#### AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"),

#### **Granite Shore Power Schiller LLC**

is authorized to discharge from the facility located at

## Schiller Station 400 Gosling Road Portsmouth, NH 03801

to receiving waters named

#### Piscataqua River (USGS Hydrologic Basin Code 01060003)

in accordance with effluent limitations, monitoring requirements and other conditions set forth in the permit issued on April 6, 2018 and modified on March 25, 2020, except as modified with new language, as shown in **red**, in Part I.A.2 and Part I.A.11.

This permit modification shall become effective on the first day of the calendar month immediately following 30 days after the date of signature.<sup>1</sup>

This permit and the authorization to discharge expire at midnight, June 30, 2023.

This modified permit is issued pursuant to 40 CFR § 124.5 and revises and supersedes the relevant portions of the permit issued on April 6, 2018.

This permit consists of: Part I, which includes effluent limitations, monitoring and reporting requirements and conditions; as well as 25 pages in Part II, which includes General Conditions and Definitions.

Signed this \_\_\_\_ day of

Ken Moraff, Director Office of Ecosystem Protection U.S. Environmental Protection Agency Region I - New England Boston, Massachusetts

<sup>1</sup> Pursuant to 40 Code of Federal Regulations (CFR) § 124.15(b)(3), if no comments requesting a change to the Draft Permit Modification are received, the Permit Modification will become effective upon the date of signature. Procedures for appealing EPA's Final Permit decision may be found at 40 CFR § 124.19.

#### PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

 During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall number 001: non-contact cooling water to the Piscataqua River. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	Discharge	Limitations	<b>Monitoring Requirements</b>		
Characteristic	Average Monthly	Maximum Daily	Frequency <sup>5</sup>	Sample Type	
Flow (million gallons/day [MGD])	40	40	Quarterly <sup>6</sup>	Recorder	
Total Residual Oxidant (mg/L) <sup>1</sup>		0.2 <sup>2</sup>	Daily – when in use	Grab	
Oil & Grease (mg/L)	15	20	Quarterly <sup>6</sup>	Grab	
Temperature (°F)	Report	95 <sup>3</sup>	Hourly – when in use	Grab	
Temperature Rise (°F)	Report	25 <sup>4</sup>	Hourly – when in use	Calculate <sup>7</sup>	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water.

- <sup>1</sup> Total residual oxidant (TRO) may not be discharged for more than two hours in any one day unless the facility can demonstrate to the Regional Administrator that the unit in this particular location cannot operate at or below this level of oxidation. The term "Regional Administrator" means the Regional Administrator of Region 1 of the U.S. Environmental Protection Agency.
- <sup>2</sup> This TRO limit shall not be exceeded at any time (instantaneous maximum); not a maximum daily limit.
- <sup>3</sup> The 95°F temperature limit shall not be exceeded at any time (instantaneous maximum). At no time shall the discharge cause the receiving water to exceed a maximum temperature of 84°F at a distance of 200 feet in any direction from the point of discharge.
- <sup>4</sup> The temperature rise limitation is increased from 25°F to 30°F for a three-hour period each day during condenser maintenance.
- <sup>5</sup> The permittee shall make note on monthly Discharge Monitoring Reports (DMRs) when monitoring is performed during periods other than "dry weather." Dry weather is defined as at least seventy-two (72) hours following a storm event that results in an actual discharge of stormwater from the outfall ("measurable storm event"). If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly DMR.
- <sup>6</sup> This parameter shall be monitored during each calendar quarter (January-March, April-June, July-September, and October-December) and reported on the monthly DMR following the end of each calendar quarter (i.e., April, July, October, and January).
- <sup>7</sup> Temperature rise is defined as the difference between the influent (ambient) temperature and the effluent (discharge) temperature.

During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall numbers 002 (Unit #4), 003 (Unit # 5) and 004 (Unit #6): non-contact cooling water and condenser hotwell drains. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	Discharge	Limitations	Monitoring Requirements		
Characteristic	Average Monthly	Maximum Daily	Frequency <sup>5</sup>	Sample Type	
Outfall 002 Flow (MGD)	Report	52.2	Continuous	Recorder	
Outfall 003 Flow (MGD)	Report	50.2	Continuous	Recorder	
Outfall 004 Flow (MGD)	Report	50.2	Continuous	Recorder	
Total Flow April 1 – October 31 (MGD) <sup>1</sup>	41.8	41.8	Continuous	Recorder	
<b>Total Flow November 1 – January</b> <b>31 (MGD)</b> <sup>1</sup>	125.8	125.8	Continuous	Recorder	
Total Flow (February 1 – March 31) (MGD) <sup>1</sup>	83.6	125.8	Continuous	Recorder	
Total Residual Oxidants (mg/L) <sup>2</sup>		0.2 <sup>3</sup>	Daily – when in use	Grab	
Temperature (°F)	Report	95 <sup>4</sup>	Hourly – when in use	Grab	
Temperature Rise (°F)	Report	255	Hourly – when in use	Calculate <sup>6</sup>	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water.

- <sup>1</sup> Total Flow is the combined total discharge of cooling water for Units 4, 5, and 6. The seasonal flow limitations must be met if the Permittee chooses to comply with the entrainment BTA at Part I.A.11.1.a.i of this permit. The combined total intake flow shall not exceed the total discharge.
- <sup>2</sup> Total residual oxidants (TRO) may not be discharged for more than two hours in any one day from any one unit unless the facility can demonstrate to the Regional Administrator that the unit in this particular location cannot operate at or below this level of oxidation. The term "Regional Administrator" means the Regional Administrator of Region 1 of the U.S. Environmental Protection Agency.
- <sup>3</sup> This TRO limit shall not be exceeded at any time (instantaneous maximum); not a maximum daily limit.
- <sup>4</sup> The 95°F temperature limit shall not to be exceeded at any time (instantaneous maximum). At no time shall the discharge cause the receiving water to exceed a maximum temperature of 84°F at a distance of 200 feet in any direction from the point of discharge.
- <sup>5</sup> The temperature rise limitation is increased from 25°F to 30°F for a three-hour period each day during condenser maintenance.
- <sup>6</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).
- <sup>7</sup> Temperature rise is defined as the difference between the influent (ambient) temperature and the effluent (discharge)

temperature.

3. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall number **006: emergency boiler blowdowns, boiler condensate and deaerator overflows**. The outfall consists of 6 pipes; 2 for each of Units 4, 5, and 6. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	charge Limitat	ge Limitations			Monitoring Requirements		
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>3</sup>	Sample Type	
Flow <sup>1</sup> (Gallons)		Report			When in use	Estimate	
pH <sup>2</sup> (S.U.)			6.5	8.0	When in use	Grab	
Total Suspended Solids (mg/L)	30	100			When in use	Grab	
Oil & Grease (mg/L)	15	20			When in use	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water. The boiler blowdown sampling station shall be at a representative point.

- <sup>1</sup> The discharge consists only of boiler blowdowns during an emergency condition or when a boiler experiences a severe disruption. The duration and amount of flow shall be estimated when a discharge occurs. The amount (gallons) shall be reported in the monthly DMR and the duration (hours) shall be submitted as an attachment. The flow estimate shall not include the steam portion of the discharge.
- <sup>2</sup> The permittee shall evaluate pH control methods for the emergency blowdowns to ensure permit compliance.
- <sup>3</sup> The permittee shall make note on monthly DMRs when monitoring is performed during periods other than "dry weather." Dry weather is defined as at least seventy-two (72) hours following a storm event that results in an actual discharge of stormwater from the outfall ("measurable storm event"). If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly DMR.

4. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall number 011: heater condensate drips. The effluent from 3 individual pipes combine to create the culverted outfall. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	Discharge Limitations				Monitoring Requirements		
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>2</sup>	Sample Type	
Flow (GPD)	Report	Report			Quarterly <sup>3,4</sup>	Estimate	
Total Suspended Solids (mg/L)	30	100			Quarterly <sup>3,4</sup>	Grab	
Oil & Grease (mg/L)	15	20			Quarterly <sup>3,4</sup>	Grab	
pH <sup>1</sup> (S.U.)			6.5	8.0	Quarterly <sup>3,4</sup>	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water. A representative sample must include the combined discharge of all discharging pipes.

- <sup>1</sup> The pH shall not be less than 6.5 standard units (S.U.) nor greater than 8.0 S.U., unless due to naturally occurring conditions.
- <sup>2</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).
- <sup>3</sup> This parameter shall be monitored during each calendar quarter (January-March, April-June, July-September, and October-December) and reported on the monthly DMR following the end of each calendar quarter (i.e., April, July, October, and January).
- <sup>4</sup> All sampling shall be performed during dry weather. "Dry weather" is defined as at least seventy-two (72) hours following a storm event that results in an actual discharge of stormwater from the outfall ("measurable storm event").

5. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall number 015: treated effluent from WWTP #1. This discharge will only be used during essential maintenance of WWTP #2; i.e., sludge removal from the fireside basin. Only treated plant demineralization reagent wastes, chemical lab drains, oil separator wastes, and other routine wastes from day-to-day operation may be discharged. WWTP #1 is not allowed to treat coal pile runoff. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	fluent Discharge Limit				Monitoring Requirements		
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>1</sup>	Sample Type	
Flow (GPD)	61,800	85,300			Continuous	Recorder	
Total Suspended Solids (mg/L)	30	100			Daily when in use	Grab	
Oil & Grease (mg/L)	15	20			Daily when in use	Grab	
pH (S.U.)			6.5	8.0	Daily when in use	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water.

<sup>1</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).

6. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from internal outfall number 016: treated effluent from WWTP #2. This discharge may not include chemical metal cleaning waste; treated chemical metal cleaning waste is subject to requirements in section I.A.7 below. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	D	<b>Discharge Limitations</b>				Requirements
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>1</sup>	Sample Type
Flow (GPD)	216,000	360,000			Continuous	Recorder
Total Suspended Solids (mg/L)	30	100			Monthly	Grab
Oil & Grease (mg/L)	15	20			Monthly	Grab
pH (S.U.)			6.0	9.0	Continuous	Recorder
Total Copper (mg/L)	1.0	1.0			Monthly <sup>3</sup>	Grab
Total Iron (mg/L)	1.0	1.0			Monthly <sup>3</sup>	Grab
Total Nitrogen (mg/L)		Report			Quarterly <sup>2</sup>	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with discharges from any other outfall.

