New York State Department of Environmental Conservation
Division of Legal Affairs, 14th Floor
625 Broadway, Albany, New York 12233-1500
Phone: (518) 402-9184 • **FAX:** (518) 402-9018
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

briefs

FILES
C99-F-1164

December 18, 2001

Via Hand Delivery

Honorable Erin M. Crotty
Commissioner
NYSDEC
625 Broadway
Albany, NY 12233

RE: In the Matter of the Application for a State Pollutant Discharge Elimination System permit pursuant to Environmental Conservation Law Article 17 and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York Parts 704 and 750 et seq., and Air Pollution Control permits consisting of a Preconstruction permit and a Certificate to Operate, pursuant to ECL Article 19 and 6 NYCRR Parts 200 et seq. by Mirant Bowline, Inc.

Dear Commissioner Crotty:

Enclosed please find three copies of the Brief on Exceptions to the ALJ's Recommended Decision by the Staff of the Department of Environmental Conservation. I hereby certify that a copy has been served on the service list via email and U.S. mail.

Sincerely,

Meghan A. Purvee
Senior Attorney

cc: Via Email and U.S. mail:
Hon. Judith Deixler, Secretary, PSC
Hon. Gerald Lynch
Hon. Kevin Casutto
Barbara Brenner, via email and hand delivery
SPDES Service list

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of

the Applications of Mirant Bowline, LLC, for: (1) a State Pollution Discharge Elimination System (SPDES) permit pursuant to Environmental Conservation Law (ECL) Article 17 and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Parts 704 and 750 *et seq.*, and Air Pollution Control permits consisting of a Preconstruction permit and a Certificate to Operate, pursuant to ECL Article 19 and 6 NYCRR Parts 200 *et seq.*

DEC No. 3-3922-0003/00015
SPDES No. NY0264342

BRIEF ON EXCEPTIONS
BY THE STAFF OF THE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

By: Meghan Purvee, Senior Attorney
Franz Litz, Senior Attorney
Department of Environmental Conservation
625 Broadway, 14th Floor
Albany, New York 12233-1500
518-402-9188

December 18, 2001

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NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC No. 3-3922-0003/00015
SPDES No. NY0264342

In the Matter of the Applications of Mirant Bowline, LLC
For a SPDES Permit and Air Pollution Control Permits

BRIEF ON EXCEPTIONS TO THE ALJ'S RECOMMENDED DECISION BY THE STAFF OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The Department of Environmental Conservation Staff ("DEC Staff") hereby submits this brief on exceptions to the "Hearing Report and Recommended Decision" (the "Recommended Decision" or "RD"), issued November 30, 2001, by Administrative Law Judge Kevin J. Casutto (the "ALJ") in the above-referenced Department of Environmental Conservation ("DEC" or "Department") permit proceedings. Because the United States Environmental Protection Agency ("EPA") has recently issued the final rule entitled "National Pollutant Discharge System - Regulations Addressing Cooling Water Intake Systems," which govern the project and conflicts with the ALJ's Recommended Decision and largely endorses the positions taken by Mirant Bowline, LLC and DEC Staff before the ALJ, the Commissioner should reject the ALJ's recommendations in their entirety, and order the SPDES permit issued without further proceedings, as outlined herein. Even without considering the new BTA Rule, which is dispositive of this matter, the Commissioner should reject the ALJ's Recommended Decision because the ALJ erred in interpreting the Athens Generating Decision as determining that the

Gunderboom, Inc. technology itself, and not the proposed configuration of the structure using Gunderboom, was premature and thus experimental. The ALJ also erred in finding that no new information supporting the success of the Gunderboom exists since the Athens Decision, and erroneously ignored the plethora of evidence on the record disputing Intervenors claims and supporting the proposed successful deployment of the Gunderboom at the Bowline Unit 3 intake structure.

I. SUMMARY OF STAFF'S POSITION

DEC Staff submits that the recently promulgated federal rule governing intake structures for new facilities compels a decision rejecting the ALJ's recommended decision and upholding Staff's draft SPDES permit, including its requirement for a wet hybrid closed-loop cooling system with 2mm wedgewire screens and a Gunderboom Marine/Aquatic Life Exclusion System ("Gunderboom").

This proceeding concerns the proposal by Mirant Bowline, LLC (the "Applicant") to construct a 750 Megawatt major electric generating facility in the Town of Haverstraw, Rockland County, New York (the "Project"). In connection with its proposal, the Applicant applied to DEC for the above-referenced water and air pollution control permits, including a State Pollution Discharge Elimination System (SPDES) permit. DEC Staff issued a draft SPDES permit on January 16, 2001 (Exh. 47)(the "Draft SPDES Permit"). The provisions of the Draft SPDES permit concerning whether the proposed intake structure constituted "Best Technology Available" pursuant to the Clean Water Act Section 316(b), was the subject of the adjudicatory

hearings and the Recommended Decision issued by the ALJ.

The Draft SPDES Permit allows the construction and operation of a new cooling water intake structure to serve the Project's closed loop recirculating cooling system. Although the Project originally was slated to include a wet evaporative closed- loop cooling system, the Applicant subsequently revised its proposal to provide for a closed loop wet-dry, or hybrid cooling system, which could also be operated consistent with the terms of the Draft SPDES Permit.[1] In addition to an intake capacity restriction that limits the cooling technology to wet closed-loop systems, the Draft SPDES Permit also requires that the Applicant install 2 mm wedgewire screens and a Gunderboom Marine/Aquatic Life Exclusion System (MLES) on the intake structure's opening to virtually eliminate impingement and entrainment.

In issuing the Draft SPDES Permit, DEC Staff reasonably determined that the draft permit was consistent with the regulatory dictates of Clean Water Act Section 316(b), 6 NYCRR §704.5,[2] and prior decisions of the Commissioner. As the ALJ recognized in the RD, the draft permit determination was made without the benefit of EPA rules or regulations to implement Section 316(b), or EPA guidance issued more recently than the1976 Development Document (relied upon by the ALJ), which was well before the development of currently available

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[1]In general terms, a wet-dry cooling system incorporates elements of a wet-evaporative system with the cooling fans that are used in dry cooling condensers. The result of substituting wet evaporative with wet-dry cooling is that the Project will draw less cooling water through the intake structure and the vapor plumes associated with wet evaporative cooling towers will be mitigated.

[2]Section 704.5 is identical to Section 316(b) of the CWA.

innovations in intake and cooling technologies proposed at Bowline Unit 3.[3]

As the discussion below will make clear, most of the ALJ's findings and recommendations contained in the RD have been wholly discredited or were expressly rejected by EPA when it promulgated its final rule addressing cooling water intake structures for new facilities.[4] Indeed, the new EPA rule is an endorsement of DEC Staff's approach to developing SPDES permits for new facility intake structures. Based on the new EPA rule, the Draft SPDES Permit should be upheld and the ALJ's recommendations rejected.

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[3] Note that the ALJ recognized that the EPA Administrator signed the Final BTA Rule on November 9, 2001, but declined, for reasons unexplained in the RD, to discuss the applicability of the new rule. DEC Staff submit this is an error of law.

[4]The title of the new rule is "National Pollutant Discharge Elimination System—Regulations Addressing Cooling Water Intake Structures for New Facilities", signed by the EPA Administrator on November 9, 2001 and published in the Federal Register on December 18, 2001, to be effective on January 17, 2002, 66 Fed. Reg. 243(Dec. 18, 2001) (Hereinafter, the "BTA Rule"). The rule is available at http://www.epa.gov/ost/316b.

II. EXCEPTIONS TO THE RECOMMENDED DECISION

A. The New Federal Regulations Governing Intake Structures for New Facilities under Section 316(b) of the Clean Water Act Apply to the Project and Compel a Different Result from that Recommended by the ALJ.

The EPA's recently promulgated "Regulations for Addressing Cooling Water Intake Structures for New Facilities" (the "BTA Rule") support DEC Staff's determination to issue the Draft SPDES Permit for the Project. As set out below, the BTA Rule applies to the Project, and establishes specific performance requirements concerning maximum intake flow capacity and through-screen velocity, quantitative requirements already incorporated into the Draft SPDES permit. In addition, the BTA Rule requires the Applicant to have submitted a plan for reduction of impingement and entrainment at the Project (the "I&E Plan"). While the Applicant must submit an I&E Plan and must construct and operate I&E measures, the BTA Rule specifically provides that DEC approval of the specific technologies to be employed by the Applicant is not required at the time of initial SPDES permit issuance.[5] Rather, the Applicant must monitor and report the effectiveness of the selected measures to reduce impingement and entrainment, and any deficiencies identified by DEC Staff at the time of permit re-issuance may require the

[5]In the present case, the Applicant has agreed to implement the measures DEC Staff requested, namely the 2 mm wedge wire screens surrounded by the Gunderboom MLES, even though the Applicant could have argued that DEC approval of these measures is not required at initial SPDES permit issuance under the BTA Rule.

imposition of additional measures to reduce impingement and entrainment.[6] Because the Draft SPDES permit complies with the quantitative performance requirements of the BTA Rule, and the Applicant has voluntarily submitted to the implementation of the measures required by DEC Staff to reduce impingement and entrainment, the Draft SPDES Permit should be upheld and the ALJ's recommendations to the contrary rejected.

1. The Proposed Intake is Subject to The New BTA Rule, 40 CFR Part 125.

The proposed intake structure for the Project is subject to the new BTA Rule. See 40 CFR §125.81. Section 125.81 of the BTA Rule makes a "new facility" subject to the BTA Rule if: (a) the new facility will utilize a new cooling water intake structure, (b) is subject to SPDES permitting requirements, (c) will draw more than 2 million gallons of water a day (MGD), and (d) at least 25 percent of the water to be withdrawn will be used for cooling purposes.[7] Id. Because the Project entails the construction of a new cooling water intake

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[6]The BTA Rule also provides that the DEC may impose permit requirements in addition to those required by the BTA Rule to the extent such additional requirements are required under state regulations, including state water quality standards. In the present case, DEC Staff necessarily determined that the Draft SPDES Permit would result in compliance with state water quality standards. Because the Applicant has agreed to implement specific measures to reduce impingement and entrainment at the Project–namely the 2 mm wedgewire screens and the Gunderboom–Staff does not have to justify such measures as necessary for consistency with state water quality standards. Indeed, Staff has concluded that the Draft SPDES Permit will be consistent with state water quality standards.

[7]"Cooling water intake structure" is defined in Section 125.83 as "the total physical structure and any associated constructed waterways used to withdraw cooling water from the waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps."

