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Brayton Point Station: Final NPDES Permit

Agreement Reached for NPDES Permit at Brayton Point Station Power Plant

On December 17, 2007, EPA and Dominion Energy reached agreement to end all National Pollutant Discharge Elimination System (NPDES) permit litigation regarding Dominion's Brayton Point Station power plant in Somerset, Massachusetts and for Dominion Energy to fully implement the contested heat and flow limits required in the Station's NPDES permit. The company has agreed to retrofit Brayton Point Station's existing "open-cycle" cooling system with a "closed-cycle" cooling system to fully comply with the strict limits specified in the October 2003 final NPDES permit (approximately 95% reductions in flow and heat from current operation).



Brayton Point Station, Mt Hope Bay

The Brayton Point Station power plant, located on the shores of Mount Hope Bay, is the largest fossil-fuel burning power plant in New England. Mount Hope Bay expands to both Massachusetts and Rhode Island waters and provides important spawning, nursery and migratory habitat for many species of fish and is a key segment of the Narragansett Bay estuary, a designated estuary of national significance under the Clean Water Act (CWA). Brayton Point Station is owned and operated by Dominion Energy.

Under current operations, each day the Brayton Point Station withdraws nearly one billion gallons of water from the Bay and circulates it through the facility to condense the steam used to produce electricity. The water is then discharged back to the Bay at elevated temperatures of up to 95 degrees Fahrenheit. Operation of the current "once-through cooling system" damages or kills many aquatic organisms by "entrainment" and "impingement" in addition to elevating water temperature in the Bay.

On Oct. 6, 2003, Region I renewed Brayton Point Station's CWA permit. This new permit set strict limits for the facility's withdrawal of cooling water from, and its discharges of heated wastewater to, Mount Hope Bay. The company appealed this permit to EPA's Environmental Appeals Board (EAB) on Nov. 5, 2003. On September 27, 2007 the EAB issued its decision upholding EPA's final permit. The company subsequently appealed the EAB ruling to the Federal Court in the Fourth Circuit.

EPA has issued an administrative order containing a schedule for meeting all NPDES permit limits within 36 months of obtaining all of the required construction and operating permits and approvals. Under this schedule, Brayton Point Station may comply with its NPDES permit limits as early as the spring of 2012. The administrative order sets interim effluent limits and milestones that the company will be responsible for meeting until full permit compliance is achieved. As of December 17, 2007, Dominion Power has withdrawn its legal challenges to the final permit issued in 2003 by EPA and the Commonwealth of Massachusetts.

To satisfy the final permit and administrative order, Dominion Energy is planning to install natural draft cooling tower technology rather than the mechanical draft cooling tower technology. Neither the final permit nor the administrative order specifies which technology must be used to meet the permit limits. At 500 feet, the natural draft cooling towers are larger than mechanical draft cooling towers, however, the company believes that compliance based on natural draft tower technology is the preferred because of the following:

- Greater reliability due to the need for less mechanical equipment (fans, pumps, gear boxes, and heat exchangers);
- Lower adverse environment effects such as the potential for icing and fogging on the nearby highway, bridge, and other roadways.
- Experience with brackish water problematic for mechanical draft plume abatement equipment;
- Easier to mitigate potential noise impacts.

This agreement is the result of substantial contributions to the permit by the Massachusetts Department of

Environmental Protection, the Rhode Island Department of Environmental Management, the Rhode Island Attorney General's Office, Save the Bay, Conservation Law Foundation, Taunton River Watershed Alliance, Kickemuit River Council and many others. For additional information read the [press release](#).

The documents contained on this page are PDF'd (portable document format) copies of the originals. These documents include a brief fact sheet and the final Permit. In addition, EPA's responses to the numerous comments received on the draft permit are contained in a document entitled "Responses to Comments: Public Review of Brayton Point Station." This document contains an executive summary and sections organized by the final permit limits and the Clean Water Act statutory authority for these limits. Appendices to this document are not included as PDF files. For a copy of the appendices, or a complete copy of all of the original documents in hard copy please contact: [Damien Houlihan](#), Engineering Project Manager (houlihan.damien@epa.gov or (617) 918-1586).

Additionally, a copy of the administrative record is available for review at the offices of EPA New England at 5 Post Office Square in Boston, Massachusetts. For directions please visit the [About Us page](#). To make arrangements to review the administrative record contact: [Damien Houlihan](#), Engineering Project Manager (houlihan.damien@epa.gov or (617) 918-1586).

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You will need Adobe Reader to view some of the files on this page. See [EPA's PDF page](#) to learn more about PDF, and for a link to the free Acrobat Reader.

