed-cycle cooling to control entrainment during that period. Of course, the impingement mortality standards would still need to be satisfied over the entire year.

EPA notes that PSNH has expressed reservations about using wedgewire screens during August due to concern about the potential for the screens being fouled by debris during the low river flow conditions that can occur during that month. Due to these reservations, PSNH earlier suggested deploying wedgewire screens only from April 1 to July 31, and urged that any entrainment losses likely to occur during August would not be so substantial as to preclude such a plan. More recently, however, the Company suggested that wedgewire screens could be used with a system of “bypass” gates so that the screens could be bypassed if clogging or fouling became a concern. This could enable or facilitate the use of wedgewire screens in August, with the possibility of the screens being bypassed under emergency fouling conditions, if any. EPA has previously expressed the view that entrainment *should* be addressed during August. The Agency continues to hold this view but is considering whether implementing wedgewire screens with the proposed bypass capability would be a sound BTA option in light of costs and benefits and current uncertainties about how often bypass conditions would arise. Once installed, data could be gathered over time regarding the frequency of screen bypassing to inform development of the next renewal permit.

Finally, EPA notes that PSNH has informed the Agency that the Company intends to do on-site pilot testing during the spring/summer of 2017 to investigate the efficacy of cylindrical wedgewire screen technology at Merrimack Station. *See* AR-1357 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to David Webster, Sharon DeMeo and Mark Stein, EPA Region 1), pp. 1-7; Attachment 4 (April 12, 2017). While this testing is not being required by EPA, the Agency welcomes submission of the data by PSNH as soon as it becomes available. If timely submitted, EPA would expect to carefully consider such data.

*EPA invites public comment on all of the issues and information concerning cylindrical wedgewire screens discussed in the paragraphs above, including the following:*

- *the extent to which wedgewire screens with different screen slot sizes can prevent mortality to aquatic life from entrainment and/or impingement and satisfy the BTA requirements of CWA § 316(b);*
- *the likely expense of using wedgewire screens at Merrimack Station;*
- *if wedgewire screens are the BTA, or part of the BTA, at Merrimack Station, should wedgewire half-screens or standard wedgewire screens be used;*

- *how the costs of using wedgewire screens compare to the benefits of using them, and how those costs and benefits compare to the costs and benefits of using closed-cycle cooling as part of the BTA;*
- *which months (e.g., April 1 through August 31, April 1 through July 31), if any, should wedgewire screens be implemented as the BTA for controlling entrainment; and*
- *whether Merrimack Station should be permitted to bypass the screens and if so, under what circumstances should this be allowed.*

#### 4. New Information Concerning BTA Alternatives for Controlling Impingement

The 2011 Draft Permit recognized that when closed-cycle cooling was being used to reduce entrainment or thermal discharges, it would also reduce impingement mortality to the greatest extent possible. Therefore, although EPA found impingement mortality to be a concern year-round, the 2011 Draft Permit did not propose major traveling screen upgrades. Instead, it only proposed certain improvements to the fish return system, the screen spray wash system and the operational protocols for the traveling screens, as discussed above. *See* AR-618, pp. 346-347. Similarly, under the 2014 CWA § 316(b) Regulations, a facility using closed-cycle cooling would satisfy the BTA requirements for controlling impingement mortality. *See* 40 C.F.R. § 125.94(c)(1). If closed-cycle cooling is not operated year-round, however, improvements to the Facility's fish return system, spray wash system and traveling screen operational protocols would still make sense because the facility would still impinge aquatic organisms when the closed-cycle system is not operating, and the current traveling screens and fish return system at Merrimack Station are unnecessarily damaging to impinged organisms. *See* AR-618, pp. 263-271. For example, the current fish return sluice does not reliably return fish to the river. Moreover, replacing the present high pressure spray wash system with a low pressure system will help to prevent unnecessary harm to fish that are impinged by the Facility.

If EPA determines that Merrimack Station can comply with the site-specific entrainment requirements using wedgewire screens and the Facility does not install closed-cycle cooling, the Facility will likely satisfy the BTA requirements of the 2014 CWA § 316(b) Regulations for reducing impingement mortality whenever the wedgewire screen system is in use because it is expected to reduce intake through-screen velocities below 0.5 feet per second (fps). *See* 40 C.F.R. § § 125.94(c)(2) and (3). Thus, if used from April 1 to August 31 to control entrainment, the system would also satisfy the impingement mortality control requirements during that time period. If used during additional months, the Facility could also satisfy impingement mortality reduction requirements during those months. During any months that the wedgewire screens are not used, however, the Facility would need other measures to satisfy requirements for controlling impingement mortality. *See* 40 C.F.R. § 125.94(c). (EPA recognizes that PSNH has argued that Merrimack Station's impingement mortality should be considered *de minimis* under the regulations and that, as a result, no further impingement mortality controls are needed. EPA plans to consider the Company's arguments in this regard.) For example, the same traveling screen and fish return system improvements that were part of EPA's proposed BTA for the 2011 Draft Permit could satisfy the applicable BTA requirements. *See* 40 C.F.R. § 125.94(c)(5). Coupling this technology with the seasonal use of wedgewire screens for entrainment control

could make sense given concerns PSNH has expressed about the screens being fouled by debris in August and by “frazil ice” during the winter months. Alternatively, once the wedgewire screens are in place, the Facility could use them year-round while developing a contingency plan for responding to frazil ice, which appears to be a fairly infrequent occurrence. As noted above, PSNH has identified the possibility of using wedgewire screens with a system of “bypass” gates that would enable the wedgewire screens to be bypassed if frazil ice is interfering with their operation. *See* AR-1352 (Attachment 1), pp. 13-14.

*EPA invites comments on the issues discussed above regarding the BTA for impingement mortality control at Merrimack Station, including the following:*

- *whether Merrimack Station’s impingement mortality should be considered to be de minimis all year, during certain months, or not at all?*
- *whether wedgewire screens, closed-cycle cooling, or some other technology or combination of technologies should be the BTA for controlling impingement mortality at the Facility?*
- *if either wedgewire screens or closed-cycle cooling are the BTA, or part of the BTA, for controlling impingement mortality, should they be deployed all year or only during certain months and, if the latter, during which months should they be used?*
- *if wedgewire screens are used, will screen fouling by debris or frazil ice be a problem at certain times of the year and, if so, how and when should the problem be managed;*
- *if wedgewire screens are used, should PSNH be authorized to “bypass” the screens under certain conditions and, if so, should additional protective measures for impingement be required during those periods?*

##### 5. Interplay of Thermal Discharge Limits and Cooling Water Intake Requirements

As discussed above, in the record for the 2011 Draft Permit, EPA discussed the interplay of the proposed cooling water intake structure requirements with the proposed thermal discharge limitations. EPA explained that despite the fact that the 2011 Draft Permit’s cooling water intake structure requirements under CWA § 316(b) were based on the use of closed-cycle cooling only from April 1 to August 31, EPA expected the Facility to use closed-cycle cooling *year-round* in order to meet the permit’s thermal discharge limits. EPA further explained that if the Facility operated closed-cycle cooling year-round to control thermal discharges, it would also be considered to be in compliance with CWA § 316(b)’s BTA requirement and further steps to upgrade the Facility’s traveling screens would be unnecessary. *See* AR-618, pp. 346-348. This same reasoning would apply if EPA was to adopt a new BTA based on wedgewire screens. In other words, if closed-cycle cooling is used year-round to limit thermal discharges, then the BTA standard under the 2014 CWA § 316(b) Regulations would be satisfied for controlling impingement mortality and entrainment. *See* 40 C.F.R. §§ 125.94(c)(1), 125.94(d) and 125.98(f)(1). As a result, the installation of wedgewire screens would be unnecessary even if that technology had been selected as the BTA.

## 6. Compliance Schedules

Since issuance of the 2011 Draft Permit, it has been evident that if the Final Permit requires Merrimack Station to add new equipment to comply with the BTA standard, then the Facility will need time to install that equipment. When EPA issued the 2011 Draft Permit, it expected to include a schedule for the necessary compliance steps in some sort of enforceable document *outside* of the NPDES permit, such as a non-penalty administrative compliance order. *See* CWA § 309(a), 33 U.S.C. § 1319(a). This approach would have been consistent with past Agency practice. *See, e.g.,* AR-1383 (EPA Region 1, Findings and Order for Compliance, “*In the Matter of Dominion Energy Brayton Point Station*” (Docket No. 08-007; December 17, 2007) (the Brayton Point A.O.)). The approach was based on a longstanding interpretation of the CWA concluding that the statutory deadline for compliance with the BTA standard of CWA § 316(b) had already passed and the permit, therefore, needed to require immediate compliance. *See* 40 C.F.R. § 122.47(a). *See also, e.g.,* EPA General Counsel’s Opinion No. 41 (1976). As a result, EPA did not include a schedule in the 2011 Draft Permit for Merrimack Station to install technology to comply with CWA § 316(b).

As of the 2014 CWA § 316(b) Regulations, however, EPA changed its position regarding whether compliance schedules can be included in permits for CWA § 316(b) requirements. Under a revised interpretation of the CWA reflected in the 2014 CWA § 316(b) Regulations, *see* 79 Fed. Reg. 48300, 48359 (Aug. 15, 2014), EPA decided that compliance schedules for the installation of cooling water intake structure improvements to meet new permit requirements may be included in an NPDES permit. *See* 40 C.F.R. §§ 125.94(b)(1) and (2), 125.98(c). *See also* 40 C.F.R. § 125.94(h) (interim BTA requirements). The regulations call for such compliance schedules to require compliance *as soon as practicable* with entrainment and impingement requirements under 40 C.F.R. §§ 125.94(c) and (d), but also direct that permitting agencies should consider the potential effects of such compliance schedules on local electrical service. *See* 40 C.F.R. § 125.98(c). Specifically, the regulation states, in pertinent part, that:

... [w]hen establishing a schedule for electric power generating facilities, the Director should consider measures to maintain adequate energy reliability and necessary grid reserve capacity during any facility outage. These may include establishing a staggered schedule for multiple facilities serving the same localities. The Director may confer with independent system operators and state public utility regulatory agencies when establishing a schedule for electric power generating facilities.

*Id.* Thus, under CWA § 316(b), whether the BTA for Merrimack Station involves the installation of closed-cycle cooling, wedgewire screens, or some other technology, a compliance schedule may be included in the NPDES permit, as appropriate.

When considering compliance schedules, it is again important to understand the interplay between the permit requirements for controlling thermal discharges and the requirements for controlling cooling water intake structure effects. Unlike the regulations governing *cooling water intake structure* improvements, the regulations and law applicable to *thermal discharge limits*

provide that NPDES permits *may not* include a schedule for coming into compliance in the future with thermal discharge limits unless those limits are based on state water quality standards that expressly allow compliance schedules for future compliance. *See In re D.C. Water & Sewer Auth.*, 13 E.A.D. 714, 734 (EAB 2008); *In re Star-Kist Caribe, Inc.*, 3 E.A.D. 172 (Adm'r 1990), *modification denied*, 4 E.A.D. 33 (EAB 1992). This is because the statutory compliance deadlines in the CWA have already passed for federal technology-based effluent limitations and state water quality standards generally, and these statutory deadlines cannot be extended by a permit. *See* 33 U.S.C. §§ 1311(b)(1)(C) and (b)(2)(F); 40 C.F.R. §§ 125.3(a)(2)(v) and (b). *See also* 40 C.F.R. § 122.47(a)(1). Therefore, if a thermal discharger needs a schedule for installing equipment to come into compliance with a permit's thermal discharge requirements, that schedule would need to be included in an instrument outside of the permit, such as a non-penalty administrative compliance order under CWA § 309(a), unless, as stated above, the limits are based on a state water quality standard that allows for schedules for future compliance. This is so even if the same technology, such as closed-cycle cooling, was going to be used to comply with both cooling water intake structure requirements *and* thermal discharge requirements, and a compliance schedule is being allowed for the cooling water intake structure requirements. Because permittees must comply with both sets of permit requirements, the compliance schedule for the intake requirements could be in the permit, while immediate compliance would be required for the thermal discharge limits and any schedule for coming into compliance with those requirements would be embodied in an instrument outside the permit.

As explained above, EPA did not propose a schedule in the 2011 Draft Permit for installing the technologies needed to comply with CWA § 316(b). Moreover, in response to the 2011 Draft Permit, no party commented to EPA concerning how much time it would take to install the technologies that had been specified for compliance with CWA § 316(b). Now that a compliance schedule may be included in the NPDES permit for steps to comply with CWA § 316(b), EPA is proposing below two potential compliance schedules, one for a BTA based on closed-cycle cooling, and one for a BTA based on wedgewire screens. *While EPA believes these schedules provide reasonable timelines for installing the technologies in question at the Facility, EPA invites public comments regarding whether or not the Merrimack Station permit should include a compliance schedule for measures to comply with CWA § 316(b) and what the terms of any such schedule should be. Such comments could range from suggesting adjustments or modifications to the schedules EPA proposes here, to proposing an entirely different compliance schedule.*

*a. Compliance Schedule for a BTA Option Including Closed-Cycle Cooling*

If closed-cycle cooling is selected as part of the BTA for Merrimack Station's Final Permit, EPA is considering including in the Final Permit a compliance schedule like the one presented below. This schedule is based on EPA's knowledge of the Merrimack Station facility and EPA's experience with closed-cycle cooling at other sites, as well as consideration of the schedules previously proposed by PSNH for closed-cycle cooling retrofits at Merrimack and Schiller



Stations (*see* AR-6 (Attachment 7) and AR-1415),<sup>4</sup> and the schedule that governed the conversion from open-cycle to closed-cycle cooling at Brayton Point Station in Somerset, MA (*see* AR-1383, EPA Administrative Compliance Order Issued by EPA to Brayton Point Station (December 17, 2007)).

Using the Merrimack Station schedule submitted by PSNH as a point of reference for the permit schedule makes sense for obvious reasons. That schedule was developed by Merrimack Station's owner and operator for this specific facility. Using the Schiller Station schedule as a second point of reference makes sense because PSNH also owns and operates the facility and it developed the schedule. Moreover, like Merrimack Station, Schiller Station is a multi-unit (primarily) coal-burning facility in New Hampshire. Schiller Station is also similar in size to, albeit smaller than, Merrimack Station. (Schiller Station is a 150 MW power plant that withdraws approximately 125 million gallons of water per day through two cooling water intake structures from the Piscataqua River, whereas Merrimack Station is 470 MW power plant with two cooling water intake structures that withdraw approximately 287 MGD of water from the Merrimack River.)

In addition, considering the Brayton Point Station schedule as a third point of reference for developing a schedule for Merrimack Station makes sense because both are relatively large, decades-old coal-burning facilities with open-cycle cooling systems. The schedule for converting Brayton Point Station's cooling system from open-cycle cooling to closed-cycle cooling was negotiated with, and agreed to by, the owner/operators of the facility. Moreover, Brayton Point ultimately was able to meet this schedule (which was embodied in a non-penalty administrative compliance order). *See* AR-1383.

EPA also concludes that it is reasonable to expect that applying the Brayton Point Station timeline to Merrimack Station would provide a conservative schedule (*i.e.*, a schedule likely to provide more than enough time to complete the necessary work). This is because Brayton Point Station is a substantially larger facility than Merrimack Station. *See* AR-662; AR-618. Brayton Point Station's four generating units produced substantially more electricity than Merrimack Station's two units, and Brayton Point Station used more cooling water (1 billion gallons per day vs. 287 million gallons per day). *Id.* Moreover, Brayton Point Station chose to install "natural draft" cooling towers, which likely entailed a more complex construction project than if mechanical draft cooling towers had been used. AR-1383. *See also* AR-618, pp. 138-142. EPA expects that mechanical draft towers would be preferred at Merrimack Station. *See* AR-618, pp. 138-142. *See also* AR-6, p. 33. In addition, while both power plants have two cooling water intake structures, Brayton Point Station's two intakes are located on opposite sides of the site, while Merrimack Station's intakes are closer to each other. *See* AR-662. For these reasons, EPA expects that closed-cycle cooling could be installed more rapidly at Merrimack Station than it was at Brayton Point Station. That said, every facility is different and can have its own unique site-specific constraints and difficulties. *EPA invites public comments on this analysis and, as stated above, on the terms of the proposed schedule set forth below.*

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<sup>4</sup> To be clear, PSNH provided the estimated schedules, but has not favored converting from open-cycle to closed-cycle cooling at either Merrimack Station or Schiller Station.

