

**Dominion Energy Brayton Point, LLC  
Prevention of Significant Deterioration Permit  
Response to Comments on  
Draft Permit Number 052-120-MA13**

On January 28, 2009, EPA New England published in the *Fall River Herald News* a notice for public review and comment of a proposed Prevention of Significant Deterioration (PSD) for the Dominion Brayton Point, LLC (Dominion), facility in Somerset, Massachusetts. In addition, on March 2, 2009, EPA New England held a public hearing on the proposed PSD permit at the Somerset Public Library in Somerset, MA.

EPA has prepared this document known as the “response to comments” (RTC) that briefly describes and addresses the significant issues raised during the comment period and what provisions, if any, of the draft permit have been changed and the reasons for the changes.

As described in General Issue #1, below, EPA will issue two final permits to Dominion: one final permit that approves the construction and operation of the two natural draft cooling water towers as part of a new closed-cycle cooling system; and a separate permit that approves the installation and operation of a new dry scrubber and fabric filter (DS/FF) emission control system on the facility’s Unit #3 boiler. A RTC will accompany each of Brayton Point’s final permits. This RTC document addresses those comments on the draft permit that pertain to the natural draft cooling towers. EPA will mail the RTC and the final permit approving the natural draft cooling towers to everyone who commented on the draft permit or who requested a copy. EPA will complete the RTC and final permit for the DS/FF emission control system for the Unit #3 boiler at a later date.

**General Issues:**

**Issue 1.** On August 28, 2008, Dominion submitted a PSD permit application that proposed several changes to the existing plant. These changes included the construction and operation of two natural draft cooling water towers as part of a new closed-cycle cooling system and the installation of a new dry scrubber and fabric filter (DS/FF) emission control system on the facility’s Unit #3 boiler.

On January 28, 2009, EPA provided for public review and comment a single draft PSD permit that approved all the changes Dominion requested in its August 28, 2008 PSD application and January 9, 2009 supplemental application. EPA’s Fact Sheet explained the legal and factual basis for EPA’s draft permit and noted that the applications described two separate and severable projects: 1) the construction and operation of two natural draft cooling water towers as part of a new closed cycle cooling system; and 2) the installation of DS/FF emission control systems on the facility’s Unit #3 boiler.

Considering that the applications described two separate projects, EPA has reconsidered issuing a single PSD permit and instead will issue two final permits for the two separate projects, one final permit for the natural draft cooling towers and one final permit for the Unit #3 boiler DS/FF emission control systems. EPA believes two separate permits will expedite the final issuance for both permits.

EPA notes that each project will result in a significant actual emission increase of particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and 2.5 microns in diameter (PM<sub>2.5</sub>). Therefore, each project is independently subject to the PSD program for these pollutants. In addition, each project is being proposed to address separate underlying requirements: the cooling water towers are being installed to meet the requirements of a federal National Pollutant Discharge Elimination System (NPDES) water permit; and the DS/FF for Unit #3 is being installed to meet requirements of a state regulation for the control of sulfur dioxide and mercury for existing coal-fired utilities. In addition, as the comments below indicate, the two projects potentially raise distinct issues that can be more efficiently addressed by focusing individually and separately on each project.

### **Revisions:**

EPA will issue two separate final permits to Dominion: one permit for the cooling towers, **Final Permit Number 052-120-MA14**, and a second permit that will apply to the DS/FF controls for Unit #3, **Final Permit Number 052-120-MA15**. Each permit will contain the emission limits, monitoring, recordkeeping and reporting provisions for the applicable emission units. All provisions for each permit were originally noticed in the January 28, 2009 draft permit. The separation of the two permits will not result in any changes to any provision as presented in the January 28, 2009 draft permit (although there will be some changes to the final permits in response to other comments, as described below).

**Issue #2.** The signature page of the draft PSD permits included language that stated that the permit shall be effective immediately upon signature if no comments requesting a change in the permit are received. Since EPA did receive comments on the draft permit language regarding both projects, EPA will revise this language to read as follows to avoid any confusion about the effective date of the permits.

“This permit shall be effective 30 days after the date of signature and shall remain in effect until it is surrendered to EPA.”

### **Issue #3.**

EPA corrected several typographical errors in the final PSD permits and clarified a permit provision as follows:

**Final Permit Number 052-120-MA14, Condition IV.2:** Include the phrase “After either Cooling Tower #1 or #2 commences operation,” at the beginning of the condition to clarify when Dominion shall begin to submit semi-annual reports.