(continued...)

structure, will require a SPDES permit, will draw up to 7.5 MGD, more than 25 percent of which will be used for cooling purposes, and will commence construction after the effective date of the BTA Rule, the Project is subject to the new BTA Rule.

2. The Proposed Intake and Draft SPDES Permit Comply with the New BTA Rule.

Section 125.84(b) sets forth the specific performance requirements applicable to facilities that draw more than 10 million gallons of cooling water daily, or to facilities that draw between 2 MGD and 10MGD and choose to comply with the "fast track" requirements of Section 125.84(b). Compliance with these performance criteria means compliance with the best technology available requirement of CWA Section 316(b). As set forth below, the proposed Project complies with the fast track regulations of 125.84(b) and therefore satisfies the best technology available requirement of Section 316(b) of the Clean Water Act.

(i) The Proposed Intake Structure Complies with The Wet Closed-Loop Cooling Capacity Restriction Required by Section 125.84(b)(1).

Section 125.84(b)(1) requires that cooling water intake flow must be restricted to a

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[7](...continued)

"New facility" is defined as "any building, structure or facility, or installation that meets the definition of 'new source' or 'new discharger' in 40 CFR 122.2 and 122.29(b)(1), (2), and (4) and is a greenfield or stand-alone facility; commences construction [30 days after date of publication in the Federal Register], and uses either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water...."

level commensurate with that achievable with a wet closed-loop, recirculating cooling system. Because the Project includes a hybrid closed loop recirculating cooling system, and the Draft SPDES Permit contains an intake flow rate restriction consistent with a wet closed-loop cooling system, the proposed intake structure complies with Section 125.84(b)(1).

(ii) The Proposed Intake Structure Complies with the Through-Screen Velocity Requirement of Section 125.84(B)(2).

Section 125.84(b)(2) establishes a maximum through-screen intake velocity for cooling water intake structures of equal to or less than 0.5 feet per second. Because, the maximum through-screen intake velocity for the Project is 0.5 ft/sec (approximately 0.28 ft/sec at average water use, see draft SPDES permit Additional Requirements 1(d)(2)), and the maximum flow through the Gunderboom is 0.014 ft/sec.[8] The proposed intake complies with the requirement contained in Section 125.84(b)(2).

(iii) The Proposed Intake Structure Complies with With the Proportional Intake Flow Requirements of Section 125.84(b)(3).

The requirement for estuaries and tidal rivers is that intake flow must be less than or equal to 1 percent of the tidal excursion volume. The 7.5 million gallon per day maximum withdrawal cooling water for Unit 3 occurs over 2 tidal cycles each of which contains 2 tidal excursions. Therefore, the 7.5 mgd divided by these 4 tidal excursions equals 1.875 million

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[8] The RD at page 13 incorrectly states that the maximum flow through the Gunderboom is 1.4 ft/sec when it is actually 0.014 ft/sec. This may be due to a typographical error in the draft SPDES permit which will be corrected.

gallons per tidal excursion. The Bowline Unit 3 withdrawal complies with this limitation, based on the following analysis:

1. The proposed Unit 3 is located within the Croton-Haverstraw Region of the Hudson River. This River Region as defined by the Hudson River Biological Monitoring Program extends from River Mile 34 to 38, or is 4 miles long.

2. The Hudson River in this area has a tidal excursion of approximately 4 miles.

3. The volume of the Croton-Haverstraw region of the Hudson River is147,736,754 cubic meters which would contain3.902e10 gallons.

1,875,000 divided by 39,020,000,000 = 0.00048 or about 0.05% of one excursion. The withdrawal from Bowline Unit 3 is approximately one twentieth of the maximum allowed.

(iv) The Proposed Intake Structure Complies with the Design and Construction Technology Requirements of Section 125.84(b)(4) and (5).

Sections 125.84(b)(4) and (5) require that the Applicant "select and implement design and construction technologies or operational measures for *minimizing* impingement mortality" and "entrainment of entrainable life stages" of fish and shellfish, provided certain conditions are found to exist in the source water body. "Minimize" is expressly defined in the new BTA Rule to mean "to reduce to the smallest amount, extent, or degree reasonably possible", and further explained in the Preamble to the BTA Rule as follows:

EPA interprets the use of the "minimize" in CWA section 316(b) to

> give EPA discretion to consider technologies that very effectively reduce, but do not completely eliminate, impingement and entrainment as meeting the requirements of section 316(b) of the CWA.

See §125.83. This definition stands in stark contrast to the definition selected by the ALJ in the Recommended Decision without any reference to EPA guidance or case law interpreting the term.[9]

The following conditions, if present, require a plan for design and construction technologies or operational measures for the minimization of impingement at a proposed facility under Section 125.84(b)(4): (a) there are threatened or endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, within the hydraulic zone of influence of the cooling water intake structure; or (b) there are migratory and/or sport or commercial species of impingement concern to the permitting agency or any fishery management agency(ies), which pass through the hydraulic zone of influence; or (c) it is determined by the permitting agency or any fishery management agency(ies) that the proposed facility, after meeting the technology-based performance requirements in Sections 125.84(b)(1)(capacity limitation),(2)(velocity limitation), and (3)(proportional flow requirement), would still contribute unacceptable stress to the protected species, critical habitat of those species, or species of concern.

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[9]At page 10 of the RD, the ALJ defines "minimize" to mean "to reduce to the smallest possible amount, extent or degree. The absolute term 'minimize' is distinct from the relative term 'reduce' which means 'to diminish or lessen as in extent, amount or degree'." (citing the *American Heritage College Dictionary (Third Edition, 1993)*). By defining the term in this manner, the ALJ incorrectly frames the BTA inquiry.

The following conditions, if present, require a plan for design and construction technologies or operational measures for minimizing entrainment of entrainable life stages of fish and shellfish: (a) there are threatened or endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, within the hydraulic zone of influence of the cooling water intake structure; or (b) there are or would be undesirable cumulative stressors affecting entrainable life stages of species of concern to the Director or any fishery management agency(ies), and it is determined by the Director or any fishery management agency(ies) that the proposed facility, after meeting the technology-based performance requirements in Sections 125.84(b)(1)(capacity limitation),(2)(velocity limitation), and (3)(proportional flow requirement), would contribute unacceptable stress to these species of concern.

In the present case, DEC Staff has identified six species of concern in reviewing the Applicant's proposed intake structure: white perch, bay anchovy, river herring (alewife and blue back herring are consolidated due to the difficulty in distinguishing early life stages), American shad and striped bass.[10] The Haverstraw Bay section of the Hudson is an important nursery for these species, but it is not an important spawning area. DEC staff reviewed and deemed acceptable the Applicant's plan to minimize impacts to these species through the design and construction of an intake with the reduced capacity of a hybrid closed-loop system, 2 mm wedgewire screens with the additional protection of a Gunderboom MLES to further reduce impacts.

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[10]No party has disputed the identification of these important species.

(v) The Draft Permit Will Ensure Compliance with the Monitoring and Record-keeping Requirements Of Sections 125.84(b)(6) & (7).

Sections 125.84(b)(6) and (7) require that the Applicant implement the minimum monitoring and recordkeeping requirements specified in Section 125.87 and 125.88, respectively. Section 125.87(a) requires the Applicant to monitor both impingement and entrainment of certain fish species identified in the Source Water Baseline Biological Characterization, as follows: (a) impingement rates for each species over a 24-hour period no less than once per month for the first two years of the permit, and longer if the permitting authority dictates; (b) entrainment rates for each species over a 24-hour period no less than bi-weekly during the primary period of reproduction, larval recruitment, and peak abundance. The Draft SPDES Permit, accepted by the Applicant presently provides for biological monitoring and reporting. However, to be consistent with the BTA Rule, the Draft SPDES permit should be modified accordingly:

#1: Data submitted with the NPDES permit application to show that the facility is in compliance with location, design, construction, and capacity requirements (Para 125.86)

Add a new section, e, to Additional Requirement 1 to read as follows: *Provide a report documenting as built compliance with the requirements of this section within six months of completion of construction of the cooling water intake structure, or three months before*

commercial operation of this facility. Include information on installed instrumentation to monitor head loss across the wedge wire screens, the methodology to be used to correlate head loss with through-screen velocity, and the operating requirements necessary to assure that the required through-screen velocity limitations will be maintained. Upon approval, these monitoring and operating methodology and plans shall become conditions of this permit.

Note that Additional Requirement 2.a., 1 through 5, included in the draft permit also insure compliance with # 1.

#2: Compliance monitoring data and records, including those for impingement and entrainment monitoring, to show that impingement and entrainment impacts are being minimized (Para 125.87(a)).

Add a new section, f, to Additional Requirement 4. to read as follows: *Biological monitoring as specified in this section is not required during times when cooling water for Unit #3 is being supplied from the discharge of either Units 1 or 2.*

Add a new subsection (-) to Additional Requirement 6.c., Analysis and Reporting to read as follows:

- *Appendices to document any periods between February through September when either*

Units 1 or 2 were operating and the discharge from either unit was used to supply cooling water to Unit 3.

Modify Additional Requirement 6.c., fourth subsection (-)to read as follows:

A discussion and appendices of the physical monitoring of the Gunderboom and of the wedge-wire intake screens pressure differential. Consider how this physical monitoring may provide a surrogate for biological monitoring as a means of detection Gunderboom or intake screen failure to exclude entrainable fish eggs and larvae from the area within the boom and from the intake flow to Unit #3. Include photographs and diving logs documenting diver inspections of the deployed Gunderboom and of any physical inspections of the wedge-wire screens.

#3: Through-screen or through-technology velocity monitoring data and records to show that the facility is being operated and maintained as designed to continue to meet the velocity requirement (Para. 125.87(c)).

This requirement is met through specifications in #2, above, 6.c., fourth subsection (-).

#4: Records from visual or remote inspections to show that technologies installed are being operated properly and function as they were designed (Para 125.87(c)).

In addition to impingement and entrainment monitoring, Section 125.87(b) requires velocity monitoring to ensure compliance with the maximum 0.5 foot per second through-screen velocity requirement of Section 125.84(b)(2). Section 125.87(c) also requires weekly visual inspections to ensure the intake technologies are functioning. The SPDES Permit will contain a requirement to monitor for velocity and conduct visual inspections if modified as indicated above. See Special Condition 6.c.

3. The Final BTA Rule Precludes Adjudication of Design and Construction Technologies for Reduction of Impingement & Entrainment at the Time of Initial SPDES Permit Issuance.