- <sup>1</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).
- <sup>2</sup> This parameter shall be monitored during each calendar quarter (January-March, April-June, July-September, and October-December) and reported on the monthly DMR following the end of each calendar quarter (i.e., April, July, October, and January).
- <sup>3</sup> Copper and iron limits apply only when non-chemical metal cleaning waste (NCMCW) is present in the discharge. If non-chemical metal cleaning waste (NCMCW) is discharged from this outfall in a given month (i.e., NCMCW is not segregated and discharged via Outfall 017), the permittee shall collect the effluent sample when NCMCW is present in the discharge. If NCMCW is the only type of waste stream present in the discharge, the copper and iron limits will apply directly to the effluent data. If NCMCW is comingled with other dissimilar waste streams, the measured effluent data must be multiplied by a dilution factor based on an up-to-date combined waste stream formula (CWF) to demonstrate compliance with the 1.0 mg/L limits on the NCMCW only. In this case, the detailed calculations of the CWF (describing each parameter and assumption), as well as any future updates to the CWF, shall be submitted to EPA as a NetDMR attachment (See Section I.B.2 below) prior to implementation. If NCMCW is not present in the discharge, the Permittee may use NODI code "9" (i.e., conditional limit not required) for copper and iron reporting requirements during that monitoring period.

7. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from internal outfall number 017: treated metal cleaning waste (chemical and/or non-chemical) from WWTP #2 or an alternate holding/treatment tank prior to comingling with any other waste streams. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	<b>Discharge Limitations</b>				Monitoring Requirement		
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>1</sup>	Sample Type	
Flow (GPD)	Report	360,000			Continuous, when in use	Recorder	
Total Suspended Solids (mg/L)	30	100			Daily, when in use	Grab	
Oil & Grease (mg/L)	15	20			Daily, when in use	Grab	
Total Copper (mg/L)	1.0	1.0			Daily, when in use	Grab	
Total Iron (mg/L)	1.0	1.0			Daily, when in use	Grab	
pH (S.U.)			6.0	9.0	Continuous, when in use	Recorder	
Total Nitrogen (mg/L)		Report	-		Quarterly, when in use <sup>2</sup>	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with discharges from any other outfall.

- <sup>1</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).
- <sup>2</sup> This parameter shall be monitored during each calendar quarter (January-March, April-June, July-September, and October-December) and reported on the monthly DMR following the end of each calendar quarter (i.e., April, July, October, and January).

8. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall number 018: heater condensate drips. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	Discharge Limitations				Monitoring Requirements		
Characteristic	Average Monthly	Maximum Daily	Min	Max	Frequency <sup>2</sup>	Sample Type	
Flow (GPD)	Report	Report			Quarterly <sup>3,4</sup>	Estimate	
Total Suspended Solids (mg/L)	30	100			Quarterly <sup>3,4</sup>	Grab	
Oil & Grease (mg/L)	15	20			Quarterly <sup>3,4</sup>	Grab	
pH <sup>1</sup> (S.U.)			6.5	8.0	Quarterly <sup>3,4</sup>	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water. A representative sample must include the combined discharge of all discharging pipes.

- <sup>1</sup> The pH shall not be less than 6.5 standard units (S.U.) nor greater than 8.0 S.U., unless due to naturally occurring conditions. The pH sampling may be reduced to a single grab sample from any of the 3 pipes.
- <sup>2</sup> If no sampling is required for a particular parameter and monitoring period, the permittee should enter the appropriate No Data Indicator Code (NODI) in the monthly Discharge Monitoring Report (DMR).
- <sup>3</sup> This parameter shall be monitored during each calendar quarter (January-March, April-June, July-September, and October-December) and reported on the monthly DMR following the end of each calendar quarter (i.e., April, July, October, and January).
- <sup>4</sup> All sampling shall be done during dry weather. "Dry weather" is defined as at least seventy-two (72) hours following a storm event that results in an actual discharge of stormwater from the outfall ("measurable storm event").

During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall numbers 020 and 021: intake screen wash (Outfall 020 serves intake for Unit 4; Outfall 021 serves intake for Units 5 and 6). Such discharges shall be limited and monitored by the permittee as specified below.

Effluent	Discharge	Limitations	Monitoring Requirements		
Characteristic <sup>1,2</sup>	Average Monthly	Maximum Daily	Frequency	Sample Type	
Outfall 020 Flow (GPD)		108,000	Monthly	Estimate	
Outfall 021 Flow (GPD)		108,000	Monthly	Estimate	

Samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to discharge into the receiving water.

- <sup>1</sup> The temperature of the discharge shall at no time exceed the temperature of the intake water used for this discharge.
- <sup>2</sup> All live fish, shellfish and other organisms collected or trapped on the intake screens should be returned to their habitat, sufficiently distant from the intake structures to prevent re-impingement. All other material, except natural debris (e.g., leaves), shall, to the extent practicable, not be returned to the receiving waters and, in any event, shall be disposed of in accordance with all existing federal, state, and/or local laws and regulations that apply to waste disposal.

#### 10. Water Quality Requirements

- a. Discharges and water withdrawals shall not cause a violation of the water quality standards or jeopardize any Class B use of the Piscataqua River.
- b. The thermal plumes from the station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimal contact with surrounding shorelines.
- c. The effluent shall not contain metals and/or materials in concentrations or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving water.
- d. Discharges to the Piscataqua River shall be adequately treated to ensure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. They shall be adequately treated to ensure that the surface waters remain free from pollutants which produce odor, color, taste, or turbidity in the receiving water which is not naturally occurring and would render it unsuitable for its designated uses.
- e. Pollutants which are not limited by the permit, but have been specifically disclosed in the last permit application, may be discharged at the frequency and level disclosed in the application, provided that such discharge does not violate sections 307 and 311 of the Act or applicable water quality standards.

# 11. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment

- a. 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 (*e.g.*, eggs, larvae, juveniles, adults) by the CWISs. *Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.* The following requirements have been determined by the EPA to represent the BTA for minimizing impingement and entrainment impacts at this facility:
  - 1. To minimize entrainment, the permittee shall
    - i. Limit cooling water intake in accordance with the total flow limitations at Part I.A.2 of this permit; *or*
    - ii. install and operate a fine mesh wedgewire screen intake system for the CWIS's of Units 4, 5, and 6, with a pressurized air system to clear debris from the screens. For this permit, the screen must have a slot or mesh size no greater than 0.8 mm, unless the permittee can demonstrate through a site-specific study that a larger slot size is

3.

equally or more effective for reducing entrainment mortality as a 0.8 mm slot or mesh size. The site-specific study must evaluate 0.8 mm slots concurrently with any larger slot sizes. Screens must be constructed from material or incorporate a coating designed to reduce fouling. The wedgewire screen units must be positioned as close to the west bank of the Piscataqua 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.

- 2. To minimize impingement mortality, the permittee shall
  - i. Operate a system of technologies, management practices, and operational measures to minimize impingement mortality of all life stages of fish and shellfish, including latent mortality (evaluated after 48 hours). The Permittee must demonstrate the system of technology has been optimized by completing an impingement technology performance optimization study as described in 40 CFR § 122.21(r)(6) within two years of the effective date of the Permit Modification and submitting it to EPA within 3 months from completion of the study; *or*
  - ii. maintain a through-screen velocity at the wedgewire screens no greater than 0.5 fps. The permittee shall continuously monitor the throughscreen velocity daily and report the average monthly and daily maximum through-screen intake velocity at the screens in the discharge monitoring report.
  - If the Permittee elects the "system of technologies" as described in Part I.A.11.a.2.i, above, the Permittee must meet an interim BTA for the period beginning 3 months from the effective date of the Permit Modification. The 12-month impingement mortality of all life stages of non-fragile species, including latent mortality (evaluated after 48 hours), must be no greater than 30 percent. The 12-month mortality percentage is calculated as:

# number of impinged fish killed number of fish impinged

Where the "number of impinged fish killed" is the total number of fish killed (including latent mortality) over the course of 12 months at all three units combined and the "number of fish impinged" is the sum of total impingement at all three units over 12 months calculated for each month based on the impingement rate (fish impinged per gallon from impingement monitoring) times the design flow of the cooling water intake pumps (e.g., the number of fish that would have been impinged if all pumps operate at design flow).

4. 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 is not needed for fire prevention or other emergency conditions. **Any volume withdrawn from the units' intake pumps, whether generating electricity or not, contribute to the calculation of "total** flow" in Part I.A.2.

- 5. If the permittee installs wedgewire screens, the permittee shall at all times properly operate and maintain the wedgewire screen intake system in compliance with conditions (1) and (2) of this section except when operation of the wedgewire screens would result in unavoidable loss of human life, personal injury, or severe property damage. Severe property damage means substantial physical damage to property or damage to cooling water intake-related equipment that causes it to become inoperable. When operation of the wedgewire screen intake system would cause loss of human life, injury, or severe property damage, the permittee may cease use of the wedgewire screens and operate an emergency intake. The permittee shall minimize the use of the emergency intake system to the greatest extent possible. Within twenty-four (24) hours of the start of each use of the emergency intake system, the permittee must notify EPA and NHDES of the reason for operation of the emergency intake and identify all steps taken or to be taken to address the cause and minimize the use of the emergency intake. The permittee shall notify EPA and NHDES within twenty-four hours of the resumption of full operation of the wedgewire screens.
- 6. No change in the location, design or capacity of the present structure, unless specified by this permit, can be made without prior approval by EPA.
- b. Compliance Schedule. If the Permittee elects to install wedgewire screens in order to comply with Part I.A.11.a of this permit, the permittee will need to install and operate new equipment.<sup>2</sup> This part of the permit provides a schedule by which the permittee shall attain compliance with Part I.A.11.a of the permit. Specifically, steps for the installation and operation of equipment required to comply with Part I.A.11.a 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.
  - 1. Design
    - i. The permittee shall finalize the pilot testing design and obtain and install all equipment required for pilot testing within six (6) months from the effective date of the permit.

<sup>&</sup>lt;sup>2</sup> The milestones in this Compliance Schedule are based on the effective date of the 2018 Final Permit and are not being modified in this Permit Modification.

- ii. The permittee shall complete pilot testing of wedgewire screens no later than eighteen (18) months from the effective date of this permit.
- iii. A demonstration report documenting the results of the pilot testing shall be submitted to EPA and NHDES by July 30, 2020. The demonstration report shall include a preliminary design of the wedgewire screens at Schiller Station and include justifications for 1) the proposed screen slot size based on observation of each slot size's ability to reduce entrainment mortality relative to baseline entrainment, as measured concurrently at the existing traveling screens, avoid screen clogging, fouling or other maintenance issues, and any other relevant considerations; 2) the proposed material alloy choice for the equipment in order to reduce biofouling; and 3) the proposed optimal screen orientation in the river (i.e., parallel or perpendicular to the flow) in order to reduce entrainment and impingement mortality. The screen slot size and orientation selected will be based upon the results of the pilot testing and demonstration report and subject to EPA review and comment within sixty (60) days from submission.
- iv. Data collection, including but not limited to topographic and bathymetric surveys, geotechnical exploration, and other design and marine construction variables that need to be evaluated shall be completed by August 29, 2020.
- v. The permittee shall submit a final design for the wedgewire screens at Schiller Station by December 30, 2020 and in accordance with EPA's review of and comments on the preliminary design.
- 2. Permitting
  - i. Within eight (8) months from the submission of the final design, the permittee shall complete submission of all permit applications and notices necessary to install wedgewire screens at the Units 4, 5, and 6 CWISs, including those required by U.S. Army Corps of Engineers (ACOE), National Marine Fisheries Service (NMFS), NHDES, New Hampshire Division of Coastal Zone Management, local conservation commissions, and others as necessary.