Consistent with the terms of the 2014 CWA § 316(b) Regulations set forth above, EPA has considered the local energy ramifications of the proposed schedule for adding closed-cycle cooling capacity at Merrimack Station. *See* 40 C.F.R. § 125.98(c). EPA concludes that converting to closed-cycle cooling could take place without disrupting the local or regional energy supply. Merrimack Station’s operations have been much curtailed in recent years due to market forces which have led to less expensive, more efficient natural gas-burning facilities increasing their market share at the expense of older, coal-burning facilities such as Merrimack Station. *See* AR-1369; [ISO-New England webpage on “Plant Retirements”](#); AR-1396. Indeed, a number of coal-burning power plants have terminated operations or are planning to do so, including Brayton Point Station, Salem Station and Mt. Tom Station. *Id.* Consistent with these developments, Merrimack Station now tends to generate little electricity during the fall and spring “shoulder seasons,” but can still be a significant producer of electricity during cold winter and warm summer conditions. *See* AR-1369.

This seasonal pattern of operations is currently expected to continue, assuming the Facility remains in operation. This pattern should be well-suited to accommodating the retrofitting of closed-cycle cooling at the Facility. A power plant can install the new closed-cycle cooling equipment—assuming adequate space—while it continues generating electricity. A relatively brief outage may be required when “tying in” the new cooling system to the existing operation. The proposed compliance schedule would give the Facility the option to undertake the tie-in, and any necessary related outage, during one of the shoulder seasons when the generating units are likely to be idle. As discussed previously, *see* AR-618, pp. 306 and 163-164, converting to closed-cycle cooling can yield a relatively small reduction in power generation due to reduced efficiency and auxiliary energy needs. *See id.*, p. 139. This impact should not affect the regional energy supply to a significant degree.

In light of all of the above, adding closed-cycle cooling at Merrimack Station would not realistically threaten the reliability of the region’s energy supply or grid reserve capacity. Furthermore, if necessary due to changed market conditions, the schedule could potentially be adjusted in the future to avoid regional energy problems. We have reviewed energy needs forecasting reports by the New England ISO and find them consistent with our analysis. *See* [ISO-New England webpage on “Plant Retirements”](#). *That said, EPA will provide the ISO with a copy of this document and seek any comments the ISO may wish to offer.*

Based on the factors described above, as well as consideration of the terms of 40 C.F.R. § 122.47(a), if EPA determines that the BTA for Merrimack Station includes converting to the closed-cycle cooling option, the Agency is contemplating including in the Final Permit the compliance schedule set forth immediately below. (The schedule below sets time-frames for each task relative to the effective date of the permit. It does not include specific dates for these tasks at this time.)

*EPA invites public comment on the following proposed compliance schedule.*

#### Compliance Schedule if BTA Requirements Are Based on Closed-Cycle Cooling

1. In order to comply with Part I. \_\_\_ of this permit, which assigns BTA requirements under CWA § 316(b), the permittee will need to install and operate new equipment. Permit requirements under CWA § 316(b) must be complied with as soon as practicable. 40 C.F.R. §§ 125.94(b)(1) and (2), 125.98(c). In this case, the permittee needs a period of time to achieve such compliance. As a result, this permit sets forth a schedule according to which the permittee shall attain compliance with the BTA requirements under CWA § 316(b). Specifically, steps for the installation and operation of equipment required to comply with Part I. \_\_\_ of this permit shall be completed as soon as practicable but no later than the schedule of milestones set forth below. The permittee shall notify EPA in writing of compliance or non-compliance with each milestone no later than fourteen (14) days following each specified deadline.
  - a. By one week after the effective date of this permit, the permittee shall contact all relevant permitting authorities to request pre-application meetings.
  - b. From the effective date of this permit until issuance of all permits and approvals needed to implement the BTA, the permittee shall provide timely and complete responses to all reasonable and appropriate requests for additional information from each relevant permitting and approval authority.
  - c. Within six (6) months of the effective date of this permit, the permittee shall complete final design and engineering necessary to convert the open-cycle cooling systems for Merrimack Station Units 1 and 2 to closed-cycle cooling and install all necessary BTA technologies, including any cooling towers, pumps and pipes, intake screening system improvements, and fish return system improvements.
  - d. Within nine (9) months of the effective date of this permit, the permittee shall complete submission of all federal, New Hampshire, and local permit applications, notices, and requests for governmental authorizations necessary to allow the permittee to install and operate closed-cycle cooling and any other required BTA technologies (e.g., pumping and piping improvements, screening system and fish return system improvements) at Merrimack Station.
  - e. Within five (5) days of obtaining all necessary permits and approvals, the permittee shall issue the Notice to Proceed with Engineering and Procurement to the permittee's contractor (or contractors) for the construction and installation of all required BTA technologies for Merrimack Station, including any cooling towers, pumping and piping improvements, screening system improvements and fish return system improvements.
  - f. Within nine (9) months of obtaining all necessary permits and approvals, the permittee shall commence construction and/or installation of cooling towers and all other equipment needed to come into compliance with the Final Permit's BTA

requirements, including pumping and piping improvements, screening system and fish return system improvements.

- g. No later than May 15 of the calendar year prior to the anticipated tie-in date for each unit, the permittee shall, in order to facilitate the tie-in process, request a planned outage for that unit from the Independent System Operator (ISO) New England in accordance with, and pursuant to, the applicable ISO New England Operating Procedures.
- h. Within 12 months of obtaining all necessary permits and approvals, the permittee shall complete construction and installation of all screening system and fish return system improvements needed to comply with the Final Permit's cooling water intake structure requirements under CWA § 316(b).
- i. Within 24 months of obtaining all necessary permits and approvals, the permittee shall:
  - i. complete construction and installation of all cooling tower, piping, pumping, electrical work, and any other remaining equipment, needed to comply with the Final Permit's cooling water intake structure requirements under CWA § 316(b); and
  - ii. commence the process of tying-in Merrimack Station condenser units 1 and 2 to cooling towers consistent with any necessary generating unit outage schedule approved by the ISO New England.
- j. Within 26 months of obtaining all necessary permits and approvals, complete the tie-in of Merrimack Station condenser units 1 and 2 to the cooling towers and achieve full compliance with all the Final Permit's BTA requirements.

## 2. Interim Requirements

During the interim period extending from the effective date of this permit until the Permittee achieves full compliance with all of the Final Permit's BTA requirements, the Permittee shall comply with the following interim requirements:

- a. Within nine (9) months of the effective date of this permit, the permittee shall complete improvements to the traveling screens and the fish return sluice so that fish or other aquatic organisms impinged on the traveling screens are returned safely and directly into the water of the Merrimack River.
- b. Within thirty (30) days of the effective date of this Order, the permittee shall begin continuously rotating the traveling screens for each cooling water intake structure whenever water is being withdrawn from the Merrimack River through that intake structure.

*Again, EPA invites public comment on the above schedule, including whether additional or alternative milestones should be included, whether different dates or time-frames should be included, and whether certain milestones should be deleted.*

*b. Compliance Schedule for a BTA Option Including Cylindrical Wedgewire Screens*

If EPA determines that the BTA for controlling entrainment at Merrimack Station includes cylindrical wedgewire screens, rather than closed-cycle cooling, the Agency contemplates including in the Final Permit the compliance schedule set forth below to address installation of the needed equipment. In developing this schedule, EPA has taken into account Agency regulations at 40 C.F.R. §§ 125.94(b), (c) and (d) and 40 C.F.R. § 122.47, as well as the schedule for wedgewire screen installation proposed by PSNH in its 2009 Supplemental Alternative Technology Evaluation (AR-4, Attachment B), the wedgewire screen installation schedule in the Final Permit for the GE Aviation facility in Lynn, MA (AR-1419), and the schedule for wedgewire screen installation proposed by EPA in the draft permit for PSNH's Schiller Station power plant (AR-1410). In addition, EPA has also considered comments that PSNH submitted with regard to the compliance schedule proposed by EPA in the draft permit for Schiller Station (AR-1399, pp. 75-77). (EPA notes that PSNH did not agree that wedgewire screens are needed for Schiller Station, but provided comments on the schedule that EPA included in the draft permit.)

Finally, EPA has also taken into account that PSNH is currently planning to conduct on-site testing of wedgewire screens at Merrimack Station during the spring/summer of 2017. *See* AR-1357 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to David Webster, Sharon DeMeo and Mark Stein, EPA Region 1, pp. 1-7; Attachment 4 (April 12, 2017)). Related to this fact, EPA notes that since it is currently considering requiring entrainment control technologies only during the warmer weather months (*i.e.*, April 1 to August 31), no pilot testing is needed to investigate entrainment reduction from September to March 31.

At the same time, Merrimack Station's cooling water intake structures will need to satisfy the impingement mortality control requirements of 40 C.F.R. § 125.94(c) *throughout* the year. If the Facility can reduce intake through-screen velocities to 0.5 fps or less by using wedgewire screens, as PSNH has indicated, then using the screens year-round would satisfy the impingement mortality control requirements of 33 U.S.C. §§ 125.94(c)(2) and (3) for the full year. In light of the reduced intake velocity, EPA's current thinking is that pilot testing of wedgewire screens to assess impingement mortality control in the winter months should not be needed. EPA also thinks that if wedgewire screens are determined to be the BTA for entrainment, year-round use of the screens would also be a possible alternative for compliance with the BTA standards for impingement mortality. *See* 40 C.F.R. § 125.94(c)(2). EPA also notes that using wedgewire screens should not affect electrical generation by Merrimack Station and would have an insignificant effect, if any, on the regional energy supply. This technology should neither affect plant efficiency nor make any significant demands on electricity generated by the Facility. Also, installing wedgewire screens should not require any significant plant outages. *See* AR-846, pp. 112-113.

Based on the factors described above, if EPA determines that the BTA for Merrimack Station includes the cylindrical wedgewire screen option, then the Agency is contemplating including in the Final Permit the compliance schedule set forth immediately below. (Note once again that rather than include specific dates, the schedule below consists of time-frames for each task relative to the effective date of the permit.)

### BTA Requirements and Schedule for Compliance with BTA including Cylindrical Wedgewire Screens

1. Best Technology Available. The design, location, construction, and capacity of the permittee's cooling water intake structures (CWISs) shall reflect the best technology available (BTA) for minimizing adverse environmental impacts from the impingement and entrainment of various life stages of fish and other organisms (e.g., eggs, larvae, juveniles, adults) by the CWISs. The following requirements have been determined by the EPA to represent the BTA for minimizing impingement and entrainment impacts at Merrimack Station:
  - a. The permittee shall install and operate for the CWIS's of Units 1 and 2 a fine mesh wedgewire screen intake system<sup>5</sup> with the slot openings oriented perpendicular to the predominant direction of ambient flow current, a pressurized airburst system to clear debris from the screens, and a through-screen intake velocity of no more than 0.5 feet per second (fps). The wedgewire screen units must be positioned as close to the west bank of the Hooksett Pool segment of the Merrimack River and the CWIS as possible, while 1) meeting all operational specifications required by this permit; 2) meeting the conditions of any other permits for the equipment; and 3) assuring that the equipment performs as designed.
  - b. The permittee shall verify that the through-screen velocity at the wedgewire screen surface is 0.5 fps or less through measurement or calculation, and that the ratio of through-screen velocity to ambient sweeping current velocity is maintained at 1:1 or greater from April 1 through August 31 of each year under all river and plant operating conditions.

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<sup>5</sup> There is no universally accepted definition of "fine mesh." EPA notes that the Final Rule at 40 C.F.R. § 122.21(r)(10)(i) requires an evaluation of the technical feasibility of fine mesh screens with a mesh size of 2 mm or less. *See also* 79 Fed. Reg. at 48349, 48350, and 48367. The Technical Development Document for the Final Rule states that "fine mesh screens have mesh sizes typically ranging from about 0.5 mm to 3 mm, depending on the organisms to be protected" (at p. 6-22), and, alternatively, specifies that since 2000, new data shows that fine mesh screens "must be less than 2 mm to have a significant effect on total entrainment" (n. 107 at p. 6-45). While EPA may conclude that screens with slot sizes larger than 2 mm are appropriate on a case-by-case basis with site-specific data for wedgewire screens, EPA generally considers "fine mesh" as slot sizes less than or equal to 2.0 mm. *As part of this re-notice, EPA is requesting comment on the extent to which wedgewire screens with different screen slot sizes can prevent mortality to aquatic life from entrainment and/or impingement and satisfy the BTA requirements of CWA § 316(b).* If cylindrical wedgewire screens are determined to be the BTA for entrainment at Merrimack Station, EPA will define the appropriate slot size based on its consideration of, among other things, the comments received and on the results of the site-specific data collected at Merrimack Station during spring/summer 2017.

- c. The permittee shall institute a best management practice (BMP) of shutting down the intake pumps associated with a particular generating unit to the extent practicable when that generating unit is not operating and water does not need to be withdrawn from the river through that intake structure for fire prevention or other emergency conditions.
  - d. Unless specified by this permit, the permittee shall make no changes to the location, design or capacity of the present cooling water intake structures, without prior approval by EPA.
2. Compliance Schedule. Permit requirements under CWA § 316(b) must be complied with as soon as practicable. 40 C.F.R. §§ 125.94(b)(1) and (2), 125.98(c). In order to comply with Part I.\_\_\_\_ of this permit, the permittee needs to install and operate new equipment. As a result, the permittee needs a period of time to install this equipment and achieve compliance. Therefore, this permit sets forth below a schedule according to which the permittee shall attain compliance with the permit's BTA requirements under CWA § 316(b). Specifically, steps for the installation and operation of equipment required to comply with Part \_\_\_\_ of this permit shall be completed as soon as practicable but no later than the schedule of milestones set forth below. The permittee shall notify EPA in writing of compliance or non-compliance with the requirements for each milestone no later than fourteen (14) days following each specified deadline.
- a. Design
    - i) Within six (6) months of the effective date of this permit, the permittee shall submit to EPA and NHDES a preliminary design of the wedgewire screens to be installed at Merrimack Station and include justifications for 1) the proposed screen slot size based on consideration of each option's ability to reduce impingement mortality and entrainment, minimize through-screen velocity, avoid screen clogging, fouling or other maintenance issues, and any other relevant considerations; 2) the proposed material or alloy chosen for the equipment in order to reduce bio-fouling; and 3) the permittee's choice of either traditional cylindrical wedgewire screens or wedgewire half-screens in order to reduce entrainment and impingement mortality. The preliminary design shall also provide data establishing the through-screen velocities that will be maintained by the Facility under various river and plant operating conditions, while also identifying the ratios of through-screen velocities to ambient sweeping current velocities that will be maintained under the different river and plant operating conditions. The screen slot size selected will be subject to EPA approval and based upon consideration of the results of the permittee's "confirmatory study" during the spring/summer of 2017, as well as any other pertinent information.
    - ii) Data collection, including but not limited to topographic and bathymetric surveys, geotechnical exploration, and other design and aquatic construction variables that need to be evaluated for installation of the wedgewire screens to satisfy the BTA requirements of this Final Permit, shall be completed no later than six (6) months from the effective date of the permit.

iii) Within two (2) months after receipt of correspondence from EPA approving the permittee's preliminary design, including the screen slot size and through-screen velocity for the wedgewire screens, the permittee shall submit a final design for the wedgewire screens and all other technologies needed to satisfy the BTA requirements of this Final Permit.

b. Permitting

i) Within four (4) months of submitting the final design, the permittee shall complete submission of all permit applications and notices necessary to obtain authorization for installation and construction of the wedgewire screens and all other technologies needed to satisfy the BTA requirements of this Final Permit, including any permits or authorizations required from the U.S. Army Corps of Engineers (ACOE), the United States Fish and Wildlife Service (USFWS), the NHDES, the New Hampshire Fish & Game, any local conservation commissions, and any other relevant regulatory authorities, as necessary. This task shall include all necessary engineering to support development and submission of adequate permit applications and the collection of all necessary supplementary data.

c. Construction

- i) Within four (4) months of submitting the final design, the permittee shall select and enter into an Engineering, Procurement and Construction agreement (or agreements) with all needed contractors.
- ii) The permittee shall comply with the conditions of all permits and approvals related to installing the wedgewire screens and any other technologies needed to satisfy the BTA requirements of this Final Permit. In addition, EPA will work with representatives of Merrimack Station and, as appropriate, the New England ISO to schedule any necessary power plant downtime associated with installing the wedgewire screens or other equipment needed to comply with the BTA requirements of this permit – though no such downtime is currently anticipated – so as to minimize or eliminate any effects on the adequacy of the region's supply of electricity.
- iii) No later than sixteen (16) months from obtaining all necessary permits and approvals, the permittee shall complete site mobilization and modifications, installation, tie-in, testing, startup and commissioning of the wedgewire screens and all other technologies needed to satisfy the BTA requirements of this Final Permit for the cooling water intake structures serving Units 1 and 2 at Merrimack Station.