Under the new BTA Rule, the Applicant does not need to obtain DEC approval of the effectiveness of its chosen design and construction technologies to minimize (i.e., very effectively reduce) impingement and entrainment. Thus, the adjudication of the effectiveness of the 2 mm wedgewire screens and Gunderboom was rendered unnecessary by the new BTA Rule. See 40 CFR § 125.89. Indeed, the effectiveness of the design and construction technologies will not be an adjudicable issue until permit re-issuance. Id.

Section 125.89(b)(1) of the new BTA Rule provides that, for a facility regulated under Section 125.84(b), DEC must review the design and construction technology plan to "evaluate the suitability and feasibility of the technology proposed to minimize impingement mortality and entrainment" (emphasis added). The provision continues, providing that only upon permit renewal does the permit director review the actual performance of the technologies implemented for purposes of determining whether those technologies are

effective and whether additional measures should be required.[11] Because the effectiveness of the impingement and entrainment technologies is not the subject of DEC approval at initial permit issuance, the effectiveness of the Gunderboom and other technologies to be employed at the Project is not properly a subject for the Recommended Decision. As such, the Commissioner should reject the ALJ's recommendations and uphold the Draft SPDES Permit, as modified in 2(v) above, without further proceedings.

4. Staff Reasonably Concluded, Consistent with the EPA Final BTA Rule, that Dry Cooling is Not Best Technology Available for the Project.

DEC Staff concluded that dry cooling is not best technology available for minimizing adverse environmental impacts, for many of the same reasons EPA rejected dry cooling in promulgating the new BTA Rule. Indeed, in the preamble to the new BTA Rule, EPA states that it "does not find [dry cooling] to represent the 'best technology available' for minimizing environmental impact," because the costs may pose a barrier to entry to the marketplace for some facilities, it reduces the efficiency of electricity production, and the potential that imposition of dry cooling would impose competitive disadvantages by climate and region. (Preamble, page 125-6).

Although as a general matter, EPA found that dry cooling is "slightly more effective at

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[11]This provision also provides that any more stringent requirements that may be called for under state law should also be considered by the permit director. Because DEC regulations and past practice do not dictate a more stringent requirement than that agreed to by the Applicant in this case–namely hybrid closed-loop cooling with 2 mm wedgewire screens and a Gunderboom–no state requirements can be relied on to require more than that required by the Draft SPDES Permit in this case.

reducing impingement and entrainment, the incremental benefit afforded by dry cooling was not justified by the cost. In its discussion as to why dry cooling is not BTA, EPA provides its interpretation of the word "minimize" in Section 316(b), which it believes gives permit administrators "discretion to consider technologies that very effectively reduce, but do not completely eliminate, impingement and entrainment as meeting the requirements of Section 316(b) of the CWA." (Preamble, p. 125).

In the present case, DEC Staff issued a draft permit that, consistent with the dictates of the new BTA Rule, required closed-loop cooling, 2 mm wegdgewire screens and seasonally deployed Gunderboom MLES. Based on extensive analyses as to the effectiveness of these three technologies when deployed together, Staff determined that the Draft SPDES Permit would afford approximately equivalent protection compared to the dry cooling alternative. This equivalence is not required under the new BTA Rule, however. Indeed, what is required is that the proposed system meet the cooling system capacity, intake velocity and proportional flow requirements of the new rule, which is closed cycle cooling levels of capacity, not dry cooling. The Draft SPDES Permit unquestionably meets, and even exceeds, these requirements as detailed above.

Because the new BTA Rule is expressly founded on the principle that dry cooling is not BTA, it directly supports DEC Staff's draft permit decision and simultaneoulsly undercuts the ALJs Recommended Decision and the arguments of the intervenors that only dry cooling can satisfy BTA requirements. The Recommended decision should therefore be rejected and the Draft SPDES permit should be upheld.

B. Irrespective of the EPA Final BTA Regulations, the ALJ's Recommended Decision Should Be Rejected and Reversed Because it Incorrectly Applies the Athens Generating Company DEC Commissioner's Decision and Erroneously Concludes That the Gunderboom is Experimental, it Erroneously Interprets the Requirements of CWA §316(b), is Replete with Inaccuracies and Misinterpretations of Record Evidence, and Lacks Evidence to Support the Conclusions Made Therein.

As set forth below, the ALJ's Recommended Decision (RD) should be Rejected by the Commissioner and the Draft SPDES permit should be issued as proposed by DEC Staff and as modified herein.

1. The RD Misconstrues the DEC Commissioner's Decision in the Athens Generating Company, LP SPDES Permit Proceeding.

(i) The Comissioner's Decision in the Athens Proceeding Concludes that the Proposed Configuration of the Structure Incorporating a Gunderboom At The Athens Site was Premature Due to Lack of Evidence, Not that the Gunderboom Technology Itself is Experimental.

The entire RD rests on the ALJ's incorrect interpretation and application of the DEC Commissioner's decision in the Athens Generating proceeding. The ALJ erroneously concludes that the Athens decision should be interpreted as rendering a determination that the Gunderboom, Inc. technology itself, in any configuration, is experimental, and thus cannot be BTA for a different application, a different project, in a different location, with a different set of facts unless it has been previously permitted elsewhere. The ALJ then reveals

the uncertainty of this determination in requesting clarification from the Commissioner on whether the RD adopted the correct interpretation. Moreover, although the ALJ acknowledges, and gives lip service to, the case-by-case, site-specific nature of a BTA determination, the circular analysis provided in the RD essentially rejects this longstanding EPA and DEC policy of making BTA determinations on a case-by-case, site-specific and fact-specific nature, which was confirmed in the Athens Decision and the newly promulgated BTA Rule.

The ALJ's conclusion that the Gunderboom is "experimental" is based only on one statement in the Athens decision which does not even use the word "experimental." The ALJ ignores the significant discussion about the unique and premature configuration of the Gunderboom structure as proposed for the Athens site. In fact, analysis of the entire Gunderboom discussion in the Athens decision clearly requires a finding that the Commissioner determined that the proposed configuration of the structure and the manner in which Gunderboom was proposed to be incorporated into that structure was premature, not the Gunderboom technology itself. Indeed, the Athens Decision specifically states that "there is insufficient evidence in this administrative record to conclude that the Gunderboom technology is suitable for this project at this location." *In the Matter of Athens Generating Company, LP*, Interim Decision of the Commissioner, at 11, DEC Case No. 4-1922-00055/00001 (June 2, 2000) (Hereinafter, "*Athens Decision*")(Emphasis added.). The Commissioner recognizes the "mitigation potential" of the Gunderboom and the "optimism of staff," but determines that "there is an abundance of information regarding deployment of

the Gunderboom still needed from Athens Generating for consideration by the Department," and continued to list the requisite information. Id. The Commissioner also stated that "given the application-specific nature of a §316(b) determination, my finding should not be construed to mean that hybrid cooling with a Gunderboom could not constitute BTA elsewhere at another location with a different set of facts." Id. At 12. These statements directly contradict the ALJ's interpretation that the Commissioner's Decision in Athens renders the Gunderboom itself an experimental technology. The Commissioner specifically stated that was not the case. Id.

In the *Athens Decision*, the Commissioner never stated that the Gunderboom was either "experimental" or "not available" for consideration in a BTA determination. The *Athens Decision* does not even use the words "experimental" or "not available" when discussing the Gunderboom. In fact, the Commissioner expressly recognized that the Gunderboom was successfully deployed in 1999 after years of site-specific development to develop a configuration and application of the technology at the Lovett Generating Station. *Athens Decision* at 10. All of these developments, which operated successfully in 1999 at Lovett, according to the Commissioner in Athens, are applicable to the Mirant Bowline Unit 3 site. TR. 1790 - 1793. Mirant has also supplied an abundance of information concerning the proposed deployment of the Gunderboom at Bowline Unit 3, including, but certainly not limited to, the information requested by the Commissioner in the Athens Decision. Mirant provided evidence from years of experience with the Gunderboom at Lovett using the same configuration and technological enhancements that were proven successful at

Lovett, as well as additional technological enhancements which will further ensure successful deployment at Bowline Unit 3. TR. 1790-1793, Exhibits 115, 146, and 148, and Initial Brief of Mirant Bowline.

The ALJ attempts to distinguish the Lovett Gunderboom from the Bowline Unit 3 proposal, apparently to try to mirror the Commissioner's logic in the Athens proceeding. RD at 21. However, this fails because the slight differences are not configuration differences that have never been constructed, deployed or tested before. Rather, the differences relate to size of the Gunderboom curtain, location and currents. The fact that Lovett employs a larger Gunderboom consisting of multiple panels is due to the much larger water requirement at Lovett. Moreover, although the Bowline Gunderboom will be deployed in a straight line, this is not a rigid structure and will not compromise or affect the functioning of the Gunderboom itself. In fact, the curved deployment at Lovett is a more difficult configuration to ensure proper functioning and was only deployed in that manner due to the close proximity of the intake structures. The ALJ has simply ignored the evidence on the record concerning the similarities between the proposed Bowline and successful Lovett Gunderboom deployments, which proves the success and availability of the Gunderboom for use at Bowline Unit 3.

The ALJ's reliance on the fact that Gunderboom has not been approved as BTA in a SPDES permit to date, specifically at the Lovett Generating Station, as requiring a conclusion that Gunderboom is experimental and cannot be BTA at the Mirant Bowline Unit 3 site must be rejected. See RD at 22, 33, and 34. First, DEC witness Edward Radle testified that "yes,

we expect to include the requirement for a Gunderboom at Lovett Generating Station." TR 2132, lines 14-16. This evidence indicates that the Gunderboom will be permitted in the very near future, a fact that the ALJ chose not to recognize.[12] Instead, the ALJ erroneously created a new standard, never before applied in a BTA determination in DEC proceedings or US EPA Administrative proceedings, and not supported by DEC or EPA guidance or the new EPA BTA Rule. The lack of EPA and DEC precedent and record evidence in this proceeding to support the ALJ's creation of a standard requiring that a technology must be permitted before it can be determined to be available dictates that this determination must be rejected. [13]

The Commissioner explicitly recognized "that the Department has an obligation pursue new technologies" in the course of their permitting responsibilities. *Athens Decision* at 10. Additionally, the Commissioner noted that "[m]erely because a technology like the Gunderboom is relatively new does not render it unacceptable." Id. Indeed, in pursuing new technologies, there must be a first permitted application at some point in time, otherwise a successful technology, such as the Gunderboom, would never get permitted.