- ii. In the event that more than twelve (12) months elapses between submitting all necessary permit application and notices and the completion of the permitting process, the permittee shall submit an annual report demonstrating progress towards obtaining all necessary permit approvals. Until all necessary permits and approvals are obtained, this report shall be submitted every twelve (12) months from the deadline for completing submission of necessary applications described in (i), above.
- 3. Construction
  - Within three (3) months of obtaining all necessary permits and approvals, the permittee shall enter into an Engineering, Procurement and Construction agreement with the permittee's contractor or report to EPA that the permittee has made other appropriate arrangements to commence construction.
  - ii. No later than twelve (12) months after obtaining all permits and approvals, the permittee shall complete site preparation for the installation of wedgewire screens for the Units 4, 5 and 6 CWISs. The permittee shall minimize environmental and navigational impacts during construction and installation. In addition, EPA will work with representatives of Schiller Station and, as appropriate, the ISO to schedule any necessary downtime of the power plant that will minimize or eliminate any effects on the adequacy of the region's supply of electricity.
  - iii. Within twenty (20) months from obtaining all permits and approvals, the permittee shall complete installation, operational modifications, test, startup and commissioning of the wedgewire screens for the CWIS's of Units 4, 5 and 6.

## 12. Water Treatment Chemicals

- a. The Regional Administrator or the Director shall be notified in advance of any addition and/or change of chemicals containing pollutants not approved for water discharge and may require additional feasibility studies.
- b. The permittee may add and/or change maintenance chemicals containing pollutants not currently approved for water discharge only if the permittee can demonstrate through testing that each of the 126 priority pollutants in 40 CFR Part 423.15(j)(1) is not detectable in the final discharge.

## 13. Maintenance, Diagnostic and Repair Materials

The use of Rhodamine WT dye and fine wood sawdust is allowed when the need arises, provided that the permittee: 1) notify EPA and NHDES at least thirty (30) days prior to

the addition of these materials to any water stream that will ultimately be discharged to the Piscataqua River and 2) meets the requirements in Part I.A.1 of this permit. The initial notification shall include the following projections:

## Rhodamine WT Dye

- a. The expected maximum concentration of Rhodamine WT dye that will be discharged to the receiving water before dilution and the projected duration of the maximum concentration;
- b. The total volume of Rhodamine WT dye to be introduced and the resulting average concentration expected at the outfall before dilution; and
- c. The beginning time and duration the material is expected to be discharged to the receiving water at detectable levels, before dilution.

#### Fine Wood Sawdust

- d. The total amount in pounds of sawdust introduced and the expected maximum total suspended solids (TSS) concentration of the effluent before dilution and the projected duration of the maximum concentration; and
- e. The beginning time and duration the material is expected to be discharged to the receiving water at detectable levels, before dilution.

#### 14. Thermal Mixing Zone Requirements

- a. The thermal mixing zone is defined as 200 feet upstream (flood tide) and 200 feet downstream (ebb tide) of the discharge from outfalls 001, 002, 003 and 004, with a width of 200 feet from the shoreline.
- b. The mixing zone criteria for the thermal plume are such that at no time shall the temperature of the receiving water outside the mixing zone exceed a maximum temperature of 84°F at any point beyond a distance of 200 feet in any direction from the point of discharge. Brief excursions are allowed only during tidal reversal periods (i.e., the period lasting 15 minutes before and 15 minutes after slack tide).
- c. Outside the thermal mixing zone, the natural seasonal temperature cycle of the receiving water shall remain unchanged by the discharge, the annual spring and fall temperature and salinity changes shall be gradual, and large day to day temperature and salinity fluctuations shall be avoided.

## 15. Other Requirements

- a. There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid. The permittee shall dispose of all known PCB equipment, articles, and wastes in accordance with 40 CFR 761.
- b. Water drawn from fuel oil tanks shall not be discharged into the Piscataqua River.

- c. Chlorine only may be used as a biocide. No other biocide shall be used without explicit approval from EPA.
- d. The permittee shall comply with all existing federal, state, and local laws and regulations that apply to the reuse or disposal of solids, such as those which may be removed from water and waste treatment operations and equipment cleaning. At no time shall these solids be discharged to the Piscataqua River.
- e. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Regional Administrator as soon as they know or have reason to believe (40 CFR §122.42):
  - 1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    - i. One hundred micrograms per liter (100 ug/l);
    - ii. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4,6dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
    - iv. Any other notification level established by the Regional Administrator in accordance with 40 CFR §122.44(f).
  - 2. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    - i. Five hundred micrograms per liter (500 ug/l);
    - ii. One milligram per liter (1 mg/l) for antimony;
    - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
    - iv. Any other notification level established by the Regional Administrator in accordance with 40 CFR §122.44(f).

3. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

#### **B.** MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The permittee is obligated to monitor and report sampling results to EPA and the NHDES within the time specified within the permit.

In accordance with 40 C.F.R. § 122.44(i)(1)(iv), the Permittee shall use sufficiently sensitive test procedures (i.e., methods) approved under 40 C.F.R. § 136 or required under 40 C.F.R. Chapter I, Subchapter N or O, for the analysis of pollutants or pollutant parameters limited in this permit (except WET). A method is considered "sufficiently sensitive" when either 1) The method minimum level is at or below the level of the applicable water quality criterion or permit effluent limitation for the measured pollutant or pollutant parameter; or 2) The method has the lowest minimum level of the analytical methods approved under 40 C.F.R. § 136 or required under 40 C.F.R. Chapter I, Subchapter N or O for the measured pollutant or pollutant or pollutant parameter. The "minimum level" is the lowest level at which the test equipment produces a recognizable signal and acceptable calibration point for a pollutant or pollutant parameter, representative of the lowest concentration at which a pollutant or pollutant parameter can be measured with a known level of confidence.

Unless otherwise specified in this permit, the permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs and the Use of NetDMR

The permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and the State no later than the 15th day of the month electronically using NetDMR. When the Permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or the State. NetDMR is accessed from the internet at <u>https://netdmr.zendesk.com/hc/en-us</u>.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. See Part I.B.5. for more information on State reporting. Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Requests and Reports to EPA/OEP

The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Region 1 Water Division.

- A. Transfer of permit notice
- B. Request for changes in sampling location
- C. Request for reduction in monitoring frequency
- D. Change in location, design or capacity of cooling water intake structures
- E. Wedgewire screen pilot testing demonstration report
- F. Final design plans for the wedgewire screen installation

These reports, information, and requests shall be submitted to EPA/OEP electronically at <u>R1NPDES.Notices.OEP@epa.gov</u> or by hard copy mail to the following address:

#### U.S. Environmental Protection Agency Water Division EPA/OEP NPDES Applications Coordinator 5 Post Office Square - Suite 100 (OEP06-03) Boston, MA 02109-3912

4. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be submitted as hard copy with a cover letter describing the submission. These reports shall be signed and dated originals submitted to EPA.

- A. Written notifications required under Part II
- B. 316(b) compliance schedule milestone reports

This information shall be submitted to EPA/OES at the following address:

U.S. Environmental Protection Agency Enforcement and Compliance Assurance Division Water Technical Unit 5 Post Office Square, Suite 100 (OES04-SMR) Boston, MA 02109-3912

## 5. State Reporting

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.B.3 and I.B.4 also shall be submitted to the State electronically via email to the Permittee's assigned NPDES inspector, permit engineer and compliance supervisor at NHDES-WD or in hard copy to the following address:

#### Attn: Compliance Supervisor New Hampshire Department of Environmental Services Water Division Wastewater Engineering Bureau P.O. Box 95 Concord, New Hampshire 03302-0095

An annual report on the impinged lobsters and other biota detected from any screen wash sampling in July and August is to be sent to the NH Fish and Game Department's Marine Fisheries Division Chief at the following address:

## NH Fish and Game Department Marine Division 225 Main Street Durham, NH 03824

#### 6. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to NHDES. This includes verbal reports and notifications which require reporting within 24 hours. (As examples, see Part II.B.4.c.(2), Part II.B.5.c.(3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made to EPA's Enforcement and Compliance Assurance Division at:

## 617-918-1510

Verbal reports and verbal notifications shall also be made to the permittee's assigned NPDES inspector at NHDES –WD.

## C. STATE PERMIT CONDITIONS

This NPDES discharge permit is issued by the U.S. Environmental Protection Agency under Federal and State law. Upon final issuance by the EPA, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

Each Agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of the permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.

A relaxation of the pH limits is allowed if the permittee performs an in-stream dilution study that demonstrates that the in-stream standards for pH would be protected. If NHDES approves results from a pH demonstration study, this permit's pH limit range may be relaxed for some or all relevant outfalls. Note that with so many outfalls it would be difficult to show how one outfall either did or did not affect the downstream pH so an aggregate pH demonstration for all of outfalls may be required. Since it may be quite difficult to do such a study during worst case tidal conditions, the permittee should coordinate closely with NHDES in the development of any such study. The notification of the relaxation must be made by certified letter to the permittee from EPA-Region 1. The pH limit range cannot, however, be made less restrictive than the 6.0 - 9.0 S.U. limitations included in the applicable Steam Electric ELGs for the facility.

#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 1 5 POST OFFICE SQUARE, SUITE 100 BOSTON, MASSACHUSETTS 02109-3912

## STATEMENT OF BASIS FOR:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT DRAFT MODIFICATION TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO.: NH0001473

PUBLIC NOTICE START AND END DATES: October 04, 2022 to November 02, 2022

NAME OF APPLICANT:

## **Granite Shore Power Schiller LLC**

#### NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

#### Schiller Station 400 Gosling Road Portsmouth, NH

**RECEIVING WATERS: Piscataqua River** 

CLASSIFICATION: **B** 

## CURRENT PERMIT: Issued April 6, 2018; Effective July 1, 2018; Modified March 25, 2020

#### Table of Contents

#### **1.0 Proposed Action**

The United States Environmental Protection Agency's ("EPA") Region 1 office ("Region 1" or the "Region") is proposing a modification to the current National Pollutant Discharge Elimination System permit NH0001473 ("NPDES Permit" or "Final Permit") issued on April 2, 2018, to Granite Shore Power Schiller LLC ("GSP" or "Permittee") for discharges from a steam electric generating station in Portsmouth, NH. The Final Permit authorizes discharges to the Piscataqua River. The Final Permit also authorizes the Permittee to withdraw cooling water from the Piscataqua River via two cooling water intake structures.