*As stated above, EPA invites public comments on the above compliance schedule for installing wedgewire screens at Merrimack Station and the discussion that EPA has provided above that relates to the schedule.*



7. Additional Information Related to Cylindrical Wedgewire Screen Technology and Its Potential Application at Merrimack Station

Since closure of the original comment period on February 28, 2012, a significant amount of additional information has been submitted to, or collected by, EPA relevant to whether cylindrical wedgewire screens should potentially be determined to be a component of the BTA for Merrimack Station under CWA § 316(b). EPA has added this material to the [administrative record for the Merrimack Station permit](#) available on EPA's website. EPA is making, or has made, this post-Draft Permit material available for public review and *EPA invites public comments that address relevant issues raised by this post-Draft Permit material that pertain to EPA's determination of the BTA for Merrimack Station under CWA § 316(b).*

The materials in question include, at a minimum, the following:

List of References Regarding Wedgewire Screens

- AR-1231. Enercon Services, Inc. October 2014. Assessment of 2007 Response to U.S. Environmental Protection Agency CWA § 308 Letter PSNH Merrimack Station Units 1 & 2; Prepared by Enercon Services, Inc. for PSNH. October 2014. (Included as Exhibit 4 in PSNH's Response to Comments on EPA's Revised Draft NPDES Permit.)
- AR-1231 (Attachment 1 to Exhibit 4). Normandeau Associates, Inc. 2014. Update of Impingement Abundance and Mortality Assessment for Merrimack Station Response Supplement to United States Environmental Protection Agency CWA § 308 Letter, prepared by Normandeau Associates, Inc., October 2014.
- AR-1399 (Appendix 3 to Exhibit 1). Normandeau Associates, Inc., 2016: Potential Entrainment Reduction for Cylindrical Wedgewire Screens at Schiller Station, Incorporating a Length-Based Wedgewire Avoidance Model. Prepared by Normandeau Associates, Inc., for PSNH. January 2016.
- AR-1352. (Attachment 1) Enercon Services, Inc., 2016: Wedgewire Half Screen Technical Memo PSNH Merrimack Station Units 1 & 2; Prepared by Enercon Services, Inc., for PSNH. December 2016.
- AR-1352 (Attachment 1 to Attachment 1). Mattson, M.T., 2016. Memorandum to Ms. Linda Landis of Eversource Energy and Mr. Richard Clubb of Enercon Services, Inc. RE: Wedgewire Screen Update Attachment 1 to the 2016 Enercon Report for Merrimack Station.
- AR-1361. Enercon Services, Inc., 2017. Wedgewire Screen Confirmatory Study Scope Description, PSNH Merrimack Station Units 1 & 2, Bow, New Hampshire. Includes 2 Attachments.
- AR-1401. Normandeau Associates, Inc., and ASA Analysis and Communications, Inc., 2011. 2010 IPEC Wedgewire Screen Laboratory Study. Prepared for Indian Point Energy Center,

Buchanan, NY., January 2011. Submitted as Reference 21 to Comments of the Entergy Corp. on Proposed Rule titled National Pollution Discharge Elimination System-Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22174 (April 20, 2011).

AR-1402. Normandeau Associates, Inc., and ASA Analysis and Communications, Inc., 2011. 2011 IPEC Wedgewire Screen Laboratory Study. Prepared for Indian Point Energy Center, Buchanan, NY. July 2011. Submitted as Exhibit 2 to Comments of the Entergy Corp. on Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities: Notice of Data Availability Related to Impingement Mortality Control Requirements, 77 Fed. Reg. 34315 (June 11, 2012).

AR-1403. Normandeau Associates, Inc., and ASA Analysis and Communications, Inc., 2012. Wedgewire Screen In-River Efficacy Study at Indian Point Energy Center. Prepared for Indian Point Energy Center, Buchanan, NY. January 2012. Submitted as Exhibit 6 to Comments of the Entergy Corp. on Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities: Notice of Data Availability Related to Impingement Mortality Control Requirements, 77 Fed. Reg. 34315 (June 11, 2012).

AR-1418. Electric Power Research Institute. 2013. Fish Protection at Cooling Water Intake Structures: A Technical Reference Manual – 2012 Update, Chapter 5: Cylindrical Wedgewire Screens. Palo Alto, CA. Report 3002000231.

AR-1420. Mattson, M., P. Lindsay, J. Young, J. Black. 2011. Larval Avoidance Enhances the Entrainment Reduction Performance of Cylindrical Wedgewire Screens. August 2011. Presentation to the American Fisheries Society Annual Meeting in Seattle, WA, on behalf of Entergy's Indian Point Energy Center, Buchanan, NY.

AR-1421. Mattson, M., P. Lindsay, J. Young, D. Heimbuch, L. Barnthouse. 2014. In-River Performance of a 2-MM Slot Wedgewire Screen for Reducing Entrainment. August 2014 Presentation to the American Fisheries Society Annual Meeting in Quebec City, Quebec, Canada, on behalf of Entergy's Indian Point Energy Center, Buchanan, NY.

8. Ramifications of Reduced Capacity Factor and PSNH Divestiture Process for the Merrimack Station NPDES Permit

At the time of the 2011 Draft Permit, Merrimack Station operated as a baseload power plant. In other words, to meet demand for electricity, the plant operated on a near-constant basis, with the exception of regularly scheduled maintenance outages. Consistent with this fact, PSNH applied for NPDES permit conditions that would allow for continuing such baseload operations and EPA has evaluated permit conditions on this basis. *See 2011 Draft Permit Determinations*, pp. 132, 145, 156 n.51, and 158. Since EPA issued the 2011 Draft Permit for public comment, however, Merrimack Station's electrical generation has diminished substantially. *See AR-1369; AR-1396*. This is primarily the result of market factors, including the emergence of relatively inexpensive natural gas and the new dominance of that fuel source in the New England market. *See AR-1396*.

As a result of these developments, a number of large or mid-sized New England power plants have closed or announced plans for closure, including Brayton Point Station (coal), Vermont Yankee (nuclear), Pilgrim Station (nuclear), Salem Station (coal), and Mt. Tom Station (coal). *See* AR-1369; AR-1396. Merrimack Station has not yet proposed closure, however, and the Facility has been operating more as a “peaking plant” that generates electricity primarily during peak demand periods in the winter and the summer. *See* AR-1369.

At the same time, New Hampshire is deregulating its electricity markets and has required PSNH to divest of its generating assets, including Merrimack Station (as well as Schiller Station and various hydro-electrical facilities). *See* AR-1396; *see also* Section IV(E)(3) below. As a result, an auction process is underway to allow prospective purchasers to bid on the Facility. Final, binding bids are expected in early August 2017. *See* AR-1390 (“Timing of certain key process milestones” updated February 17, 2017, in [NHPUC Commencement of Auction Process](#)). At present, in light of developments at other power plants, there is uncertainty about how Merrimack Station may operate in the future. *See* AR-1396; AR-1369. PSNH has not, however, indicated any current plans to close the Facility, *see* 2013 PSNH Report on Market Conditions (AR-1396), and it still seeks a permit that would allow for baseload operations in the future. If Merrimack Station is sold, decisions about the Facility’s future would be made by the new owners.

EPA notes that under the 2014 CWA § 316(b) Regulations, reduced operations by Merrimack Station could, under certain circumstances, affect which regulatory requirements apply to the Facility. First, with regard to requirements for controlling impingement mortality, the regulations provide:

(12) *Low capacity utilization power generating units.* If an existing facility has a cooling water intake structure used for one or more existing electric generating units, each with an annual average capacity utilization rate of less than 8 percent averaged over a 24-month block contiguous period, the owner or operator may request the Director consider less stringent requirements for impingement mortality for that cooling water intake structure. The Director may, based on review of site-specific data concerning cooling water system data under 40 CFR 122.21(r)(5), establish the BTA standards for impingement mortality for that cooling water intake structure that are less stringent than paragraphs (c)(1) through (7) of this section.

40 C.F.R. § 125.94(c)(12). Thus, if a facility has “an annual average capacity utilization rate of less than 8 percent averaged over a 24-month block contiguous period” and requests less stringent impingement mortality control requirements, the permitting authority may consider providing less stringent requirements. As of yet, however, PSNH has neither requested such less stringent requirements nor demonstrated that its generating units have a capacity utilization rate of less than the specified criterion. Therefore, consistent with the Company’s permit application, EPA is not currently applying the low capacity utilization rate provision.

Second, the 2014 CWA § 316(b) Regulations specify that in determining requirements for controlling entrainment one of the factors that the permitting agency should consider is “remaining useful plant life.” 40 C.F.R. § 125.98(f)(2)(iv). In general, requiring significant expenditures to control a facility’s entrainment is unlikely to make sense if plans are in place to close that facility in the relatively near future. EPA has considered this factor for the Merrimack Station permit but concludes, at present, that it should not affect the Final Permit conditions. Again, although some New England power plants have decided to close, and although Merrimack Station is being auctioned by PSNH, the Company has neither proposed closing the Facility nor given any other indication to EPA that it expects the Facility to close. As stated above, a new owner will determine Merrimack Station’s future, and such new owner may decide to continue the Facility’s operations indefinitely. EPA does not have a basis for predicting otherwise with confidence.

*EPA invites comments from the public regarding how the Agency should account in its development of the Final Permit conditions under CWA § 316(b) for Merrimack Station’s currently reduced level of operations, the potential sale of the Facility, and questions regarding the remaining useful life of the Facility.*

**B. New Information Raising Substantial New Questions Regarding the Application of CWA § 316(a) and New Hampshire Water Quality Standards for Setting NPDES Permit Requirements for Merrimack Station’s Thermal Discharges**

Merrimack Station takes water from the Merrimack River to use for cooling in its process for generating electricity. Specifically, the Facility uses river water to cool and condense steam in the power plant’s condensers. In the process, waste heat from the condensers is transferred to the cooling water and discharged to the river. Under the CWA, these “thermal discharges” are regulated by Merrimack Station’s NPDES permit.

The thermal discharge limits in the Facility’s current permit, which was issued in 1992, were set pursuant to a thermal discharge “variance” granted by EPA under CWA § 316(a), 33 U.S.C. § 1326(a). *See* AR-236 (1992 NPDES Permit), pp. 2-3, 8 and 16; AR-618 (2011 Draft Permit Determinations), pp. 27-28. The permit also regulates thermal discharges under New Hampshire water quality standards. AR-236, pp. 2-3.

In its permit application, PSNH sought renewal of the thermal discharge variance and the associated permit limits. *See* AR-618, p. 28. EPA discussed the application of CWA § 316(a), technology standards, and water quality standards to Merrimack Station’s thermal discharges in Sections 4.0 through 9.0 of the 2011 Draft Permit Determinations. AR-618. For the 2011 Draft Permit, after reviewing PSNH’s permit application and a variety of related thermal and biological data and information, EPA proposed denying PSNH’s request for renewal of the CWA § 316(a) variance. *See id.* at Section 6.0. Instead, EPA proposed thermal discharge limits based on applicable technology standards and water quality standards. *See* AR-618, Sections 7, 8 and 9. More specifically, limits were based on a site-specific, BPJ application of the Best Available Technology (BAT) standard, *see id.* at Sections 7 and 9, *see also* 33 U.S.C. §§ 1311(b)(2)(A) and (F) and 40 C.F.R. § 125.3(c)(2), and a site-specific application of relevant New Hampshire water

quality standards. *See* AR-618, Sections 8 and 9. *See also* 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d).

During the public comment period for the 2011 Draft Permit, EPA received numerous comments addressing the proposed thermal discharge limits and issues related to them. Some commenters supported the proposed permit limits, while others disagreed with them and urged EPA to revise them. EPA has been considering all of these comments and will respond to the significant ones in writing in conjunction with development and issuance of the Final Permit to Merrimack Station.

Unlike the situation for CWA § 316(b) requirements, since issuance of the 2011 Draft Permit, there have been no material changes to the legal regime governing thermal discharges under either the CWA or New Hampshire water quality standards. That said, since the comment period on the 2011 Draft Permit closed on February 28, 2012, new information has come to light which raises substantial new questions pertaining to the application of CWA § 316(a) and New Hampshire water quality standards to the development of thermal discharge limits for the Merrimack Station permit. As EPA evaluates this new information and these new questions, the Agency now also invites additional public comment on these items. Below, EPA discusses the new information and the questions that it raises and specifies the topics upon which additional public comment is invited.

#### 1. New Thermal Information and Data Raising Substantial New Questions

Under CWA § 316(a), 33 U.S.C. § 1326(a), the permitting agency may base permit limits for thermal discharges on a variance from the otherwise applicable technology-based and water quality-based standards if the permit applicant demonstrates that less stringent limits will nevertheless assure the protection and propagation of the receiving water body's balanced, indigenous population of shellfish, fish, and wildlife (BIP). In determining whether the protection and propagation of the BIP will be assured, other environmental stresses are taken into account along with any stress from the thermal discharge. *See id.*; 40 C.F.R. § 125.73(a) and (c)(1). The evaluation under CWA § 316(a) involves considerations such as (a) the scope of the discharger's waste heat discharges (*e.g.*, the amount of heat being discharged (in British thermal units (or Btus)), the maximum water temperatures, the timing and duration of thermal discharges (*e.g.*, are there seasonal or daily variations?)), (b) the effect of the discharges on ambient conditions (*e.g.*, the portion of the receiving water body that is affected by the discharge and the extent of that effect), and (c) the manner in which the alteration of water temperatures by the discharge affects aquatic life (*e.g.*, whether increased water temperatures have affected the ability of aquatic organisms to survive, reproduce, or successfully compete with other native and non-native organisms). EPA's assessment of these issues for the 2011 Draft Permit is presented in Sections 4.0, 5.0 and 6.0 of the 2011 Draft Permit Determinations. AR-618. Similar biological and habitat effects-oriented analyses are conducted for the application of New Hampshire's water quality standards. EPA evaluated these water quality issues in Sections 8.0 and 9.0 of the 2011 Draft Permit Determinations. *Id.*

In its CWA § 316(a) analysis, EPA considered and analyzed, among other things, a substantial amount of temperature data and analysis submitted by PSNH with its permit application. *See, e.g.*, AR-618, pp. 80-86. An important component of this thermal data was a 2007 report (AR-10) by Normandeau, one of PSNH's consultants. In comments submitted during the comment period for the 2011 Draft Permit, PSNH urged that EPA had misunderstood or misinterpreted certain aspects of the Company's thermal data as presented in the 2007 Normandeau report. *See, e.g.*, AR-872, pp. 97-98 (Comments by Normandeau on the 2011 Draft Permit). As EPA worked to consider public comments on the 2011 Draft Permit, it carefully considered the points made by PSNH. Initially, the Agency was not persuaded that it had incorrectly interpreted the Company's thermal data.

Then PSNH sent EPA a letter dated September 4, 2015, again commenting that EPA had misunderstood and misinterpreted the Company's temperature data and providing a more detailed explanation of how the data *should* be interpreted. *See* AR-1367. At the same time, PSNH took responsibility for the confusion about the data, stating that, "[a]dmittedly, any misinterpretation of the data by the agency is due to a lack of clarity in the Report itself as described in greater detail below, and we regret that it was not presented better." *Id.* In response, EPA again reevaluated the data in question.

The original temperature data tables presented in Normandeau's April 2007 report, "A Probabilistic Thermal Model of the Merrimack River Downstream of Merrimack Station," AR-10, are labelled as the "Average Daily Maximum, Minimum, and Mean Water Temperature Measured at Monitoring Stations N-10, S-0, and S-4 and Predicted at A-0 for Merrimack Station for the 1 April to 1 November period of 1984 through 2004." EPA understood this to mean that the instantaneous maximum and minimum temperatures, as well as the daily mean temperatures, were collected for each calendar day for each of the 21 years and then averaged together. Using the calendar day of July 1 as an example, EPA thought that Normandeau had identified the maximum temperatures for each July 1 over the 21-year period and then averaged these 21 daily maximum temperatures together. EPA thought that the same approach was also used to produce average daily minimum and average daily mean values for July 1 using the 21 years of July 1 values available for each metric. EPA also thought that this type of average data would provide useful information for reasonably characterizing water temperatures for any given day, from April 1 to November 30, over the 21-year period under review. These temperatures could then be compared to ambient temperatures in areas of Hooksett Pool unaffected by the plant's thermal discharge. EPA further thought that annual temperature data submissions included in the Company's Environmental Monitoring Program Annual Reports since the 1970's supported this interpretation since they presented maximum and minimum instantaneous temperature data, as well as daily average data, for each day of the month.

In its September 4, 2015, letter, however, PSNH clarified that the temperature data in the Normandeau Report are *not* the 21-year average of the daily maximum temperatures for each day of the calendar year. *See* AR-1367. Instead, the data simply represent the maximum of the daily averages that occurred on a given calendar day, possibly only one time, during the entire 21 years that monitoring data were collected (between 1984 and 2004). *Id.* In light of PSNH's new

explanation of the data, EPA decided to reassess its interpretation of the data but found that it did not have sufficient data to do so.

