

Merrimack Station NPDES Permit Meeting Notes

Granite Shore Power (GSP) and EPA, Region 1

September 20, 2018, 10 AM, Mount Greylock Conference Room

EPA Regional Office at 5 Post Office Square, Boston, MA

Meeting began with introductions.

Representatives of Granite Shore Power (GSP) were: Elizabeth Tillottson, Environmental Manager, GSP (previously in the same post with Merrimack Station's (Merrimack) prior owner, Public Service of New Hampshire); Jim Andrews, President of GSP; and Tom DeLawrence and Stephen Gidere of GSP's outside counsel, Balch & Bingham.

EPA staff attending were: from OEP: Damien Houlihan, Thelma Murphy, Sharon DeMeo, Danielle Gaito, Eric Nelson and John Moskal; from ORC: Mark Stein and Michael Curley.

GSP Background Information:

GSP (primarily Jim Andrews) verbally presented the following background information:

On Jan. 10, 2018, GSP closed on the purchase of Merrimack (and Schiller and Newington). Merrimack no longer operates as a baseload plant and is not expected to do so in the future. The plant does, however, continue to fill reliability obligations for ISO. Merrimack is now a "peaking facility" that only runs when needed by the grid due to high demand, sometimes coupled with supply limitations.

Merrimack essentially never runs in the shoulder seasons (spring and fall). It now runs primarily in the winter when home heating needs swallow up natural gas supply, leaving less for producing electricity despite high demand. Merrimack also runs on occasion in the summer –less frequently than in the winter – when necessary to meet periods of very high demand (e.g., during extreme heat waves).

While Merrimack only runs during these winter/summer conditions, the facility bids into the system, and is paid, on an annual basis to provide its available capacity to help ensure system reliability in the event of unpredictable shortfalls in generation. It is paid for providing system reliability even if it is not actually called upon to run. If it is then called upon to run and it is unable to do so, however, then it will likely have to pay significant penalties.

EPA Recounts the Status of the Merrimack NPDES Permit & Purpose of the Meeting:

EPA reiterates the current status of the new Merrimack permit and recounts its history:

The Merrimack draft permit was issued in September 2011; A second draft permit issued in 2014, specifically to address changes in the BAT determination for flue gas desulfurization (FGD), based on knowledge of newly installed treatment system.

New regulations and other information prompted reopening comment period 2017. Part of the other information is that the plant operates at a much lower capacity (i.e., as a peaking facility)

The reason for this meeting is to brainstorm ideas and discuss options for how to develop a permit with enforceable, protective thermal limits while also allowing the facility to operate when it wants to and recognizing that it is no longer a baseload facility.

Effluent Limits Related to the 2015 Steam-Electric Effluent Limitation Guidelines:

ELG for FGD and bottom ash transport water are still in effect but are being “reconsidered” by the Administration. The ELG allows for FGD limits based on a voluntary incentives program (VIP), which includes more stringent limits but compliance not due until 2023.

PSNH had opted into the VIP but questioned the 2023 deadline based on Rule reconsideration.

GSP is still running the VCE and has not hauled any wastewater since becoming the new owners of Merrimack Station.

GSP describes the difficulties of running the VCE with the station running in peaking mode and questions what permit limits might look like if they were to continue with VIP or if they were to opt out of the VIP.

GSP questions if less stringent limits are ultimately finalized for the reconsideration, could the permit be modified to incorporate less stringent limits. EPA believes that would be the case but will confirm. If limits were based on BPJ, on the other hand, the permit could not be modified.

Bottom ash transport water limits are also under reconsideration. Initially, compliance was due between 2018 – 2023. PSNH proposed that they could comply by 2022.

GSP believes that the solid crystalline coal waste generated by their boiler units is different than typical bottom ash and that they should fall under the “fundamentally different factors” provision. EPA made clear that the preamble to Rule included this type of bottom ash waste in description.

GSP expects to see a permit with TSS and O&G limits and that a later modification would include new limits based on the reconsidered Rule. EPA did not confirm that could be the case.