Among other things, the Final Permit provided a compliance schedule for the Permittee to evaluate and install certain equipment as the Best Technology Available (BTA) for minimizing the adverse environmental impact of the cooling water intake structures, in accordance with

§ 316(b) of the Clean Water Act ("CWA" or the "Act"), as discussed more fully below.<sup>1</sup> On March 31, 2021, the Region received a request from the Permittee pursuant to 40 CFR § 122.62 to modify provisions of its NPDES Permit related to CWA § 316(b). Specifically, the Permittee requested a modification to remove the requirement at Part I.A.11 to install wedgewire screens (and associated additional milestones at Part I.A.11.b) based on new information that was not available at the time of permit issuance. The Permittee requested that the Region replace the wedgewire screen requirement in the Final Permit with requirements limiting the intake flow of the cooling water intake structures by specified amounts and that the Final Permit require the permittee to operate a "system of technologies, management practices, and operational measures optimized to minimize impingement mortality."

As described in more detail below, EPA is proposing modifications in the Final Permit based on the Permittee's request. For the reader's convenience, EPA has indicated the proposed modifications in the Draft Permit Modification by underlining text proposed for addition to the Final Permit and striking through text proposed for deletion from the Final Permit. EPA is seeking, and will accept, only comments that address the proposed modifications, as designated in the Draft Permit Modification and discussed in Section 3.0 of this Statement of Basis. All other aspects of the existing permit will remain in effect for the duration of the unmodified permit and are not being reopened for public comment and modification. *See* 40 CFR § 124.5(c)(2).

## 1.1 The Facility

Schiller Station ("Facility") is a four-unit, 163 megawatt (MW) steam electric generating facility located on the southwestern bank of the Piscataqua River in Portsmouth, New Hampshire.<sup>2</sup> The Facility's three main generators, designated as 4, 5, and 6, are all rated at 48 MW each. Units 4 and 6 are equipped with dual fuel boilers capable of firing either pulverized bituminous coal or #6 fuel oil. Unit 5 was converted to a dual fuel fluidized bed boiler that burns wood chips and/or other low grade wood products for its primary fuel. The remaining unit, designated CT-1, is a 19 MW combustion turbine fired with #1 fuel oil that is typically operated only during periods of highest seasonal peak demand. As part of its process for generating electricity, Schiller Station uses an open-cycle (or "once-through") cooling system. The Facility withdraws water from the Piscataqua River through its cooling water intake structures (CWIS) and uses it to condense the steam sent through the electrical generating turbines after which the heated non-contact cooling water (NCCW) is discharged to the Piscataqua River.

The facts concerning the Facility and the waterbody that are relevant for the purpose of NPDES permitting are discussed in detail in the Fact Sheet that EPA issued in 2015 together with the draft NPDES permit for the Facility and the Responses to Comments issued by EPA in

<sup>&</sup>lt;sup>1</sup> The compliance schedule in the Final Permit was modified by letter on March 25, 2020, pursuant to 40 CFR § 122.63 (Minor Modification) to extend the deadlines at Part I.A.11.b.1. for completing the pilot testing and submitting a final design.

<sup>&</sup>lt;sup>2</sup> When Draft Permit NH0001473 was public noticed on September 30, 2015, Schiller Station was owned and operated by Eversource Energy (formerly Public Service New Hampshire). The Facility was subsequently purchased by Granite Shore Power Schiller LLC and the transfer of ownership of the effective NPDES Permit (which had expired on October 11, 1995, but was administratively continued pending a new permit) was completed on January 10, 2018. The Final Permit was issued to GSP Schiller on April 6, 2018.

conjunction with the 2018 Final Permit. These documents are incorporated herein by reference for purposes of providing additional background information concerning the Facility, the Final Permit, and the relevant law.

## **1.2 Final Permit**

On August 15, 2014, EPA promulgated Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities ("Final Rule"), codified at 40 CFR part 125 subpart J, which became effective on October 14, 2014. See 79 Fed. Reg. 48,300 (Aug. 15, 2014). As the prior Schiller Station permit expired (and the NPDES application for re-issuance was submitted) well before promulgation of these regulations, the Region made the best technology available (BTA) determination pursuant to the "ongoing permit proceedings" provision at 40 CFR § 125.98(g). The Region determined that it had sufficient information to evaluate the available technologies (including the factors in 40 CFR § 125.98(f)(2) and (3)) and considered the requirements of 40 CFR §§ 125.94(c), 125.94(d), and 125.98(f) in making its BTA determination. See 2015 Fact Sheet at 81-84; Response to PSNH Comment V.B.1 and Sierra Club Comment III.C. EPA evaluated the existing CWIS technology (traveling screens), alternative intake locations, modifications to the existing traveling screens, physical and behavioral barriers, variable frequency drives, scheduled maintenance outages, and closedcycle cooling. See 2015 Fact Sheet pp. 99-148. After considering the cost and benefits of each option, EPA concluded that the BTA at Schiller Station for minimizing adverse environmental impacts associated with impingement and entrainment in accordance with Section 316(b) of the CWA is wedgewire screens with a design velocity no greater than 0.5 fps. See 2015 Fact Sheet at 156-172.

During the public comment period for the 2015 Draft Permit, Public Service Company of New Hampshire (PSNH), which owned and operated Schiller Station at the time, the Sierra Club, and the Conservation Law Foundation submitted comments on the BTA determination. EPA addressed these comments in the Response to Comments that accompanied issuance of the 2018 Final Permit. The Final Permit requires the Permittee to install and operate fine-mesh (defined as 0.8 mm or less) wedgewire screens with a through-screen velocity no greater than 0.5 fps. *See* Part I.A.11.a.1 and 2.<sup>3</sup> The Final Permit, Part I.A.11.b established a compliance schedule for the installation and operation of the equipment. In response to comments about the uncertainty of the effectiveness and optimal design for the screens (including selection of slot size), the Final Permit allowed additional time for the Permittee to conduct a pilot study. *See* Responses to PSNH Comment V.B.5 and Sierra Club Comment IV.B.1, B.7. The Final Permit was not appealed and it—including the BTA determination and CWIS requirements—became effective on July 1, 2018.

<sup>&</sup>lt;sup>3</sup> Part I.A.11.a.3 requires the Permittee to institute a best management practice of shutting down the intake pumps associated with a particular generating unit to the extent practicable when that generating unit is not operation and water is not needed for fire prevention or other emergency conditions. The Permittee did not request a modification to this requirement and has implemented this practice since issuance of the Final Permit as evident by the flows reported in the monthly discharge monitoring reports. Part I.A.11.a.3 is not addressed by the proposed permit modification.

#### **Draft Modification NPDES Permit No. NH0001473**

GSP conducted the pilot study in 2019 and submitted the results to EPA in July 2020. *Wedgewire Screen Site-Specific Study Engineering Evaluation GSP Schiller LLC- Schiller Station*, Enercon 2020; *Evaluation of the Entrainment Reduction Performance of 0.8-mm and 3.0-mm Cylindrical Wedgewire Screens at Schiller Station*, Normandeau 2020. GSP concluded that implementation of a full-scale wedgewire screen installation at Schiller Station would be "imprudent" based on site-specific operational/equipment issues, unanticipated screen degradation, and entrainment reductions for the wedgewire screens that were significantly lower than expected. In a March 31, 2021 letter, GSP requested that EPA modify the permit to require the Permittee to optimize a "system of technologies, management practices, and operational measures" as the BTA to minimize impingement mortality and establish flow restrictions of the conditions of the modified draft permit and the reasons for them.

#### 2.0 Basis of Proposed Permit Modification

This Statement of Basis reflects EPA's consideration of the Permittee's request for modification of the BTA requirements in the Final Permit. As explained in the Fact Sheet and in the Response to Comments for the Final Permit, the losses from impingement mortality and entrainment at Schiller Station constitute an adverse environmental impact on the Piscataqua River and additional controls are necessary and warranted to minimize that impact consistent with the BTA standard of CWA § 316(b) and the 2014 CWA § 316(b) Final Rule. See, e.g., 2015 Fact Sheet at 105 and Response to Comment V.B.2. Further, EPA is not revisiting the BTA determination from the Draft or Final Permits. The BTA determination for the Final Permit was based on consideration of the relative costs of the two available and potentially effective technologies in light of the quantitative and qualitative benefits of reducing entrainment. See Response to Sierra Club Comment IV.A.2.a. This determination and the requirements of the Final Permit were not challenged. In addition, this Statement of Basis is not intended to serve as EPA's assessment of GSP's conclusions from its 2018 pilot study. EPA acknowledges that GSP experienced operational and equipment issues with the technology, which resulted in lower-than-expected entrainment reductions when compared to the estimated values for the draft and final permit determinations. The results of the study suggest that full implementation of wedgewire screens at Schiller Station may be more complex than anticipated, and changes to the design and/or number of screens, mechanical repairs, and more frequent cleaning will likely result in increased costs compared to the values evaluated for the Final Permit. However, the performance of the technology during the pilot study is not central to this modification.

For this modification, EPA considers whether GSP's proposed alternative CWIS requirements for entrainment are as effective or more effective than the site-specific requirements in the Final Permit. In addition, EPA considers whether the proposed requirements for impingement mortality comply with one of the BTA alternatives for impingement mortality at 40 CFR § 125.94(c). The proposed requirements are based on new information about the current and future operation of the Facility. For the Draft and Final Permits, EPA chose to evaluate impacts based on design flow because these are the conditions that PSNH requested in its 1995 permit application (AR-044) and in the updated application submitted in 2010 (AR-139). *See* 2015 Fact Sheet at 93. In neither of these submissions did PSNH indicate that it planned to operate at lower capacity in the future, and, as EPA recognized, "there is no way to predict with certainty the seasonal or annual capacity factor for each unit." *Id.* at 149. *See also* Response to Sierra Club Comment IV.B.3.

Since issuance of the Final Permit in April 2018, Schiller Station has substantially reduced operation of its three units. Generation at the two coal-fired units (Units 4 and 6) dropped from an annual average between 10-20% of total capacity to less than 0.5% in 2020. Generation at the wood-fired unit (5) dropped over 50% capacity in 2018 and 2019 to about 6% capacity in 2020. None of the three units operated at all in 2021. See Figure 1. In a change from the Final Permit, GSP, who took over ownership of Schiller Station in January 2018, has requested flow limitations that will limit the generation capacity of the units and removal of provisions in the Final Permit that require GSP to install wedgewire screens.