None of these clarifications change the effect or intent of the provisions included in the draft permit.

### Written Comments

#### **Letter from Dominion Energy dated February 27, 2009**

#### **Subject: Dominion Energy Brayton Point LLC Comments on draft Prevention of Significant Deterioration Permit**

**Comment 3 from Dominion's February 27, 2009 letter:** Dominion believes the Section II, Operational Conditions, Items 3, 4, 5, and 6 are redundant and should be removed from the permit. The conditions limit the circulation water flow in each tower to a maximum limit of 400,000 gallons per minute and the maximum total dissolved solids in the circulating water to 52,250 parts per million. Dominion believes these limits are redundant and overly restrictive since the permit also limits total PM emission from each tower.

**Response:** EPA believes the operating conditions help protect the total PM emission limit for each of the towers. However, EPA also believes the operating conditions can be removed from the permit provided the monitoring section of the permit contains an equation that shows how Dominion will calculate actual PM emissions from each tower. EPA believes that such an equation will also effectively protect the PM emission limits for each tower. Using the operating conditions proposed in the draft permit as monitoring parameters in a compliance formula effectively allows Dominion to adjust those parameters in its operations while requiring it to limit its operations such that the PM limits are met.

**Revisions:** EPA is removing Section II. Operational Conditions, Items 3, 4, 5, and 6 from the Final permit for the natural draft cooling towers and renumbering the remaining sections of the permit. Since the conditions being removed include the entire Section II of the permit, the section is no longer required. EPA will include a new condition in the new Section II, titled "Monitoring Requirements," that includes an equation that calculates the actual emissions emitted from each tower based on the parameters originally proposed in the draft permit.

#### **Remove Section II: Operational Conditions**

Condition II.3: Cooling Tower #1 circulating water flow shall not exceed 400,000 gallons per minute (GPM) (24-hour block average).

Condition II.4: Cooling Tower #2 circulating water flow shall not exceed 400,000 GPM (24-hour block average).

Condition II.5: Cooling Tower #1 circulating water and blowdown water total dissolved solids shall not exceed 52,250 parts per million solids (ppm<sub>w</sub>).

Condition II.6: Cooling Tower #2 circulating water and blowdown water total dissolved solids shall not exceed 52,250 ppm<sub>w</sub>."

**Include new condition II.7 into Section II: Monitoring Requirements**

Condition II.7: The owner/operator shall determine PM<sub>2.5</sub> emissions and PM<sub>10</sub> emissions from each cooling tower using the following equation. Dominion shall obtain the information for the Total Circulating Water Flow Rate for each tower from data obtained from Section II.2. Dominion shall obtain the information for the Total Dissolved Solids for each tower from Section II.1.

Cooling tower emissions in pounds/hour (lb/hr) = Total Circulating Water Flow Rate (gallons/minute) x 60 (minute/hour) x Drift Rate (0.0005%) x Density Water (8.57 pounds/gallon) x Total Dissolved Solids (ppm<sub>w</sub>)/1,000,000

**Letter postmarked February 27, 2009 from Bunnie Gaperpini, Somerset, MA**

Ms. Gaperpini expressed her opinion that Brayton Point should not install any new equipment until the gas odors from the facility are eliminated.

**Response:** Ms. Gaperpini's concerns are not under the purview of the PSD program permit. The federal Clean Air Act does not address odor or nuisance conditions, which are generally a matter of state law.

**Revisions:** No revisions are required

**Letter dated February 26, 2009 from Green Futures, Fall River, MA**

The letter supports the quick issuance of the PSD program permit.

**Response:** EPA intends to issue the PSD permit as soon as all applicable federal requirements have been met.

**Letter dated February, 27, 2009 from John Torgan, Director of Advocacy, Save the Bay, Providence, RI**

The letter supports the quick issuance of the PSD program permit.

**Response:** EPA intends to issue the PSD permit as soon as all applicable federal requirements have been met.

**Electronic message dated February 27, 2009 from James A. Kerns, Town Administrator, Town of Swansea, MA**

The message stated the Town Selectmen's position that any emissions from the new cooling towers including particulate matter emitted in "acceptable" levels would be unacceptable to those living near the two (natural draft cooling) towers.