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[12] Note that the ALJ refuses to give weight to testimony by DEC Expert Witness Edward Radle based on the fact that it refers to something that will happen in the future. However, the ALJ completely relies upon unsupported assertions and allegations of Riverkeeper and Scenic Hudson witnesses which have absolutely no basis in record evidence and for which there is no evidence to support even a slight chance of occurrence in the future. RD at 22, footnote 16. See also, section B.2 for discussion of Riverkeeper and Scenic Hudson's assertions.

[13] Indeed, this logic is wholly circular: no new technology may be approved unless it has already been approved.

DEC witness John M. Cianci testified that even the Riverkeeper supports the concept of employing new technology that has never been used or permitted before to minimize impingement and entrainment of aquatic organisms pursuant to CWA §316(b). TR. 1768. DEC witness Cianci testified that in 1986, Riverkeeper's consultant, Dr. Ian Fletcher, designed a modified Ristroph screen and proposed use of this screen at the Indian Point Nuclear Facility to constitute an element of BTA, despite the fact that these new screen enhancements had never been used, much less permitted, at any facility in the United States. Id. The use of the modified Ristroph screens, although never deployed or permitted before, resulted in significant mitigation through which millions of impinged fish and aquatic organisms were spared that would have otherwise been killed. Id. The ALJ's circular argument creates a situation where a new technology, despite successful deployment and operation in a developmental project, will never be rendered "available" since it can never be permitted for the first time. If this absurd analysis was applied in the initial stages of the application of the CWA §316(b) requirement, we would still be required to render once through cooling systems as BTA. Clearly, this logic is detrimental to technological advancements for the protection of the fish and aquatic organisms of the State of New York, and is contrary to the DEC Commissioner's decision in Athens. *Athens Decision* at 10. Also, the regressive logic in the RD threatens the national leadership role played by the NYSDEC in advancing resource protective water intake technologies. Thus, the ALJ's RD should be rejected and the Commissioner should confirm the decision in Athens that the Gunderboom technology itself is not "experimental," but that the record in the Athens

Generating proceeding concerning the unique under water configuration of the proposed stationary structure with a Gunderboom for that site rendered the proposed "application of Gunderboom at [that] site a bit premature." *Athens Decision* at 11.

Finally, after pages of discussion rejecting DEC Staff's and the Applicant's evidence and testimony proving that the Gunderboom will be successfully deployed at Mirant Bowline Unit 3, without providing explicit reasons to support its rejection, the ALJ states that if the Commissioner determines that the Gunderboom is not experimental, DEC Staffs' position and draft permit should be upheld. RD at 45. Essentially, the RD concludes that the entire determination of whether the Gunderboom should be required with 2mm wedge wire screens and a hybrid cooling tower as BTA for Bowline Unit 3 rests on the Commissioner's clarification of the Athens Decision. Specifically, the RD finds that:

> "Assuming, arguendo, that the Gunderboom technology is an available (proven) technology for the Bowline Unit 3 project site (contrary to my recommendation herein), the Commissioner should conclude that the DEC Staff's determination is correct, that Mirant's proposal provides approximately equivalent mitigation of aquatic adverse impacts as dry cooling technology; and that the costs of Mirant's hybrid cooling technology proposal (with 2.0 mm wedge wire screen and Gunderboom) are not wholly disproportionate to the environmental benefits to be realized therefrom.
>
> "Under such circumstances, the Commissioner should conclude that the costs of dry cooling technology are wholly disproportionate to the aquatic environmental benefits it would provide. Therefore, assuming, arguendo, that the Gunderboom technology is a proven available technology for the Bowline Unit 3 project site, the Commissioner should conclude that Mirant's hybrid cooling proposal with 2.0 mm wedge wire screens and Gunderboom is the best technology available for the Bowline Unit 3 site." RD at 45 (emphasis added.)

Although this statement falls under the section discussing the costs of the dry versus hybrid with a Gunderboom, it is clear that the RD is biased from the ALJ's erroneous interpretation of the Commissioner's decision in Athens that the Gunderboom technology itself is experimental. When an unbiased, thorough analysis of all the evidence on the record is conducted, as discussed below, and the correct determination that only the Gunderboom configuration as proposed at Athens was "premature," not experimental, the conclusion must be that the Gunderboom, 2 mmm wedge wire screens and hybrid cooling tower provides approximately equivalent mitigation of aquatic adverse impacts as dry cooling and is the best technology available for the Bowline Unit 3 facility. [14]

(ii) The New Final BTA Rule Supports A Conclusion that the Gunderboom is A Successful Technology Available to Significantly Mitigate Entrainment Impacts at Cooling Water Intake Structures.

The recently promulgated EPA Final BTA Rule, wholly supports the rejection of the ALJ's decision reflecting the Gunderboom as experimental. First, as discussed above in Section II.A.3, the new BTA Rule precludes adjudication of Design and Construction Technologies, which the Gunderboom would be considered in this case. Even assuming that the Gunderboom technology could be adjudicated, the Commissioner still should reject the RD and confirm the *Athens Decision* that the Gunderboom technology itself is not

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[14] Of course, under the new BTA Rule, the Commissioner need not determine that the Gunderboom alternative affords approximately equivalent protection, because impingement and entrainment technologies are not subject to review upon initial permit issuance. See above at Section II.A.3.

experimental, but was successfully deployed at Lovett Generating Station.

The EPA's recently issued guidance supports deployment of the Gunderboom despite the fact that EPA states "that Gunderboom technology is currently 'experimental in nature.'" Technical Development Document for the Final Regulations Addressing Cooling Water Intake Structures for New Facilities, United States Environmental Protection Agency, Office of Water, 5.5.5 Aquatic Microfiltration Barriers, at 5-9, EPA-821-R-01-036, November 9, 2001 (hereinafter, the "TDD" available at www.epa.gov\waterscience\316b). In the "Technical Development Document for the Final Regulations Addressing Cooling Water Intake Structures for New Facilities," EPA specifically lists, and recommends, Gunderboom as an intake design and construction technology that "show[s] significant promise for minimizing entrainment." Id. Chapter Five of the TDD discusses the efficacy of alternative technologies that are available for use by applicants. EPA specifically recognizes the success of the Gunderboom at the Lovett Generating Station in stating that:

> "[i]nitial testing at this facility showed significant potential for reducing entrainment. Entrainment reductions up to 82 percent were observed for eggs and larvae and these levels have been maintained for extended month-to-month periods during 1999 through 2001. At Lovett, there have been some operational difficulties that have affected long-term performance. These difficulties, including tearing, overtopping, and plugging/clogging, have been addressed, to a large extent, through subsequent design modifications. Gunderboom, Inc. specifically has designed and installed a 'microburst' cleaning system to remove particulates....Gunderboom systems have been otherwise deployed in marine conditions to prevent migration of particulates and bacteria. They have been used successfully in areas with waves up to five feet. The Gunderboom system is currently being tested for potential use at the Contra Costa Plant along the San Joaquin River in Northern California." TDD at 5-9 - 5-10.

Additionally, the Preamble to the new BTA Rule states that "[s]tudies from 1996 to 2001 at

Lovett Station (New York) show no obvious impingement/contact mortality using aquatic filter barrier systems." National Pollutant Discharge Elimination System - Regulations Addressing Cooling Water Intake Structures for New Facilities, Environmental Protection Agency, Preamble at 112, 66 FR 243. (Final Rule signed November 9, 2001, and published in the Federal Register on December 18, 2001 and effective on January 17, 2002, available at http://www.epa.gov/ost/316b) (hereinafter "BTA Rule"). EPA also states that "[t]he use of an aquatic filter barrier system (i.e. Gunderboom) at the Lovett Station in New York is entirely transferable to a large, Midwestern river system. This system is now providing consistently greater than 80 percent reductions in entrainment and has the potential to exceed 90 percent." BTA Rule, Preamble at 113, note 43. Therefore, even EPA recognizes the success of the Gunderboom at Lovett Generating Station and the significant promise for use of this technology at other facilities to reduce impingement and entrainment impacts, and includes the Gunderboom as an acceptable design and construction technology in the new BTA Rule.

2. The ALJ Erred In Determining that the Gunderboom is Experimental, Not Proven and Thus Not the Best Technology Available at the Bowline Unit 3 Facility Because the ALJ Inappropriately Ignored Record Evidence and Relied On Unsupported Assertions for the Basis of the RD.

In the new BTA Rule, the EPA adopted a permitting procedure that encourages the deployment of promising technologies, such as the Gunderboom, which minimize impingement and entrainment impacts. Indeed, pursuant to 40 CFR §125.89, design and

construction technologies, such as the Gunderboom, may not be adjudicated upon initial permit issuance. Only after the initial permit term has passed, and data as to actual effectiveness is available, are these technologies accepted or rejected by the permitting agency. Thus, contrary to the effect of the ALJ's decision, new technologies are encouraged by the new BTA Rule.

Even without the new rule, the preponderance of the evidence on the record demonstrates the effectiveness of the Gunderboom at minimizing impingement and entrainment impacts, and proves that it will be successfully deployed at Bowline Unit 3. The ALJ erroneously rejects the evidence and conclusions, presented by DEC Staff and Mirant, regarding environmental impacts and technical guidance, while having no supporting evidence presented by intervenors regarding actual impacts of the proposed intake. Specifically, intervenors presented no evidence concerning impacts to aquatic biota, habitat, discharge of pollutants, impacts on Significant Habitat, impacts on wetlands or an on-site stream, cost of various intake and cooling alternatives or operational costs associated with alternatives. A decision rejecting evidence supporting proposed permit conditions must be justified by substantial evidence proving the record lacks a "preponderance of evidence" supporting the proposed draft permit. The intervenors failed to meet their burden of proof in showing that the record lacks a preponderance of evidence supporting the draft permit, and the ALJ erred in not applying this standard, but instead, accepting unproven and unsubstantiated assertions and allegations of intervenors. Thus, the RD should be totally rejected as being incorrect and not based upon the record evidence presented in this case.

(i) EPA Recognizes that the Gunderboom Successfully Mitigates Impingement and Entrainment Impacts at Cooling Water Intake Structures Based on the Lovett Generating Development Project.

As discussed above in section B.1.(ii), the EPA specifically recognized the mitigation potential of the Gunderboom and adopted the Gunderboom as an acceptable design and construction technology that can be used to mitigate adverse impingement and entrainment impacts of a cooling water intake structure. The EPA relied on the information obtained from the Lovett Generating Station Gunderboom deployment, which is included in this record. However, there is additional information included in this record that further supports and proves the effectiveness and success of the Gunderboom technology at minimizing impingement and entrainment impacts that EPA apparently did not rely upon. See Exhibit 145 (ER-1). Therefore, this record further bolsters the EPA's recognition of the Gunderboom as a proven and available technology which may be employed to minimize impingement and entrainment impacts to satisfy BTA requirements. Thus, the ALJ's RD must be reversed and rejected and the DEC Staff's proposed draft permit should be issued with the minor modifications discussed in this sections II.A.2.(iii) and (v).