Therefore, on November 30, 2015, EPA sent PSNH an information request letter under Section 308(a) of the CWA, 33 U.S.C. § 1318(a), seeking additional thermal data *and* further clarification regarding the existing data. *See* AR-1298. PSNH provided its response to the information request letter in a submission dated February 29, 2016. *See* AR-1299 through AR-1307. This submission included data that EPA had requested, as well as various analytical reports that went beyond what EPA had requested. It bears mentioning that PSNH shifted the time period for its new data set later in time than EPA had requested, and that this new, more recent data reflects conditions when Merrimack Station was operating at a lower capacity factor than was reflected in the prior, older data. EPA notes that, in its view, the above-mentioned new data set reflecting current reduced operations is primarily useful if the new permit includes effluent limits reflecting this reduced operational profile. This new data would be less useful for helping to determine limits that would accommodate baseload operations, as past permit limits have and as PSNH has requested. That said, EPA is now considering *all* the material submitted by PSNH, including the data and analytical reports, and this includes reassessing PSNH's request for a CWA § 316(a) variance and the application of New Hampshire water quality standards to the Merrimack Station permit in light of this new information.

After evaluating the new data received in response to its information request (specifically attachments B (AR-1301) and C (AR-1305)), EPA found that it did, indeed, appear that the Agency had misunderstood the earlier temperature data because of confusing aspects of how it was presented. As mentioned above, the data provided by Normandeau (the measured average daily maximum temperature, in particular), correctly interpreted, represents just one day in the 21-year review period, not a 21-year average of the instantaneous maximum temperatures. EPA originally intended to use the 21-year data set to help understand the extent to which the plant's thermal discharge may have affected the thermal environment and biological community in the river over *the long-term*. EPA had not expected that Normandeau would provide data representing temperatures from only a single day out of the 21-year data set because, among other things, EPA initially did not think that such single-day data would be particularly useful for assessing the effects of thermal discharges on the aquatic community. Again, EPA is 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.

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 Normandeau can, in fact, provide one useful metric for assessing the effects of 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.

As previously stated, Eversource's February 29, 2016, response to EPA's information request included additional information that EPA did not specifically request, but that the Company felt was relevant to evaluating the thermal issue. This information was presented in a report entitled, "Review of technical documents related to NPDES permitting determinations for thermal discharge and cooling water intake structures at Merrimack Station." AR-1300. The Company also submitted additional information (again not specifically requested by EPA) in a letter dated December 22, 2016. AR-1352. This letter included a thermal plume report based on a CORMIX modeling analysis, as well as an additional report by PSNH consultant, Dr. Lawrence Barnthouse, that provides his assessment of thermal effects on the Hooksett Pool fish community based in large part on the CORMIX modeling results. *See* AR-1352, Attachments 2 and 3.

*EPA invites 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. In particular, EPA invites 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*
- *EPA is considering the above-mentioned material from Dr. Barnthouse, AR-1352, Attachments 2 and 3, and invites the public to review and comment on the import of this new information.*

*Moreover, additional public comment is solicited regarding any thermal discharge-related materials submitted to EPA since closure (on February 28, 2012) of the public comment period on the 2011 Draft Permit, including the following:*

- a) AR-1367 (PSNH's September 4, 2015, letter to EPA, including all attachments (excluding any CBI materials));
- b) AR-1298 (EPA's letter requesting thermal data from PSNH); and



- c) AR-1299 through AR-1307 (PSNH's response to EPA's request for information (excluding any CBI materials)).
2. New Information Concerning the Presence of the Asian Clam (*Corbicula fluminea*) in Hooksett Pool and Substantial New Questions Regarding the Import of this Information for Application of CWA § 316(a) and New Hampshire Water Quality Standards to the Merrimack Station NPDES Permit

During the public comment period on the 2011 Draft Permit, PSNH submitted comments including a report by its consultant, Normandeau, entitled, "Comparison of Benthic Macroinvertebrate Data Collected from the Merrimack River near Merrimack Station During 1972, 1973, and 2011," dated January 2012. (Normandeau 2012). AR-870. In reviewing this report, EPA became aware of the presence of non-native organisms in Hooksett Pool; in particular, the Asian clam (*Corbicula fluminea*). The presence of this highly invasive species, (see Sousa et al. 2008, AR-1406), appeared notably concentrated in areas of Hooksett Pool with water temperatures directly affected by the plant's thermal discharge. See AR-870. The data provided in the report did not reveal if any individual Asian clams were collected in samples taken upstream from the plant's thermal discharge, but they were not listed as the dominant taxon. See AR-870, p. 12-14. Of the 18 samples taken at or downstream of the plant's discharge canal, however, Asian clams were the dominant taxon in 14 of them, ranging in relative abundance from 58 to 94 percent, with a mean of 78.6 percent at the sites where they were dominant. *Id.*, pp. 12-14.

EPA 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 CWA § 316(a) and New Hampshire water quality standards. As explained in detail previously, CWA § 316(a) variance-based temperature limits must assure the protection and propagation of the balanced indigenous population of organisms, see AR-618, pp. 18-23, while New Hampshire water quality standards impose similar requirements for the protection of local aquatic life. See *id.*, pp. 174-178.

The Asian clam is widely distributed in the United States, but its limited presence in northern New England has been attributed to prolonged periods of cold water temperatures and ice cover that is believed to cause high mortality during winter months (Simard et al., 2003) (See AR-1404). When PSNH submitted its report in 2012, the presence of Asian clams in New Hampshire had only been documented in the Merrimack River south of Bow, New Hampshire, and in Cobbetts Pond, in Windham, New Hampshire, according to NHDES's environmental fact sheet on Asian clams (NHDES, 2012) (See AR-1408). NHDES later documented them in Long Pond, as well. EPA notes that when Merrimack 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. See, e.g., Satellite photo of Hooksett Pool taken on February 27, 2014 (AR-1894).

EPA reviewed two peer-reviewed journal articles that studied the relationship between Asian clams and thermal discharges from power plants. Both studies, one conducted in the Connecticut River (Connecticut) and the other in the St. Lawrence River (Canada), 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 (Simard et al. 2012, and Morgan et al., 2003) (*see* AR-1404 and AR-1405).

In response to interest and concern over the presence of Asian clams in Hooksett Pool, EPA not only evaluated the data provided by PSNH, *see* AR-870, and the literature cited above, but the Agency also collaborated with NHDES in 2013 (AR-1414) and 2014 (AR-1413) on a study to investigate the presence and abundance of Asian clams in the Hooksett Pool and other locations in New Hampshire. Sampling was conducted in July and November of 2013, and in September, 2014. Stations sampled by Normandeau in 2011 were revisited, while sites upstream of the Facility's discharge canal, including stations in Garvins Pool, and sites downstream of the discharge in Amoskeag Pool, were also investigated. During the sampling effort in September 2014, EPA divers collected samples and took video and photos of the river bottom in areas directly downstream of, at the mouth of, and directly upstream of the plant's discharge canal. This qualitative sampling revealed both higher densities of clams and larger individuals near the mouth of the discharge canal, as compared to clams collected farther downstream in Hooksett Pool, and in Amoskeag Pool below the Hooksett Dam. Neither benthic sampling conducted by NHDES during 2013 (AR-1414), nor EPA dive investigations in 2014 (AR-1412), found evidence of Asian clams upstream from the plant in Hooksett Pool or Garvins Falls Pool. The arrival of invasive Asian clams in NH represents a threat to the state's water quality. Their presence is regulated in New Hampshire, and it is illegal to import, possess or release Asian clams in the state, according to NHDES (NHDES 2012) (AR-1408).

Furthermore, in its Final 2014 Surface Water Quality Assessment (AR-1409), NHDES listed "non-native fish, shellfish or zooplankton" as a parameter that rated a "3-PNS," or "insufficient data/potentially not attaining standard," for the section of Hooksett Pool downstream from the Facility (NHIMP700060802-02). The same rating was applied to the Hooksett Pool bypass, just below the Hooksett Dam (NHRIV700060802-14-01) and in the Amoskeag Pool of the Merrimack River (NHRIV700060802-14-02) *See* AR-1409. Notably, there is no such listing for either the section of river immediately upstream of the plant's discharge canal within Hooksett Pool (NHRIV700060302-25-02), or for the section of river upstream of Merrimack Station in the southern end of Garvins Pool (NHRIV700060302-24). *See* AR-1409. These ratings have all remained unchanged in the latest, 2016, draft Surface Water Quality Assessment by NHDES (AR-1407).

In response to a PSNH request for records under the Freedom of Information Act, EPA has already shared this Asian clam-related data with the Company. By this notice, EPA is also informing other potentially interested persons of this information. EPA also notes that in response to seeing the Asian clam data, PSNH hired a consultant scientist to evaluate the Asian clam issue and the Company has indicated that it will be submitting a report to EPA about the Asian clam in the near future. *See* AR-1364 (Email from Linda T. Landis, Senior Counsel,

Eversource Energy, to Mark Stein, EPA Region 1 (March 10, 2017)). In this regard, PSNH stated as follows:

... we have one the country's leading experts on the propagation of the [A]sian clam preparing a report documenting the results from his diving surveys in the Merrimack River over the last few years, his review of the NHDES [A]sian clam survey results, as well as a summary of his in-depth research on this topic. Based on my review of the FOIA response documents, I expect this report will be of particular interest to Eric Nelson. We hope to have this complete in early May.

*Id.* No report was submitted in early May, but EPA still expects PSNH to submit this report either by the time EPA has issued this notice or along with its comments in response to this notice.

*EPA invites public comments addressing the information discussed above indicating the presence of the Asian clam in the Hooksett Pool, as well as comments addressing the import of this information for setting thermal discharge limits for the Merrimack Station permit under CWA § 316(a) and/or New Hampshire water quality standards. (As stated previously, EPA extensively discussed the requirements of CWA § 316(a) and New Hampshire water quality standards related to thermal conditions in Chapters 4 and 8 of the 2011 Draft Permit Determinations.) EPA also invites comments addressing the following specific items in the administrative record for the Merrimack Station permit that are related to the Asian clam issue and were added to the administrative record for the permit after closure of the public comment period for the 2011 Draft Permit:*

AR-1405. Morgan, D.E., J.T. Swenarton, and J.F. Foertch. 2003. Population dynamics of the Asiatic clam, *Corbicula fluminea* (Müller) in the lower Connecticut River: establishing a foothold in New England. *J. Shellfish Res.*, 22 (1) 193-203. New Hampshire Department of Environmental Services. 2012. Environmental Fact Sheet: Asian Clams in New Hampshire. 3 pp.

AR-1409. NHDES Surface Water Quality Assessments. New Hampshire Watershed Report Card FINAL 2014 305(b)/303(d).  
[http://www4.des.state.nh.us/WaterShed\\_SWQA/WaterShed\\_SWQA.aspx](http://www4.des.state.nh.us/WaterShed_SWQA/WaterShed_SWQA.aspx). 89 pp.

AR-1407. NHDES Surface Water Quality Assessments. New Hampshire Watershed Report Card DRAFT 2016 305(b)/303(d).  
[http://www4.des.state.nh.us/WaterShed\\_SWQA/WaterShed\\_SWQA.aspx](http://www4.des.state.nh.us/WaterShed_SWQA/WaterShed_SWQA.aspx). 62 pp.

AR-870. Normandeau (Normandeau Associates, Inc.). 2012. Comparison of Benthic Macroinvertebrate Data Collected from the Merrimack River near Merrimack Station During 1972, 1973, and 2011. 17 pp.

AR-1404. Simard, M. Anouk, Annie Paquet, Charles Jutras, Yves Robitaille, Pierre U. Blier, Réhaume Courtois and André L. Martel. 2012. North American range extension of the

invasive Asian clam in a St. Lawrence River power station thermal plume. *Aquatic Invasions*, 7 (1) 81-89.

AR-1406. Sousa, R., C. Antunes and L. Guilhermino. 2008. Ecology of the invasive Asian clam *Corbicula fluminea* (Müller, 1774) in aquatic ecosystems: an overview. *Ann. Limon. – Int. J. Lim.*, 44 (2), 85-94.

**C. New Information Concerning New Technology-Based Standards for FGD Wastewater, Bottom-Ash Wastewater, Combustion Residual Leachate, and Non-Chemical Metal Cleaning Wastes at Merrimack Station**

Under CWA § 301(a), 33 U.S.C. § 1311(a), point source discharges of pollutants into waters of the United States are unlawful unless, among other things, the discharges are authorized by an NPDES permit issued under CWA § 402, 33 U.S.C. § 1342. NPDES permits set effluent limits based on technology-based standards, except that if technology-based limits are insufficiently stringent to satisfy state water quality standards, then water quality-based effluent limits are applied. To establish technology-based limitations, the CWA authorizes EPA to promulgate effluent limitations guidelines (ELGs) and new source performance standards pursuant to CWA §§ 301, 304, and 306, 33 U.S.C. §§ 1311, 1314, and 1316. In addition, where EPA has not promulgated national technology-based standards, technology-based effluent limits may be developed for individual permits based on a best professional judgment (BPJ), site-specific application of the pertinent technology standard. *See* 33 U.S.C. § 1342(a)(1)(B); 40 C.F.R. §§ 125.3(a)(2) and (3).

ELGs are established by EPA regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology, as specified in the Act. Section 301(b)(1)(A) of the Clean Water Act requires industrial dischargers, by July 1, 1977, to have satisfied limits based on the application of the best practicable control technology currently available (BPT). 33 U.S.C. §1311(b)(1)(A); *see also* 40 C.F.R. § 125.3(a)(2)(i). The statute further mandates that industrial dischargers were to have complied by March 31, 1989, with effluent limits for toxic and non-conventional pollutants that reflect the best available technology economically achievable (BAT). 33 U.S.C. §§ 1311(b)(2)(A) and (F); 40 C.F.R. § 125.3(a)(2)(iii) – (v). Industrial dischargers were also required by March 31, 1989, to have met limits for conventional pollutants based on the best conventional pollutant control technology (BCT). *See* 33 U.S.C. §1311 (b)(2)(E); 40 C.F.R. § 125.3(a)(2)(ii).

EPA first promulgated ELGs for the Steam Electric Power Generating category of point sources in 1974. *See* 40 C.F.R. Part 423. *See also* 39 Fed. Reg. 36186, *as amended at* 40 Fed. Reg. 7095 (February 19, 1975); 40 Fed. Reg. 23987 (June 4, 1975) (previously codified at 40 C.F.R. Part 423). EPA subsequently amended the regulations in 1977 and 1982. *See* 80 Fed. Reg. 67838; 78 Fed. Reg. at 34438-39 (describing the history of EPA's ELG rulemaking actions). Despite this rulemaking history, as of 2015, EPA had yet to promulgate ELGs addressing many toxic pollutants discharged by the electric power industry and the Agency was considering updates to the standards to reflect advancements in wastewater treatment processes.

EPA promulgated new ELGs on November 3, 2015, and they became effective on January 4, 2016 (the 2015 Steam Electric ELGs). 80 Fed. Reg. 67838 (Nov. 3, 2015). Numerous parties then challenged the new regulations in the Fifth Circuit Court of Appeals. *See Southwestern Electric Power Co., et al. v. EPA*, No. 15-60821. The Petitioners have filed briefs in support of their challenges to the Rule. EPA was scheduled to file its reply brief by May 4, 2017, but the court has now stayed this deadline, as explained below.

On March 24, 2017, EPA received a petition for reconsideration of the 2015 Steam Electric ELGs from the Utility Water Action Group (UWAG). On April 5, 2017, EPA received an additional petition for reconsideration from the Small Business Administration Office of Advocacy (SBA). *See UWAG Petition to Reconsider the Final Rule* (March 24, 2017); *SBA Petition to Reconsider the Final Rule* (April 5, 2017) (both available in EPA's online docket for the 2015 Steam Electric ELGs at <https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-petitions-reconsideration>). After reviewing the two petitions, EPA Administrator E. Scott Pruitt sent a letter to UWAG and SBA announcing his decision to grant their requests and reconsider the rule. AR-1366 (*EPA Response to UWAG & SBA Petitions – 2015 Steam Electric ELG Final Rule* (April 12, 2017)), available at [https://www.epa.gov/sites/production/files/2017-04/documents/steam-electric-elg\\_uwag-sba-petition\\_epa-response\\_04-12-2017.pdf](https://www.epa.gov/sites/production/files/2017-04/documents/steam-electric-elg_uwag-sba-petition_epa-response_04-12-2017.pdf).

