State Environmental Quality Review

NEGATIVE DECLARATION

Notice of Determination of Non-Significance

Project Number NA Date: June 29, 2011

This notice is issued pursuant to Part 617 of the implementing regulations pertaining to Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The NYS Dept. of Environmental Conservation as lead agency, has determined that the proposed action described below will not have a significant adverse environmental impact and a Draft Impact Statement will not be prepared.

Name of Action:

Policy for selecting BTA for cooling water intake structures.

SEQR Status: Type 1 ☐
Unlisted ☑

Conditioned Negative Declaration: ☐ Yes
☑ No

Description of Action:

The Department of Environmental Conservation has prepared a Commissioner's Policy (the Policy) to provide guidance to staff in the Divisions of Fish, Wildlife and Marine Resources, Water, and Environmental Permits on performance goals and procedures for making "BTA" (Best Technology Available) determinations for the operation of cooling water intake structures (CWISs) in connection with a point source thermal discharge.

Location: (Include street address and the name of the municipality/county. A location map of appropriate scale is also recommended.)

Statewide

Reasons Supporting This Determination:
(See 617.7(a)-(c) for requirements of this determination ; see 617.7(d) for Conditioned Negative Declaration)

SEE ATTACHED

If Conditioned Negative Declaration, provide on attachment the specific mitigation measures imposed, and identify comment period (not less than 30 days from date of pubication In the ENB)

For Further Information:

Contact Person: Chris Hogan

Address: NYSDEC, 625 Broadway, Albany, NY

Telephone Number: 518 402-9151

For Type 1 Actions and Conditioned Negative Declarations, a Copy of this Notice is sent to:

Chief Executive Officer , Town / City / Village of

Other involved agencies (If any)

Applicant (If any)

Environmental Notice Bulletin, 625 Broadway, Albany NY, 12233-1750 (Type One Actions only)

Reset Form

Description of Action:

The Department of Environmental Conservation has prepared a Commissioner's Policy (the Policy) to provide guidance to staff in the Divisions of Fish, Wildlife and Marine Resources, Water, and Environmental Permits on performance goals and procedures for making "BTA" (Best Technology Available) determinations for the operation of cooling water intake structures (CWISs) in connection with a point source thermal discharge. The Policy has been prepared following the provisions and requirements of the DEC Policy System (CP-1, revised March 24, 2005). A BTA determination is required to be included in each State Pollutant Discharge Elimination System (SPDES) permit for industrial facilities operating a CWIS pursuant to Section 704.5 of 6 NYCRR, and Section 316(b) of the federal Clean Water Act (CWA). These regulations impose a standard requiring that each facility install the best technology available to minimize adverse environmental impact resulting from the operation of a CWIS, specifically, the minimization of impingement mortality and entrainment of fish and other aquatic organisms.

The Action which is the subject of this Negative Declaration is the issuance of the Policy. The Policy synthesizes into one document Department procedures, past practices, Commissioner's decisions, legal findings and agency adherence to federal regulations that have been applied to SPDES permits issued with BTA determinations over the past decade or more. With that statutory and historical background before the Department, this Policy identifies closed-cycle cooling or its equivalent as the performance goal for BTA.

Determination of Significance

In as much as the action taken by the Department is the issuance of the Commissioner's Policy regarding determination of BTA under existing law and regulations, and the Policy does not propose to issue a permit or other approval or certification for construction or installation of any specific BTA technology at a specific facility, the Department has determined that this Action will not have a significant adverse environmental impact on either the aquatic resources addressed by the Policy or any of the potential site-specific impacts beyond the scope of the Policy. In fact, the Department believes that the overall consequence of this Policy will be a positive effect on aquatic species, and surface waters of the State.

CWIS Impacts on Aquatic Resources:

Power plants in New York that use steam to drive turbines require large amounts of water, often hundreds of millions or even billions of gallons per day to produce and condense steam, and to cool turbines. Many plants draw the water they need from surface waters such as large rivers, lakes and coastal bays. Throughout New York State, over 16 billion gallons of water are permitted to be withdrawn from state waters each day for the purposes of industrial cooling. As a result, over 17 billion fish of all life stages (eggs, larvae, juveniles and adults) are entrained or impinged annually. The adverse environmental impact of these cooling systems to the State's aquatic resources and habitat is significant: a single power plant might impinge a million adult fish, or entrain some 1 to 8 billion smaller fish and aquatic organisms in a single year.