(ii) The ALJ erred in finding that the DEC Staff did not address advances in the Gunderboom technology that occurred since the Commissioner's Decision in Athens.

The adjudicatory hearing focused on the evidence presented on the deployment of the Gunderboom at Lovett and the impingement, biofouling and Bowline Pond flow studies, which all occurred after the Commissioner's Decision in Athens. Curiously, the ALJ claims that DEC Staff did not directly address the advances in the Gunderboom technology since Athens, ignoring the preponderance of the evidence presented by DEC Staff and the Applicant discussing such advances. Indeed, the additional successful deployment of the Gunderboom at Lovett during 2000 (Exhibit 115), DEC witness Radle's impingement studies (Exhibit 145 (ER-1), the Applicants flow studies in Bowline Pond, and the accurate analysis of the Riverkeeper's biofouling study, considering its substantial shortcomings, all provide evidence that the Gunderboom technology will be successful at Bowline Unit 3.

The ALJ erroneously creates a new standard in New York, namely that the Gunderboom may only be considered BTA based on technological advances since the Commissioner's decision in Athens. RD at 23. Since the ALJ erred in concluding that the Gunderboom technology itself is "experimental, " as thoroughly discussed above, the ALJ's creation of this standard is erroneous. Moreover, the evidence on this record directly contradicts the ALJ's finding that there is no additional information supporting the success of the Gunderboom in minimizing entrainment impacts.[15]

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[15] The ALJ did recognize the impingement experiment conducted by DEC witness Edward Radle as providing "probative information that contributes to understanding and development of the Gunderboom technology, and supports a conclusion that adverse impacts of the Gunderboom related to impingement mortality would be *de minimis*." RD at 28. However, DEC Staff assert that this experiment did not contribute to the development of the Gunderboom technology, but provided additional information proving that the

(continued...)

The Gunderboom technology as it currently exists is successful. *Athens Decision* at 10. The developmental deployment at Lovett merely addressed the site-specific factors to be addressed to ensure proper deployment at that site. Likewise, the Commissioner's decision in Athens focused on the inadequate information concerning the actual deployment of the Gunderboom in a structural configuration that had never been constructed elsewhere. In this case, all of the information and technical enhancements developed at the Lovett deployment are directly applicable to the Bowline Unit 3 proposal. Moreover, the applicant discussed numerous technical advances which will be employed at the Bowline deployment that do not yet exist at Lovett. These include the fully automated computerized monitoring of anchor line strain gauges and inside-boom and outside-boom water level monitoring, which will be incorporated into the plant alarm system in the plant control room; the air cleaning system which will have a plant supplied, uninterruptible source; and an entire spare Gunderboom to allow expeditious replacement of a damaged Gunderboom if necessary. The ALJ completely disregarded this evidence and did not even mention it in the RD. Furthermore, the ALJ misinterpreted the record evidence concerning the biofouling studies, the Lovett Generating Gunderboom Report, 2000 (Exhibit 115), the evidence concerning the pore size of the Gunderboom to be used at Bowline, and the evidence concerning the deployment in the Bowline Pond environment, as discussed in the

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[15](...continued)
existing Gunderboom technology is successful at minimizing, and possibly eliminating adverse impacts associated with impingement of aquatic organisms at cooling water intake structures.

following sections.

(iii) The ALJ incorrectly misinterpreted the Riverkeeper's biofouling studies and failed to recognize the actual real life successful deployment of the Gunderboom at the Lovett Generating Station.

The ALJ erroneously endorses the Riverkeeper's incorrect interpretation and assertion that the microcosm biofouling study, conducted in Bowline Pond under conditions that are not representative of a full scale Gunderboom deployment, as providing "credible evidence suggesting that biofouling is a contributing factor limiting the Gunderboom's effective exclusion to a period not exceeding between four and six weeks." RD at 30. Although the ALJ summarizes the DEC Staff and Applicant's positions concerning the biofouling studies, and specifically states that both "Mirant and DEC Staff have presented some credible criticisms of the studies," the ALJ fails to discuss why these criticisms and the associated expert witness testimony and evidence do not refute, or at a minimum, significantly limit the weight accorded to the biofouling studies. Id. The ALJ provides no analysis based on evidence to support the RD's conclusion that the studies provide credible evidence that biofouling will limit the Gunderboom's effectiveness at all, and especially, as he specifically concludes, to between four and six weeks. Indeed, the record contains no evidence that Riverkeeper's biofouling studies prove that the biofouling will limit the Gunderboom's function at all. The only evidence in the record proves the contrary: the Gunderboom has repeatedly functioned effectively at the Lovett Generating Station for months. Exhibit 115, Table A-1, *Athens Decision* at 10, BTA Rule, Preamble pp. 112-113, and the TDD, Chapter

5.

Riverkeeper's biofouling studies in no way prove that Gunderboom effectiveness will be limited to between four and six weeks. The ALJ incorrectly assumed that the information from Riverkeeper's biofouling study could be extrapolated to a full-size Gunderboom deployment at Lovett. However, as is the case with the ALJ's erroneous interpretation of other record evidence, the ALJ accepts Riverkeeper's unsupported assertions without any evidence to justify such a conclusion, or without an analysis explaining why the preponderance of the evidence on the record, submitted by DEC Staff and Mirant, is not credible. The evidence from the Lovett 2000 Report does not conclude that biofouling was the reason for the reduced effectiveness after six weeks of deployment. In fact, the Lovett Report specifically states that biofouling was not a concern at Lovett, and that the "boom looked good." Exhibit 115. The ALJ simply ignored this evidence, and thus, the RD must be rejected.

The ALJ apparently relied solely on "the fact that Mirant did not challenge Riverkeeper's study design before the study was implemented, and to the contrary, participated by conducting its own simultaneous FTA [Flow Test Apparatus] study, weakens the credibility of Mirant's criticisms." Id. This represents an inappropriate bias of the ALJ, further illustrated by the inappropriate tone throughout his decision, and ignores and misrepresents the facts surrounding the Riverkeeper's proposal and design of the biofouling study. The Riverkeeper proposed the biofouling studies at a very late stage in the proceeding, which subsequently resulted in more than 30 day delay in the hearings in order

to conduct the study. Although DEC Staff and apparently Mirant's experts, attempted to comment on the proposed study, Riverkeeper failed to provide a final draft proposed study in a timely manner such that DEC and Mirant's input could be considered. In fact, when DEC submitted written comments, Riverkeeper objected to such comments as inappropriate. The ALJ's conclusion that the lack of challenge by Mirant of Riverkeeper's study is biased, inappropriate, and ignores the actual facts in this proceeding. Thus, the ALJ's conclusions concerning the validity and weight accorded to the Riverkeeper's biofouling studies must be rejected as inappropriate and unsubstantiated.

The preponderance of the evidence on the record refutes the ALJ's conclusions. DEC Staff and Mirant both submitted evidence explaining why the microcosm experiment is not representative of the actual full-scale deployment of the Gunderboom. Most importantly, the function of the air burst system, which is deployed at Lovett and will be deployed at Bowline, was not properly represented by the FTA apparatus. The ALJ accepted this fact as a credible criticism of the study, but failed to explain why the flawed study should be relied upon as representative of the proposed Gunderboom deployment. The ALJ also accepts that DEC and Mirant's experts "persuasively refute the Joint Intervenors' assertion that biological growth on the Gunderboom fabric will continue unabated until the available habitat on the fabric is substantially colonized," and recognizes that biological growth did not result in failure of the Lovett Gunderboom in 1999 and 2000 deployments. RD at 30. However, again the ALJ erroneously fails to explain why such evidence is unpersuasive in rejecting the validity of these fouling studies as being representative of a full-scale

Gunderboom deployment. The Riverkeeper's biofouling studies prove that some biofouling will occur on the Gunderboom, a fact that is well established in the Lovett reports. However, the Riverkeeper's studies do not refute the fact that the Gunderboom, despite limited biofouling, functioned effectively and successfully at the Lovett Generating Station. Even after 30 days of fouling, and without an air burst cleaning system, Riverkeeper's test panels still had 2 times the flow capacity per unit area of fabric than needed to supply cooling water for Bowline Unit 3. For these reasons, the ALJ's conclusion and finding of fact No. 82, which are unsupported, unexplained, and erroneous, must be rejected.

(iv) The ALJ erred in ruling that the perforation size of the Gunderboom fabric provided to Riverkeeper, and to be used at Bowline Unit 3, is different from the Lovett perforation size and is greater than 0.5mm.

The maximum pore size of the holes specified in the draft SPDES permit for the outside layer of MLES fabric is 0.5 mm. Exhibit 79, Page 8. Throughout the development of the MLES, the Apparent Opening Size (AOS) has been discussed in reports provided by the Applicant (Exhibit 115, Pg 2-1): the AOS is the approximate largest size particle that will pass through a geotextile fabric, based on laboratory analysis. The AOS specification is determined using sized glass beads placed on a piece of fabric secured in a frame and shaken. The fabric used in the Lovett program, without perforations, has an AOS of 0.212 mm, and when 0.5 mm perforations are added, the AOS would reflect the larger openings of 0.5mm and so the perforated fabric now has the larger AOS of 0.5mm. Judge Casutto is obviously confused on the issue of a fabric with an AOS of 0.212 mm being perforated

during its application to a MLES with 0.5 mm holes; the now perforated fabric has a different AOS of 0.5 mm, and is now a fabric with holes with an AOS of0.5 mm and an AOS of 0.212 mm of the unperforated sections of the fabric. Exhibit 115, p.2-1.

The draft permit may have been remiss in not specifying the American Society for Testing and Materials ASTM D-4751-99a methodology. That correction is easily made and DEC Staff recommend that this requirement be included in the SPDES permit in Additional Requirement 2. The fabric provided by Mirant to conduct RiverKeeper's fouling study met these permit required specifications: the dry material met the 0.5 mm specification, and the wet material, as it would be under deployed conditions, was smaller at 0.425 mm. RD 32.

The maximum pore size specification of 0.5 mm is based on the long-standing practice in fish egg and larval monitoring studies in the Hudson River Estuary and during the Lovett Generating Station Gunderboom evaluation programs of using 505 micron (0.505 mm) nylon mesh collecting gear to obtain samples. Ex 115 Attachment B. The fish eggs and larvae of interest in this MLES program are retained by the 0.505 mm collection nets used in sampling these organisms. These organisms would similarly be prevented from passing through the MLES fabric with similar sized, or actually very slightly smaller, 0.5 mm holes.