The Administrator also announced that the Agency would “issue an administrative stay of the compliance dates in the rule that have not yet passed pending judicial review.” *Id.* at 1. That same day, the Administrator signed a Public Notice entitled, “Stay of Certain Compliance Deadlines for the Final Rule Entitled ‘Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category’ Published by the Environmental Protection Agency on November 3, 2015.” *Steam Electric Power Generating Effluent Guidelines - Stay of Certain Compliance Deadlines - FR Pre-Publication* (April 12, 2017). This Notice was then published in the Federal Register on April 25, 2017. *Postponement of Certain Compliance Dates for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, 82 Fed. Reg. 19005 (Apr. 25, 2017), available at <https://www.federalregister.gov/documents/2017/04/25/2017-07811/postponement-of-certain-compliance-dates-for-effluent-limitations-guidelines-and-standards-for-the>. In the Federal Register notice, the Administrator determined, after considering the objections raised in the petitions for reconsideration, that it is appropriate and in the public interest to reconsider the 2015 Steam Electric ELGs and postpone certain compliance dates in the ELGs pursuant to Section 705 of the Administrative Procedure Act (APA). 5 U.S.C. § 705. Specifically, the notice serves to administratively stay, pending judicial review, compliance dates that have not yet passed for certain new, more stringent effluent limitations and standards in the ELGs.<sup>6</sup>

In its letter of April 12, 2017, to UWAG and SBA, as well as its April 25, 2017, Federal Register Notice, EPA also indicated its intention to “file a motion requesting the Fifth Circuit to hold the

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<sup>6</sup> The compliance deadlines affected are those identified at 40 C.F.R. §§ 423.11(t), 423.13(g)(1)(i), 423.13(h)(1)(i), 423.13(i)(1)(i), 423.13(j)(1)(i), and 423.13(k)(1)(i), and 40 C.F.R. §§ 423.16(e), 423.16(f) 423.16(g) 423.16(h) 423.16(i), originally published at 80 Fed. Reg. 67838 (Nov. 3, 2015). 82 Fed. Reg. 19006.

litigation challenging the Rule in abeyance while the Agency reconsiders the Rule,” and to “conduct notice and comment rulemaking to stay the compliance deadlines for the new, more stringent limitations and standards in the Rule.” 82 Fed. Reg. at 19005-19006. At the same time, other provisions of the 2015 Steam Electric ELGs were not stayed and presently remain in effect. On April 14, 2017, EPA filed a motion seeking to stay the proceedings in the Fifth Circuit pending reconsideration of the ELGs. The motion specifically requested a 120-day stay and that, upon the conclusion of the 120 days, EPA be permitted to file a motion to govern further proceedings and inform the court whether it wishes to seek a remand of any provisions of the ELGs. *Southwestern Elec. Power Co., v. EPA*, No. 15-60821 (docket). After numerous parties filed responses to EPA’s motion, the Court granted the Agency’s request and stayed the litigation for 120 days, as outlined in the Court’s April 24, 2017, Order.

Then, on May 3, 2017, numerous environmental groups filed a complaint in District Court for the District of Columbia alleging that by issuing the April 25, 2017, notice described above, EPA violated the Administrative Procedure Act (APA). *Climate Action Network v. EPA*, No. 17-00817 (May 3, 2017). This litigation has yet to result in any rulings and may or may not ultimately affect EPA’s stay of compliance deadlines in the 2015 ELGs. As a result, it is currently unclear whether this case will have any bearing on EPA’s development of the Merrimack Station permit.

Finally, as EPA foreshadowed in the April 12, 2017, Letter and the April 25, 2017, Postponement, on June 6, 2017, the Agency published a Proposed Rule entitled, “Postponement of Certain Compliance Dates for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category.” 82 Fed. Reg. 26017 (June 6, 2017). Publication of the Proposed Rule commenced a notice-and-comment rulemaking process to stay the compliance dates for certain new, more stringent limitations and standards in the 2015 Steam Electric ELGs. The proposed rule seeks to stay the same provisions of the Steam Electric ELGs that are subject to the current administrative postponement, and it is “intended as a temporary, stopgap measure to prevent the unnecessary expenditure of resources until EPA completes reconsideration of the 2015 rule.”<sup>7</sup> 82 Fed. Reg. 26017, 26018. EPA has accepted public comments on the proposed rule and specifically requests comments “on whether this postponement should be for a specified period of time, for example, two years.” *Id.*

As is evident from the discussion thus far, the regulatory landscape within which the Steam Electric Power Generating Point Source Category is governed has shifted in significant ways since EPA issued the 2011 Draft Permit for Merrimack Station. These regulatory shifts constitute new information that raises certain substantial new questions for the Merrimack Station NPDES permit. Therefore, EPA is issuing this public notice and reopening the public comment period to invite the public to submit comments on the information and questions specified below.

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<sup>7</sup> Because the April 25 Postponement only stays the compliance deadlines *pending judicial review*, EPA determined that it was necessary to conduct notice and comment rulemaking to “postpone certain compliance dates in the rule *in the event that the litigation ends*, and while the Agency is undertaking reconsideration.” 82 Fed. Reg. 26017, 26018 (emphasis added).

## 1. FGD Wastewater

### a. *FGD Wastewater Limits Prior to 2015 Promulgation of ELGs*

Discharges of wastewater from a flue gas desulfurization (FGD) scrubber system to a water of the United States must comply with the requirements of an NPDES permit, *see* 33 U.S.C. §§ 1311(a) and 1342(a), which must include effluent limits that satisfy federal technology-based treatment requirements as well as any more stringent state water quality-based requirements that may apply. Although compliance with the best available technology (BAT) standard was due by March 31, 1989, *see* 40 C.F.R. § 125.3(a)(2)(iii) and (iv), at the time the 2011 Draft Permit and 2014 Revised Draft Permit were developed, the ELGs for the Steam Electric Power Generating Point Source Category, *see* 40 C.F.R. Part 423, did not include BAT limits for FGD wastewater.<sup>8</sup> In the absence of applicable ELGs, technology-based limits are developed by EPA (or state permitting authorities administering the NPDES permit program) on a case-by-case, Best Professional Judgment (BPJ) basis. *See* 33 U.S.C. § 1342(a)(1)(B); 40 C.F.R. § 125.3(c) (“Where promulgated effluent limitations 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.”). *See also* AR-608 (Fact Sheet for the 2011 Draft Permit, Attachment E), pp. 3-4.

### b. *2011 Draft Permit Conditions*

For the 2011 Draft Permit, Region 1 conducted a BPJ evaluation in which it examined eleven candidate technologies to determine the BAT for treating wastewater from Merrimack Station’s FGD system. *See* 40 C.F.R. §§ 125.3(a)(2)(iv) and (v), (c)(3). At that time, Region 1 proposed, based on BPJ, that the Station’s newly installed primary treatment system (providing physical/chemical treatment and the EMARS (mercury removal) feature) for FGD wastewater, coupled with biological treatment, was the BAT for limiting the discharge of pollutants present in FGD wastewater at Merrimack Station. *See* AR-608, Attachment E. Therefore, based on the proposed BAT treatment system, Region 1 included effluent limits for FGD wastewater in the 2011 Draft Permit, including specific limits for various metals (*e.g.*, mercury, arsenic, selenium), chlorides, and total dissolved solids (TDS). Because these limits differed from those applied to low volume waste and other wastes deposited into the slag settling pond, Region 1 concluded that the FGD wastewater needed to be sampled at a separate internal outfall (Outfall 003C) prior to mixing with other wastes in the settling pond. *See id.*, Attachment E. Once discharged through internal Outfall 003C into the slag settling pond, however, the FGD wastewater was to remain subject to the limits for total suspended solids (TSS) and Oil and Grease (which are the same for all the commingled wastes in the slag settling pond) at Outfall 003A.

### c. *2014 Revised Draft Permit Conditions*

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<sup>8</sup> In the 1982 ELGs, EPA had regulated FGD wastewater as a part of the “low volume waste” category of effluent, which was subject only to BPT limitations for TSS and Oil and Grease. *See* 39 Fed. Reg. 36186, *as amended* at 40 Fed. Reg. 7095 (February 19, 1975); 40 Fed. Reg. 23987 (June 4, 1975) (previously codified at 40 C.F.R. § 423.12).

After the public comment period for the 2011 Draft Permit concluded, Region 1 learned that PSNH had installed and, in June of 2012, begun operating Vapor Compression Evaporation (VCE) treatment technology to treat and reduce the volume of FGD wastewater at Merrimack Station so that direct discharge of the wastewater to the Merrimack River would be unnecessary. *See* AR-638; AR-303; AR-1135, p. 18. Given this new information, Region 1 completed a new BPJ, case-by-case analysis of BAT for Merrimack Station and “determined that the Facility’s existing primary FGD wastewater treatment system (which includes physical/chemical treatment components and the EMARS system), combined with its [now] existing secondary FGD wastewater treatment (which includes the two-stage evaporation system which can be operated to achieve [zero liquid discharge] ZLD) are the [new proposed] BAT.” AR-1135 (Fact Sheet for 2014 Revised Draft Permit), pp. 40-41. On this basis, EPA issued the 2014 Revised Draft Permit on April 18, 2014. The new Draft Permit proposed a zero discharge limit for pollutants in FGD wastewater based on the VCE technology outlined in the Region’s BPJ determination. Under this approach, the internal outfall (Outfall 003C) created for FGD wastewater in the 2011 Draft Permit was no longer necessary and was removed from the Revised Draft Permit.

Both the 2011 Draft Permit and the 2014 Revised Draft Permit were developed in the absence of national BAT effluent limitation guidelines for FGD wastewater and, therefore, technology-based effluent limits for FGD wastewater in these draft permits were based on BPJ determinations. On November 3, 2015, however, EPA promulgated the 2015 Steam Electric ELGs after an extensive rulemaking process. 80 Fed. Reg. 67838 (Nov. 3, 2015). A number of the provisions of the 2015 Steam Electric ELGs apply to Merrimack Station and, as a result, if these provisions remain in effect, they will require changes to the effluent limits included in the 2014 Revised Draft Permit. *See* 40 C.F.R. § 122.43(b)(1). Relevant provisions of the 2015 Steam Electric ELGs, and their potential impact on Merrimack Station’s Final Permit, are discussed below.

*d. Requirements for FGD Wastewater in the 2015 Steam Electric ELGs*

The new 2015 Steam Electric ELGs include significant new requirements for the control of FGD wastewater discharges. The new ELGs provide a new definition clearly distinguishing FGD wastewater from other wastestreams (particularly low volume wastes). 80 Fed. Reg. 67838, 67848 (Nov. 3, 2015) (“[T]he final rule establishes separate definitions for FGD wastewater, FGMC wastewater, gasification wastewater, and combustion residual leachate, making clear that these four wastestreams are no longer considered low volume waste sources.”). They also set BPT limits for FGD wastewater that are the same as the BPT limits for low volume wastes. *See* 40 C.F.R. § 423.12(b)(3) and (12). Compliance with these BPT limits is due immediately and EPA has not postponed or stayed these BPT limits. *See* 40 C.F.R. § 125.3(a)(2); 82 Fed. Reg. 19006 (list of postponed provisions does not include 40 C.F.R. § 423.12(b)).

In addition to the BPT limits, the 2015 Steam Electric ELGs also established the first national BAT effluent limitation guidelines for FGD wastewater. These BAT limits are based on wastewater treatment using chemical precipitation followed by biological treatment. The new BAT standards for FGD wastewater, 40 C.F.R. § 423.13(g), state as follows:



**(g)(1)**

**(i) FGD wastewater.** Except for those discharges to which paragraph (g)(2) or (g)(3) of this section applies, the quantity of pollutants in FGD wastewater shall not exceed the quantity determined by multiplying the flow of FGD wastewater times the concentration listed in the table following this paragraph (g)(1)(i). Dischargers must meet the effluent limitations for FGD wastewater in this paragraph by a date determined by the permitting authority that is as soon as possible beginning November 1, 2018, but no later than December 31, 2023. These effluent limitations apply to the discharge of FGD wastewater generated on and after the date determined by the permitting authority for meeting the effluent limitations, as specified in this paragraph.

Pollutant or pollutant property	BAT Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (ug/L)	11	8
Mercury, total (ng/L)	788	356
Selenium, total (ug/L)	23	12
Nitrate/Nitrite as N (mg/L)	17.0	4.4

**(ii)** For FGD wastewater generated before the date determined by the permitting authority, as specified in paragraph (g)(1)(i), the quantity of pollutants discharged in FGD wastewater shall not exceed the quantity determined by multiplying the flow of FGD wastewater times the concentration listed for TSS in § 423.12(b)(11).

40 C.F.R. § 423.13(g)(1)(i) and (ii). These effluent limitations provide the BAT standards that are generally applicable to facilities such as Merrimack Station. At present, however, EPA has indefinitely postponed the compliance date for the BAT limits in 40 C.F.R. § 423.13(g)(i), 82 Fed. Reg. 19006 (April 25, 2017), as well as commenced a notice-and-comment rulemaking process to stay these requirements. *See id.* It is unclear at this time whether these standards will be reinstated as enforceable requirements with a new compliance due date, or whether EPA will withdraw and/or replace them.

Furthermore, of particular significance for the Merrimack Station permit, the BAT effluent limitation guidelines for FGD wastewater in the 2015 Steam Electric ELGs also establish what is referred to as the “Voluntary Incentives Program” (VIP). *See* 40 C.F.R. § 423.12(g)(3)(i) and (ii); 80 Fed. Reg. 67841 n.6, 67852-67853, and 67858-67859. The VIP sets more stringent effluent limitations than the baseline BAT standards based on the pollutant reduction capability of treatment with evaporation technology. *See id.* at 67858-67859. Compliance with the VIP limits is not, however, legally required for all facilities. Instead, the VIP limits are presented as a *voluntary compliance alternative* that dischargers may choose to comply with at their option. The VIP “provides the certainty of more time (until December 31, 2023) for plants to implement

new BAT requirements, if they adopt additional process changes and controls that achieve limitations on mercury, arsenic, selenium, and TDS in FGD wastewater, based on evaporation technology.” 80 Fed. Reg. at 67858; *see also* 40 C.F.R. 423.13(g)(3).<sup>9</sup> In other words, in exchange for voluntarily opting to meet the more stringent limits, the facility gets more time to achieve compliance. A facility participating in the VIP has until December 31, 2023, to comply with the stricter BAT effluent limits. Prior to the compliance date of December 31, 2023, the facility’s FGD wastewater needs only to comply with BPT-based TSS limits.

With regard to the VIP, 40 C.F.R. § 423.13(g)(3) provides the following:

**(g)(3)**

**(i)** For dischargers who voluntarily choose to meet the effluent limitations for FGD wastewater in this paragraph, the quantity of pollutants in FGD wastewater shall not exceed the quantity determined by multiplying the flow of FGD wastewater times the concentration listed in the table following this paragraph (g)(3)(i). Dischargers who choose to meet the effluent limitations for FGD wastewater in this paragraph must meet such limitations by December 31, 2023. These effluent limitations apply to the discharge of FGD wastewater generated on and after December 31, 2023.

Pollutant or pollutant property	BAT Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (ug/L)	4	
Mercury, total (ng/L)	39	24
Selenium, total (ug/L)	5	
TDS (mg/L)	50	24

**(ii)** For discharges of FGD wastewater generated before December 31, 2023, the quantity of pollutants discharged in FGD wastewater shall not exceed the quantity determined by multiplying the flow of FGD wastewater times the concentration listed for TSS in § 423.12(b)(11).

40 C.F.R. § 423.13(g)(3). In sum, the new ELGs treat FGD wastewater as a distinct wastestream and establish a two-pronged set of potentially applicable BAT effluent limitations: 1) “default” BAT limits that generally apply to all covered facilities; and 2) alternative BAT limits that are more stringent, but only apply if a covered facility opts into the VIP. The regulations clearly articulate that EPA *shall* apply the VIP BAT limits (and compliance deadline) set forth in 40 C.F.R. § 423.13(g)(3)(i) and (ii) to any facility that opts into the VIP program.

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<sup>9</sup> More specifically, a facility must “indicate their intent to opt into the program prior to issuance of its next NPDES permit, following the effective date of this rule. A plant can indicate its intent to opt into the voluntary program on its permit application or through separate correspondence to the NPDES Director, as long as the signatory requirements of 40 CFR 122.22 are met.” 80 Fed. Reg. at 67859.

In its recent regulatory actions, EPA neither postponed or stayed the compliance deadline, the effluent limitations, or any other aspect of the VIP program. *Therefore, the VIP requirements remain in effect.*

In addition, both BAT options in the new ELGs also establish less stringent BAT limits that apply to FGD wastewater discharges *prior to* the applicable deadline for compliance with the more stringent BAT limits.<sup>10</sup> *See* 40 C.F.R. § 423.13(g)(1)(ii) and (g)(3)(ii). Specifically, for discharges of FGD wastewater prior to the final BAT compliance deadlines, the 2015 Steam Electric ELGs set “interim” BAT limits that address only TSS. These BAT limits for TSS match the BPT limits for TSS in 40 C.F.R. § 423.12(b)(11).