Fish of all life stages can be subjected to entrainment, where they pass through a plant's cooling systems along with the cooling water, or to impingement, where they contact the intake structure

directly. They can suffer from lethally high water temperatures, contact with impellers or heat-exchangers, or from exposure to the chemicals used to maintain heat-exchanger cleanliness. Steam electric power plants account for the majority, though not all, of this industrial cooling impact, with some power plants using well over a billion gallons of water every day for cooling purposes. Other industries in New York using non-contact cooling water include manufacturing facilities (*e.g.* cement and sugar industry) and large office buildings.

Other, Potential Site-Specific Impacts:

As noted, reviews of site-specific impacts related to implementing BTA are feasible in the context of a specific SPDES permit application. Any characterization of these impacts in this general Policy would be speculative, as the Policy does not address specific projects or their permit applications, particular site locations or affected waterbodies. Considering that BTA determinations contemplate installing technology to reduce adverse environmental impacts where, for instance, a specific facility's CWIS impinges or entrains aquatic species, a BTA determination that selects cooling tower construction at that facility may also have an associated local impact on other environmental resources.

A thorough SEQR review will be conducted during the permitting process for each individual SPDES permit application. During the SEQR review and assessment of the action initiated by the permit application, potential site- and technology-specific impacts will be identified and evaluated, at which time a determination of significance regarding those site-specific impacts can be made in the context of effected environmental resources. Such an assessment is beyond the scope of this policy because at this time the potential impacts of each and every individual provisional BTA determination at facilities across the State is unknown, and any attempt to conduct a SEQR review of the cumulative impacts of implementing BTA across the State would be speculative; such impacts are evident and an appropriate analysis feasible only in the context of a specific application.

For example, because it is not feasible to anticipate how potential impacts will be manifested at individual facilities, local impacts are highly variable and may include whether or how the size of cooling tower structures or unabated vapor plumes associate with the visual environment during tower operation. Additional potential local impacts include:
1) noise associated with water falling inside a cooling tower system, or from fans and motors;
2) disturbance of the local terrestrial and aquatic environment;
3) air emissions from on-site generation of additional energy to operate cooling towers (increased energy needs could incrementally raise CO_2, mercury, sulfur dioxide, nitrogen oxides and particulate matter emissions but are expected to be nominal and should not result in the contravention of air quality standards or require modifications to existing permits); and
4) localized salt or mineral drift as byproducts from cooling tower operation.

Importantly, implementation of mitigative technologies such as cooling towers and operational measures, are unlikely to have an impact on human uses of a waterbody such as recreation or navigation.

Reasons Supporting This Determination:

The adoption of the Commissioner's Policy on determining BTA for CWISs will not have a significant adverse impact on the environment. The Policy synthesizes in a single document the performance goals that power plants and other industrial facilities will need to meet in order to comply with 6 NYCRR Part 704.5 and Section 316(b) of the Clean Water Act. The performance goals represent the benchmark for aquatic resource protection against which Department Staff will measure any facility-proposed technologies or operational measures when making a BTA determination as part of the SPDES permit process.

On January 25, 2005, DEC Deputy Commissioner Lynette Stark wrote to EPA to articulate the steps that the Department would take to implement BTA at existing facilities when processing SPDES permits. The Stark letter advised EPA of the manner in which the SPDES program would be carried out consistent with the Department's approved authority, and that the Department's administration of the BTA program could be more stringent than the provisions in EPA's Phase II rule. EPA's Phase II rule for existing facilities was subsequently challenged before the United States Court of Appeals for the Second Circuit, and on January 25, 2007 the rule was remanded to EPA for reconsideration. See Riverkeeper, Inc. v. U.S.E.P.A., 475 F. 3d 83 (2nd Cir. 2007). EPA suspended the Phase II rule for existing facilities on July 9, 2007, pending revision. See 72 Fed. Reg. 130, July 9, 2007. Independently, the Department has continued to rely on and refine its own process outlined in the Stark letter and has consistently required applicants for new and renewed SPDES permits to conduct studies supporting the facility-specific selection of BTA by applying best professional judgment. In this context, Department Staff is mindful that the State may impose permit conditions or requirements that are more stringent than those required by the Clean Water Act for CWIS. 33 U.S.C.A. §1370.

Summary:

This Policy articulates the performance goals that power plants and other industrial facilities need to meet in order to comply with 6 NYCRR Part 704.5 and Section 316(b) of the federal Clean Water Act. Adopting a Commissioner's Policy explaining the criteria for making BTA determinations at CWISs will not cause a significant adverse impact on the environment; in fact, the overall environmental consequence of this Policy will be positive. Issuing this Policy does not constitute a decision on whether or not to authorize construction or operation of BTA technology at any particular facility that would install or already operates a CWIS subject to regulation. Rather, the Policy synthesizes Department procedures, Commissioner's Decisions, case law, and historical practice, all of which serve to implement CWA § 316(b) and 6 NYCRR §704.5 and to reduce impingement mortalities and entrainment at CWIS in New York's surface waters.