Fish eggs and larvae are physical solids, and in addressing the question of their passage through a fabric, a methodology that arrives at the porosity of the fabric using physical solids is appropriate: the ASTM D-4751-99A methodology using glass beads is the correct methodology. The use of a microscope to measure hole size as by Dr. Henderson relies on light, a methodology that may be appropriate if the function of interest was related

to the pore size and the passage of light through the material. But passage of light through the MLES material is of no consequence or interest in this application, hence the measure of the pore hole size using a microscope is irrelevant. It is not surprising that using an inappropriate methodology to measure the pore size (a light microscope) provides a different estimated size of the holes (1 mm) than that obtained with the appropriate methodology (ASTM D-4751-99a); that is the impetus behind establishing standardized testing methods for specific material applications.

After presenting a discussion of the faux controversy over the materials provided by Mirant with 0.5 mm holes as measured by the correct methodology, the RD Page 32 concludes that "[c]onsequently, the record contains no evidence of effectiveness in exclusion of fish for the new Gunderboom fabric." RD at 32. The confusion caused by RiverKeeper introducing an inappropriate alternative method of measuring pore size, not recognized as a standard method, to measure the sizes of the pores on the fabric provided them by Mirant permeated even this part of the ALJ's reasoning. The Lovett Generating Station Gunderboom System Evaluation Program, 1998, explains that the front panel for that year's deployment, Gunderboom, Inc's #8 material, was perforated with holes approximately 0.5 mm in diameter. This is the first year perforated fabric was used to test the effectiveness of the MLES in excluding fish eggs and larvae from the intake at Lovett. Similarly, the Lovett Generating Station Gunderboom Deployment Program 2000 (Ex. 115 Page 2-1) provides the same fabric specification: Gunderboom #8 with 0.5 perforations: this is the third (1998 - 2000) year with this exact same Gunderboom #8 fabric with 0.5 mm

perforations as determined by the appropriate ASTM methodology. The exception to the use of 0.5 mm perforations at Lovett was the first MLES entrainment study in 1995. Since the need to perforate the boom on that very first deployment was not appreciated, unperforated fabric was used. In spite of Dr. Henderson's inappropriate measure of hole sizes using a microscope, the Gunderboom MLES has never been deployed or tested with holes larger than 0.5 mm. Holes 1 mm in diameter (as measured using the inappropriate light microscope methodology employed by Dr. Henderson) would allow through boom passage of many of the eggs and early larvae in that area of the estuary, thereby defeating the intent of the Gunderboom MLES technology.

Using the methodology that is relevant to passage of physical materials (as opposed to the passage of light), the ASTM AOS sieve analysis, there are two years of Gunderboom effectiveness testing using the SPDES permit specified perforations of 0.5 mm maximum hole size. Both the 1998 and 2000 Gunderboom evaluation entrainment programs at Lovett used fabric with 0.5 mm holes. Therefore, the ALJ's statement that there was no evidence on the record of the effectiveness of the Gunderboom fabric planned for installation at Bowline Unit 3 is simply wrong and ignores the evidence on this record. The granting of Riverkeeper's motion for adverse inference against Mirant (Conclusions of Law 30) is based on the ALJ's confusion over the facts of the perforation of MLES fabric, not on record evidence. Therefore, the ALJ's ruling concerning pore size must be rejected in its entirety.

(v) The ALJ erred in interpreting the evidence concerning current velocities and associated sedimentation of the Gunderboom in Bowline Pond.

The RD erroneously states, as if it were established fact, that "[b]ackground current velocity is low in Bowline Pond, which will limit the effectiveness of the Air Burst system and increase fouling rates by attached algae." There are several errors in this statement. First, there is nothing in the record that quantifies current velocities in Bowline Pond. A reference to hydraulic conditions is made by Dr. Bruce Bell under the very special conditions of slack tide and no flow from Units 1 and 2. TR .2176, Lines 15 - 17. Dr. Bell stated that "[d]uring, at least slack tides, when Bowline 1 and 2 units are not operating, there will be little or no movement of water inside of Bowline Pond." Id. However, during cross examination, Dr. Bell concedes that he is using the definition of slack tide to refer to the period of time when water surface is level, and not that current speed is near zero. TR. at 2190. More importantly, Dr. Bell concedes that he made no calculations on the duration of these very special tidal conditions or the associated current flows in Bowline Pond. TR. 2190.Therefore, Dr. Bell's unsupported statement amounts to mere speculation. Apparently the ALJ missed this important point.

The second error relates to the growth of attached algae on a deployed boom. There is nothing in the record that suggests that low current velocity affects the rate of growth of algae on the deployed Gunderboom, thus, this statement is also erroneous and unsupported. Current velocities have not been specifically analyzed as to how they would affect the growth of algae on a Gunderboom. However, the record does contain evidence

that biofouling of the Gunderboom at Lovett did not affect the effectiveness of the Gunderboom to reduce impingement and entrainment. Exhibit 115. Therefore, the ALJ erred in relying on unsupported hypotheses of the intervenors and ignored the record evidence to the contrary.

The third, and most significant error in the ALJ's statement, is the assertion that low or no current velocities in Bowline Pond would limit the effectiveness of the Air Burst system, and result in the clogging and failure of the MLES . This statement is based on the Prefiled Direct testimony of Dr. Bell which, as is the case with all other witnesses of intervenors, Dr. Bell provided no analysis or data to support this assertion. TR. At 2176-2177. DEC Staff anticipated this position of Riverkeeper's witness and addressed it extensively in Prefiled Testimony. TR. 1798-1802. DEC witness Mr. Radle explained that turbidity measurements made inside and outside a deployed MLES at the Lovett Generating Station did not document lower turbidity in water that had passed through the Gunderboom, Exhibit 145(EWR - 2), as sediments in this part of the river were apparently small enough to readily pass through the Gunderboom fabric. Perforations of 0.5 mm have been added to the boom since these turbidity studies were conducted, further increasing the ability of suspended sediments to pass through the Gunderboom MLES. Exhibit 115.

Additionally, in order to clarify the record and establish that Riverkeeper's unsupported position is incorrect, DEC Staff estimated the expected size distribution of suspended sediments in that part of the Hudson River estuary based on the ability of river currents to maintain particles in suspension, by examining current velocity profiles in the

Lovett area based on extensive studies done in support of the Gunderboom MLES deployment at Lovett. Exhibit 145 (EWR -4). DEC Staff then compared the relationship of transported particle size (Exhibit EWR-4) to water velocity provided in Exhibit 145 (EWR - 5). This relationship proves that particles that could be maintained in suspension in this area of the Hudson River were in the clay to silt size range, again small enough to easily pass through a boom with .5 mm pores as required in the SPDES permit.

After DEC Staff demonstrated, with supporting evidence, that Dr. Bell's "no water current hypotheses" are incorrect and discredited, Dr. Bell then appealed to the effects of wind and wave induced turbulence in his Prefiled Reply Testimony as a potential source of suspended sediments postulated to clog the Gunderboom, again without any data or analysis. TR. at 2184. In response to this unsupported assertion, DEC staff relied on the methods provided in a published study, *The Physical Limnology of Clear Lake*. Staff then used data from the Article X Application on wind speed and direction, estimated maximum wind fetch from navigational charts, and used water depth taken from Gunderboom materials submitted by the Applicant to calculate the worst case wind-induced current velocities at the bottom in Bowline Pond in the area of the proposed Gunderboom. TR. 1936 - 1939. The maximum currents calculated would suspend only the smallest particles, again, particles small enough to easily pass through the MLES. TR 1936. In addition, DEC staff consulted the published literature and cited a report (*Sedimentary and Geochemical Properties Between Kingston and Haverstraw, New York*) that provided particle sizes of sediments in the area of Haverstraw Bay. TR. at 1841, Exhibit 145 (EWR-. The particle size

documented in this report confirms the small particle size of sediments in this area, entirely consistent with DEC staff's analysis and their conclusion that sediments in the area, both suspended and on the bottom of Bowline Pond, are composed of particles small enough to pass through the Gunderboom MLES. TR. 1841.

Dr. Bell provided only unsupported assertions and no analyses. Moreover, he admits under cross examination that he had not performed any particle size studies in Bowline Pond, had not performed any boring studies, nor reviewed any results of boring studies in Bowline Pond. TR 2202. Dr. Bell also admitted that he had not done any calculations to support his assertion of wind-induced turbulence in Bowline Pond. TR. 2205-2206. The record provides clear indication that Riverkeeper's witness had no basis in fact for his assertions that suspended sediments would clog and cause eventual failure of a Gunderboom in Bowline Pond. In spite of the entirely consistent finding in DEC staff analysis, in published reports, and sediment boring logs for Bowline Pond provided by the Applicant that sediments in the area are too small to clog a MLES, and the consistent finding that currents in the area, both riverine and wind-induced, were too small to suspend other than silt and clay sized particles, the ALJ inexplicably and erroneously accepted the unsupported and entirely discredited hypothesis that low current velocities in Bowline Pond will cause the MLES to clog with suspended sediments and fail.

Because the ALJ's RD relied on unsupported statements of Riverkeeper's witness Dr. Bell, and ignored concrete evidence proving that Dr. Bell's statements were erroneous, the ALJ's RD must be rejected.

(vi) The ALJ misinterpreted the DEC Staff Reply Brief recommendations concerning the reuse of the discharge of Units 1 and 2 at Unit 3, and erred in accepting Riverkeeper's argument that organisms not entrained at Unit 3 will be entrained at Units 1 and 2.

The RD correctly notes the opinion expressed early on in the application process by Mirant, and during the hearing by intervenors, that a Gunderboom deployed around Unit 3 would reduce entrainment and impingement losses for Unit 3, but would increase losses for Units 1 and 2 when those Units are operational. However, there is nothing in the record to support this opinion by Mirant or intervenors, and therefore it should be accorded no more weight than any unsupported hypothesis. See RD at 37. Water and fish early life stages from the Hudson River flow into Bowline Pond on the flood tide, and flow out on the ebb tide. An equally plausible hypothesis, then, is that any (minute) increase in density of planktonic organisms that occurred in Bowline Pond as a result of removal of MLES filtered water into Unit 3 would be returned to the main channel of the river on ebb tide. Note that the very small volume of water that would be used in an evaporative cooling tower as in the Bowline Unit 3 proposal would not produce measurable increases in density of planktonic fishes in either the water flowing into Bowline Units 1 & 2 when they were operating or in the water flowing out of Bowline Pond on the ebb tide, no matter which hypothesis may be correct.