Thermal Issues (discussion includes presentation power point slides):

EPA presents data demonstrating that the level of the facility’s operations directly correlates with ambient water temperatures. Thus, reduced operations correlate with reduced water temperatures in the river, and when the facility operates at full capacity, it raises river temperatures above critical acute-impact levels for sensitive life stages of fish species of concern.

With reduced operations at the plant, data from 2013-2016 shows that the heat output during the shoulder months does not approach the acute or chronic limits at any of the sampling locations. However, more monitoring data is needed to confirm.

The winter is a bit trickier: Issues include cold shock for fish that find refuge in the heated discharge prior to powering down and that some species which might be normally killed off during the winter could potentially stay.

June through September data from 2013-2016 shows that with both Units operating, the heat output results in water temperatures at or above chronic and sometimes acute water quality standards for the most sensitive species— especially at S0, which is the discharge canal sampling

location. If operating only Unit 1, temperature data does not appear to reach these water quality-based limits.

Further, the species and life stages that are of most concern will be in the top 3 feet of the water column because the larvae are photopositive. This is relevant because the thermal plume is buoyant.

EPA requests the 15-minute interval temperature data to perform higher quality analyses. In the past, EPA received data consisting only of minimum averages and maximums. GSP agrees to send the requested data in an Excel file. GSP agrees to send the following information for 2013 through 2016:

- 15-minute interval temperature data for all three sampling locations;
- Megawatt hour (MWh) output data;
- BTU's as waste heat to the river (for heat balance equations);
- Hours of operations (can back into these values w/clean air markets (CEM) data); and
- Condenser outlet temperatures (i.e., temperatures entering discharge canal).

EPA asks if the use of a diffuser had been considered although the river might be too shallow for that technology. GSP indicates that no formal studies have been initiated.

GSP inquires if there is another location to take temperature monitoring. EPA has considered thermistors laterally across the river to evaluate if the thermal plume is bank to bank but no decisions have been made in this regard.

EPA explains that merely one year can make a difference whether a species can survive. For example, American shad – EPA does not want to set them up for mortality.

Permit options under consideration, depending on more thorough analysis, include:

- Limits based on WQS for shoulder months
- Limits based on a variance for short periods of time during winter months
- Limits based on only Unit 1 operating for summer months.

Possible permit requirements include: temperature limits at certain locations within the river; effluent temperature limits; BTU thermal limits; or power output limits)

GSP does prefer to run Unit 1 over Unit 2 and asks about averaging periods. EPA did consider averaging periods but not necessarily for acute-based limits.

GSP asks if it would be possible to have tiered limits and that a more refined discussion is needed since heat input to the river may be considered differently if for example, there is a cool summer and high river flows.

GSP indicates that it does not operate frequently in the summer and does not expect to operate frequently, but that it wants a permit that would not restrict its ability to operate in the summer so that it can operate whenever called upon. The company indicates that any changes that would

impact its availability to generate electricity when called upon does not comport with its business plan. Merrimack Station could be D-rated because the permit wouldn't be palatable.

Therefore, any permit limit that would reduce its availability would, from the company's perspective, also need to have an exception allowing it to run whenever called. GSP's attorneys suggest that they are aware of examples of such permit conditions allowing for "emergency exceptions" to otherwise applicable effluent limits. One possible example is language in the Oyster Creek permit that allows for reliability issues. EPA asks them to provide examples for consideration.

Normandeau data shows that the change in operations (reduced capacity) possibly show changes in fish populations. Although, Asian clams might still have a thermal refuge at the discharge.

The permit could conceivably have a weekly average temperature limit and monitoring to ensure that its protective. One issue however, is ice scouring in the winter. Therefore, limit may need to be for the discharge.

EPA asks if helper cooling towers might be possible to help control the thermal discharge.

Cooling Water Intake Structure Discussion:

GSP is amenable to upgrades to existing fish return to reduce impingement and entrainment but no longer interested in installing wedgewire screens for the intake structure, which PSNH had earlier proposed.

The cooling water intake pumps do not run when the station is not producing electricity.

EPA inquires if variable frequency drives are possible and asks that flow data for the intake be included as part of the data requested from the company during this meeting.

GSP and EPA agree to exchange additional information and to meet again in approximately one month.