Brayton Point Documents

- [Determination on Remand from the EPA Environmental Appeals Board Brayton Point Station, NPDES Permit No. MA0003654 \(PDF\)](#) (84 pp, 10.7 MB)
- [Letter Re: Notice of Uncontested and Severable Conditions \(4/26/04\) \(PDF\)](#) (14 pp, 59 K)
- [Public Notice Regarding Environmental Appeals Board "Order Granting Review" \(2/19/04\) \(PDF\)](#) (2 pp, 17 K)
- [Environmental Appeals Board "Order Granting Review" \(2/19/04\) \(PDF\)](#) (13 pp, 1 MB)
- [Brayton Point Station Fact Sheet \(PDF\)](#) (34 pp, 165 K)
- [Brayton Point Station Information Sheet \(PDF\)](#) (2 pp, 554 K)
- [Brayton Point Station Final NPDES Permit \(PDF\)](#) (34 pp, 78 K)
 - [Biological Monitoring Locations: Attachment C \(PDF\)](#) (7 pp, 525 K)
Please Note that copies of EPA's standard attachments are available on the [EPA Permit Attachments Page](#).
- [Responses to Comments: Public Review of Brayton Point Station – Table of Contents \(PDF\)](#) (23 pp, 106 K) complete document
 - [Section I. Summary \(PDF\)](#) (10 pp, 43 K)
 - [Section II. Ecological Setting \(PDF\)](#) (6 pp, 25 K)
 - [Section III. CWA § 316\(a\) Variance-Based Thermal Discharge Limits \(PDF\)](#) (73 pp, 264 K)
 - [Section IV. CWA § 316\(b\)-Based Cooling Water Intake Limits \(PDF\)](#) (128 pp, 474 K)
 - [Section V. Water Quality Standards-Related Issues \(PDF\)](#) (15 pp, 59 K)
 - [Section VI. Other Permit Limits \(PDF\)](#) (152 pp, 57 K)
 - [Section VII Miscellaneous Comments \(PDF\)](#) (64 pp, 225 K)
 - [Section VIII. Best Available Technology Standard-Based Thermal Discharge Limits \(PDF\)](#) (41 pp, 151 K)
 - [List of Figures](#)
 - [1. Estimated Thermal Plume Dynamics in Mount Hope Bay for Brayton Point Station's Current Thermal Load \(PDF\)](#) (1 pg, 161 K)
 - [2. Location of Thermistors for Water Temperature Monitoring in Mount Hope Bay \(PDF\)](#) (1 pg, 1 MB)
 - [3. Seabird Abundance in Mount Hope Bay \(PDF\)](#) (1 pg, 58 K)
 - [4. Gulf of Maine Winter Flounder Spawning Stock Biomass and Recruitment \(PDF\)](#) (1 pg, 228 K)
 - [5. Georges Bank Winter Flounder Spawning Biomass \(thousand mt\) 1964-2000 \(PDF\)](#) (1 pg, 23 K)
 - [6. Southern New England Winter Flounder Spawning Stock Biomass and Recruitment \(PDF\)](#) (1 pg, 242 K)
 - [7. Mount Hope Bay Winter Flounder Abundance and Station Flow versus Year \(PDF\)](#) (1 pg, 58 K)
 - [8. Mount Hope Bay Standard Trawl Fixed Locations \(1972-Present\) \(PDF\)](#) (1 pg, 210 K)
 - [9. Comparison of Winter Flounder Length Frequencies in the MRI Standard Trawl Survey and Brayton Point Revolving Screens Samples, 1972-2001 \(PDF\)](#) (1 pg, 233 K)
 - [10. Comparison of RI DFW Mt. Hope Bay Winter Flounder Indices Reported by DeAlteris \(2002\) and Recomputed by Agency from Survey Database and Trawl Logs \(PDF\)](#) (1 pg, 454 K)
 - [11. Winter Flounder Catches in the RI DFW Monthly Trawl Survey at Spar Island and off Roger Williams College, 1990-2001 \(PDF\)](#) (1 pg, 274 K)
 - [12. Brayton Point Station Heat Rejection versus Time \(1979-2000\) \(PDF\)](#) (1 pg, 57 K)

- [13. Estimated Area of Thermal Impact in Relation to Location of Young-of-Year Beach Seine Stations in Mount Hope Bay \(PDF\)](#) (1 pg, 359 K)
- [Download the complete document Responses to Comments – Public Review of Brayton Point Station \(PDF\)](#) (375 pp, 1.6 MB)
 - [Figures 1 – 13 \(PDF\)](#) (13 pp, 3 MB)

Clean Water Act NPDES Permitting Determinations for Brayton Point Station's Thermal Discharge and Cooling Water Intake in Somerset, MA, July 22, 2002

- [Table of Contents and Chapter 1 \(PDF\)](#) (14 pp, 223 K)
- [Chapter 2 \(PDF\)](#) (4 pp, 40 K)
- [Chapter 3 \(PDF\)](#) (5 pp, 72 K)
- [Chapter 4 \(PDF\)](#) (124 pp, 535 K)
- [Chapter 5 \(PDF\)](#) (9 pp, 92 K)
- [Chapter 6 \(PDF\)](#) (59 pp, 484 K)
- [Chapter 7–8 \(PDF\)](#) (187 pp, 952 K)
- [Literature Cited \(PDF\)](#) (5 pp, 21 K)
- [Figures Cited](#)
- [Appendix A: Mixing Zone Recommendations \(PDF\)](#) (37 pp, 91 K)



For those interested commenters on the draft permit, please see the permit appeals instructions located on our [Forms and Attachments](#) page.

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