The issue concerning reuse of the discharge of Units 1 and 2 has been resolved by the DEC Staff Reply brief recommendation that such reuse be allowed whenever Units 1 and 2

are operating contingent upon receipt of a letter from Mirant accepting the precondition that such reuse will not render Units 1 and 2 BTA for that facility, or affect, or be considered in, the determination of BTA for Units 1 and 2 in the independent Hudson River Settlement Agreement proceeding. See DEC Staff Reply Brief at 25. The ALJ misinterpreted DEC Staff's recommendation and incorrectly determined that this contingency should be made a permit condition. However, a permit condition must be enforceable. A permit condition requiring Mirant to agree that reuse of the discharge of Units 1 and 2 by Unit 3 has no impact on the BTA determination for Units 1 and 2 is no more enforceable than a provision requiring Mirant to support candidates of a particular political party. Therefore, the Commissioner should request Mirant submit a written statement agreeing to the above statement prior to authorizing reuse of Units 1 and 2 discharge whenever they are operating. This letter may be incorporated by reference into the SPDES permit.

(vii) The ALJ erroneously determined that the SPDES permit should require that the capacity of the Bowline Unit 3 intake be limited to 0.175 MGD and failed to address the impacts of such reuse.

The ALJ erred in determining that a permit should be written allowing a maximum of 0.175 MGD of makeup water. Neither the Mirant Article X application nor SPDES application addressed the use of dry cooling at the proposed Bowline Unit 3 facility. Indeed, the Applicant stated that if dry cooling is required, makeup water would not be obtained from the Hudson River, but from the public water supplier, United Water. As such, Mirant

has not provided any estimate of the amount of makeup water required for dry cooling. DEC staff, in order to compare impacts of fish entrainment employing various cooling technologies, simply scaled back the volume of makeup water required for Athens Generation Station while allowing a margin for different cooling tower designs. DEC presently does not have direct information on the volume of cooling water required by Mirant for a dry cooling technology. Thus, the ALJ erred in requiring an intake structure capacity of 0.175 MGD for the proposed facility.

The RD does not fully consider the impacts to aquatic organisms resulting from the reuse of the discharge of Units 1 and 2 by Unit 3. Mirant provided estimates of such impacts in Exhibit 116, Table 2. These estimates are based on using the new intake structure a maximum of 1152 hours (48 days) when Units 1 and 2 would not be running. This table demonstrates that, if the new Unit 3 intake is limited to 48 days of operation per year, there is a reduction is absolute numbers of ichthyoplankton entrained, although for the important Striped Bass, use of discharge water will increase mortalities by over one quarter million annually. However, as presented in DEC Witness Cianci's rebuttal testimony (TR 1772-76), to expect Units 1 and 2 to be operating almost the entire year is in error; the older, very inefficient, oil-fired generators will have significantly reduced capacity as newer, more efficient facilities become operational. To expect old facilities such as Bowline Units 1 & 2 to operate at 87% capacity in future years is unsupported. This means the actual impacts to ichthyoplankton, especially Striped Bass, will be higher, as discussed thoroughly in Witness Cianci's rebuttal testimony referenced above.

DEC Staff recommend use of Units 1&2 discharge water in our reply brief because it simplifies permitting in the future-not because we believe impacts will be significantly reduced. The Department is moving forward quickly to address the BTA concerns for Units 1 & 2 that literally kill billions of larval fish and fish eggs each year. We expect to be able to provide very significant reductions in these losses in the near future by revising the existing permit for those units. Inclusion of Unit 3 cooling makeup water allows incorporation of our revised Units 1 & 2 permits; otherwise the Unit 3 permit would require revision, and possibly further analysis to incorporate makeup water flow. Action on the Units 1 & 2 permits will occur prior to Unit 3 becoming operational, thus our proposal is beneficial to all parties positions. Absent such action on the existing permits, we would not recommend use of Units 1 & 2 discharge water as makeup for Unit 3.

C. The Record Evidence Clearly Establishes, and the Recently Promulgated BTA Rule Confirms, that the DEC Staff Correctly and Appropriately Conducted the BTA Analysis and Determined that An Intake with Hybrid Cooling Tower Level of Capacity, 2 mm Wedge Wire Screens Surrounded by a Gunderboom Constitutes BTA for the Bowline Unit 3 Facility and Minimizes Entrainment and Impingement Impacts to a Level Approximately Equivalent to Dry Cooling, Despite the Fact That the BTA Rule Only Requires Minimization of Impacts Consistent With the Use of Wet or Hybrid Closed Cycle Cooling Tower Levels of Capacity.

1. The ALJ Erred in Interpreting Critical Terms Central to the Determination of BTA.

The ALJ incorrectly establishes new definitions of critical terms, not supported by the new BTA Rule, which are central to the determination of BTA for cooling water intake structures in this and future BTA determinations. The definitions of these important terms were not ambiguous, as asserted by the ALJ, throughout the hearing. The DEC Staff appropriately interpreted such terms according to past agency and EPA practice. In any event, the recently promulgated BTA Rule provides definitions and interpretive guidance consistent with the DEC Staff interpretations, and thus, the ALJ's proposed definitions must be rejected.

Contrary to the ALJ's proposed definition of "available" as requiring "proven" technology, past DEC BTA determinations have incorporated, at the request of Riverkeeper, modified Ristroph screens that had never been deployed before. Additionally, the BTA Rule TDD provides a thorough, but not exhaustive, list of available technologies appropriate for consideration in minimizing impingement and entrainment impacts of cooling water intake structures. This list specifically includes the Gunderboom. Additionally, the EPA guidance relied upon by the ALJ does not require that to be "available," a technology must be proven. Development Document for Best Technology Available for the Location, Design, Construction and Capacity of Cooling Water Intake Structures for Minimizing Adverse Environmental Impact, EPA, 1976 at 175. EPA confirmed this interpretation in the new BTA Rule which also does not require a technology to be "proven." First, as discussed in section I. above, an applicant may simply proposed closed cycle cooling to satisfy the Track I requirements, without necessarily proposing further mitigative intake structure technologies.

Second, if such further mitigation is warranted under Track I, an applicant may propose mitigative technologies such as those listed in Chapter 5 of the TDD. Gunderboom is specifically listed in the TDD as an available mitigative technology. Such mitigative technology is also required under Track II requirements. Because the ALJ's definition of "available" is more restrictive than that adopted by EPA, and discourages the advancement of new technologies, it thus must be rejected.

The new BTA Rule specifically defines a "cooling water intake structure" as meaning "the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps." 40 CFR 125.83. This definition is consistent with that used by DEC Staff. This new definition supercedes that proposed by the ALJ in the RD and must be adopted.

The new BTA Rule also provides definitions for "impingement" and "entrainment" which, although not necessarily inconsistent with the ALJ's proposed definitions, must be adopted and used in this and future BTA determinations in New York State. Specifically, "entrainment" is defined as "the incorporation of all life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system." Id. "Impingement means the entrapment of all life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal." Id.

Significantly, in the new BTA Rule, EPA adopts the same definition of "minimize" as

was used by DEC Staff, consistent with prior EPA Administrative decisions . The ALJ incorrectly interprets the definition of "minimize" more strictly than in the Athens decision and EPA Administrative decisions and the new BTA Rule. EPA provides interpretive guidance for this term in the Preamble to the Rule: the term "minimize" is defined as meaning "to reduce to the smallest amount, extent, or degree reasonably possible." Id. The definition proposed by the ALJ does not include the limiting language "reasonably possible." In the Preamble to the Rule EPA further states that the definition of "minimize" provides permit administrators "discretion to consider technologies that very effectively reduce, but do not completely eliminate, impingement and entrainment as meeting the requirements of Section 316(b) of the CWA." BTA Rule, Preamble at 125 (emphasis added). EPA past guidance and decisions always interpreted "minimize" as meaning reducing to the greatest extent practicable, which is consistent with the interpretation used by DEC witness Mr. Cianci, and the new BTA Rule. This interpretation conflicts with the interpretation used by the Commissioner in the Athens Decision and that proposed by the ALJ in this proceeding. Therefore, the definition and associated interpretation of "minimize" promulgated in the new BTA Rule must be applied by the Commissioner, and the ALJ's proposed definition must be rejected.[16]

The ALJ's misinterpretation of the term "minimize" removes the already shaky foundation beneath the Recommended Decision. Indeed, the ALJ seems to have selected dry cooling because of his conclusion that dry cooling is slightly better at reducing

[16] See also the discussion at section II.A.2(iv) above.

entrainment impacts than the Applicant's proposal, a contention that Staff rejects. EPA, in the preamble to the new rule, rejected dry cooling because, although affording slightly better protection than closed cycle cooling, it did so with unacceptable costs, including capital costs and decreased energy efficiency. BTA Rule, Preamble at 124, et.seq. Such a conclusion may not have been possible using the definition concocted by the ALJ.

The ALJ also erred in finding that "[w]ith the introduction of a 'cost' factor into the BTA analysis, 'minimize' no longer necessarily means minimize. Instead, it means 'reduce' to the greatest extent so that costs are not wholly disproportionate to the incremental environmental benefit to be received." RD at 43. The definition of minimize does not change; minimize means "reduce to the greatest extent practicable" and costs may be a factor in determining what is practicable. BTA Rule, 40 CFR §125.83, and Preamble at 125.

2. The ALJ Erred in Ruling that DEC Staff Incorrectly Conducted the BTA Analysis for the Bowline Unit 3 Facility and that Non-Aquatic Impacts are Not to be Considered Pursuant to §316(b).

The ALJ misunderstood the DEC Staff's interpretation of the internal memorandum describing how to conduct a BTA analysis, although the process was clearly explained in the DEC Staff Initial Brief, pp. 5-14, Exhibit 144. However, the issue of whether Exhibit 144 is appropriate, and whether additional environmental impacts may be considered in a BTA analysis is now resolved. The Preamble to the new BTA Rule specifically states that the new

rule incorporates a general analysis of the impacts associated with various technologies, such as the impacts of dry cooling towers on air emissions, energy consumption and power generation, in establishing a standard based on wet cooling. BTA Rule, Preamble, pp. 131, 135 and 185. EPA also notes that permit directors should establish another mechanism for assessing and considering site-specific impacts of a particular proposal. Id. Thus, the ALJ was wrong in concluding that Staff should not consider non-aquatic impacts in reaching its BTA determination.