**Response:** EPA has concluded that the emission limits provided in the PSD permit adequately protect the health and welfare of all residents living near the facility. As part of the process of obtaining a PSD permit, Dominion Energy was required to model the impacts of the PM<sub>10</sub> and PM<sub>2.5</sub> emissions on the surrounding areas. The results from this modeling demonstrated that the emissions from this facility do not violate the National Ambient Air Quality Standards for PM<sub>10</sub> and PM<sub>2.5</sub> and that the emissions are consistent with the limits in incremental emissions increases allowed for under the PSD permit program to protect existing air quality.

**Revisions:** No revisions are required.

**Comments from Public Hearing held on March 2, 2009**

**Oral Comments from State Senator Joan Menard**

Senator Joan Menard presented oral comments regarding the natural draft cooling water towers project. The Senator's main concern is that the size of the cooling water towers will adversely affect the surrounding area. The key issues raised by the Senator are summarized below:

- The cooling water towers will negatively affect the economic development of the Somerset area;
- The cooling water towers will affect the quality of life of the residents in the area;
- The cooling water towers will impact property values of the surrounding area; and
- The cooling water towers may result in icing of the nearby Braga Bridge, and this issue should be evaluated.

The Senator also provided information on an alternative cooling water option that she stated would allow Dominion to meet its water permit requirements without the need of the large cooling water towers. The Senator asked EPA to hold the issuance of the permit until the alternative method can be evaluated. The Senator did note that the project to revive the Mount Hope Bay fishery is important and that the permit should move forward should EPA find that the alternative cooling water option does not meet the requirements of the water permit.

**Response:**

The PSD permit addresses the air quality impacts from new emission sources such as the new cooling towers. Therefore, the first three issues raised by the Senator, i.e., the effect of the cooling towers on economic development, quality of life, and property values of the surrounding area, are not under the purview of the PSD program permit. These issues are normally addressed

by local zoning regulations and, in some cases, any state environmental review process that might apply to a project. However, the PSD permit does provide important requirements that safeguard the surrounding area, including a technology-based standard that minimizes emissions from new sources and an air quality evaluation that ensures all applicable emissions meet federal air quality standards. EPA also notes that the cooling water towers are part of an important state and federal effort to protect the fisheries in Mount Hope Bay and the surrounding waters. We believe this effort will provide a significant environmental and economic benefit to the area.

In response to the comment on the icing of the Braga Bridge, EPA evaluated icing issues in an analysis entitled, “*An Evaluation of Cooling Tower Plume Studies done for the Brayton Point Generating Station.*” The analysis is part of the “Appendices to Response to Comments Document Public Review of Brayton Point Station NPDES Permit No. MA 0003654.”

The analysis looked at the impact of water vapor plumes from low level mechanical cooling towers, not the currently proposed natural draft cooling water towers. The analysis determined that the risk of icing of the Braga Bridge was minimal. One evaluation performed in the analysis found that the vapor plume may result in icing of the Braga Bridge; another evaluation found that the vapor plume would result in no icing. EPA believes that the risk of icing is further decreased with the use of high level natural draft cooling towers. The height of the natural draft cooling towers will result in faster mixing and dilution of the vapor plume resulting in less risk of icing as compared to the lower level mechanical cooling towers previously evaluated by EPA.

Finally, the Senator asked EPA to consider an alternative approach to reduce thermal water discharge impacts from the Brayton Point facility without using natural draft cooling water towers. This alternative approach is described in a report entitled, “Enhanced Surface Cooling as an Alternative for Thermal Discharges.” The report was placed into the record by State Representative Steven D’Amico. Additional information from a power point presentation describing the alternative approach was placed into the record by State Senator Joan Menard.

The alternative approach, put forth by Dr. Daniel G. MacDonald from the University of Massachusetts, Dartmouth, would involve an effort to achieve the rapid dilution of the thermal discharge through the development of a thin surface plume. In theory, the thin surface plume would potentially allow the thermal discharge to cool rapidly while limiting mixing of the discharge with the receiving water to the surface layer.

EPA finds that the request to evaluate an alternative cooling approach for Brayton Point is outside the requirements of EPA’s PSD program. In particular, the definition of “Best Available Control Technology” (40 CFR 52.21(b)(12)) requires EPA to apply an emission limitation based on the maximum degree of reduction for each applicable pollutant emitted from the *proposed major stationary source*. As stated, EPA is required to evaluate the major stationary source proposed by the applicant; it is not directed or necessarily authorized to evaluate alternative sources that are a complete redesign of the project proposed by the applicant. Therefore, EPA is not required to evaluate the alternative approach for the cooling water under the PSD program.