Schiller Station WMh Generated Per Month

## 2.1 Entrainment

To minimize entrainment, the Final Permit requires installation and year-round operation of finemesh wedgewire screens. In addition, the Final Permit requires the Permittee to shutdown intake pumps associated with a particular unit to the extent practicable when not operating the unit. See Final Permit Parts I.A.11.a.1 and 3. In the modification request, GSP proposed an alternative to minimize entrainment in which the Permittee would limit operation of Schiller Station to a single unit from April through October (a 66.8% reduction in flow during this period). For November

Figure 1. Generation (MWh) per month for Schiller Station Units 4, 5, and 6 from January 2018 through December 2021.

through March, GSP proposed flow limits that would allow it to operate all three units at design flow (0% reduction). In its initial discussions about the modification with GSP, EPA inquired about additional flow reductions during November through March, recognizing that operation at full design flow for the entire period (i.e., all 3 units) was unlikely and that early life stages of certain highly valuable commercial and recreational species (e.g., Atlantic cod, winter flounder) or important prey species (e.g., American sand lance) can be present in relatively high densities during late winter/early spring. *See* Notes from May 12, 2021, Meeting. In response, GSP proposed a 40% flow reduction applied as a seasonal limit from November to March over all three units. *See* email from GSP to EPA dated May 20, 2021. Below, EPA evaluates the effectiveness of the proposed flow reductions in comparison to the estimated effectiveness of wedgewire screens in the Final Permit.

For the Draft BTA determination, EPA estimated that we dgewire screens with a slot size of 0.8mm would result in a 37% reduction in the entrainment of fish eggs and larvae. See 2015 Fact Sheet at 114-118. This estimate was based on physical exclusion of eggs and larvae with a 0.8mm slot size after accounting for the likelihood of survival if an organism contacts the screens. Based on available information, EPA estimated relatively high survival for fish eggs but low survival of larvae. Id. EPA maintained, in response to comments from both PSNH and Sierra Club, that this estimate was suitably conservative considering both that factors other than physical exclusion could result in higher effectiveness (e.g., hydraulic bypass) and that the potential uncertainty associated with survival of organisms exposed to the screens could lower effectiveness. See Responses to PSNH Comment V.B.5 (at 109) and Sierra Club Comment IV.B.6 (at 302). In the Fact Sheet, EPA also estimated that entrainment mortality of macrocrustaceans would be eliminated owing to their relatively large size and likelihood of survival. In response to Sierra Club's comments on the Draft Permit, EPA reconsidered the potential effectiveness of wedgewire screens for macrocrustacean entrainment and decreased the estimated effectiveness for the reduction in macrocrustacean mortality to 80%. See Response to Sierra Club Comment IV.B.1 (at 283). Using the corrected early life stage densities from Response to Sierra Club Comment II.D (at 214), EPA estimated that 0.8 mm-slot wedgewire screens would save about 54.3 million fish eggs and larvae and 475 million macrocrustacean early life stages annually.<sup>4</sup>

As explained above, none of the three units at Schiller Station has operated since June 2020. In fact, GSP explained in its request for a permit modification that the units have been in a long-term outage status with the Independent System Operator of New England (ISO-NE). GSP has said that it expects that future operation of the three units at Schiller Station will be "intermittent" and, as a result, operational controls (i.e., flow limits) may be used in lieu of the installation and operation of physical equipment (i.e., wedgewire screens) to address entrainment. GSP has also informed EPA that it anticipates that it will make one or more of its three units available to ISO-NE for operation beginning in December 2022. In determining the BTA for the Final Permit, EPA considered that the coal-fired units 4 and 6 operated intermittently. *See* Response to Sierra Club Comment IV.B.6. However, the Permittee at the time

<sup>&</sup>lt;sup>4</sup> As explained in the Response to Comments, EPA eliminated green crab (*Carcinus maenas*) from the count of macrocrustacean entrainment. For an explanation, see Responses to PSNH Comments V.B.2 and VII.A.13, as well as to Sierra Club Comments IV.B.1 and B.3. EPA adjusted the macrocrustacean entrainment counts, which were based on operational flows during the 2006-07 study, to design flow.

(PSNH) was opposed to flow limits as enforceable operational conditions to achieve entrainment reductions based on their expected operations at the time. For the first time, GSP has proposed enforceable flow limits to achieve entrainment reductions.

GSP has recently proposed restricting flow to 41.8 MGD, equivalent to operation of a single unit, between April 1 and October 30. This flow limit is a 66% reduction from the design flow (125.8 MGD<sup>5</sup>) and will, therefore, achieve a 66% reduction in entrainment of all early life stages during this period<sup>6</sup>, which coincides with the peak period of entrainment, which is a substantial increase over the estimated 37% reduction in entrainment mortality of fish eggs and larvae achieved with wedgewire screens. Based on entrainment data from the 2019 pilot study, a 66% reduction in flow from April through October will save about 163 million fish eggs and larvae compared to about 103 million fish eggs and larvae saved over this same period with wedgewire screens.<sup>7</sup> GSP did not count macrocrustacean entrainment during the 2019 pilot study; EPA therefore used data from Normandeau 2008 (AR-136) to estimate the impacts to macrocrustaceans. The proposed flow reduction will save about 384 million macrocrustacean early life stages over this period. Compared to wedgewire screens, flow reductions are estimated to be 14 percent less effective for macrocrustaceans (66% vs. 80%). EPA expected wedgewire screens would be highly effective for reducing entrainment mortality of macrocrustaceans due to the relatively large size and high survival of these organisms.

GSP initially proposed full operation of all three units (125.8 MGD) from November 1 to March 31 (a 0% reduction in flow). Because more than 99% of macrocrustacean entrainment occurs between April and October, full operation from November through March does not measurably impact the annual entrainment reduction of macrocrustaceans. For fish eggs and larvae, 88% of the annual entrainment occurs between April and October. For this reason, the annual entrainment occurs between April and October. For this reason, the annual entrainment reduction is estimated to be about 59% when allowing for full operation of the three units from November 1 to March 31. However, early life stages of several species are present in relatively high numbers in late winter and early spring (February-March) that are commercially, recreationally, and/or ecologically important, including Atlantic cod, winter flounder, and American sand lance.<sup>8</sup> EPA asked the Permittee to consider if any flow reduction would be feasible from November through March. *See* Notes from May 12, 2021, Meeting. GSP responded with a proposal to achieve an overall 40% seasonal reduction in flow from November to March to be achieved cumulatively over all three units. *See* email from E. Tillotson, GSP, to D. Houlihan, EPA (May 20, 2021).

<sup>&</sup>lt;sup>5</sup> Part I.A.2 in the 2018 Permit establishes flow limits from Outfalls 002, 003, and 004 (152.6 MGD) carried forward from the 1990 Permit that exceed the design flow of the intake pumps for Units 4, 5 and 6. *See* 2015 Fact Sheet p. 25. Review of discharge monitoring data demonstrates that the maximum reported discharge does not exceed the design flow of the intake pumps.

<sup>&</sup>lt;sup>6</sup> In its CWA § 316(b) Rulemakings, EPA considers that entrainment is proportional to flow and a reduction in flow results in a proportional reduction in entrainment. See 79 Fed. Reg. 48,331.

<sup>&</sup>lt;sup>7</sup> The estimated number of organisms saved based on the 2019 study is higher than the estimated number from the Response to Comments document because the total number of organisms entrained in 2019 was higher than in 2006-7, particularly from June through September.

<sup>&</sup>lt;sup>8</sup> Atlantic cod and winter flounder are managed fisheries whose Regional stocks have experienced low recruitment in recent years. See Omnibus Essential Fish Habitat Amendment. <u>https://www.nefmc.org/library/omnibus-habitat-amendment-2</u>. Sand lance are an important prey species for many species of fish, birds, and marine mammals, including Atlantic cod, Atlantic sturgeon, roseate tern, humpback whales, and fin whales. See Staudinger et al. 2020. The role of sand lances (*Ammodytes sp.*) in the Northwest Atlantic Ecosystem. Fish and Fisheries 21: 522-556.

The density of early life stages is substantially higher in February and March than in November through January. See Modification Request at 4. Therefore, the timing of the flow reductions from November through March greatly impacts the effective entrainment reduction during this period. For example, if the Permittee shuts down all three units in November and December (0 MGD) and operates all three units at design flow (125.8 MGD) from January through March, the overall seasonal reduction in flow would be 40% but the reduction in fish egg and larvae entrainment would only be about 4% relative to baseline values. In comparison, if the Permittee operates two units during each month from November through March (83.6 MGD), the seasonal flow reduction would be 33% but could achieve a 31% reduction in entrainment over this period. Because the flow restrictions during this period are intended to provide additional protection for early life stages of certain species, the flow reductions should coincide with the peak densities of those same species. Therefore, EPA proposes an average monthly flow reduction of 33% (equivalent to operation of two units) during February and March with no flow reduction in November through January. The overall seasonal flow reduction is less than GSP proposed (13% vs. 40%) but the effective entrainment reduction will be higher (30%) because it optimizes flow reductions when densities are higher. Further, EPA proposes to maintain maximum daily flow limit in February and March at design flow (125.8 MGD), which provides flexibility for the Permittee to operate all three units for short periods, but still provides for significant reductions in entrainment during February and March. Under these conditions, the annual fish egg and larvae entrainment reduction will be 63% as compared to the conservatively-estimated fish egg and larvae entrainment reduction of 37% with wedgewire screens.