The 2015 Steam Electric ELGs for FGD wastewater apply to Merrimack Station’s NPDES permit and, if in effect, these new requirements would supplant the effluent limits that EPA earlier developed on a BPJ basis for the 2014 Revised Draft Permit and the 2011 Draft Permit. *See* 40 C.F.R. §§ 122.43(b)(1), 125.3(c)(1). As a result, once they were promulgated, EPA began to consider the application of the new ELGs to the Merrimack Station permit.

*e. Application of the 2015 Steam Electric ELGs to Merrimack Station’s FGD Wastewater*

As discussed above, the technology-based effluent limits and corresponding compliance timelines for controlling FGD wastewater discharges that are specified in the 2015 Steam Electric ELGs are different in many respects from the effluent limits proposed in both the 2014 Revised Draft Permit and the 2011 Draft Permit. If the 2015 Steam Electric ELGs are in effect, they are controlling for the Final Permit for Merrimack Station. *See* 40 C.F.R. §§ 122.43(b)(1) and 125.3(c)(1). Therefore, for the Final Permit, EPA expected to make changes to the limits in the 2014 Revised Draft Permit to conform the Final Permit’s effluent limits and compliance deadlines to the new ELGs.

On March 23, 2016, after the new ELGs became effective, PSNH sent a letter to EPA formally opting to comply with the requirements of the VIP. *See* AR-1343. On July 7, 2016, PSNH submitted another letter to EPA further discussing its decision to opt into the VIP and its view of the specific applicability of the VIP limits and compliance deadlines to Merrimack Station. AR-1354. With its July 7, 2016, letter, PSNH attached a report discussing its FGD wastewater treatment system, but labelled the report as Confidential Business Information (CBI). *Id.* (Attachment). As a result of the CBI claim, this report is presently part of the administrative record for the NPDES permit but *not* part of the public portion of the record. EPA has, however, obtained from PSNH a redacted copy of the report that obscures the CBI and this redacted version of the report has been included in the public version of the administrative record. *See*

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<sup>10</sup> For the default option, these discharges include those generated prior to the date that the permitting authority determines compliance is required (between November 1, 2018, but no later than December 31, 2023). 40 C.F.R. § 423.13(g)(1)(i). For the VIP option, the discharges include those generated prior to December 31, 2023. 40 C.F.R. § 423.13(g)(3)(i).

AR-1416. The two letters and the report were submitted to Region 1 after the comment period for the 2014 Revised Draft Permit ended. Therefore, while these materials have been included in the Administrative Record, potentially interested parties have not yet had an opportunity to comment to EPA on these documents.

As stated previously, the new regulations require the NPDES permitting authority to apply the BAT limits outlined in the VIP to any facility that chooses to participate in the program. Therefore, having received PSNH’s letters outlining its decision to opt into the VIP, EPA anticipated including the new final VIP effluent limits for arsenic, mercury, selenium, and TDS in the Final Permit and giving the Facility until December 31, 2023, to comply with such limits. 40 C.F.R. § 423.13(g)(3)(i). As outlined above, these effluent limits are as follows:

Pollutant or pollutant property	BAT Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (ug/L) .....	4	.....
Mercury, total (ng/L) .....	39	24
Selenium, total (ug/L) .....	5	.....
TDS (mg/L) .....	50	24

Furthermore, consistent with the regulations, EPA also anticipated including in Merrimack Station’s Final Permit the following interim BAT limits for TSS in FGD wastewater discharged *prior to* December 31, 2023:

Pollutant or pollutant property	BPT Effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS .....	100.0	30.0

40 C.F.R. § 423.13(g)(3)(ii).<sup>11</sup>

*f. New Administrative and Legal Developments*

As discussed previously, EPA recently granted a number of petitions requesting that the Agency reconsider the 2015 Steam Electric ELGs. In conjunction with this decision, EPA also decided to

<sup>11</sup> In addition to the BAT limits for TSS, the BPT limits for Oil and Grease will also be applied in the Final Permit prior to (and after) the VIP compliance date. *See* 40 C.F.R. § 423.12(b)(11); *see also* AR-608, p. 22.

administratively postpone, pending judicial review, the deadlines that have not yet passed for compliance with new, more stringent effluent limitations in the Rule. 82 Fed. Reg. 19005 (Apr. 25, 2017). The Federal Register notice lists the specific provisions being postponed as follows: 40 C.F.R. §§ 423.11(t), 423.13(g)(1)(i), (h)(1)(i), (i)(1)(i), (j)(1)(i), and (k)(1)(i), and §§ 423.16(e), (f), (g), (h), and (i). Included in this list is the provision that sets the default BAT requirements for FGD wastewater. *See* 40 C.F.R. § 423.13(g)(1)(i). Therefore, the compliance deadlines established for the BAT limits based on chemical and biological treatment technology for FGD wastewater are now postponed, pending judicial review. In addition, as stated above, EPA has also begun notice-and-comment rulemaking to postpone the compliance deadlines specified in the current administrative postponement, pending completion of EPA's reconsideration of the 2015 Steam Electric Guidelines. 82 Fed. Reg. 26017 (June 6, 2017) (Proposed Rule).

That said, 40 C.F.R. § 423.13(g)(1)(ii), which establishes the (interim) BAT limits for discharges of FGD wastewater *prior to* the deadline for final compliance, has not been postponed. Therefore, the 2015 Steam Electric ELGs still provide BAT limits for FGD wastewater—equal to TSS limits listed in 40 C.F.R. § 423.12(b)(11)—even while the postponement is in effect. Moreover, EPA has not postponed the provisions of the 2015 Steam Electric ELGs that establish the VIP as an optional way to comply with BAT standards for FGD wastewater.<sup>12</sup> 40 C.F.R. § 423.13(g)(3). Therefore, opting into the VIP remains a viable, more environmentally protective option for meeting the BAT standards.

In the case of Merrimack Station, not only did PSNH previously decide to opt into the VIP, but on April 18, 2017, PSNH informed EPA that regardless of the postponement and reconsideration of other aspects of the 2015 Steam Electric ELGs, the Company still intends to comply with VIP requirements at Merrimack Station. AR-1382 (Telephone Call between Mark Stein, Senior Assistant Regional Counsel, EPA Region 1 and Linda T. Landis, Senior Counsel, Eversource Energy). Therefore, EPA currently expects that any technology-based requirements included in the Final Permit for Merrimack Station's FGD wastewater will be based on the VIP requirements set forth in the 2015 Steam Electric ELGs. As such, the above-indicated VIP final BAT effluent limitations will apply as of December 31, 2023, and the above-indicated interim BAT limits for TSS will apply prior to that date.<sup>13</sup> *See* 40 C.F.R. § 423.13(g)(3)(i) and (ii).

*g. Invitation for Comments on Technology-Based Effluent Limits for FGD Wastewater*

EPA has described and explained the new requirements for discharges of FGD wastewater under the 2015 Steam Electric ELGs, including both the “default” BAT requirements and the VIP requirements. In addition, EPA has explained the current status of these requirements under EPA's recent administrative actions: EPA has postponed the compliance deadlines for the new

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<sup>12</sup> The Notice of Proposed Rule also has not identified 40 C.F.R. § 423.13(g)(3) (the VIP) as a provision that will be subject to the more permanent stay. 82 Fed. Reg. 26017.

<sup>13</sup> EPA notes that if PSNH had not opted to comply with the VIP requirements, then the above-specified TSS limits would apply as the currently effective and applicable BAT effluent limitations. 40 C.F.R. § 423.13(g)(1)(ii).

more stringent effluent limits in the default BAT requirements but has *not* postponed the VIP requirements. Merrimack Station has opted to comply with the VIP.

EPA currently anticipates that the effluent limits and compliance deadlines for controlling FGD wastewater that will be included in the Final Permit for Merrimack Station will, as described above, have to be based on the requirements of the VIP program of the 2015 Steam Electric ELGs. Given that EPA does not have the discretion to not apply the ELGs, *see* 40 C.F.R. §§ 122.43(b)(1) and 125.3(c)(1), it is not clear that there is an important purpose to be served by taking comment on issues concerning the application of the 2015 Steam Electric Guidelines to FGD wastewater. That said, EPA recognizes that the 2015 Steam Electric ELGs were promulgated after the comment period for the 2014 Revised Draft Permit and the public has not had a chance to comment on the application of the new regulations to the Merrimack Station permit.

*Therefore, EPA is exercising its discretion, see 40 C.F.R. § 124.14(b)(1), to invite public comment on how the 2015 Steam Electric ELGs should be applied to set the Final Permit's requirements for Merrimack Station's FGD wastewater discharges.*

## 2. Bottom Ash Transport Water

### *a. Bottom Ash Transport Wastewater Limits Prior to the 2015 Steam Electric ELGs*

Like FGD wastewater, bottom ash transport water, or any wastewater that has direct contact with and is used to convey bottom ash at a steam electric power plant, 40 C.F.R. § 423.11(p), is regulated under the 2015 Steam Electric ELGs. Prior to the 2015 rulemaking, the Steam Electric ELGs established BPT-based limits for bottom ash transport wastewater, 47 Fed. Reg. 52290 (Nov. 19, 1982) (previously codified at 40 C.F.R. § 423.12(b)(4)), but failed to establish BAT or BCT limits for this particular wastestream. The regulations established BPT limits for TSS and Oil and Grease equal to the limits applicable to low volume waste. *Id.* Again, in the absence of promulgated technology-based effluent limits, the permitting authorities make BPJ case-by-case determinations as to BAT and BCT. *See* 40 C.F.R. § 125.3(c) (“Where promulgated effluent limitations 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.”).

### *b. 2011 Draft Permit Conditions*

The 2011 Draft Permit for Merrimack Station proposed to authorize the discharge of bottom ash transport water into the slag settling pond through Outfall 003A along with several other waste streams (including treated FGD wastewater, low volume wastes, and metal cleaning wastes) and stormwater. *See* AR-608 (Fact Sheet for the Draft 2011 Permit), p. 21. Bottom ash transport water, as well as all the other wastestreams to be discharged into the slag settling pond, were subject to technology-based effluent limits for TSS and Oil and Grease as outlined in 40 C.F.R. § 423.12(b)(3) and (4) (edition published July 1, 2015), and discharges from the slag settling pond were also subject to water quality-based limits for total recoverable aluminum, arsenic, copper,

mercury, and selenium based on New Hampshire DES’s antidegradation analysis, which was triggered by the proposed FGD wastewater discharges. *See* AR-609, p. 4; AR-608, pp. 34-40. Both TSS and Oil and Grease are conventional pollutants subject to BCT limits, but because EPA has not yet promulgated BCT limits for Steam Electric power plants, *see* 40 C.F.R. § 423.14 (BCT limitations are “Reserved”), the Agency determined using BPJ that BCT limits for TSS and Oil and Grease at Outfall 003A (bottom ash and other low volume wastes) would be equal to the *BPT* limits for those pollutants. AR-608, p. 22.

Thus, in the 2011 Draft Permit, bottom ash transport water was commingled with low volume wastes, metal cleaning wastes, and stormwater, and was subject to the following technology-based limits (40 C.F.R. § 423.12(b)(3) and (4)):

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS	100.0	30.0
Oil and grease	20.0	15.0

*c. 2014 Revised Draft Permit Conditions*

Region 1 issued the 2014 Revised Draft Permit in response to new information indicating that Merrimack Station had installed and was operating evaporation technology to treat its FGD wastewater (*see* discussion of FGD wastewater above). Because Region 1 determined that the BAT for FGD resulted in zero discharge effluent limits based on using evaporation technology, the 2014 Revised Draft Permit contemplated that FGD wastewater would neither be treated and discharged into the slag settling pond through Outfall 003C, nor treated and discharged at Outfall 003A with other commingled waste, as allowed in the 2011 Permit. Therefore, the Revised Draft Permit eliminated Outfall 003C and required that the commingled wastewater comprised of bottom ash transport water, low volume wastes, stormwater, and metal cleaning wastewater, but excluding FGD wastewater, would be sampled and discharged at Outfall 003A. The effluent limits for bottom ash transport water and other wastewaters at Outfall 003A remained the same for TSS and Oil and Grease, based on 40 C.F.R. § 423.12(b)(3) and (4) (July 1, 2015), as those included in the 2011 Draft Permit. The water quality-based reporting requirements for chlorides, and the reporting requirements and effluent limits for aluminum, arsenic, copper, mercury and selenium, were removed from Outfall 003A because these water quality-based requirements were based on the presence of FGD wastewater in the slag settling pond, but under the 2014 Revised Draft Permit the FGD wastewater discharges would be eliminated.

*d. Bottom Ash Transport Water Discharge Limits in the 2015 Steam Electric ELGs*

The 2015 Steam Electric ELGs include amendments to the BAT limitations for bottom ash transport water and the deadline for compliance with such limits. The TSS and Oil and Grease BPT limitations for bottom ash have not changed. The 2015 ELGs do, however, outline two sets of BAT limitations for bottom ash transport water. 80 Fed. Reg. 67837, 67841. The first (or interim) set of limits place numeric effluent limitations on TSS in bottom ash transport water equal to the TSS limitations in the previous BPT regulations. 80 Fed. Reg. 67837, 67841; 40 C.F.R. §§ 423.13(k)(1)(ii), 423.12(b)(4). These interim BAT limitations apply to any discharge of bottom ash transport water that occurs *prior to* the final compliance deadline determined by the permitting authority (*see discussion of compliance dates below*).<sup>14</sup> The second (or final) set of limits applies *after the final compliance date* that has been set by the permitting authority. 40 C.F.R. § 423.13(k)(1)(i). This two-tiered set of BAT limitations for bottom ash transport water mirrors the 2015 Steam Electric ELG's two-tiered, interim and final BAT limitations scheme for FGD wastewater, as discussed above.

More specifically, the interim BAT limits for bottom ash transport water provide as follows:

**(k)(1)**

**(ii)** For discharges of bottom ash transport water generated before the date determined by the permitting authority, as specified in paragraph (k)(1)(i) of this section, the quantity of pollutants discharged in bottom ash transport water shall not exceed the quantity determined by multiplying the flow of bottom ash transport water times the concentration for TSS listed in § 423.12(b)(4).

40 C.F.R. § 423.13(k)(1)(ii).<sup>15</sup> This provision essentially incorporates the BPT limit for TSS in bottom ash transport water from 40 C.F.R. § 423.12(b)(4) as the interim BAT limit. The specific TSS limits are the same as the interim BAT limits for FGD wastewater discussed above. *Compare* 40 C.F.R. § 423.12(b)(4), *with* 40 C.F.R. § 423.12(b)(11) (single day maximum limit of 100.0 mg/L, and 30-day daily average limit of 30.0 mg/L). *See also* 40 C.F.R. § 423.13(g)(1)(ii) and (g)(3)(ii).

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<sup>14</sup> The preamble to the 2015 Steam Electric ELGs also explains that the interim effluent limitations for TSS also apply to any discharges of bottom ash transport water that occur after the effective date of the ELGs, but prior to November 1, 2018. EPA states as follows:

[i]n cases where a plant's final NPDES permit will be issued after the effective date of the final ELGs, but before November 1, 2018, the permitting authority should apply limitations based on the previously promulgated BPT limitations or the plant's other applicable permit limitations until at least November 1, 2018.

80 Fed. Reg. 67837, 67883.

<sup>15</sup> It is important to note that while TSS is a conventional pollutant that is not generally subject to BAT regulations, EPA is regulating TSS under the BAT standard "as an indicator pollutant for the particulate form of toxic metals." 80 Fed. Reg. 67837, 67849 n.15.



The final set of BAT limitations are based on a determination that dry-handling or closed-loop technology is the BAT for treating bottom ash transport water, resulting in a zero discharge effluent limitation for all pollutants in bottom ash transport water. 80 Fed. Reg. 67837, 67841, 67846, 67849 (promulgated at 40 C.F.R. 423.13(k)(1)(i)). The zero discharge limitation must be met by a compliance date determined by the permitting authority that is as soon as possible between November 1, 2018, and December 31, 2023, and applies only to bottom ash discharges generated beginning on the determined compliance date. *Id.* The new provisions specifying this second, final set of limitations are as follows:

**(k)(1)**

(i) *Bottom ash transport water.* Except for those discharges to which paragraph (k)(2) of this section applies, or when the bottom ash transport water is used in the FGD scrubber, there shall be no discharge of pollutants in bottom ash transport water. Dischargers must meet the discharge limitation in this paragraph by a date determined by the permitting authority that is as soon as possible beginning November 1, 2018, but no later than December 31, 2023. This limitation applies to the discharge of bottom ash transport water generated on and after the date determined by the permitting authority for meeting the discharge limitation, as specified in this paragraph. Whenever bottom ash transport water is used in any other plant process or is sent to a treatment system at the plant (except when it is used in the FGD scrubber), the resulting effluent must comply with the discharge limitation in this paragraph. When the bottom ash transport water is used in the FGD scrubber, the quantity of pollutants in bottom ash transport water shall not exceed the quantity determined by multiplying the flow of bottom ash transport water times the concentration listed in the table in paragraph (g)(1)(i) of this section.