This PSD permit is not mandating cooling towers at the Brayton Point facility; it is Dominion that has chosen to install the towers to address its compliance obligations under the Clean Water

Act (CWA). Brayton Point Station's (BPS) existing National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act (CWA) became effective May 26, 2004. Although certain permit conditions were initially stayed as a result of a permit appeal, the appeal was resolved and all remaining permit conditions became effective on December 18, 2007.

The permit's thermal discharge limits were based on the biologically-based requirements of section 316(a) of the CWA, 33 U.S.C. § 1326(a), while the permit conditions related to cooling water intake structures, including intake flow volume limits were based on the technology-based requirements of section 316(b) of the CWA, 33 U.S.C. § 1326(b). The permit does not mandate that any particular technology be used to meet the permit's conditions. Rather, the permit allows the facility to use any lawful method of satisfying the permit's limits. In this case, the permittee and EPA agreed that using closed-cycle cooling technology would maximize the facility's ability to generate electricity from among the approaches that would also enable the facility to satisfy the permit's thermal discharge and cooling water intake conditions. From among the different types of closed-cycle cooling technology that are available, BPS then selected natural draft cooling towers as its preferred means of achieving permit compliance.

On December 17, 2007, EPA issued an Administrative Order (AO) under the CWA that sets a schedule for the facility to come into compliance with its NPDES permit. Dominion Energy Brayton Point, LLC, the current owners of the plant, worked cooperatively with EPA in the development of the AO. The AO's compliance schedule is based on Dominion's choice to use the natural draft cooling tower design.

Finally, the Senator's comment might be understood to be a request that EPA consider "alternatives" to the proposed project, as provided in section 165(a)(2) of the Clean Air Act. 42 U.S.C. 7475(a)(2). If the comment was proposing an alternative pursuant to this provision, EPA has considered that alternative and the Agency has concluded that the alternative approach would not meet the requirements of Brayton Point's existing NPDES permit. Under the proposal, the entire heat load from Brayton Point Station (42 Trillion British Thermal Units per year) would still be discharged to Mount Hope Bay in violation of the permit's thermal limit of 1.7 trillion BTUs per year (see NPDES Permit MA0003654, Part I.A.4.b). Additionally, under the proposal, the facility would continue to use the same amount of water (approximately 1 billion gallons per day) in violation of the NPDES permit's maximum daily flow limit of 42 million gallons per day (MGD) (see NPDES Permit MA0003654, Part I.A.4.a), monthly average flow limit of 40 MGD (see NPDES Permit MA0003654, Part I.A.4.a), and the combined intake requirement not to exceed 56.2 MGD (see NPDES Permit MA0003654, Part I.A.4.c). Furthermore, since the maximum daily and average monthly Total Residual Chlorine permit limits (see NPDES Permit MA0003654, Part I.A.4.a) are based on rapid mixing, the permittee would also likely violate this requirement under the proposal. While there are numerous questions about the technical merits of, and the environmental effects that would result from, the new proposal, the bottom-line at present is that it would not comply with the existing NPDES permit.

Therefore, for the reasons stated above, EPA has determined that the "Enhanced Surface Cooling as an Alternative for Thermal Discharges" would not satisfy Brayton Point Station's Clean Water Act NPDES permitting requirements.

**Revision:** No revisions are required.

**Oral Comments from State Representative Steven D’Amico**

State Representative Steven D’Amico provided oral comments at the March 2, 2009 hearing. In general, his comments mirrored the concerns raised by State Senator Joan Menard.

**Response:** EPA has responded to Representative D’Amico’s concerns in the response to comments from Senator Joan Menard, above.

**Revisions:** No revisions are required.

**Comments from Terrence J. Tierney, Rhode Island Attorney General Office**

Terrence Tierney, Esq. read into the administrative record a March 2, 2009 letter from Patrick Lynch, Attorney General, Rhode Island Department of Attorney General. Mr. Lynch and the office of Rhode Island Attorney General Office fully support the issuance of the PSD permit to Dominion.

**Response:** EPA intends to issue the PSD permit as soon as all applicable federal requirements have been met.

**Revisions:** No revisions are required.

**Comments from Meredith Simas, Dominion Energy Brayton Point, LLC**

Ms. Simas read into the administrative record Dominion’s support for the requirements included in the draft PSD permit for the natural draft cooling water towers and the emission control systems for Brayton Point’s Unit #3.

**Response:** No response required.

**Revisions:** No revisions are required.