The Final Rule requires that the permitting authority establish site-specific entrainment controls that "reflect the maximum reduction in entrainment warranted after consideration of factors relevant for determining the best technology available for minimizing adverse environmental impact at each facility." 40 CFR § 125.98(f). As explained above, the proposed flow limitations will result in a 63% annual entrainment reduction for fish eggs and larvae, which is greater than the conservatively-estimated 37% entrainment reduction for these organisms with wedgewire screens as required by the Final Permit. The flow limits are expected to result in more entrainment of macrocrustaceans than wedgewire screens would; however, the 14% decrease in anticipated effectiveness for macrocrustaceans is tempered by other considerations. First, the flow limits can be met without installation of any new technology. Entrainment reductions achieved through enforceable flow limits are therefore realized immediately, whereas reductions from wedgewire screens would not be realized for several years (i.e., until the screens are installed and commissioned). Second, there is less uncertainty about the size of entrainment reductions resulting from flow limits versus entrainment reductions from the wedgewire screens. Unlike wedgewire screens, which are designed to minimize entrainment by physically excluding organisms from being entrained, flow reductions reduce the number of organisms exposed to the cooling water intake structure at all. In addition, flow reductions act to reduce entrainment equally for all life stages. EPA explains in the Fact Sheet (at 114-118), wedgewire screens are likely to be more effective at reducing entrainment mortality for fish eggs and for macrocrustaceans (as these life stages are larger and more likely to survive contact with the screens) and less effective for larval fish. Compared to eggs, proportionally more larval fish survive to the next life stage and, as a result, contribute to the local population of juvenile and adult fish. At the same time, the Final Permit's estimated 37% reduction for fish eggs and larvae

was conservative because it was based solely on physical exclusion and did not account for larval avoidance or hydraulic bypass, which are likely to occur. See Response to PSNH Comment B.B.5 and Sierra Club Comment IV.B.4. In addition, EPA (and Sierra Club) recognized that, at the time of the Final Permit, Schiller Station was not operating at design flow and additional entrainment reductions would likely be achieved based on the difference between design and actual intake flow (albeit not enforceable as flow limits under the Final Permit). See Response to Sierra Club Comment IV.B.3. In other words, EPA expected the actual entrainment reduction from the use of wedgewire screens at Schiller Station to exceed 37%, which further supports the flow limits proposed in this modification. Based on the analysis, consideration of the technology, and specific facts and circumstances of this case, EPA has determined that, on balance, the proposed flow reductions at Schiller Station are comparable to, or more effective than, wedgewire screens for minimizing entrainment of eggs and larvae. As a result, Parts I.A.2 and I.A.11 of the Draft Permit Modification would establish flow limitations in lieu of installation of wedgewire screens for entrainment.

#### 2.2 Impingement

The basis of the impingement mortality BTA standard in the Final Rule is well operated, modified traveling screens (as defined at 40 CFR § 125.92(s)) with fish-friendly returns. 40 CFR § 125.94(c)(5). *See also* 79 Fed. Reg. at 48,328-29. In addition to this technology, the Final Rule provides for six alternative BTA compliance options. Compliance with any one of the alternatives in 40 CFR § 125.94(c)(1) through (7) will meet the BTA standard for impingement mortality. 40 CFR § 125.94(c). *See also* 79 Fed. Reg. 48,321. Under 40 CFR § 122.21(r)(6), the facility identifies its approach to meet the impingement mortality standard by identifying the compliance method for the entire facility or, alternatively, for each cooling water intake structure. As explained above, the previous Schiller Station NPDES permit expired (and the NPDES application for re-issuance was submitted) prior to promulgation of these regulations. As such, the application did not identify the chosen method of compliance with the impingement mortality standard. EPA made the best technology available (BTA) determination for the 2018 Final Permit pursuant to the "ongoing permit proceeding" provision at 40 CFR § 125.98(g).

Schiller Station's Final Permit required installation and year-round operation of fine-mesh wedgewire screens with a design through-screen velocity no greater than 0.5 fps, which would have satisfied the alternative impingement mortality BTA option at 40 CFR § 125.94(c)(2). *See* Final Permit Parts I.A.11.a.2. The modification to the BTA for entrainment based on flow reductions, described above, necessitates a change to the BTA for impingement mortality in the Final Permit. Without wedgewire screens, the Station will not achieve a through-screen velocity of 0.5 fps at either CWIS.<sup>9</sup> For this reason, the Draft Permit Modification must establish a new BTA for impingement mortality at Schiller Station. However, EPA is not revisiting its determination that the existing traveling screens at Schiller Station are not adequately protective to satisfy the requirements of CWA § 316(b) and do not meet the BTA for impingement mortality at 40 CFR § 125.94(c)(5). *See* 2015 Fact Sheet pp. 101-104.

<sup>&</sup>lt;sup>9</sup> Under Schiller's current configuration, the through-screen velocity (TSV) for the CWIS serving Unit 4 is 1.38 fps at mean low water (MLW), and the TSV for the CWIS serving Units 5 and 6 is 0.68 fps at MLW. 2015 Fact Sheet at 101. In addition, the intake velocity at the tunnel entrance for the CWIS serving Unit 4 is 1.97 fps, which may result in entrapment. *Id*.

In its modification request, GSP proposes to minimize impingement mortality pursuant to 40 CFR § 125.94(c)(6), that is, based on a system of technologies, management practices, and operational measures, including, for example, the existing traveling screens, design data, operating data, and dispatch modeling that would inform permit conditions. See Letter from E. Tillotson, GSP, to E. Weitzler, EPA (June 27, 2022). The alternative requested by GSP is a system of combination of technologies and operational measures whose *demonstrated* performance is the BTA for impingement reduction at the site. 40 CFR § 122.21(r)(6) ("the owner or operator that chooses to comply via 40 CFR 125.94(c)(5) or (6) must also submit an impingement technology performance optimization study"). See also 79 Fed. Reg. at 48,347. The evaluation must include the calculated percent impingement mortality reflecting optimized operation of the system of technologies, operational measures, and best management practices and all supporting calculations. See 79 Fed. Reg. at 48,347. GSP has not yet completed the twoyear optimization study, has not proposed any permit conditions that specify optimal operation of the technology or operational measures, and has not identified which combination of technologies and operational measures it has selected to comply with the impingement mortality standard. In order to demonstrate BTA performance under 40 CFR § 125.94(c)(6), GSP plans to conduct a two-year, site-specific optimization study in which it will analyze a combination of "management practices, operational measures, and technologies (e.g., behavioral deterrents, screen rotation, pressure washes, strategically-planned outages, debris minimization techniques, pump capacity)" in addition to the biological monitoring required for the study. See Letter from E. Tillotson, GSP, to E. Weitzler, EPA (June 27, 2022) at 3. Observable and enforceable conditions would be established in a subsequent permit re-issuance based on the results of the optimization study to ensure that the technology results in IM reductions comparable to the impingement mortality performance standard at 40 CFR § 125.94(c)(7). 40 CFR § 125.94(c)(6) ("the Director's decision will be informed by comparing the impingement mortality performance data under 40 CFR 122.21(r)(6)(ii)(D) to the impingement mortality performance standard that would otherwise apply under paragraph (c)(7) of this section.").

EPA expects that GSP will include the flow limitations as part of the demonstration required under 40 CFR § 125.94(c)(6). This alternative recognizes use of technologies that reduce the number of organisms impinged, thereby reducing impingement mortality (i.e., an organism that is never impinged cannot be killed by impingement). *See* 79 Fed. Reg. at 48,347. A reduction in impingement (e.g., resulting from limitations on flow) is treated as equivalent to a reduction in impingement mortality and can be considered in determining whether chosen technologies and operational measures represent BTA. *See id*. For example, an intake operated at less than 24 percent of its design flow on an annual basis could be considered to achieve a level of performance better than or equivalent to the impingement mortality performance standard at 40 CFR § 125.94(c)(7) and would be considered compliant with impingement requirements.<sup>10</sup> *See* 

<sup>&</sup>lt;sup>10</sup> 40 CFR § 125.94(c)(7) provides an alternative for Permittees to meet a 12-month impingement mortality performance standard for all life stages of fish and shellfish of not more than 24 percent mortality, including latent mortality, for all non-fragile species collected or retained in a sieve with a maximum opening dimension of 0.56 inches and kept for a holding period of 18 to 96 hours. The alternative for complying with the impingement mortality performance standard (40 CFR § 125.94(c)(7)) requires the owner or operator to demonstrate compliance through biological monitoring, which is the same monitoring that would be performed for the impingement technology optimization study required for the "systems of technologies" compliance alternative at 40 CFR § 125.94(c)(6).

79 Fed. Reg. at 48,347. Because the Final Rule provides flexibility for the facility to demonstrate compliance using a single technology for the whole facility or an intake-specific technology, permit conditions that limit operation of Unit 4 (which is served by its own individual cooling water intake structure) at less than 24 percent of its annual design capacity (as flow limits) could be the BTA for impingement mortality at that intake. GSP requested flow limits that do not specify which units would be operated during which months and, as such, do not indicate that Unit 4 would operate at or less than 24 percent of its annual design capacity. As proposed, if GSP were to operate Unit 4 at the maximum intake flow only from November through January, the annual capacity would be 25% of design. Alternatively, 40 CFR § 125.94(c)(12) provides an option for Permittees that operate a cooling water intake structure used for one or more existing electric generating units with an annual average capacity utilization rate of less than 8 percent averaged over a 24-month block contiguous period (i.e., "low capacity utilization power generating units"). Pursuant to this provision, a permittee may request, and a permitting authority may establish, requirements for impingement mortality for that cooling water intake structure that are less stringent than the standards in paragraphs (c)(1) through (7). To date, GSP has not requested that EPA consider any such requirements but has indicated that it is evaluating whether the low capacity utilization provision is a "viable alternative" for Schiller Station. If EPA established any less stringent requirements under paragraph (c)(12), the Permittee would demonstrate compliance, in part by reporting the 24-month contiguous capacity utilization rate on its monthly DMR.

The compliance option described above (flow limitation achieving no greater than 24 percent of annual capacity) would likely not be available for Unit 5 or 6. Units 5 and 6 are served by a single intake structure and, while the proposed flow limitations will reduce impingement, both units are not likely to operate at such low capacity such that the reduction alone will satisfy the impingement standard. EPA expects that additional optimization measures (e.g., rotation speed, scheduled outages, pressure washes, pump capacity) will be necessary to meet the impingement BTA alternative at 40 CFR § 125.94(c)(6). In addition to possible optimization measures, EPA encourages GSP to consider whether this intake could be configured to achieve an actual through-screen velocity of 0.5 fps or less. 40 CFR § 125.94(c)(3). This alternative is similar to the BTA selected in the Final Permit (based on the design flow of wedgewire screens) but considers the maximum operating intake velocity. Units 5 and 6 operate from the same cooling water intake and the through-screen velocity is relatively low, albeit not quite low enough to satisfy the BTA option of 0.5 fps. The current operation includes two traveling screens for each unit. However, if only one unit were operating (e.g., Unit 5) but the flow was diverted through three screens for the unit, EPA expects that the actual through-screen velocity would be no greater than 0.5 fps. EPA has not proposed permit conditions based on this alternative because it is unclear whether the current system can operate in this manner, but EPA encourages GSP to consider this option as it would eliminate the need for any biological monitoring during the period when only one unit operates (April through October).