This Policy is intended to guide Department staff and regulated interests in reducing adverse environmental impacts that relate to aquatic resources. Adopting the Policy will facilitate a consistent approach across the State, based on the statutory requirements and contextual history stated above, and it will ensure a coordinated protection of aquatic resources from impingement

mortality and entrainment impacts that result from industrial facilities using surface water for non-contact cooling.

The review process outlined in the Policy relates to Department staff's identification of a provisional BTA determination in a draft SPDES permit. This step is only one component of the overall SPDES permitting process and, as such, is not the final step. As noted above (see "Reasons Supporting This Determination"), BTA determinations are made on a facility-specific basis, taking into account the operations of an individual facility, the condition of the aquatic resource in the effected waterbody, and the costs of implementing BTA at that site. For each preliminary BTA determination (reflected in a draft SPDES permit), prior to a final SPDES permit determination, a comprehensive facility-specific SEQR analysis of the SPDES application will be conducted, including the chosen, provisional BTA and an assessment of impacts to the environment related to implementation of that selected technology or operational measure.

Given the effectiveness of closed-cycle cooling at reducing adverse environmental impact caused by a CWIS, the Policy establishes closed-cycle cooling as the performance goal for all new and repowered industrial facilities in New York, warranted by the biological significance of New York's surface waterbodies and their importance for commercial and recreational uses, particularly in the marine and coastal district, the tidal reach of the Hudson River and the Great Lakes. The performance goal for all existing industrial facilities in New York is closed-cycle cooling or the equivalent, where the equivalent is defined as 90 percent of the reductions in impingement mortality and entrainment that could be achieved by a closed-cycle system.[1]

Discussion:

The State and federal laws and regulations cited above mandate that facilities employ BTA when seeking SPDES permits in order to minimize adverse environmental impact from the construction of new facilities or the renewal of permits for existing facilities with CWISs.

New Facilities: For a new facility or a facility that is being re-powered, the Policy articulates the performance goal of BTA as closed-cycle cooling, to minimize, to the greatest extent possible, the adverse environmental impacts caused by the CWIS, based on the efficacy of existing technologies. Under EPA's CWA 316(b) Phase I Rule (40 C.F.R. Part 125, subpart I), EPA identified wet closed-cycle cooling as BTA for new facilities using surface waters for non-contact cooling. Prior to the promulgation of the Phase I Rule, New York had already required closed-cycle cooling technology to be employed on all new and repowered steam electric facilities (see Athens Decision 2000; Bethlehem Energy Center SPDES Permit No. NY0005959, Exp. 2/1/2010).

Existing Facilities: For an existing facility, the performance goal for BTA is closed-cycle cooling or its equivalent, based on the efficacy of existing technologies. Closed-cycle cooling systems may not always be an available technology in every circumstance to address adverse

[1] Depending upon the BTA technology selected at a particular facility, BTA technology installation may also reduce thermal impacts to the waterbody receiving a facility's waste heat discharge. Waste heat discharges from a particular outfall may be dissipated by the use of a closed-cycle cooling system.

environmental impacts at existing facilities. Certain considerations could limit the availability of wet closed-cycle cooling for existing facilities, such as:

1. Lack of physical space to site or efficiently operate cooling towers;
2. Costs wholly disproportionate to benefits due to requiring reconstruction of condensers and other infrastructure to site and efficiently operate cooling towers;
3. Facility would not operate efficiently or safely with closed-cycle cooling;
4. Inability to meet other state and local regulatory requirements;
5. Nuclear Regulatory Commission health and safety requirements will not be met; and
6. Tower drift, fogging, icing, and salt deposition on local neighborhoods, roads, and vegetation.

In cases where closed-cycle cooling is not available, the Department will select other available technologies and operational measures as BTA that will result in an equivalent level of aquatic resource protection within site-specific practical constraints (Danskammer Decision 2006). Even if closed-cycle cooling is available for an existing facility, an applicant may propose for the Department's consideration technologies that will reduce impingement mortality and entrainment to a degree equivalent to that which would be accomplished at the facility by installing closed-cycle cooling.