40 C.F.R. § 423.13(k)(1)(i). While the second set of BAT limitations mandate that “there shall be no discharge of pollutants in bottom ash transport water,” they also give the permitting authority discretion to determine the compliance date – *i.e.*, the date that is “as soon as possible” beginning on November 1, 2018, but no later than December 31, 2023 – for a particular discharging facility.

In the preamble to the 2015 Steam Electric ELGs, EPA clearly explains the scope of this discretion and how the permitting authority must proceed in selecting an appropriate compliance date. The preamble states that:

[a]s specified by the rule, the “as soon as possible” date determined by the permitting authority is November 1, 2018, unless the permitting authority determines another date after receiving information submitted by the discharger. Assuming that the permitting authority receives relevant information from the discharger, in order to determine what date is “as soon as possible” within the

implementation period, the permitting authority must then consider the following factors:

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

80 Fed. Reg. 67837, 67883 (internal footnotes omitted). A few procedural requirements are worth noting from the above-cited text. First, the presumptive compliance date (or “as soon as possible” date) is November 1, 2018. Next, the permitting authority may determine a later compliance date, but no later than December 31, 2023, and *only if* it receives information from the discharger justifying the later date. Finally, after receipt of such justification, the permitting authority may set a compliance date later than the presumptive date only after considering the factors set forth above.

*e. Effects of the New Regulations and New Information*

As promulgated, the 2015 Steam Electric ELGs significantly modified the national effluent limitation guidelines for discharges of bottom ash transport water by adopting the two-tiered BAT limits discussed above. Nevertheless, the first tier of BAT limitations does not substantively alter the Merrimack Station permit. These interim BAT limits essentially incorporate the TSS limits previously established under the BPT standard, and both the 2011 Draft Permit and the 2014 Revised Draft Permit applied the BPT limit for TSS (and Oil and Grease) to bottom ash transport water at the Facility. Therefore, during the interim timeframe (*i.e.*, during the time before the final compliance deadline), the 2015 Steam Electric ELGs impose the same effluent limits that were already included in the draft permits for Merrimack Station. The public has already had ample opportunity to comment on those specific limits.

The second, final set of BAT limitations, however, are based on different technology than is associated with the previously promulgated BPT limits. These BAT limits call for zero discharge of pollutants from bottom ash transport water. If in effect at the time of issuance of the Final Permit, these BAT limitations would govern the permit’s final technology-based limits and EPA would apply the zero discharge limit to Merrimack Station’s discharges of bottom ash transport water as of the appropriate compliance date. *See* 40 C.F.R. § 423.13(k)(i). *See also* 40 C.F.R. §§ 122.43(b)(1) and 125.3(c)(1). This limit would be more stringent than the effluent limits proposed in both the 2011 Draft Permit and the 2014 Revised Draft Permit, and it would require

PSNH to employ different treatment technology (*i.e.*, dry handling or closed loop technology) in order to achieve compliance.

A crucial component of applying the final BAT limitations is determining the compliance date. *See* 40 C.F.R. § 423.13(k)(1)(i). The 2015 Steam Electric ELGs vest permitting authorities, in this case EPA, with the authority to determine the compliance date that would be “as soon as possible” beginning November 1, 2018, but no later than December 31, 2023, for each facility covered by the ELGs. The regulations provide that EPA would automatically apply November 1, 2018, as the “as soon as possible” date unless the Region received relevant information from PSNH justifying an alternative date. Therefore, after promulgation of the 2015 ELGs, EPA asked PSNH how and when it would meet the final BAT limitations for bottom ash transport water. *See* AR-1377 (Series of Emails between Mark Stein, EPA Region 1, and Linda Landis, Senior Counsel, Eversource Energy, regarding bottom ash transport water, September 21, 2016).

On February 17, 2017, PSNH sent EPA a letter outlining its plan for achieving compliance with the new zero discharge limit for bottom ash transport water through installation of close-loop recycling technology. AR-1378. PSNH’s letter presents information regarding anticipated challenges related to construction and other matters and ultimately suggests December 31, 2022, as the appropriate date for compliance with the zero discharge limitation.<sup>16</sup> Because PSNH marked the February 7, 2017, letter as “Confidential Business Information” (CBI), it is part of the administrative record for the permit, but not part of the *public* administrative record. EPA must maintain this CBI record with its confidential files. PSNH’s letter provides information relevant to EPA’s determination of the “as soon as possible” date for compliance. Therefore, pursuant to the new regulations and the accompanying language from the preamble, EPA was considering this information and was contemplating whether to set December 31, 2022, as the final compliance date, taking into account the listed factors. EPA recognizes that because the 2015 Steam Electric ELGs and PNSH’s compliance plan were developed well after the public comment period ended for the Revised Draft Permit, the public has not yet had an opportunity to review and comment on these issues.

*f. Recent Administrative and Legal Developments*

As discussed above, recent administrative and legal developments—*i.e.*, EPA’s decision to reconsider certain aspects of the 2015 Steam Electric ELGs, EPA’s administrative postponement of compliance dates, and EPA’s Proposed Rule concerning postponement of certain compliance dates, including the compliance date for bottom ash transport water—affect, or may affect, the regulatory requirements applicable to Merrimack Station’s bottom ash transport water discharges. Region 1 outlines these potential effects below.

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<sup>16</sup> Currently, slag settling pond water, which primarily consists of bottom ash transport water, is used as make-up water in the Facility’s FGD scrubber. If PSNH’s proposed closed-looped bottom ash transport system is installed at some point in the future, the Company could decide that some portion of that recycled transport water should be used as FGD scrubber make-up water. As previously mentioned, the 2015 Steam Electric ELGs allows for the discharge of bottom ash transport water when it is used in an FGD scrubber. *See* 40 C.F.R. § 423.13(k)(1)(i).

### Postponement or Stay of Compliance Dates

As mentioned previously, in response to a number of petitions, EPA is reconsidering the 2015 Steam Electric ELGs. *See* 82 Fed. Reg. 19005. In addition, EPA has postponed the compliance dates contained in several sections of the 2015 Steam Electric ELGs, pending judicial review of the ELGs. 82 Fed. Reg. at 19006. The sections subject to postponement are only those which impose effluent limitations more stringent than the existing limitations and have compliance dates for the limits that have not yet passed. *See* 82 Fed. Reg. 19005 - 19006; 40 C.F.R. §§ 423.11(t), 423.13(g)(1)(i), (h)(1)(i), (i)(1)(i), (j)(1)(i), and (k)(1)(i), and §§ 423.16(e), (f), (g), (h), and (i)). In addition, EPA has issued a Proposed Rule that proposes postponement of the same group of regulations and compliance deadlines pending the Agency's completion of its reconsideration of the ELGs. 82 Fed. Reg. 26017 (June 6, 2017). EPA is taking public comment on this proposed action through July 6, 2017. 82 Fed. Reg. at 26017.

Of particular import for the Merrimack Station NPDES permit, the list of affected sections includes 40 C.F.R. § 423.13(k)(1)(i), the regulatory provision setting BAT limits requiring zero discharge of pollutants in bottom ash transport water. The regulation called for this zero discharge standard to be met as soon as possible beginning November 1, 2018, but no later than December 31, 2023. EPA has now postponed this compliance deadline. While PSNH had developed a plan for meeting the zero discharge standard by December 31, 2022, it has now indicated to EPA that it will hold off on pursuing that plan in light of the postponement of the compliance deadline. PSNH indicated that it plans to wait for the results of EPA's reconsideration of the ELGs before deciding on how to proceed. *See* AR-1362 (Letter from Linda T. Landis, Senior Counsel, Eversource Energy, to Mark Stein, Senior Assistant Regional Counsel, EPA Region 1). With the compliance date for the zero discharge limit postponed and the ELGs under reconsideration, 40 C.F.R. § 423.13(k)(1)(i), EPA cannot incorporate that limit into Merrimack Station's Final Permit.

In the absence of the zero discharge limits, the 2015 Steam Electric ELGs prescribe the interim BAT effluent limits for TSS discussed above. 40 C.F.R. § 423.13(k)(1)(ii) (incorporating the TSS effluent limits from 40 C.F.R. § 423.12(b)(4)). These interim BAT limits have not been postponed or stayed. 40 C.F.R. § 423.13(k)(1)(ii). *See* 82 Fed. Reg. 19006. Therefore, under the 2015 Steam Electric ELGs that are currently in effect, BAT limits—equal to the TSS limits listed in § 423.12(b)(4)—apply to bottom ash transport water discharges. These TSS limits are the same as those included in the 2011 Draft Permit and the 2014 Revised Draft Permit. *See* AR-608 (Fact Sheet for 2011 Draft Permit), p. 21.

EPA currently anticipates that the interim TSS limits will constitute the technology-based limits applicable to Merrimack Station's bottom ash transport water. This could change in the future, however, if the status of the 2015 Steam Electric ELGs changes again prior to EPA's issuance of the Final Permit to Merrimack Station. As described above, the Agency is currently reconsidering the 2015 Steam Electric ELGs and upon completing that reconsideration, EPA might or might not conclude that one or more provisions of the ELGs should be changed. If it deems changes to the ELGs to be in order, EPA indicated that it will seek a remand of the ELGs from the Fifth Circuit Court of Appeals so that the Agency can conduct notice and comment

rulemaking to formally modify the ELGs. EPA has not yet completed its reconsideration of the ELGs, *see* 82 Fed. Reg. 19005, and there is no way to be sure about how or when the above-described legal developments concerning the 2015 Steam Electric ELGs will be resolved.

At the same time, EPA is continuing its ongoing effort to finalize and issue a renewed permit to Merrimack Station. Ultimately, for the Merrimack Station permit, EPA will apply the technology-based requirements that are in effect at the time of Final Permit issuance. *See* 40 C.F.R. § 122.43(b)(1).<sup>17</sup> Presently, with the Administrator's postponement in effect, EPA anticipates including the interim BAT limits for TSS in the Final Permit for Merrimack Station's bottom ash transport water discharges.<sup>18</sup>

*The Region welcomes public comment on how the Final Permit for Merrimack Station should regulate discharges of bottom ash transport water in light of (a) the 2015 Steam Electric ELGs, (b) the postponement of the compliance deadline for the final, zero discharge BAT limits pending judicial review, and (c) the current proposed rulemaking to stay the compliance deadline pending EPA reconsideration of the ELGs. More specifically, EPA also invites public comment on what technology-based effluent limits should be applied to Merrimack Station's bottom ash transport water discharges and what the compliance deadline should be for meeting all such limits.*

### 3. Non-chemical Metal Cleaning Waste

Merrimack Station also discharges both chemical and non-chemical metal cleaning wastes, which are both subsets of the metal cleaning waste category identified and regulated under the Steam Electric ELGs. Metal cleaning wastes are subject to BPT limitations for TSS, Oil and Grease, copper, and iron. 40 C.F.R. § 423.12(b)(5). *Chemical* metal cleaning wastes are subject to BAT limitations for copper and iron that are equal to the limits identified as BPT. 40 C.F.R. § 423.13(e). The BAT regulations for *non-chemical* metal cleaning wastes are "Reserved." 40 C.F.R. § 423.13(f). Because BAT limits for non-chemical metal cleaning wastes are "reserved," the permitting authority determines BAT limits for this waste on a BPJ, case-by-case basis. This regulatory structure was created well before the 2015 Steam Electric ELGs were promulgated and was not modified by the new ELGs.

During the rulemaking for the 2015 Steam Electric ELGs, EPA initially "proposed to establish BAT/NSPS/PSES/PSNS requirements for non-chemical metal cleaning wastes equal to previously established BPT limitations for metal cleaning wastes," 80 Fed. Reg. 67838, 67863 (Proposed Rule), and also proposed "an exemption for certain discharges of non-chemical metal

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<sup>17</sup> EPA notes that a coalition of citizen groups recently filed a law suit challenging EPA's action to postpone the compliance dates of the more stringent limitations included in the 2015 Steam Electric ELGs. Ultimately, as explained before, technology-based limits will be derived from the ELGs that are in effect at the time of Final Permit issuance.

<sup>18</sup> Under this approach, bottom-ash transport water would continue to be discharged into the slag settling pond, and the abovementioned limits would be applied at Outfall 003A. Thus, bottom-ash would be regulated in the same manner as proposed in the Draft Permits issued for Merrimack Station before promulgation of the 2015 ELGs.

cleaning waste, which would be treated as low volume waste sources.” *Id.* at 67863 n. 40. In the Final Rule, however, EPA took no action with regard to non-chemical metal cleaning wastes. The preamble clearly articulates this decision:

[u]ltimately, EPA decided that it does not have enough information on a national basis to establish BAT/NSPS/PSES/PSNS requirements for non-chemical metal cleaning wastes. The final rule, therefore, continues to “reserve” BAT/NSPS/PSES/PSNS for non-chemical metal cleaning wastes, as the previously promulgated regulations did.

*Id.* at 67863. Thus, the Agency did not modify the standards governing non-chemical metal cleaning wastes in the 2015 rulemaking and, as a result, the new ELGs do not substantively alter the manner in which non-chemical metal cleaning waste discharges should be regulated at Merrimack Station.

Despite the lack of substantive changes to the ELGs, the preamble to the 2015 Steam Electric ELGs provides a detailed discussion of how these previously established limitations should be applied to discharges of non-chemical metal cleaning waste at individual facilities:

[b]y reserving BAT and NSPS for nonchemical metal cleaning wastes in this final rule, the permitting authority must continue to establish such requirements based on BPJ for any steam electric power plant discharging this wastestream. As explained in Section VIII.I, in permitting this wastestream, some permitting authorities have classified it as non-chemical metal cleaning wastes (a subset of metal cleaning wastes), while others have classified it as a low volume waste source; NPDES permit limitations for this wastestream thus reflect that classification. In making future BPJ BAT determinations, EPA recommends that the permitting authority examine the historical permitting record for the particular plant to determine how discharges of non-chemical metal cleaning wastes have been permitted in the past. *Using historical information and its best professional judgment, the permitting authority could determine that the BPJ BAT limitations should be set equal to existing BPT limitations or it could determine that more stringent BPJ BAT limitations should apply.* In making a BPJ determination for new sources, EPA recommends that the permitting authority consider whether it would be appropriate to base standards on BPT limitations for metal cleaning wastes or on a technology that achieves greater pollutant reductions.”

*Id.* at 67884 (emphasis added). This quoted language as well as other related comments in the preamble to the 2015 ELGs underscores the permitting authority’s obligation to conduct a BPJ analysis for BAT for non-chemical metal cleaning waste and also emphasizes the importance of considering the historical permitting record at a particular facility. Finally, the preamble language explicitly states that this BPJ analysis may either result in limits equal to existing BPT limits or to more stringent limits. EPA believes that its analysis of this issue for the 2011 Draft Permit is fully consistent with past regulations and the more recent interpretations of such regulations outlined above. EPA’s Fact Sheet for the 2011 Draft Permit clearly expresses the

Region's careful application of sections 423.13(e) and (f) to Merrimack Station's metal cleaning effluent. *See* AR-608 (Fact Sheet for the 2011 Draft Permit), pp. 28-33.

*Region 1 welcomes public comment on how the Final Permit for Merrimack Station should regulate non-chemical metal cleaning waste discharges in light of the 2015 Steam Electric ELGs and the discussion in the preamble to the ELGs about how to regulate non-chemical metal cleaning waste discharges. As part of this, EPA specifically seeks comments on whether it should continue to rely upon its earlier BPJ determination of BAT limits for non-chemical metal cleaning wastes, or whether that discussion and analysis should be changed.*

#### **D. Interrelationship of Various Permit Changes**

Thus far, EPA has discussed various types of new information that have emerged since the 2011 Draft Permit and the 2014 Revised Draft Permit were published for public comment. This new information includes the promulgation of the 2015 Steam Electric ELGs and numerous administrative developments related to the ELGs, such as EPA's postponement of certain compliance deadlines in the regulations. In the text above, EPA has identified specific ways in which this new information raises substantial new questions about how NPDES permit requirements for certain pollutants discharged by Merrimack Station should be finalized.

At Merrimack Station, different wastestreams and treatment processes can interact in complex ways. As a result, changes in permit requirements and treatment methods for one wastestream can lead to additional changes with regard to another wastestream. This section of this Statement of Substantial New Questions identifies and describes issues that could arise from such interactions between permit requirements, wastestreams and treatment methods. It also discusses logistical changes that may be undertaken to address these issues for the Final Permit.

First, the presence of different compliance schedules for separate wastestreams could impact what effluent limits should be applied when to various outfalls (i.e., sampling points) at the Facility. For example, the VIP compliance deadline of December 31, 2023, for FGD wastewater discharges, and any compliance deadline for the installation and operation of closed-cycle cooling technology, could have interactive effects on permit requirements.