As explained above, GSP has not yet completed the required evaluation nor has it provided a demonstration of the expected impingement reductions consistent with optimization of a system of technologies. Permit conditions consistent with the demonstrated impingement mortality BTA would be established based on a performance optimization study including two years of biological monitoring in accordance with 40 CFR § 122.21(r)(6)(ii). See GSP Modification

Request p. 3. Under the Final Rule, the owner or operator of an existing facility must meet the impingement mortality requirements *as soon as practicable* after issuance of a final permit establishing the entrainment requirements under § 125.94(d). 40 CFR § 125.94(b)(1). *See also* 79 Fed. Reg. at 48,322, 48,327. All NPDES permits after the effective date of the Final Rule must include conditions meeting the BTA standards. 40 CFR § 122.44(b)(3). EPA asked GSP to clarify how it planned to achieve compliance with § 125.94(c)(6), including how it would account for flow reductions and whether the traveling screens would operate with sufficient frequency to demonstrate optimization. *See* Meeting Notes from May 13, 2021; Letter from E. Tillotson, GSP, to E. Weitzler, EPA (June 27, 2022). GSP responded that its planned two-year, site-specific optimization study will analyze a combination of "management practices, operational measures, and technologies (e.g., behavioral deterrents, screen rotation, pressure washes, strategically-planned outages, debris minimization techniques, pump capacity)" in addition to the biological monitoring required for the study. *See id. at* 3. GSP further stated that "the final approach [for impingement] is developed after the permit is issued pursuant to the optimization study." *Id*.

EPA considered that allowing GSP an additional two years to establish a BTA for impingement may create tension with the requirement to achieve compliance "as soon as practicable" under the Final Rule. 40 CFR § 125.94(b)(1). On the one hand, GSP's proposed methods for satisfying the BTA for entrainment and for impingement do not emphasize the installation of new technology (i.e., not already employed at Schiller Station).<sup>11</sup> In other words, GSP has had time to evaluate the existing technology and potential operational measures to demonstrate how a combination of systems will minimize impingement mortality. Further, the 2018 Final Permit will expire on June 30, 2023, and the application for re-issuance of the permit must be submitted no later than January 1, 2023. The application must comply with the requirements at 40 CFR § 122.21(r)(1)(ii), which includes information under § 122.21(r)(6) ("Chosen Method(s) of Compliance with Impingement Mortality Standard"). Applicants choosing to comply with the IM BTA standards under 125.94(c)(5) or (6) should have already completed the two-year impingement technology performance optimization study at the time the application is submitted. See 40 CFR § 122.21(r)(6).<sup>12</sup> As GSP's application for re-issuance of the Schiller Station NPDES permit is due less than 2 years from now, the Permittee should be prepared to submit the required information for its chosen method of impingement mortality compliance. On the other hand, Schiller Station's impingement mortality BTA is affected by the site-specific entrainment BTA, which is wedgewire screens in the 2018 Final Permit. GSP must weigh the benefits of allocating considerable resources to a long-term study for impingement when the outcome of the requested modification is uncertain. In addition, Schiller Station has not operated since June 1, 2020, which further complicates the timeline for conducting the required study (though notably has resulted in zero impingement during this period). See Letter from E. Tillotson, GSP, to E. Weitzler, EPA (June 27, 2022). Operating the traveling screens during this period simply to conduct a study may introduce impingement mortality that would otherwise not occur-an

<sup>&</sup>lt;sup>11</sup> Although the flow limits are new in the sense that they have not yet been employed at Schiller Station, their effects on minimizing impingement can be estimated beforehand.

<sup>&</sup>lt;sup>12</sup> The application requirements at 40 CFR § 122.21(r)(6)(ii) describe how to account for reductions in impingement and impingement mortality resulting from flow reductions, seasonal operations, and unit closure. *See* 79 Fed. Reg. at 48,374 ("If the system of technologies includes credit for reductions in the rate of impingement by the system, the impingement technology performance optimization study required at § 122.21(r)(6)(ii) will provide an estimate of those reductions including relevant supporting documentation.").

outcome at odds with the intent of the Rule. GSP's June 27, 2022, letter states that Schiller Station is expected to begin operating again on December 2, 2022. In this case, additional time to conduct the required optimization study is warranted because the Facility has not been operating and EPA's proposal in the Draft Permit Modification to allow GSP to meet the entrainment BTA via flow limits impacts compliance with the impingement mortality BTA in the Final Permit. The Draft Modified Permit requires the Permittee to complete the impingement technology optimization study no later than two years from the effective date of the Modified Permit. During the course of the study, EPA expects that GSP will evaluate the interim results and make changes to the technology or operating conditions as needed to identify the most appropriate set of operational characteristics to ensure long-term success.<sup>13</sup> The results of this study will inform future permit requirements for impingement based on a system of technologies, management practices, and operational measures in accordance with CFR § 125.94(c)(6).

Because Schiller Station has not been operating in recent years, its cooling water intake structures have not caused unacceptable levels of adverse environmental impact during that time. However, with operations expected to begin in December 2022, EPA wishes to minimize impacts as much as reasonably possible during the additional two years required for the optimization study. The Final Rule allows EPA to set interim BTA requirements. 40 CFR § 125.94(h). See also Final Rule RTC p. 259, 262. EPA is proposing interim BTA limitations for impingement mortality at Schiller Station. EPA is proposing an interim 12-month performance standard for all non-fragile life stages of fish and shellfish of no more than 30 percent mortality. The performance standard is calculated monthly as the total number of fish and shellfish killed by impingement over the past 12 months (based on biological monitoring conducted for the optimization study) divided by the total number of fish and shellfish that would have been impinged assuming the Station was operating at design capacity over the past 12 months (i.e., observed impingement rate x total design flow). This calculation accounts for the reduction in impingement (and therefore, impingement mortality) at any traveling screen that serves a generating unit that does not operate. This value is slightly higher than the performance standard of 24 percent that would comply with the Final Rule at 40 CFR § 125.94(c)(7) but ensures that impingement mortality is controlled in the interim period while GSP completes the optimization study and before any appropriate measures it identifies can be established as enforceable permit conditions. EPA selected 30 percent based on evaluation of impingement data from 2006-2007 and the proposed flow limitations in the Draft Modification. If the Permittee operates Unit 5 at full capacity (41.8 MGD) year-round, Unit 6 at full capacity from November through May, and Unit 4 at full capacity from November through January, the 12-month annual average impingement mortality based on 2006-7 data would be 35%. This value assumes 100% mortality of impinged fish (i.e., no improvements to the existing traveling screen operation since the 2006-7 study) and 100% capacity of all three units from November through January. In addition, in accordance with the Final Rule, the interim impingement mortality standard is based only on non-fragile species. Given these conservative assumptions, EPA believes that the Facility can

<sup>&</sup>lt;sup>13</sup> In both the 2015 Fact Sheet (p. 120) and Response to Comment (p. 77) EPA noted the potential loss of fragile species, particularly rainbow smelt. The proposed flow reductions will reduce impingement mortality for fragile species in February through October by preventing impingement of organisms in the first place. However, EPA encourages GSP to explore operational conditions and technologies in addition to flow reductions that could optimize protection of both non-fragile and fragile species, particularly at Unit 4 (which has the highest impingement during the 2006-7 biological monitoring) and during winter when flows are higher.

achieve a higher reduction in impingement mortality and proposes a 12-month performance standard of 30%.<sup>14</sup> In addition, EPA proposes that the Permittee achieve compliance with the interim standard within 3 months of the effective date of the permit, which allows a period of time for the Permittee to operate the traveling screens and implement minor improvements (e.g., rotation speed and frequency, pressure wash settings, intake velocity) to reduce mortality of non-fragile species. The Draft Modified Permit establishes an interim BTA for impingement mortality requiring the Permittee to achieve a 12-month impingement mortality performance standard, including latent mortality, of no more than 30% for all non-fragile species, effective within 3 months of the effective date of the Modified Permit.

## 3.0 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority and imposes requirements on Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (listed species) and habitat of such species that has been designated as critical (a "critical habitat").

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure that any action it authorizes, funds or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine and anadromous species.

The Federal action being considered in this case is EPA's proposed NPDES permit modification for Schiller Station. The Draft Permit is intended to modify the 2018 Permit in governing the Facility. As the federal agency charged with authorizing cooling water withdrawals by, and discharges from, this Facility, EPA determines potential impacts to federally listed species, and initiates consultation, when required under Section 7(a)(2) of the ESA.

EPA reviewed the federal endangered or threatened species of fish, wildlife, and plants in the expected action area for the issuance of the Final Permit. *See* 2015 Fact Sheet pp. 174-175, Attachment E. The Federal action being considered in this case is limited to EPA's proposed modification to the Final NPDES permit for Schiller Station. Atlantic sturgeon adults and subadults, shortnose sturgeon adults, and critical habitat for Atlantic sturgeon, all of which fall under the jurisdiction of NOAA Fisheries, occur in the vicinity of the Facility's cooling water intake structures and discharges.<sup>15</sup> NOAA fisheries expects that Atlantic sturgeon adults and subadults use the Piscataqua River for foraging year-round and for resting during spring and fall migrations, although tracking data indicate limited use of this area. Similarly, NOAA Fisheries

<sup>&</sup>lt;sup>14</sup> The 12-month impingement mortality value should account both for organisms that were impinged and survived and organisms that were not impinged as a result of flow reductions. The Permittee should calculate the total number of fish killed divided by the total number of fish that would have been impinged at design flow over the course of 12 months. The number of fish that would have been impinged can be calculated using the actual monthly impingement rate times the monthly design flow of the pumps.

<sup>&</sup>lt;sup>15</sup> See <u>https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html]</u>

expects that shortnose sturgeon could be present from early spring to late fall. The protected species and habitat may be influenced by the withdrawals and discharges at the Facility. NOAA Fisheries designated critical habitat for the Gulf of Maine, New York Bight, Chesapeake Bay, and South Atlantic Distinct Population Segments of Atlantic Sturgeon, which became effective on September 18, 2017. *See* 82 Fed. Reg. 39,160 (August 17, 2017). The designated critical habitat includes the Piscataqua River from its confluence with the Salmon Falls and Cocheco rivers downstream to where the mainstem river discharges at its mouth into the Atlantic Ocean, <sup>16</sup> which includes the action area. *See* 50 CFR § 226.225(d)(4).

EPA previously determined, and NOAA Fisheries concurred, that the conditions and limitations in the NPDES Permit adequately protect federally-listed protected species and critical habitat. The proposed modification to the CWIS requirements in the Final Permit will not measurably alter the impact to federally-listed species or critical habitat. EPA explained in Section 2.0 of this Statement of Basis that the reductions in entrainment will be equivalent to, or greater than, the anticipated reductions from wedgewire screens. In addition, the entrainment reductions under the modified permit will be achieved when the modification becomes effective because no additional technology is required. The proposed impingement mortality BTA meets one of the compliance alternatives at 40 CFR § 125.94(c) and addressed in the Final Rule. As such, EPA maintains that the proposed modification will not change EPA's determination and NOAA Fisheries' concurrence that the Final Permit may affect, but will not adversely affect, federally-listed protected species or critical habitat. EPA notified USFWS and NOAA Fisheries Protected Resources Division that the Draft Permit Modification and Statement of Basis were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. Initiation of formal consultation is not required, but can be requested by EPA or by the Services where discretionary Federal involvement or control over the action has been retained or is authorized by law and if: 1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the analysis; 2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this analysis; 3) a new species is listed or critical habitat designated that may be affected by the identified action; or 4) there is any incidental taking of a listed species.