DEC Staff's Initial Brief is consistent with the new BTA Rule. The manner in which environmental impacts, other than those related to the intake structure itself, are considered is in the Article X process (or SEQRA in non-Article X cases). This is specifically noted in Exhibit 144 and the DEC Staff Briefs. DEC Staff must first analyze the impacts to aquatic organisms from the intake. TR. 1765-66. Then, prior to issuing a draft permit, Staff must consider all other environmental impacts of the entire facility. Exhibit 144. DEC Staff did so, relying on the Article X application, and noted that some determinations could change as a result of the Article X adjudicatory hearing. The ALJ's ruling, if affirmed, would create a situation where DEC Staff issue a SPDES permit with no regard to any site specific aspect other than those related to aquatic organisms. The Article X Certificate, when issued, could conflict with the SPDES permit based on the requirement under Article X to minimize adverse environmental impacts. This could put the DEC Commissioner in the position of making determinations on the SPDES permit based on the Article X Certificate without having DEC Staff analysis to support or refute.

Irrespective of Exhibit 144 and consideration of non-aquatic environmental impacts, application of the basic requirements to analyze design, location, capacity and construction of an intake, and apply the necessary cost analysis, would result in the same conclusion that BTA at the Mirant Bowline Unit 3 is an intake that is designed for a maximum of 7.5 MGD and incorporates a 2 mm wedge wire screen and Gunderboom to minimize entrainment and impingement. The ALJ specifically agrees with this if the Gunderboom is determined to be "available." RD at 45. As discussed extensively above, the Gunderboom is not experimental, and is available. Therefore, the DEC Staff's BTA determination should be confirmed and the draft SPDES permit should be issued as modified herein.

3. The ALJ Erred in Finding DEC Staff's Comparison to Once Through Cooling Inappropriate and Erroneously Stated that Capacity is the Most Important Factor in a BTA Analysis.

Contrary to the ALJ's RD, the Department did begin the BTA analysis by determining that dry cooling, with the lowest makeup water requirement, would result in the lowest impact to aquatic organisms. TR. 1765-66. The ALJ confuses the loss of aquatic organisms based upon intake capacity with a complete BTA determination. Just because a design uses less water, and therefore entrains fewer organisms, does not make it BTA. DEC Witness Cianci testified repeatedly to this fact: "to re-state my prefiled testimony, the [BTA] analysis started with the minimum water usage (i.e., dry towers) and, following EPA and DEC guidance, other environmental impacts and alternative technologies were considered." TR. 1740, 1765. Mr. Cianci also testified that the dry cooling alternative would entrain the

fewest organisms of all cooling technologies discussed in this application based on capacity alone. TR. 1736. This is the starting point for the BTA analysis, assuming other impacts being equal. TR. 1765. Mr. Cianci also testified that the BTA process, in following the guidance of Athens (taken from the Brunswick decision (11/7/77) which requires an analysis of whether other practicable alternate technologies are available to minimize the adverse environmental impacts. TR. 1730. Further guidance requires use of best professional judgement regarding analysis of options with lower economic costs if the level of protection is essentially the same.

The ALJ was incorrect in his assumption that capacity is the most important factor in determining BTA. The RD states that historically it has been reasonable to conclude that capacity is the most important factor in determining BTA. There is no reference or support for this conclusion. In Athens, the Commissioner noted that an assumption that only dry cooling can be BTA because it uses the least amount of water is "misguided." *Athens Decision* at 11. Further, there is nothing in EPA guidance that even suggests capacity is the most important feature in a BTA determination. TR .1763. The new BTA Rule rejects this as well in adopting closed cycle cooling technology and the standard for capacity. Therefore, the ALJ's conclusion must be rejected.

The ALJ erred in rejecting DEC Staff's comparison of impacts to a once-through cooled facility. RD at 18 and 401 (citations omitted). The ALJ misunderstood that DEC Staff were not considering once through cooling as an available technology for the Bowline Unit 3 facility. Rather, DEC Staff presented an analysis comparing the proposal to once through and dry cooling to provide context for what level of impact was actually being adjudicated. The

actual difference between the proposal (hybrid, 2 mm wedge wire screen and Gunderboom) and dry cooling is less than 1% of impact to aquatic organisms. In testimony and cross examination, DEC explained that the additional costs and impacts of dry cooling are not justified by the minute increase in protection of much less than 1%. EPA obviously agrees with DEC Staff as evidenced by the new BTA Rule rejecting dry cooling as the national standard for some of the reasons DEC Staff rejected it at Bowline. In fact, the EPA itself compared various technologies with once through cooling in explaining the selection of closed cycle cooling and rejection of dry cooling. See, e.g. BTA Rule, Preamble at 111. The ALJ simply misunderstood the purpose of Staff's comparison and failed to see that the entire adjudication was over less than 1% of impacts to aquatic organisms. This misundertanding tainted the ALJ's reasoning and resulted in an incorrect decision, not based on fact. Thus the RD should be rejected.

4. The ALJ Erred in Accusing DEC Staff of Relying on Selective Data to Support the Effectiveness of the Gunderboom.

On Page 26 of the RD, Judge Casuto discusses the selective use of the data by staff when they conducted the analysis referenced on Page 26 to 28 of the DEC Reply Brief. In fact, during cross examination of Mr. Radle (TR 1866 - 1886), RiverKeeper brings up the possibility of selecting out of consideration days of MLES evaluation when there was not full

flow at Unit 3. Selective use of a series of data is not unusual nor itself biasing of a result, as long as the basis for selection is rational and applied to both treatments (in this case, the boomed Unit 3 intake compared to the unboomed Unit 4). During cross examination, Mr. Radle declined to speculate on what the results of the RiverKeeper's suggested analysis would indicate without first conducting the calculations. When DEC staff did conduct the analysis after the hearing, excluding days when either unit was not a full capacity, the results indicated that the MLES functioned at a 91 % exclusion rate. Riverkeeper objected to this calculation and moved to strike it from the DEC Reply Brief, obviously because it is very unfavorable to their position.

The ALJ incorrectly attributed the selective use of the data to DEC staff ignoring the fact that RiverKeeper suggested the analysis. DEC Staff were merely attempting to create a complete record based on fact, not erroneous implications. Finding of Fact #61 incorrectly attributes the selective use of data to DEC staff who simply did the analysis suggested by RiverKeeper and should be deleted from the record.

5. The ALJ Completely Misinterprets the Concerns Related to Location of the Intake Structure and Errs in Determining that the Location Requires Dry Cooling.

The 1976 Development Document, cited by the ALJ, is a document over 25 years old, that was written when the dominant technology available was once-thru cooling and either large mesh screens or bar racks to prevent fish loss. Obviously, locating the intake in an

unproductive area was very important when over a billion gallons per day was being withdrawn; there were limited technologies available to reduce capacity. Technologies have since been developed that significantly resolve issues presented in old Development Document. Moreoever, the new BTA Rule now resolves the this issue and renders the old guidance documents moot.

DEC Witness Cianci testified that the intake must be in proximity to the existing units as the site is adjacent to an existing power station. We are not performing a siting study to determine the best location. The selected location was within Bowline Pond, a large ponded area with an opening to the Hudson River. As such, fish move into and out of the pond and organisms with limited swimming ability may be carried in and out by the tide and currents. There is absolutely no evidence on the record that organisms within the pond are found in the same density as in the River, or organisms not entrained through the new Bowline 3 intake will be entrained by Units 1 & 2. To conclude otherwise is incorrect and not based on evidence, and thus, must be rejected.

Only DEC Witness Cianci prepared a Habitat Impairment Test, as required by the Department of State in analyzing impacts to a Significant Habitat in a Coastal Zone. The ALJ, in the RD, incorrectly stated that the intake is not located in a Significant Habitat area (TR.2093), only the discharge is, and thus, DEC Staff assessed the impacts. TR. 1751-55, 2098-99, and DEC Initial Brief at 14-16. The DEC Staff concluded that the proposed intake and discharge were consistent with the Coastal Management Program because the project will not result in any change of substrate, hydrology, vegetation, increased runoff,

sedimentation or pollutants and there will be no change in the physical, chemical or biological parameters of Haverstraw Bay (RD36-37). There is no evidence on the record to dispute this conclusion.

6. Consistent with the New BTA Rule, the Draft SPDES Permit Condition Concerning Gunderboom Initial Deployment Period and Permit Violations Should be Affirmed.

The RD states that the draft permit conditions for a 2-3 year period to fully implement the Gunderboom and an allowable failure rate of 15 days per year to be unauthorized under 6 NYCRR 704.5 or 316(b). The new EPA 316(b) regulations completely negate this position. In fact, the BTA Rule provides that design and construction technologies, proposed by an applicant to minimize impingement and entrainment, need not be approved at permit issuance. 40 CFR §125.84(b)(4) and (5), see also, discussion at II.A.2(iv). Rather, the EPA provides that upon permit renewal, the permitting agency may review the data collected on the efficacy of the proposed technology and may require additional protection if warranted. Moreoever, it is common practice for DEC issued SPDES permits to include compliance schedules, allowing permittees a reasonable period to achieve compliance with the permit requirements. Because the ALJ's decision is contrary to the ne BTA Rule, it must be rejected and the Commissioner should issue the draft SPDES permit as modified herein.

III. CONCLUSION

For all of the foregoing reasons, the Recommended Decision should be rejected in its entirety, including the Findings of Fact and Conclusions of Law, and the draft SPDES permit should be adopted as the final permit in this proceeding.

DATED: Albany, New York

December 18, 2001

STAFF OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By:

Meghan A. Purvee, Senior Attorney
Franz T. Litz, Senior Attorney
NYS Department of
Environmental Conservation
625 Broadway, 14th Floor
Albany, New York 12233-5500
518-402-9188

AFFIDAVIT OF SERVICE

I hereby swear under penalty of perjury that on December 18, 2001, I hand delivered the original and three copies to NYS DEC Commissioner Crotty, mailed via USPS first class mail service copies to the attached list, and electronically mailed copies to the attached list, the Brief on Exceptions of the Staff of the New York State Department of Environmental Conservation to the Recommended Decision of Administrative Law Judge Kevin J. Casutto.

Sandra L. Simone

Department of Environmental
Conservation
625 Broadway, 14th Floor
Albany, New York 12233-1500
518-402-9188

Sworn to before me this 18th
day of December 2001.

Leatha L. Lawrence
NOTARY PUBLIC

LEATHA L. LAWRENCE
NOTARY PUBLIC, State of New York
No. 4700942
Qualified in Albany County
Commission Expires April 30, 2003