As discussed above, low volume wastes, metal cleaning wastes, bottom ash transport water, stormwater and FGD wastewater will be permitted to be sent to, and discharged from, the slag settling pond and sampled at Outfall 003A. Before the VIP compliance date, all these sources would be subject to the same BAT limits on TSS and Oil and Grease, as well as water quality-based limits, based on New Hampshire DES's analysis as identified in the 2011 Draft Permit. *See* AR-608, pp. 22-26. Starting on the VIP compliance date of December 31, 2023, however, FGD wastewater would be subject to new effluent limits that are more stringent than those required for the other commingled wastestreams.<sup>19</sup> Therefore, EPA expects to include an internal

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<sup>19</sup> FGD wastewater will also be subject to BCT limits for TSS and Oil and Grease equal to the BPT limits for those conventional pollutants. Once FGD wastewater is discharged from Outfall 003C into the slag settling pond, it will be

Outfall 003C, at which the FGD BAT limits for arsenic, mercury, selenium, and TDS will be applied. The BAT limits would be applied at an internal outfall because they are more stringent than the water quality-based limits that were previously applied at Outfall 003A to address the contribution of pollutants from FGD wastewater (other wastestreams did not trigger the water quality-based effluent limits).<sup>20</sup> The chart below provides a basic overview of the two relevant time periods or “Phases” of effluent limits:

<b>Phase 1</b> <b>Effective Date of Permit until December 31, 2023</b>	<b>Phase 2</b> <b>Starting December 31, 2023</b>
<ul style="list-style-type: none"> <li>All wastestreams discharging into the slag settling pond are subject to same effluent limits (Flow, pH, TSS, Oil and Grease, and water quality-based limits triggered by FGD wastewater) at Outfall 003A.</li> </ul>	<ul style="list-style-type: none"> <li>More stringent technology-based effluent limits for metals and TDS apply to FGD wastewater at internal Outfall 003C (40 C.F.R. § 423.13(g)(3)(i)).</li> <li>All <i>other</i> wastestreams discharged into the slag settling pond are subject to the same effluent limits for flow, pH, TSS, and Oil and Grease at Outfall 003A. (Water quality-based limits are no longer necessary at Outfall 003A for arsenic, selenium, and mercury, but are still necessary for aluminum and copper.)</li> </ul>

Therefore, EPA anticipates that the Merrimack Station NPDES Permit would include two phases of effluent limits as a result of the later-in-time compliance deadline for the VIP, described above.<sup>21</sup>

In addition, since EPA anticipates that the Merrimack Station permit may, in effect, require the use of closed-cycle cooling technology at the Facility, EPA discusses here the interaction between the abovementioned effluent limits and the possible installation and operation of closed-cycle cooling pursuant to permit requirements for controlling the Facility’s thermal discharges (and potentially its cooling water intake structure effects).<sup>22</sup> With closed-cycle cooling, the Facility would no longer discharge once-through cooling water into the discharge canal. Removal of the once-through cooling water will significantly reduce the flow into the discharge canal and through Outfall 003. The reduction in flow would have a significant effect on Outfall

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subject to the same TSS and Oil and Grease limitations as the other commingled wastestreams, which are equal to the BCT limits just described.

<sup>20</sup> For the next permit reissuance, EPA will analyze and re-evaluate these water quality-based and technology-based limits based on the then current data and then applicable legal requirements.

<sup>21</sup> Region 1 further notes that these phases are based on the current status of the 2015 ELGs, where the compliance date for bottom ash transport water has been postponed and the interim BAT limits for TSS are in effect. If the postponement were not in effect, then the Region would anticipate including an additional phase of effluent limits to account for implementation of the zero discharge limitation for bottom ash transport water.

<sup>22</sup> As discussed farther above, EPA is currently contemplating whether the BTA under CWA § 316(b) for Merrimack Station’s cooling water intake structures is closed-cycle cooling or cylindrical wedgewire screens.



003 because the reduced flow in the discharge canal could cause (or allow) river water to flow into the discharge canal, which would interfere with accurate sampling at Outfall 003. Therefore, the Region is considering the appropriateness of removing Outfall 003 from the permit once closed-cycle cooling is installed. Furthermore, because Outfall 003 is the location where whole effluent toxicity (WET) testing requirements are applied, if the Region required removal of the outfall, the WET testing requirements, as well as other effluent limits, would be applied at Outfall 003A instead of Outfall 003. Alternatively, EPA is also considering whether the discharge canal should instead be engineered to separate the process water in the canal from the river water so that limits and monitoring requirements would be applied at the point the re-engineered discharge canal (or pipe) discharge directly to the river.

While the Region specify with certainty when closed cycle cooling operations would begin, the installation of closed cycle cooling would result in modifications being needed for both Outfall 003 and Outfall 003A. Thus, closed cycle cooling triggers a *third phase* of effluent limits, that would be included after Phase 1 and either before or after Phase 2 begins. Two possible scenarios are described below:

Scenario 1:<sup>23</sup>

<p><b>Phase 1</b>  <b>Effective Date of Permit until</b>  <b>Date Closed Cycle Cooling</b>  <b>Becomes Effective</b></p>	<p><b>Phase 3</b>  <b>Date Closed Cycle Cooling</b>  <b>Becomes Effective (<i>before</i></b>  <b>December 31, 2023)</b></p>	<p><b>Phase 2</b>  <b>Starting December 31, 2023 VIP</b>  <b>Compliance Deadline</b></p>
<ul style="list-style-type: none"> <li>All wastestreams discharging into the slag settling pond are subject to same effluent limits (Flow, pH, TSS, Oil and Grease, and Water Quality based limits) at Outfall 003A.</li> </ul>	<ul style="list-style-type: none"> <li>All wastestreams discharging into the slag settling pond are subject to same effluent limits (Flow, pH, TSS, Oil and Grease, and Water Quality based limits) at Outfall 003A.</li> <li><i>WET Testing applied at Outfall 003A.</i></li> <li><i>Removal of Outfall 003 or engineered solution to separate process water from river water in the discharge canal.</i></li> </ul>	<ul style="list-style-type: none"> <li>More stringent FGD effluent limits apply at internal Outfall 003C for metals (40 C.F.R. § 423.13(g)(3)(i)).</li> <li>All <i>other</i> wastestreams discharged into the slag settling pond are subject to the same effluent limits for only flow, pH, TSS, and Oil and Grease at Outfall 003A. (Water quality based limits are no longer necessary at Outfall 003A for arsenic, selenium, and mercury, but are still necessary for aluminum and copper.)</li> <li><i>WET Testing applied at Outfall 003A.</i></li> <li><i>Removal of Outfall 003 or engineered solution to</i></li> </ul>

<sup>23</sup> The changes resulting from closed cycle cooling are italicized in Scenarios 1 and 2.

		<i>separate process water from river water in the discharge canal.</i>
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**Scenario 2:**

<b>Phase 1 Effective Date of Permit until December 31, 2023</b>	<b>Phase 2 Starting December 31, 2023, VIP Compliance Deadline</b>	<b>Phase 3 Date Closed Cycle Cooling Becomes Effective (<i>after</i> December 31, 2023)</b>
<ul style="list-style-type: none"> <li>All wastestreams discharging into the slag settling pond are subject to same effluent limits (Flow, pH, TSS, Oil and Grease, and Water Quality based limits) at Outfall 003A.</li> </ul>	<ul style="list-style-type: none"> <li>More stringent FGD effluent limits apply at internal Outfall 003C for metals (40 C.F.R. § 423.13(g)(3)(i)).</li> <li>All <i>other</i> wastestreams discharged into the slag settling pond are subject to the same effluent limits for only flow, pH, TSS, and Oil and Grease at Outfall 003A. (Water quality based limits are no longer necessary at Outfall 003A for arsenic, selenium, and mercury, but are still necessary for aluminum and copper.)</li> </ul>	<ul style="list-style-type: none"> <li>More stringent FGD effluent limits apply at internal Outfall 003C for metals (40 C.F.R. § 423.13(g)(3)(i)).</li> <li>All other wastestreams discharged into the slag settling pond are subject to the same effluent limits for only flow, pH, TSS, and Oil and Grease at Outfall 003A. (Water quality based limits are no longer necessary at Outfall 003A for arsenic, selenium, and mercury, but are still necessary for aluminum and copper.)</li> <li><i>WET Testing applied at Outfall 003A.</i></li> <li><i>Removal of Outfall 003 or engineered solution to separate process water from river water in the discharge canal.</i></li> </ul>

*Region 1 welcomes public comment on how the Final Permit for Merrimack Station should address the interaction between different wastestreams’ compliance deadlines and other effluent requirements, in light of the 2015 Steam Electric ELGs and the new 316(b) regulations. Specifically, the Region seeks comment on the potential scenarios described above, or other scenarios, and the proposed methods for addressing changes in flow at Merrimack Station.*

**E. Other Minor Modifications**

**1. Sufficiently Sensitive Test Methods Rule**

After Region 1 assembled and published the 2014 Revised Draft Permit for public notice, EPA Headquarters promulgated a rule entitled, “National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting”

(Sufficiently Sensitive Test Methods Rule). 79 Fed. Reg. 49001 (Aug. 19, 2014). The rule provides the following:

[t]he purpose of today's final rule is to codify that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge, and the Director must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit.

79 Fed. Reg. 49001, 49001-49002. Because this rule was not finalized or promulgated until after Region 1 published the Revised Draft Permit, the Sufficiently Sensitive Test Methods requirements were not included. These regulatory requirements are now effective, however, and must be incorporated into Merrimack Station's Final Permit. Pursuant to the new regulations, Region 1 anticipates including the following language in the Merrimack Station Permit:

In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters limited in this permit (except WET limits). A method is considered "sufficiently sensitive" when either: (1) The method minimum level (ML) is at or below the level of the effluent limit established in this permit for the measured pollutant or pollutant parameter; or (2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapter N or O for the measured pollutant or pollutant parameter. The ML is not the minimum level of detection, but rather the lowest level at which the test equipment produces a recognizable signal and acceptable calibration point for a pollutant or pollutant parameter, which is representative of the lowest concentration at which a pollutant or pollutant parameter can be measured with a known level of confidence. For the purposes of this permit, the detection limit is the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method during routine laboratory operating conditions (i.e., the level above which an actual value is reported for an analyte, and the level below which an analyte is reported as non-detect).

*The public has yet to comment on the manner in which this new rule is reflected in Merrimack Station's NPDES permit. Therefore, Region 1 welcomes comment on EPA's proposed method of reflecting the Sensitive Test Methods Rule in the Merrimack Station NPDES Permit, including the specific language quoted above.*

## 2. Effluent Limits for PCBs

EPA would like to point out an additional modification that it anticipates will be a necessary addition to the Merrimack Station Permit. In both the 2011 Draft Permit and 2014 Revised Draft Permit, EPA failed to include an effluent limit prohibiting the discharge of polychlorinated

biphenyl compounds (PCBs) in wastestreams discharged by the Facility. EPA did not expect there to be any PCB discharges from Merrimack Station and the Facility did not request authorization for any such discharges. Still, the Steam Electric ELGs have long included provisions that prohibit discharges of PCBs. 40 C.F.R. §§ 423.12(b)(2), 423.13(a). Specifically, the BPT limits for all wastestreams subject to the Steam Electric ELGs provide that:

(2) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

40 C.F.R. § 423.12(b)(2). Moreover, BAT limits for all wastestreams are subject to the same PCB prohibition:

(a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

40 C.F.R. § 423.13(a).

Therefore, the permitting authority—in this case EPA—should include a zero discharge limitation for PCB discharges from facilities in the Steam Electric point source category. EPA acknowledges that in assembling the previous draft permits for Merrimack Station, it did not prohibit PCB discharges expressly, although EPA also did not authorize any such discharges. EPA now intends to incorporate an express zero discharge limit for PCBs in the Merrimack Station Permit. The Permit will include the exact language of the rule (*i.e.*, “There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.”) to establish an overall permit limit prohibiting the discharge of PCBs. Finally, the Region notes that this zero discharge limit is included in Merrimack Station’s 1992 Permit, which remains in effect, *see* AR-236, p.3, Part I(A)(1)(h), and the limit could not be relaxed due to antibacksliding requirements. *See* 33 U.S.C. § 1342(o).

*EPA is hereby notifying the public of this addition to the Merrimack Station Permit and invites any public comment on this subject.*

3. Relevance for NPDES Permit Development of Merrimack Station’s Reduced Capacity Utilization and the Current Process for Auctioning the Facility

As mentioned above, since issuance of the 2011 Draft Permit, Merrimack Station’s capacity utilization rate has dropped considerably. Whereas the Facility used to operate as a baseload plant, it now operates more as a peaking plant. It operates little in the shoulder seasons of fall and spring, but can operate a great deal during the peak demand periods that occur during cold winter conditions and hot summer conditions. *See* AR-1369 and AR-927.

EPA is considering whether this changed operating profile should trigger changes to the permit limits being developed for the Facility’s NPDES permit. At present, EPA has determined that the changing operating scenario does not provide a basis for altering what would otherwise be the permit limits. PSNH has not indicated any desire or willingness to have the Facility’s operations

restricted based on its current capacity utilization. Instead, the Company has sought permit limits based on the Facility operating at full capacity. Furthermore, market conditions could change in the future, as they have in the past, and more frequent operations could be called for. Therefore, consistent with the Company's permit application, EPA has approached the permit based on the assumption of full-scale operations. Furthermore, 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.

*While this is EPA's current view, the Agency invites public comments on what effect, if any, Merrimack Station's reduced capacity utilization rate should have on the limits for the Facility's new Final NPDES Permit.*

In addition, since issuance of the 2011 Draft Permit, New Hampshire has called for PSNH to divest of its electrical generating assets. See H.B. 1602, Ch. 310, 2014 N.H. Laws (2014) (an act relative to the divestiture of PSNH assets); *2015 Public Service Company of New Hampshire Restructuring and Rate Stabilization Agreement*, 18 (June 10, 2015), available at <https://www.eversource.com/Content/docs/default-source/rates-tariffs/psnh-june-2015-divestiture-settlement-agreement.pdf?sfvrsn=0>; N.H. Rev. Stat. Ann. § 369-B:3-a. Therefore, PSNH is receiving bids from prospective purchasers for Merrimack Station and PSNH's other generating assets. The bidding process is currently underway, with the expectation being that a sale of the Facility could be consummated by the end of 2017. See AR-1390 On the other hand, it is also possible that the sale of the Facility will take longer or that no sale will occur. If the Facility is not sold to a new owner after two rounds of the auction process, then New Hampshire law in conjunction with PSNH's 2015 Settlement Agreement appear to call for the Facility to be retired. *2015 Public Service Company of New Hampshire Restructuring and Rate Stabilization Agreement*, 22 (June 10, 2015); see also *Amendment to the 2015 Public Service Company of New Hampshire Restructuring and Rate Stabilization Agreement*, 4 (Jan. 26, 2016), available at [http://www.puc.state.nh.us/Regulatory/Docketbk/2014/14-238/LETTERS-MEMOS-TARIFFS/14-238\\_2016-01-26\\_EVERSOURCE\\_EXECUTED\\_AMEND\\_2015\\_PSNH\\_SETTLEMENT.PDF](http://www.puc.state.nh.us/Regulatory/Docketbk/2014/14-238/LETTERS-MEMOS-TARIFFS/14-238_2016-01-26_EVERSOURCE_EXECUTED_AMEND_2015_PSNH_SETTLEMENT.PDF). At the same time, a new buyer might or might not decide to close the Facility.

While there is considerable uncertainty about how all this will unfold, EPA currently concludes that none of it currently affects the NPDES permit limits for Merrimack Station's permit. If a new owner purchases the Facility and continues its operations, then the permit can be modified to address the change in ownership. 40 C.F.R. §§ 122.63(d) and 124.5(c)(3). If a new owner decides to close the Facility, EPA would then consider what ramifications such a closure plan would have for the permit. For example, under the 2014 CWA § 316(b) Regulations, the permitting agency can consider a facility's remaining useful life in determining requirements for its cooling water intake structures. See 40 C.F.R. § 125.98(f)(2)(iv). See also 40 C.F.R. § 122.47(b).

*EPA welcomes public comment regarding whether the current auction process for Merrimack Station should affect any of the Final Permit's limits and, if so, how it should affect them.*

## **V. Comment Period and Procedures for Final Decisions**

All persons, including permit applicants, submitting comments on the issues identified for comment in this Statement must raise all issues and submit in full all available arguments, and all supporting material for their arguments, by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. As part of making decisions on the Final Permit, Region 1 will respond to all significant comments and make these responses available to the public.

Following the close of the comment period, Region 1 will consider the comments submitted and issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days of Region 1's serving notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board to review any condition of the permit decision. See 40 C.F.R. § 124.19(a)(3).