The performance goals in the Policy contemplate that a combination of physical barriers, fish return systems, intake location, and deterrent systems along with operational measures (*e.g.* variable speed drive cooling water pumps and seasonal outages) could reduce entrainment and impingement mortality to levels equivalent to that achievable using closed-cycle cooling technology. DEC has taken these types of alternatives into consideration in the past when making BTA determinations (e.g. the Danskammer SPDES Permit [No. NY0006262, Exp. 5/31/2011] and the Ravenswood SPDES Permit [No. NY0005193, Exp. 4/30/2012]). Accordingly, such alternative measures will meet the performance goal if they achieve no less than 90 percent of the impact reductions achievable by closed-cycle cooling. Requiring an impact reduction of 90 percent of that obtainable using wet closed-cycle cooling provides the Department and facilities a ten percent margin of measurement error (see Riverkeeper, Inc. v. U.S.E.P.A., 358 F.3d 174 [2nd Cir. 2004]).

<u>The Scope of BTA Decision Making:</u> In making a BTA determination, the only relevant adverse environmental impact is the reduction in impingement mortality and entrainment of aquatic species afforded by the mitigation alternative. See Athens 2000. The Policy's performance goal for existing facilities recognizes and incorporates closed-cycle cooling technology and the option to employ alternative technologies, without stating a specific technology or suite of technologies, so long as there are impingement mortality and entrainment reductions equivalent to closed-cycle cooling. Current technology makes the performance goal for reductions in impingement mortality achievable at existing facilities. With respect to entrainment, the performance goal would be achievable at most existing facilities. Where an alternative BTA technology has been installed pursuant to this Policy, but fails to meet the intended entrainment performance goal, Department Staff may exercise best professional judgment to require additional protective measures to meet the performance goal.

In such a case, the Department would initiate a SPDES permit modification to add further entrainment mitigation measures to those previously required. See 6 NYCRR §§621.11(b) and 621.13. This can include additional technology, or, if it is determined that additional technology is not available, the Department can require that an operator meet site-specific entrainment reduction levels. As with any similar SPDES permit, the Department would undertake a SEQR review at the time of proposed modification.

SEQR Review of SPDES Permit Applications: After a specific BTA determination is made, but prior to issuing a draft SPDES permit, the Department will complete a SEQR review of the broader issues associated with the action proposed in the facility's SPDES permit application. In cases where closed-cycle cooling has been selected as the provisional BTA, staff may make a positive declaration of significance under SEQR and prepare or cause to be prepared an environmental impact statement to review potential impacts of building and operating closed-cycle cooling at a specific facility. In this manner, impacts to aquatic resources and all other affected environmental resources identified at a specific facility will be addressed by the SEQR review.

Because the Policy concerns performance goals for future actions yet to be identified in SPDES applications, a SEQR analysis of facility-specific adverse environmental impacts, alternative actions, methods of impact avoidance, and mitigation measures is not possible. The Policy could not reach an appropriate level of analytical detail on such considerations because facility-specific variables can only be determined in the context of an individual SPDES permit application. For the same reasons, the analysis would be too speculative and imprecise to function as a SEQR assessment simply because the feasibility and selection of potential BTA technologies is site specific. A facility-specific environmental review is consistent with Department practice, to be performed when a thorough analysis can be made based on appropriately identified impacts associated with an actual application. See the Department's Final Environmental Impact Statement for the three Hudson River Settlement Agreement facilities (Indian Point, Roseton, Bowline), June 2003.

EPA recognized the facility-specific nature of making BTA determinations in promulgating its Phase I and Phase II rules for BTA determinations. See 49 CFR Parts 9, 122 et al., Phase I: 66 Fed. Reg. 243 (December 18, 2001), Phase II: 69 Fed. Reg. 131 (July 6, 2004), suspended pending revision 72 Fed. Reg. 130 (July 9, 2007). EPA's rulemaking articulated how specific BTA determinations would be made for new (Phase I) or existing (Phase II) facilities at specific types of facilities and locations (including waterbody types), the specific types of BTA technology that could be installed at such facilities, and the implications of costs associated with a specific BTA technology selection, among other facility-specific considerations. As noted above, DEC also recognizes the facility-specific nature of BTA decisions and, moreover, may issue determinations that are substantively more stringent than EPA's. See §510 of the Federal Water Pollution Control Act, 33 USCA §1370. This provides additional justification for DEC to address BTA determinations, and associated environmental reviews, on a facility-specific basis.

Capacity and Reliability: Electric system capacity and reliability can only be considered in the broadest general terms under this Negative Declaration due to the high degree of speculation and numerous variables involved in a BTA determination for individual facilities, each of which has

unique cooling water intake location, design, construction and intake capacity characteristics. Short-term, temporary outages or incremental parasitic losses may occur at a facility as a result of installing technologies to meet the Policy's performance goals and may have at least a short-term impact on capacity and reliability if not managed appropriately by the facility. Capacity and reliability management of this nature has been implemented in New York State in the past in order to ensure that projected loads and reliability needs are met. Authorities responsible for capacity and reliability in New York State consulted during the course of drafting this policy (including the New York Independent Systems Operator [NYISO] and the Department of Public Service [DPS]) have indicated that electric capacity and reliability considerations of this type can be addressed by coordinating the Department's BTA decisions with them on a regular basis. The Department understands that this coordination will be incorporated into NYISO's and DPS's respective capacity and reliability planning.

Total capacity of an electric generating plant may be reduced by incremental operational losses that include the energy required to run fans and pumps associated with cooling towers and losses in efficiency. For some facilities, these efficiency losses can be mitigated by increasing thermal input to generate more electricity. This may not be available for all facilities, particularly pressure water nuclear reactors and some combined cycle facilities (see Havey and Blackburn 2008). For certain of these facilities, selection of closed-cycle cooling as BTA may require that additional energy be available within the electric grid to make up for incremental efficiency losses. The Department understands that additional energy resources, such as new transmission lines and power plants, could be utilized for this purpose.

Costs: The Department will continue to consider whether BTA technology at a new or existing facility would impose a wholly disproportionate cost on the facility seeking a new or renewed SPDES permit. This consideration was integral to the Department's decision in 2000 selecting BTA for the new Athens facility (see Athens Decision 2000) and has been followed by Staff since then. Alternative technologies may be less costly than closed-cycle cooling systems, while having less or equivalent impact, or no greater negative impact on the environment. Construction timeframes for alternative technologies are generally shorter, and associated incremental parasitic energy losses may be less significant and could place less of a burden on the capacity and reliability of the State's electric supply.

With respect to existing facilities, in the suspended Phase II Rule for CWA § 316(b) EPA sought to establish that the use of a closed-cycle cooling system would always achieve the performance standards set forth in that rule. Therefore, EPA allowed for a compliance alternative of flow reduction at an existing facility which would reduce impingement mortality and entrainment to levels equivalent to that achievable with a closed-cycle cooling system. Furthermore, while the EPA recognized in the suspended Phase II rule that closed-cycle cooling was not economically practicable for many existing facilities, some facilities had been effectively retrofitted with closed-cycle cooling technology. New York agrees with this approach and, as noted above, has the authority to make determinations that are more stringent than EPA's pursuant to 6 NYCRR §704.5 and §510 of the Clean Water Act.

Exemption: This Policy provides an exemption from the entrainment performance goal for an existing facility that operates at less than fifteen percent of its electric generating capacity over a five-year averaging period, a so-called "peaking" facility. This recognizes that entrainment reductions may need to be developed on a case-by-case basis due to the fact that the facility operates infrequently. Under those circumstances, Department Staff will employ its best professional judgment to determine the appropriate BTA technology or required entrainment reduction. Department Staff will also be guided by Commissioner's Decisions, case law, and practice to minimize adverse environmental impacts.

Literature Cited:

Athens Decision 2000: *Matter of Athens Generating Co., L.P.*, Interim Decision of the Commissioner, June 2, 2000.

Danskammer Decision 2006: *Matter of Dynegy Northeast Generation, Inc., on Behalf of Dynegy Danskammer, LLC*, Decision of the Deputy Commissioner, May 24, 2006; decision upheld in *Riverkeeper v. Carl Johnson*, 52 AD 3d 1072 (3d Dept. 2008), appeal denied 11 NY3d 716 (2009).

DOE 2008. Electricity Reliability Impacts of a Mandatory Cooling Tower Rule of Existing Steam Generating Units. U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability. October 2008.

Entergy Nuclear Indian Point 2, LLC v. New York State Department of Environmental Conservation, 23 AD3d (3d Dept. 2005), leave to appeal dismissed in part, denied in part, 6 NY3d 802 (2006).

Final Environmental Impact Statement on Renewal of NY State Pollution Discharge Elimination System Permits for Three Hudson River Power Plants, June 25, 2003.

Havey and Blackburn (2008). California's coastal power plants: alternative cooling system analysis. Final report to the California Ocean Protection Council. February 2008.

Riverkeeper I Decision 2004: *Riverkeeper, Inc. et al. v. U. S. Envtl. Protect. Agency*, 358 F.3d 174 (2nd Cir. 2004).

Riverkeeper II Decision 2004: *Riverkeeper, Inc. et al. v. U. S. Envtl. Protect. Agency*, 475 F.3d 83 (2nd Cir. 2007).

Stark Letter: January 25, 2005 letter to EPA Benjamin Grumbles from Deputy Commissioner Lynette Stark.