## 4.0 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (*see* 16 U.S.C. § 1801 *et seq.*, 1998), EPA is required to consult with the NOAA Fisheries if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." *See* 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH. 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical

<sup>&</sup>lt;sup>16</sup> Critical habitat boundaries also include the waters of the Cocheco River from its confluence with the Piscataqua River and upstream to the Cocheco Falls Dam and waters of the Salmon Falls River from its confluence with the Piscataqua River and upstream to the Route 4 Dam. These waters are outside of the action area.

disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitatwide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

The Federal action being considered in this case is limited to EPA's proposed modification to the Final NPDES permit for Schiller Station. EPA previously determined that the conditions and limitations in the NPDES Permit adequately protect all aquatic life, including those with designated EFH in the receiving water and that further mitigation is not warranted. EPA provided an assessment to NOAA Fisheries Habitat Division. See 2015 Fact Sheet pp. 173-174, Attachment D. The proposed modification to the CWIS requirements in the Final Permit will not measurably alter the impact on aquatic life, including those with designated EFH in the receiving water. EPA explained in Section 2.0 of this Statement of Basis that the reductions in entrainment will be equivalent to, or greater than, the anticipated reductions from wedgewire screens. In addition, the entrainment reductions under the modified permit will be achieved when the modification becomes effective because no additional technology is required. The proposed impingement mortality BTA meets one of the compliance alternatives at 40 CFR § 125.94(c) and addressed in the Final Rule. As such, EPA maintains that the proposed modification does not alter the determination under the Final Permit that this action requires no further mitigation. EPA notified NOAA Fisheries Habitat and Ecosystem Services Division that the Draft Permit Modification and Statement of Basis were available for review and provided a link to the EPA NPDES Permit website to allow direct access to the documents. Should adverse impacts to EFH be detected as a result of this permit action, or if new information is received that changes the basis for EPA's conclusions, NOAA Fisheries Habitat Division will be contacted and an EFH consultation will be re-initiated.

## 5.0 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), 16 U.S.C. 1451 et seq., and its implementing regulations (15 CFR Part 930) require a determination that any federally licensed or permitted activity affecting the coastal zone with an approved Coastal Zone Management Program (CZMP) is consistent with the enforceable policies of the CZMP. EPA is prohibited from issuing a NPDES permit for any activity affecting any land or water use or natural resource of the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification or the Secretary of Commerce overrides the State's nonconcurrence.

In New Hampshire, the New Hampshire Coastal Program (NHCP) – 222 International Drive, Suite 175, Portsmouth, NH 03801 – is responsible for issuing federal consistency decisions. The Permittee submitted the required federal consistency certification and necessary data and information to the NHCP for the issuance of the Final Permit. EPA explained in Section 2.0 of this Statement of Basis that the reductions in entrainment will be equivalent to, or greater than, the anticipated reductions from wedgewire screens. In addition, the entrainment reductions under the modified BTA will be achieved immediately because no additional technology is required. The proposed impingement mortality BTA meets one of the compliance alternatives at 40 CFR § 125.94(c) and addressed in the Final Rule. As such, EPA expects the NHCP will find the discharge consistent with the CZMA and its enforceable policies.

## 6.0 State Certification

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations contained in the Draft Permit Modification are stringent enough to assure that the discharge will not cause the receiving water to violate the State WQSs or it is deemed that the state has waived its right to certify. Regulations governing state certification are set forth in 40 C.F.R. § 124.53 and § 124.55. EPA has requested permit certification by the State pursuant to 40 C.F.R. § 124.53 and expects that the Draft Permit Modification will be certified.

If the State believes that any conditions more stringent than those contained in the Draft Permit Modification are necessary to meet the requirements of either the CWA §§ 208(e), 301, 302, 303, 306 and 307, and with appropriate requirements of State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is that the sludge conditions/requirements implementing § 405(d) of the CWA are not subject to the § 401 State Certification requirements. Reviews and appeals of limitations and conditions attributable to State Certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 C.F.R. § 124.

In addition, the State should provide a statement of the extent to which any condition of the Draft Permit Modification can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition.

It should be noted that under CWA § 401, EPA's duty to defer to considerations of state law is intended to prevent EPA from relaxing any requirements, limitations or conditions imposed by state law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 C.F.R. § 124.55(c). In such an instance, the regulation provides that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." *Id.* EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4(d) and 40 C.F.R. § 122.44(d).

# 7.0 Administrative Record, Public Comment Period, Hearing Requests, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the Draft Permit Modification is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to:

Danielle Gaito Water Division 5 Post Office Square - Suite 100 - Mailcode 06-4 Boston, MA 02109-3912 Email: <u>gaito.danielle@epa.gov</u> Telephone: (617) 918-1297

Prior to the close of the public comment period, any person, may submit a written request to EPA for a public hearing to consider the Draft Permit Modification. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held if the criteria stated in 40 CFR § 124.12 are satisfied. In reaching a final decision on the Draft Permit Modification, EPA will respond to all significant comments in a Response to Comments document attached to the Final Permit Modification and make these responses available to the public at EPA's Boston office and on EPA's website.

Following the close of the comment period, and after any public hearings, if such hearings are held, EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who submitted written comments or requested notice. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 CFR § 124.19.

Following U.S. Centers for Disease Control and Prevention (CDC) and U.S. Office of Personnel Management (OPM) guidance and specific state guidelines impacting our regional offices, EPA's workforce has been directed to telework to help prevent transmission of the coronavirus. While in this workforce telework status, there are practical limitations on the ability of Agency personnel to allow the public to review the administrative record in person at the EPA Boston office. However, any documents relating to this draft can be requested from the individual listed above.

The administrative record on which this Draft Permit Modification is based may be accessed at EPA's Boston office by appointment, Monday through Friday, excluding holidays, from Danielle Gaito, U.S. EPA, Water Division, Stormwater and Construction Permits Section, 5 Post Office Square, Suite 100 (06-4), Boston, Massachusetts 02109-3912; or via email to: gaito.danielle@epa.gov.

Date October 2022

Ken Moraff, Director Water Division U.S. Environmental Protection Agency

#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY-REGION 1 (EPA) WATER DIVISION 5 POST OFFICE SQUARE BOSTON, MASSACHUSETTS 02109

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES) WATER DIVISION P.O. BOX 95 CONCORD, NEW HAMPSHIRE 03302-0095

JOINT EPA PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT MODIFICATION TO DISCHARGE INTO WATERS OF THE UNITED STATES UNDER SECTION 402 OF THE CLEAN WATER ACT (CWA), AS AMENDED; NHDES PUBLIC NOTICE OF EPA REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT; AND NHDES PUBLIC NOTICE OF ISSUANCE OF A STATE SURFACE WATER PERMIT UNDER NH RSA 485-A:13, I(a).

PUBLIC NOTICE PERIOD: October 04, 2022 to November 02, 2022

#### PERMIT NUMBER: NH0001473

#### NAME AND MAILING ADDRESS OF APPLICANT:

Granite Shore Power Schiller LLC 400 Gosling Road Portsmouth, New Hampshire 03801

#### NAME AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

Schiller Station 400 Gosling Road Portsmouth, New Hampshire 03801

#### **RECEIVING WATER:** Piscataqua River

#### PREPRATION OF THE DRAFT PERMIT MODIFICATION:

EPA is issuing for public notice and comment the Draft NPDES Permit Modification for Granite Shore Power Schiller LLC. The limits and permit conditions imposed have been drafted pursuant to, and assure compliance with, the CWA, including EPA-approved State Surface Water Quality Standards at Env-Wq 1700 <u>et seq</u>. NHDES cooperated with EPA in the development of the Draft NPDES Permit Modification. NHDES plans to adopt EPA's permit under Chapter 485-A of the New Hampshire Statutes (NH RSA 485-A:13, I(a)). The Draft Permit Modification contains requirements applicable to the facility's cooling water intake structures under section 316(b) of the CWA, which are fully explained in the Statement of Basis. In addition, EPA has requested that NHDES grant or deny certification of this Draft Permit Modification pursuant to Section 401 of the CWA and implementing regulations. Under federal regulations governing the NPDES program at 40 Code of Federal Regulations (CFR) § 124.53(e), state certification shall contain conditions that are necessary to assure compliance with the applicable provisions of CWA sections 208(e), 301, 302, 303, 306, and 307 and with appropriate requirements of State law, including any conditions more stringent than those in the Draft Permit Modification that NHDES finds necessary to meet these requirements. In addition, NHDES may provide a statement of the extent to which each condition of the Draft Permit Modification be made less stringent without violating the requirements of State law.

## INFORMATION ABOUT THE DRAFT PERMIT MODIFICATION:

The Draft Permit Modification and explanatory Statement of Basis may be obtained at no cost at <u>https://www.epa.gov/npdes-permits/new-hampshire-draft-individual-npdes-permits</u> or by contacting:

Danielle Gaito U.S. Environmental Protection Agency – Region 1 5 Post Office Square, Suite 100 (06-1) Boston, MA 02109-3912 Telephone: (617) 918-1297 gaito.danielle@epa.gov

The public can request to review the administrative record in person at the EPA Boston office from the EPA contact above. Electronically available documents that are part of the administrative record can be requested from the EPA contact above.

#### PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of the Draft Permit Modification is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by November 02, 2022, which is the close of the public comment period. Comments, including those pertaining to EPA's request for CWA § 401 certification and/or NHDES proposed issuance of a State Surface Water Permit, should be submitted to the EPA contact at the address or email address listed above. Comments submitted in hard copy form must also be emailed to the EPA contact above. Upon the close of the public comment period, EPA will make all comments available to NHDES.

Any person, prior to the close of the public comment period, may submit a request in writing to EPA and NHDES for a public hearing on the Draft Permit Modification under 40 CFR § 124.10, CWA § 401 certification and/or NHDES proposed issuance of a State Surface Water Permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice if the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the

Draft Permit Modification, the Regional Administrator will respond to all significant comments and make the responses available to the public.

FINAL PERMIT DECISION:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and notify the applicant and each person who has submitted written comments or requested notice.

KEN MORAFF, DIRECTOR WATER DIVISION UNITED STATES ENVIRONMENTAL PROTECTION AGENCY – REGION I RENE PELLETIER, DIRECTOR WATER DIVISION NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES