

In the Matter of the Application
of Dynegy Northeast Generation, Inc.,
on behalf of Dynegy Roseton, LLC, for
renewal of the State Pollutant
Discharge Elimination System (SPDES)
permit for the Roseton Generating
Station

RULING ON
ISSUES AND
PARTY STATUS

September 22, 2006

DEC Application No. 3-3346-00075/00001
SPDES Permit No. NY 0008231

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Summary

These rulings grant party status in the above hearing to Riverkeeper, Inc., Scenic Hudson and the Natural Resources Defense Council, participating together and referred to in these rulings as Petitioners.

The Environmental Protection Agency's Phase II Rule for cooling water intake structures does not apply to this application, but the application must meet the requirements of section 704.5 of title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (Intake structures) and State administrative decisional precedent. The

following issues are identified as requiring adjudication in an adjudicatory hearing, as more fully stated in these rulings: (a) whether closed-cycle cooling is the best technology available for minimizing adverse environmental impact of the Roseton cooling water intake structure; (b) whether the adjustment factors used in calculating the baseline levels of fish impingement mortality and entrainment are flawed; (c) an issue concerning use of variable speed pumps; (d) how long it would reasonably take for the applicant to prepare two submissions that would be required under the draft permit; (e) whether the draft permit violates a prohibition against "backsliding" with regard to a proposed change in the discharge temperature limitation.

Issues that were proposed but that do not require adjudication are: (a) alternative ways of arriving at the flow component of the calculation baseline; (b) impacts on fish species other than those included in the proposed baseline calculation; (c) whether the draft permit violates a prohibition against "backsliding" with regard to proposed changes concerning flow limitations and outages; and (d) the timing of a three-dimensional study of the thermal discharge.

Background

This ruling identifies the parties that will participate and the issues that will be adjudicated in the hearing on renewal and modification of the State Pollutant Discharge Elimination System (SPDES) permit for the Roseton Generating Station (Roseton or the station). The Applicant in this matter is Dynegy Northeast Generation, Inc., on behalf of Dynegy Roseton LLC. Dynegy Roseton LLC is the owner of the station and is identified as the permittee in the permit currently in effect. Dynegy Northeast Generation, Inc. is the operator of the station.

The application is for renewal of a SPDES permit pursuant to Environmental Conservation Law (ECL) article 17, title 8 (Water Pollution Control; State Pollutant Discharge Elimination System) and part 750 of title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR part 750, SPDES permits). The hearing is being held pursuant to the permit hearing procedures of the Department of Environmental Conservation (DEC or Department), set forth in 6 NYCRR part 624.

As described in the SPDES fact sheet prepared by DEC Staff, the station became operational in 1974 and "consists of two oil or natural gas fired steam electric units with a combined net electrical generating capacity of 1200 megawatts. The station is

located on the west shore of the Hudson River approximately 65 statute miles upriver from the Battery at the southern tip of Manhattan" (Exhibit ("Ex.") 18, at 2).¹ The station is located in the Town of Newburgh, Orange County. Both units of the station are cooled by a once-through cooling system using water from the Hudson River. The condenser cooling water system includes four pumps with a combined rated capacity of 641,000 gallons per minute (gpm), which is approximately 923 million gallons per day (mgd). The intake is at the shoreline (Id.).

As discussed further below, Roseton is one of the facilities that was the subject of the Hudson River Settlement Agreement (HRSA) that was executed on December 19, 1980. DEC issued a SPDES permit for Roseton in 1982. The SPDES permit that is currently in effect was issued on September 11, 1987, with an expiration date of October 1, 1992. On April 3, 1992, prior to expiration of the permit, an application for renewal of the permit was submitted by Central Hudson Gas & Electric Corporation (Central Hudson), the permittee at that time. The 1987 - 1992 permit's terms have been continued under the State Administrative Procedure Act (SAPA) section 401(2).

Following submission of additional application materials and preparation of an environmental impact statement, processes that are described in a later section of this ruling, DEC Staff prepared a draft permit and a SPDES fact sheet. The draft permit includes conditions regarding conventional industrial pollutant discharges, thermal discharge, and cooling water intake structures. The draft permit would require, among other things, that the Applicant maintain the fish passageway at the intake structure, maintain a continuous wash of each traveling screen when the associated pump is operating, continue to reduce cooling water flow through outages and through flow minimization, and install variable speed drives on two or more cooling water circulator pumps. The draft permit would also change the intake-discharge temperature difference ("delta T"), so that it would be the same year round, in contrast to the current permit condition that sets a different limit during the summer than during the rest of the year. The draft permit would require the Applicant to conduct a three-dimensional thermal study of the cooling water outfall.

¹ The application materials and other documents were marked as exhibits at the issues conference. These exhibits are marked for identification only at the present time, and have not yet been offered or received into evidence.

DEC Staff referred the application to the DEC Office of Hearings and Mediation Services on March 30, 2005 to schedule a hearing. The legislative hearing, for receipt of public comments, took place on the afternoon and evening of July 18, 2005 at the Newburgh Town Hall, before Susan J. DuBois, Administrative Law Judge (ALJ). The comments focused primarily on the facility's impacts on fish through entrainment and impingement at the cooling water intake structure. As described in the final environmental impact statement concerning this application, "Entrainment occurs when small aquatic life forms are carried into and through the cooling system as water is withdrawn for use in a plant's cooling system; impingement occurs when larger aquatic life forms are caught against racks or screens at the intakes, where they may be trapped by the force of the water, suffocate or be otherwise injured."² The great majority of comments urged that the Applicant be required to install a closed-cycle cooling system at the facility.

The issues conference took place at the Newburgh Town Hall on July 19 and 20, 2005. In addition to the Applicant and DEC Staff, three organizations that submitted a joint petition for party status participated in the issues conference. These organizations, referred to this ruling as "Petitioners," are Riverkeeper, Inc. (Riverkeeper), Scenic Hudson, and Natural Resources Defense Council (NRDC).

At the time of the issues conference, the Applicant was represented by Robert J. Alessi, Esq. and John D. Hoggan, Jr., Esq., of LeBoeuf, Lamb, Greene & MacRae, Albany.³ DEC Staff is represented by Mark D. Sanza, Esq. and William G. Little, Esq., DEC Division of Legal Affairs, Albany. Riverkeeper was represented by Victor M. Tafur, Esq., of Riverkeeper's Tarrytown office, and by David K. Gordon, Esq., Highland.⁴ Scenic Hudson was represented by Warren P. Reiss, Esq., Poughkeepsie. NRDC was represented by Katherine Kennedy, Esq., New York City. Of the representatives of Petitioners, Mr. Tafur, Mr. Gordon and Mr. Reiss participated in the issues conference. Mr. Tafur and Mr. Gordon were listed on the service list as the persons to whom

² Ex. 10 (Final Environmental Impact Statement), at 2.

³ As of June 16, 2006, N. Jonathan Peress, Esq. substituted for Mr. Hoggan in representing the Applicant in this hearing.

⁴ Mr. Gordon notified the ALJ and the parties on April 7, 2006 that he was withdrawing from representing Petitioners in this hearing.

Petitioners' copies of correspondence were to be sent, although Mr. Gordon's address was removed from the list after he withdrew from the case.

As discussed in more detail below, additional written submissions and briefs on subjects related to identifying the issues for adjudication were submitted, with the last of these received on June 16, 2006.

Application materials and environmental quality review

The environmental quality review of this project has a long history. The Roseton units began commercial operation in September and December, 1974 (Ex. 6A, at IV-5). The United States Environmental Protection Agency (EPA) issued National Pollutant Discharge Elimination System (NPDES) permits for the Roseton, Indian Point and Bowline power plants in 1975, prior to EPA's October 28, 1975 authorization of New York State's SPDES program (Ex. 10, at 7). The permits would have had the effect of requiring retrofitting with cooling towers at these power plants, which had (and still have) once-through cooling systems.

As described in the Final Environmental Impact Statement (FEIS), in 1977 the operators of these power plants "sought an administrative adjudicatory hearing against the USEPA draft permits to overturn those cooling water intake conditions and other requirements of the 1975 NPDES permits. That and subsequent proceedings were joined by a number of other government agencies and non-governmental organizations (NGO's). In 1981, after a number of years of adjudicatory proceedings, the generators signed the Hudson River Settlement Agreement (HRSA) to resolve the disputes relating to the USEPA's 1975 NPDES draft permits [footnote omitted]. The HRSA was a 10-year agreement designed to obtain necessary data, impose needed analytical assessments, and develop an impact assessment to determine how best to mitigate impacts to the Hudson River from the three generating facilities." (Ex. 10, at 7-8). DEC issued a separate SPDES permit to each of the three facilities in 1982.

The present hearing concerns renewal and modification of a permit that was issued in 1987 under the HRSA. The FEIS for this action is the FEIS for renewal of the SPDES permits for the HRSA facilities.

Central Hudson, the former Roseton permittee, submitted an application for renewal of the 1987 - 1992 permit on April 3, 1992. Under the State Environmental Quality Review Act (SEQRA,

ECL article 8) and DEC's SEQRA regulations (6 NYCRR part 617), DEC Staff, as lead agency, determined that the project may have a significant adverse impact on the environment and that an EIS must be prepared (Environmental Notice Bulletin [June 3, 1992] at 9-10).

The EIS for the Roseton SPDES permit renewal is an EIS concerning renewal of the SPDES permits for three electric generating facilities: Roseton units 1 and 2, Indian Point Electric Generating Facility units 2 and 3, and Bowline Point Electric Generating Facility units 1 and 2. The Draft EIS (DEIS) was prepared by entities that owned all or part of these three facilities during the 1990s, specifically: Central Hudson, Consolidated Edison Company of New York, Inc. (Consolidated Edison), New York Power Authority, and Southern Energy New York. The DEIS, which is Ex. 6A and 6B of the present hearing record, is dated December 1999.

On February 28, 2000, DEC Staff determined that the DEIS was adequate for public review and that the Roseton SPDES permit renewal application was complete. A notice of complete application was published in the Environmental Notice Bulletin on March 8, 2000. DEC issued a notice on May 2, 2000 scheduling a comment period and hearing on the DEIS. As stated in the notice of hearing, the hearing was for public comment on the DEIS and DEC Staff anticipated it would issue draft permits for each of the facilities at a later date. The hearing took place on June 8, 2000.⁵

The December 1999 DEIS states that Central Hudson was the operator of Roseton on behalf of itself and its co-owners. The owners at that time were Consolidated Edison (40%), Central Hudson (35%) and Niagara Mohawk Power Corporation (25%) (DEIS, page IV-5). Subsequently, ownership of Roseton changed. The Roseton SPDES permit was transferred to Dynegy Roseton, LLC on February 23, 2001.

On July 16, 2002, DEC Staff sent a request for information to Dynegy Northeast Generation, Inc., requesting submission of an industrial SPDES application form, an application supplement specific to electric generating facilities, and results of effluent sampling. On October 23, 2002, the Applicant submitted a response to this request for information.

⁵ See Final EIS (Ex. 10 of this hearing record), page 11 and Appendix F-1.

Pursuant to a May 14, 2003 order in Matter of Brodsky v Department of Environmental Conservation (Sup Ct, Albany County, Keegan, J., Index No. 7136-02), DEC Staff prepared an FEIS concerning the renewal of the SPDES permits for the Roseton, Indian Point and Bowline units that were the subject of the 1999 DEIS. This FEIS was accepted by DEC Staff on June 25, 2003.

The FEIS includes the following statement: "Before issuing a final decision on each of the applications, the Department will be required to make findings based on this FEIS concluding whether, among other tests, the selected alternative(s) will minimize or avoid adverse environmental impacts, '...to the maximum extent practicable...'" (Ex. 10, at 28).

The FEIS also states, in its Executive Summary, that:

"As a result of the Department's further review of the DEIS plus the additional information and analysis provided by staff, a draft permit can be developed for each facility. Each draft permit will be based on this FEIS together with a detailed, site-specific application for that station and will contain a decision on the 'best technology available' (BTA) to minimize entrainment and impingement mortality at that station. These BTA decisions are required by § 316(b) of the federal Clean Water Act [footnote omitted]. Supplemental application materials relating to existing facilities and system designs are still necessary for each site. An individual draft permit will be issued for each site, but in general terms, each permit will require the covered facility to meet BTA by designating, as SPDES permit conditions, a compliance schedule to implement one or more of the technologies now available to substantially reduce entrainment and impingement mortalities from the cooling water intake at that station." (Ex. 10, at 4).

On December 17, 2003, DEC Staff sent the Applicant an additional request for information. This request sought information about alternative technologies for reducing entrainment and impingement, and regarding water usage and electric generation during 1992 through 2002. The applicant sent DEC Staff a partial response on February 18, 2004 (concerning water use and generation) and the remainder of its response in July, 2004 (concerning alternative technologies).

On December 6, 2004, DEC Staff requested additional information from the Applicant related to mixing zones at certain outfalls. The Applicant provided a response on January 18, 2005. On February 10, 2005, the Applicant wrote to DEC Staff stating

that the temperature limitations in the current permit would need to be changed in order to optimize fish mortality reductions by using the variable pumping/load following alternative.

Further proceedings

DEC Staff prepared a draft permit dated March 25, 2005 and a SPDES Fact Sheet dated March 2005. A notice of hearing, that scheduled a legislative hearing and issues conference pursuant to 6 NYCRR part 624, was issued on April 12, 2005. This notice was published in the Department's Environmental Notice Bulletin on April 13, 2005 and in the Middletown Times Herald-Record on April 18, 2005.

On May 12, 2005, I received a letter of that same date from Mr. Tafur requesting a 14-day extension of the deadlines for both comments on the application and petitions for party status to participate in an adjudicatory hearing on the application. One of the reasons given for the request was difficulties encountered in getting the application materials. DEC Staff objected to the request. The Applicant stated it had attempted to reach an agreement with Riverkeeper about adjustment of the schedule, and asked that a conference phone call be scheduled to resolve this. A conference call took place on May 19, 2005. During the conference call, there was discussion concerning whether and when all the application materials, the draft permit and the fact sheet were available at the two document repositories listed in the notice of hearing. The outcome of the conference phone call was that the missing documents would be made available at these locations and, once this was done, new dates for the legislative hearing and issues conference would be identified.

On May 20, 2005, Mr. Sanza sent me a letter listing DEC Staff's requests to the Applicant for information and the application materials submitted by the Applicant. The letter transmitted to the document repositories (DEC Region 3 Office and Newburgh Town Hall) the documents that had not been sent there earlier. I re-scheduled the legislative hearing for July 18, 2005 and the issues conference for July 19 and 20, 2005. A supplemental notice was published in the Environmental Notice Bulletin on June 1, 2005 and in the Times Herald-Record on June 7, 2005.

The legislative hearing took place on the afternoon and evening of July 18, 2005. In addition to statements made on behalf of the Applicant and DEC Staff, four persons made comments at the afternoon hearing and five persons made comments at the

evening hearing. Written comments were also submitted prior to or at the legislative hearing. These included approximately 350 electronic mail messages, most of which had the same or similar text, three letters, and a petition bearing approximate 106 signatures. Two additional letters and approximately 20 e-mail messages were submitted after the end of the comment period.

Petitions for party status, to participate in an adjudicatory hearing, were due on July 1, 2005. One petition for party status was submitted jointly on behalf of Riverkeeper, Scenic Hudson and NRDC. The petition proposed five issues for adjudication, with sub-issues, as follows:

"Issue 1. DEC must revise the draft permit because it does not reflect the best technology available [BTA] to minimize adverse environmental impacts from the Roseton cooling water intakes, as required by 33 U.S.C. § 1326(B) and 6 N.Y.C.R.R. § 704.5.

"1.1. A closed cycle cooling system is the best technology available to minimize Roseton's adverse environmental impacts.

"1.2. The cost of a closed cycle cooling system is not wholly disproportionate to the environmental benefits.

"Issue 2. The Draft SPDES permit's conditions do not reflect BTA and will not equal or even approach the protection offered by closed cycle cooling.

"2.1. The choice and computation of the baseline for I&E [impingement and entrainment] is flawed.

"2.2. Permit conditions in the Draft SPDES permit do not reflect BTA.

"Issue 3. The proposed elimination of the flow and outage requirements and the relaxation of temperature safeguards violates federal antibacksliding prohibitions.

"Issue 4. The Draft SPDES permit's thermal discharge would result in increased mortality of river life and other adverse environmental impacts.

"Issue 5. The EPA Phase II rule does not apply to the Roseton permitting, or, in the alternative, if the EPA Phase II rule applies, it has been misapplied to the Roseton permitting."

Among the exhibits accompanying the petition were an assessment of the costs of retrofitting with closed-cycle wet cooling at Roseton and a report on ecological issues relating to the draft permit, prepared by persons Petitioners proposed to call as witnesses.

At the issues conference, the participants presented arguments regarding whether the issues proposed by the Petitioners should be adjudicated in an adjudicatory hearing, but also asked to submit briefs following the issues conference concerning certain legal questions related to proposed issues. Most or all of the representatives of the participants in this issues conference were also representing parties in the hearing on renewal of the SPDES permit for the Danskammer power plant. Due in part to schedule conflicts with discovery, preparation of prefiled testimony, and hearing dates in the Danskammer hearing, a schedule for the briefs was not set until January 26, 2006. The schedule was later extended twice, at the request of the Applicant and with agreement of DEC Staff and Petitioners, and the briefs were submitted on June 16, 2006. In addition, documents that the issues conference participants had mentioned but had not provided at the issues conference, as well as documents I requested at the issues conference, were provided on various dates in the fall of 2005.

Current permit and draft permit

The draft permit differs from the currently existing permit⁶ in several ways that are relevant to the issues proposed for adjudication. These changes are briefly described in this section of the present ruling. The draft permit also includes

⁶ The September 11, 1987 permit was modified in 1989 to provide for installation of two dual flow traveling screens, and a study to compare impingement on these screens with that on the standard screens. The permit was modified again in 1997 to require posting of signs pursuant to ECL 17-0815-a, and was modified in 2004 due to an amendment of 6 NYCRR part 750 incorporating provisions that were general conditions of SPDES permits. The permit was transferred from Central Hudson to Dynegy Roseton LLC on February 23, 2001. The 1987 permit, with these modifications, is the current permit. A copy of it, sent to me by DEC Staff on April 5 and May 25, 2005, is being marked for identification as Exhibit 33. The copy of the permit that is included as Exhibit A of the petition is not a complete copy.

changed conditions, particularly with regard to action levels and effluent limits for various chemicals, that are not in dispute.

Additional requirement 5 of the 1987 permit requires:

"All conditions of the Hudson River Settlement Agreement that apply to this facility shall be part of this permit.

"The daily maximum hourly rate of cooling-water flow shall be approximately:

- "I) from Oct. 17 through May 1425.08 MGH
- II) from May 15 through June 1433.66 MGH
- III) from June 15 through Sept. 2438.46 MGH
- IV) from Sept. 25 through Oct. 1633.66 MGH."

(MGH denotes millions of gallons per hour.)

The HRSA required, among other things, outages during which the circulating cooling water pumps at Roseton would not operate, except for "testing, maintenance or discharge of dilution." The requirement initially was for an aggregate of 30 unit-days each year between May 15 and June 30 (HRSA, Appendix F-II of the FEIS, at 2.B, 1.g and 4.A). Consent orders, in a lawsuit regarding the HRSA facilities, continued a related outage requirement, plus a research and development program for reducing flow of cooling water during off-peak generating periods (Fourth Amended Consent Order, Appendix F-III of the FEIS, at 9 and Attachment B; see also Ex. 10, at 9-10). According to the FEIS, the Fourth Amended Order on Consent expired on February 1, 1998 but the generators agreed to continue the mitigation measures in the SPDES permit and the Fourth Amended Consent Order until new SPDES permits were issued to them (Ex. 10, at 10).

The draft permit requires the Applicant to maintain the existing fish passageway at the intake structure and to maintain a continuous wash of each traveling screen while the associated pump is operating. It requires that "cooling water flow volume will continue to be reduced through outages" and that "cooling water flow volume will continue to be reduced through flow minimization by actively managing flow to utilize the minimum volume of water needed to cool the condensers and comply with the thermal limits of this permit" (Ex. 17, Additional Requirement 8). The draft permit, however, deletes the references to the HRSA that are in the 1987 permit, including the reference in Additional Requirement 5 quoted above, and does not specify the volume or timing of flow limitations or outages (Ex. 18, Attachment B, at 7).

The draft permit requires that by two years after the effective date of the permit, variable speed drives must be fitted to two or more cooling water circulator pumps in order to further minimize cooling water flow (Additional Requirement 9). The draft permit sets performance standards for entrainment mortality and impingement mortality in terms of percent reductions from the full flow calculation baseline for the facility (Additional Requirements 10 and 11). The permittee would be required to "reduce entrainment mortality at the Roseton Generating Station by an AL [action level] of 70 percent, from EDP [effective date of permit] through the end of the second calendar year of this permit, and 80 percent from the beginning of the third calendar year through the ExDP [expiration date of permit] of this permit." The permittee would also be required to "reduce impingement mortality at the Roseton Generating Station by an AL of 80 percent, from EDP through the end of the second calendar year of this permit, and 85 percent from the beginning of the third calendar year through the ExDP of this permit." These percent reductions would "be calculated from the full flow calculation baseline for this facility."

The draft permit requires submission of a Technology and Compliance Assessment by three months after the effective date of the permit, and submission of a Verification Monitoring Plan by two years after the effective date of the permit (Additional Requirements 12 and 13). The latter plan would be designed to confirm that the required reductions in impingement and entrainment are being achieved, and would include, among other things, two years of full scale impingement and entrainment studies and sampling protocols for these studies.

With regard to thermal discharges, the existing permit limits the temperature difference (ΔT) between the intake and the discharge of non-contact cooling water to 18 degrees Fahrenheit ($^{\circ}\text{F}$) or less during May 15 to October 16 ("summer"), and to 36 $^{\circ}\text{F}$ or less during October 17 to May 14. The existing permit also limits the discharge temperature to a maximum of 99 $^{\circ}\text{F}$, but provides that this limitation applies when intake water temperature is less than or equal to 81 $^{\circ}\text{F}$; if the intake water temperature exceeds 81 $^{\circ}\text{F}$, the discharge temperature may exceed 99 $^{\circ}\text{F}$ by that amount (Permit, at 2 and 6).

The draft permit limits the intake-discharge temperature difference to 36 $^{\circ}\text{F}$ during the entire year, eliminating the seasonal requirement. The draft permit continues the limitation of 99 $^{\circ}\text{F}$ as the maximum discharge temperature, with a rephrased but substantively unchanged footnote that allows for incremental (degree for degree) increases in the maximum discharge

temperature when the intake water temperature exceeds 81°F (Ex. 17, at 3 and 9). The change in these conditions would allow the discharge temperature to rise to the 99°F maximum earlier in the year and remain at the maximum later in the year than occurs under the existing permit. The change was proposed in connection with adding variable speed drives to pumps and withdrawing less cooling water from the river (Ex. 18, Fact Sheet, Attachment B, at 3; Ex. 16).

Both the existing permit and the draft permit provide that the maximum temperature and/or the temperature difference may be exceeded when one or more pumps is unavailable, as specified in a footnote. The existing permit also allows such exceedences generally during "winter" periods (October 17 to May 14), while the draft permit does not (Permit, at 6; Ex. 17, at 9).

Party status

Section 624.5(d) of 6 NYCRR provides that full party status will be granted based on: "(i) a finding that the petitioner has filed an acceptable petition pursuant to paragraphs (b)(1) and (2) of this section [the filing and contents of petitions]; (ii) a finding that the petitioner has raised a substantive and significant issue or that the petitioner can make a meaningful contribution to the record regarding a substantive and significant issue raised by another party; and (iii) a demonstration of adequate environmental interest." In addition, DEC Staff and the Applicant are mandatory full parties pursuant to 6 NYCRR 624.5(a).

Each of the organizations that are the Petitioners in this hearing has demonstrated an adequate environmental interest in this application (Petition, at 10 - 13). Each is an organization that has among its purposes protection of the resources affected by the Roseton facility, and each has members who live in the Hudson Valley and use the river for fishing, among other uses. The petition states that Riverkeeper "is the surviving corporation that resulted from a 1992 merger with the Hudson River Fishermen's Association, Inc." All the Petitioners or their predecessors were parties to the Hudson River Settlement Agreement and have participated in subsequent litigation and negotiations concerning related matters. Neither the Applicant nor DEC Staff objected to the petition's statement of environmental interest (7/19/05 transcript (7/19 Tr.) at 11), although they asserted Petitioners had not raised substantive and significant issues.

The Petitioners submitted an acceptable petition that meets the requirements of 624.5(b). As discussed in subsequent sections of this document, they have also raised substantive and significant issues. Accordingly, Petitioners are granted party status in this hearing.

Standards for identifying issues for adjudication

Section 624.4(c) of 6 NYCRR specifies the standards for adjudicable issues in a DEC permit hearing. An issue is adjudicable if it relates to a dispute between the DEC Staff and an applicant over a substantial term or condition of the draft permit (6 NYCRR 624.4(c)(1)(i)). Where DEC Staff has determined that a permit application as conditioned by a draft permit will meet all statutory and regulatory requirements, the potential party proposing an issue has the burden of persuasion to demonstrate that the proposed issue is substantive and significant (6 NYCRR 624.4(c)(4)). In the present case, DEC Staff prepared a draft permit and the Applicant does not dispute the conditions in the draft permit.

An issue is substantive if there is sufficient doubt about the applicant's ability to meet statutory or regulatory criteria applicable to the project such that a reasonable person would require further inquiry (6 NYCRR 624.4(c)(2)). An issue is significant if it has the potential to result in the denial of a permit, a major modification to the proposed project or the imposition of significant permit conditions in addition to those proposed in the draft permit (6 NYCRR 624.4(c)(3)).

In order to establish that adjudicable issues exist, "an intervenor must demonstrate to the satisfaction of the Administrative Law Judge that the Applicant's presentation of facts in support of its application do not meet the requirements of the statute or regulations. The offer of proof can take the form of proposed testimony, usually that of an expert, or the identification of some defect or omission in the application. Where the proposed testimony is competent and runs counter to the Applicant's assertions an issue is raised. Where the intervenor proposes to demonstrate a defect in the application through cross-examination of the Applicant's witnesses, an intervenor must make a credible showing that such a defect is present and likely to affect permit issuance in a substantial way. In all such instances a conclusory statement without a factual foundation is not sufficient to raise issues." (Matter of Halfmoon Water Improvement Area, Decision of the Commissioner, April 2, 1982).

Subsequent decisions of the Commissioner have provided additional interpretation of this standard (see for example Matter of Athens Generating Company, LP, Interim Decision of the Commissioner, June 2, 2000, at 3-4).

Issues proposed for adjudication

The sequence in which this document discusses the proposed issues differs from the outline in the petition. A portion of the fifth issue proposed by Petitioners, applicability of the EPA Phase II rule, affects the discussion of Petitioner's proposed issues that relate to the best technology available to minimize adverse environmental impacts of the cooling water intake (BTA). Accordingly, the fifth proposed issue is discussed first.

Applicability of the Phase II rule

The Roseton permit application is for renewal of a SPDES permit for a facility that has a cooling water intake structure in addition to waste water outfalls. As stated in the Deputy Commissioner's Decision in Matter of Dynegy Northeast Generation, Inc. on behalf of Dynegy Danskammer, LLC (Danskammer Generating Station) (May 24, 2006):

"Operators of facilities in New York State with cooling water intake structures that, as point sources, are subject to SPDES permits are required to comply with section 316(b) of the federal Clean Water Act ('CWA') and 6 NYCRR 704.5. Codified at section 1326(b) of title 33 of the United States Code ('USC'), CWA § 316(b) reads as follows: "Any standard established pursuant to [33 USC § 1311, 'Effluent limitations'] or [33 USC § 1316, 'National standards of performance'] and applicable to a point source shall require that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact" (emphasis added).

"Section 704.5 of 6 NYCRR states: '[t]he location, design, construction and capacity of cooling water intake structures, in connection with point source thermal discharges, shall reflect the best technology available for minimizing adverse environmental impact' (emphasis added)(see generally Matter of Mirant Bowline, LLC, Decision of the Commissioner, March 19, 2002; Matter of Athens

Generating Co., LP, Interim Decision of the Commissioner, June 2, 2000)." (Danskammer Decision, at 4, n 3).⁷

The BTA standard under 6 NYCRR 704.5 and state administrative decision precedent includes a four-step analysis to determine whether "best technology available" is being used by a particular facility, as follows:

- "(1) whether the facility's cooling water intake structure may result in adverse environmental impact;
- (2) if so, whether the location, design, construction and capacity of the cooling water intake structure reflects BTA for minimizing adverse environmental impact;
- (3) whether practicable alternate technologies are available to minimize the adverse environmental effects; and
- (4) whether the costs of practicable technologies are wholly disproportionate to the environmental benefits conferred by such measures" (Danskammer Decision, at 20).⁸

This four-step analysis is essentially an articulation of how to examine the elements of 6 NYCRR 704.5 in a logical sequence, a step at a time, plus the recognition that cost is an acceptable consideration in determining whether the proposal or an alternative reflects BTA.⁹

On July 9, 2004, EPA adopted a rule implementing CWA § 316(b) for certain existing electric power producing facilities that employ a cooling water intake structure and are designed to withdraw 50 million gallons per day or more of water from waters of the United States, and that use at least 25 percent of the withdrawn water exclusively for cooling purposes (69 Fed Reg 41576 - 41693). This rule is referred to as the Phase II Rule.¹⁰

⁷ This standard was also stated in the May 13, 2005 Interim Decision of the Deputy Commissioner in the Danskammer hearing (at 3, n 4), that was issued prior to the July 19 and 20, 2005 issues conference in the Roseton hearing.

⁸ See also Danskammer Interim Decision, at 31.

⁹ The cost aspect of the analysis is discussed further below, under "Closed-cycle cooling."

¹⁰ Phase I of EPA's § 316(b) regulation development governs cooling water intake structures for new facilities as defined at 40 CFR 125.83. That definition includes, among other elements, that construction of the facility commences after January 17,

The rule became effective on September 7, 2004. The Federal Register publication of the Phase II Rule included a lengthy preamble, cited by the parties in this hearing, as well as the text of the Phase II requirements that are codified at 40 CFR 125.90 through 125.99.

The Phase II Rule provides for several compliance alternatives, one of which is to add "design and construction technologies, operational measures and/or restoration measures" that will, in combination with existing measures, comply with specified performance standards and/or restoration requirements (40 CFR 125.94, particularly 125.94((a)(3)).¹¹ The performance standards require that a facility "reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline." The performance standards also require that a facility "reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline" if the facility has a capacity utilization rate of 15 percent or greater and uses cooling water from a tidal river or estuary (40 CFR 125.94(b)(1) and (2)).

The other compliance alternatives under the Phase II rule are: reduce flow commensurate with a closed-cycle recirculating system, or reduce the maximum through-screen design intake velocity to 0.5 feet per second or less while also meeting other requirements for entrainment reduction (40 CFR 125.94(a)(1)(i) and (ii)); demonstrate that the existing measures at a facility meet the performance standards and/or restoration requirements (125.94(a)(2)); install, properly operate and maintain technology in accordance with section 125.99(a) or (b), which concern submerged cylindrical wedge-wire screens among other technologies (125.94(a)(4)); or obtain a determination from the Director¹²

2002, the effective date of the Phase I new facility rule (69 Fed Reg 41578). Phase III is a separate rulemaking concerning existing facilities that do not meet the thresholds for the Phase II rule. (Id.; see also 69 Fed Reg 68444, 71 Fed Reg 35006).

¹¹ See 40 CFR section 125.94 for the full text of the compliance alternatives summarized here.

¹² The "Director" is defined at 40 CFR 122.2, and would be the Commissioner of Environmental Conservation, or the Commissioner's delegated representative, in this context. DEC has notified EPA, however, that DEC will not consider restoration measures or the BTA alternative identified in 40 CFR 125.94(a)(5), stating that these alternatives do not comply with

that existing or proposed measures are the best technology available, under a review process specified in section 125.94(a)(5).

The Applicant stated that the Phase II rule governs this proceeding, and that the BTA determination under New York law requires the application of the Phase II performance standards (7/19 Tr. 14, 30). With respect to the standard under 6 NYCRR 704.5, the Applicant suggested that the Phase II rule's compliance alternatives have replaced the four-step analysis quoted above (7/19 Tr. 19-24; 31; 75-76). According to the Applicant, if its application meets the performance standards that govern compliance alternatives under the Phase II rule, the required decision-making process would be at its end and the "wholly disproportionate" test would not even need to be considered (7/19 Tr. 21).

The Applicant took the position that the technologies and operational measures proposed in the draft permit will meet the performance standard percentages if one uses the appropriate calculation baseline, and that the draft permit maintains the same thermal discharge limits as those in the 1987 permit. Based upon these assertions, the Applicant argued that there are no issues that require adjudication (7/19 Tr. 26-27).

DEC Staff stated that the Phase II Rule applies to the draft permit for Roseton, and that the conditions in the draft permit comply with the Phase II Rule. DEC Staff stated that the Department's application of the Phase II Rule includes the "traditional 704.5 test" of whether the costs of practicable technologies are wholly disproportionate to the environmental benefits conferred. DEC Staff also argued, however, that 6 NYCRR 704.5 "is not dispositive here" and that the situation "has changed entirely" due to EPA's adoption of the Phase II Rule. DEC Staff asserted the relevant standard is the federal requirements that DEC is implementing (7/19 Tr. 39-41; 229-230).

With regard to the Roseton application, DEC Staff stated the Applicant evaluated closed-cycle cooling at Staff's request but that, upon reviewing information submitted by the Applicant, Staff concluded the cost of this alternative was wholly disproportionate. DEC Staff stated the Phase II Rule "does not require closed-cycle cooling, unlike the Phase I rule" (7/19 Tr. 40). DEC Staff asserted the petition does not raise any issues

New York State's own related requirements (Ex. 19, at 6).

with respect to either 6 NYCRR 704.5 or the Phase II Rule (7/19 Tr. 39-41).

In its June 15, 2006 brief, DEC Staff argued that most of the information relevant to DEC Staff's review was submitted to DEC after the Phase II rule was published in the Federal Register in July 2004, and the Roseton draft permit was released for public comment more than 6 months after the September 7, 2004 effective date of the Phase II rule. DEC Staff stated that due to timing of events in this application process, including the Applicant's submission of information needed to determine limits under the Phase II Rule, "the limits in the draft and final permit must be based on the Phase II requirements" (Brief, at 7). DEC Staff cited sections Q5 and A5 of the EPA implementation document that is discussed later in this ruling.

Petitioners argued that the Phase II rule does not apply to renewal of the Roseton SPDES permit, and that "claiming to rely on the Phase II Rule, DEC Staff is attempting to impose a set of lax standards to Roseton" (Petition, at 44). Petitioners stated that the renewal permitting is governed by a standard of best professional judgment, and that in New York State this standard is the four-step analysis used in the Athens case. Petitioners stated the Phase II rule does not apply to permit applications that were pending prior to the rule's effective date in September, 2004. Petitioners argued that application of the Phase II Rule would be especially inappropriate for this application "which is already so long overdue." Petitioners noted that the Department is not applying the Phase II Rule in reviewing the Danskammer and Indian Point SPDES permit renewal applications, and described a letter from the EPA Acting Assistant Administrator as stating that the Phase II Rule does not apply to permit applications currently under dispute (Petition, at 44-47).

Petitioners also argued that whether or not the Phase II Rule applies to a cooling water intake, the Department is authorized, under 40 CFR 125.90(d) and 125.94(e), to impose more stringent requirements in order for facilities to meet New York's water quality standards, specifically 6 NYCRR 704.5. Petitioners cited the Commissioner's Interim Decision in the Danskammer hearing in support of this position. Petitioners stated that they are not asserting that closed-cycle cooling is the only way to apply BTA, but instead that closed-cycle cooling would reduce impingement and entrainment by 97 percent and they have raised an issue about whether the cost of this technology is wholly disproportionate to the benefits derived. Petitioners described

the "wholly disproportionate standard" as "alive and well under New York administrative precedent" (7/19 Tr. 42-54, 62-70).

The dates of some events already described relate to whether the Phase II Rule applies to this proceeding, and are summarized as follows. The permit under which Roseton is currently operating was issued on September 11, 1987, with an expiration date of October 1, 1992. On April 3, 1992, Central Hudson, the permittee at that time, applied for renewal of the permit. The DEIS was being prepared during the 1990's. On February 28, 2000, DEC Staff determined that the DEIS was adequate for public review and that the Roseton SPDES permit application was complete. A notice of complete application was published in the Environmental Notice Bulletin on March 8, 2000. A hearing on the DEIS took place on June 8, 2000. Pursuant to a court order, DEC Staff prepared an FEIS that was accepted by DEC Staff on June 25, 2003. The Applicant's document concerning alternative technologies for reducing entrainment and impingement was submitted in July 2004. The Phase II Rule became effective on September 7, 2004. The draft permit is dated March 25, 2005.

In the May 13, 2005 Interim Decision in the Danskammer hearing, the Deputy Commissioner quoted the pre-publication version of the Phase II Rule as stating that "[p]ermit applications submitted after the effective date of the rule must fulfill rule requirements."¹³ This language was quoted from page 74 of the prepublication version, and also appears at 69 Fed Reg 41593 in the published version of the rule's preamble.

The ALJ's issues ruling in the Entergy (Indian Point) permit renewal hearing cited the Danskammer Interim Decision as determining that the Phase II Rule is not applicable to facilities whose SPDES permit renewal applications were in process, or whose draft permit had issued, prior to the effective date of the Rule.¹⁴ The timing of events in the permit renewal process for Indian Point (another Hudson River Settlement Agreement facility) is similar to that for Roseton, but the Indian Point draft permit was issued prior to the effective date of the Phase II Rule while the Roseton draft permit was issued after that date. Both the Indian Point and the Roseton SPDES permit renewal applications were complete and in the process of

¹³ Danskammer Interim Decision, at 31.

¹⁴ Matter of Entergy Nuclear Indian Point 2, LLC and Entergy Nuclear Indian Point 3, LLC, Ruling on Issues and Party Status, February 3, 2006, at 24-25.

being reviewed prior to the effective date of the Phase II Rule. The great majority of the Roseton application and EIS documents were submitted to DEC or finalized by DEC prior to the effective date of the Phase II Rule (September 7, 2004).¹⁵

The Danskammer Interim Decision also cited EPA's 316(b) Phase II Implementation Question and Answer Document (Q&A Document), August 19, 2004, at 2-3 (question and answer referenced as "Q2" and "A2") as addressing the situation where a draft permit is proposed before the Phase II Rule took effect, as occurred in the Danskammer proceeding, but the final permit is issued after the effective date (Interim Decision, at 31). The Danskammer and Roseton application review processes differ in that the Danskammer draft permit was proposed before the Phase II rule took effect while the Roseton draft permit was proposed after that date. The Applicant and DEC Staff argued that question and answer "Q5" and "A5" apply to the Roseton proceeding, and argued that consequently the Phase II rule would apply.

The first five scenarios discussed in the Q&A Document assume that a facility's permit expired prior to the effective date of the Phase II Rule and that the facility had filed its application for renewal on a timely basis.¹⁶ Of these five scenarios, the one described in "Q3" appears to apply most closely to the Roseton application review process: "Q3. The draft permit is proposed after the 316(b) Phase II rule takes effect. At the time of permit issuance, the facility has not submitted the comprehensive demonstration study and other information needed to determine limitations under the 316(b) Phase II rule. What is the basis for the 316(b) limitations in the permit?" (emphasis in original).

The contents of the "comprehensive demonstration study" are described at 40 CFR 125.95(b) and include, among other things, *technology and compliance assessment information* (125.95(b)(4)) and a *verification monitoring plan* (125.95(b)(7)). While some of

¹⁵ See Exhibits 5, 6A, 6B, 9, 10, 12, 13 (all prior to September 7, 2004), and Exhibits 15 and 16 (after that date).

¹⁶ The Danskammer application was a situation as described in "Q2" and "A2." The Applicant and DEC Staff argued that "Q5" and "A5" apply to the present Roseton application. Petitioners argued that, if the Phase II rule applies, "Q3" and "A3" should be followed. No party argued that "Q1" and "A1", or "Q4" and "A4", describe the situation in the present case.

the information submitted in the Roseton application documents (including in the EIS) is also required in a comprehensive demonstration study, the draft permit would require the Applicant to submit an approvable "*Technology and Compliance Assessment*" and an approvable "*Verification Monitoring Plan*" after the effective date of the permit (Ex. 17, at 11-12 and 14, Additional Requirements 12 and 13 and schedule of compliance; 7/19 Tr. 198 - 200). For the Roseton facility, the Applicant has not yet submitted at least parts of the comprehensive demonstration study, putting this application within the scenario described in "Q3."

In contrast, the scenario described in "Q5" specifies that "[p]rior to publication of the proposed permit, the facility submits the comprehensive demonstration study and other information needed to determine limits under the 316(b) Phase II rule" (emphasis in original). That did not happen in the Roseton case, and "Q5" does not apply to this application review process. As noted above, two elements of the comprehensive demonstration study have not yet been submitted; in addition, the limits currently identified by DEC Staff will be subject to verification over two years after the effective date of a new permit, based upon the currently unavailable Verification Monitoring Plan (7/19 Tr. 199).

For the "Q3" scenario, the Q&A Document states that the basis for the 316(b) limitations in the permit would be "based on BPJ [best professional judgment] under authority of 40 C.F.R. § 125.95(a)(2)(ii). The permit would also need to include a schedule requiring the facility to submit the comprehensive demonstration study and other information required by 40 C.F.R. § 125.95 as expeditiously as practicable but not later than January 7, 2008." Under the "Q5" scenario, in contrast, the limitations would be based upon the requirements of 40 CFR 125.94, the section that includes the compliance alternatives and performance standards.

Thus, under the Q&A document, the Phase II Rule does not apply to this permit application. This conclusion is consistent with 40 CFR 125.95(a)(2)(ii), which allows an applicant to request a schedule for submitting its application, including the comprehensive demonstration study, if the applicant's existing permit expires before July 9, 2008. This provision further states, "Between the time your existing permit expires and the time an NPDES permit containing requirements consistent with this subpart is issued to your facility, the best technology available

to minimize adverse environmental impact will continue to be determined based on the Director's best professional judgment."¹⁷

The Phase II Rule, if it were applicable, would not be the only requirement that the Applicant must meet in seeking renewal of the Roseton SPDES permit. The Roseton facility must also meet the requirements of 6 NYCRR 704.5 and State administrative decisional precedent. The Deputy Commissioner's interim decision in Danskammer, while determining that the Phase II rule did not apply to that proceeding, stated, "Even if the Phase II Rule applied, it would not restrict or otherwise limit the Department's ability to apply state policies and standards restricting withdrawals of cooling water from the Hudson River [footnote omitted]" (Danskammer Interim Decision, at 31).¹⁸

The state requirement was recently confirmed in the May 24, 2006 decision on the Danskammer SPDES permit application. Although that application was not subject to the Phase II rule, the Danskammer decision provides no reason to conclude that 6 NYCRR 704.5 would become ineffective or would change in situations where the Phase II rule did apply. Instead, the Danskammer decision stated that operators of facilities in New York State with cooling water intake structures that, as point sources, are subject to SPDES permits are required to comply with CWA section 316(b) and 6 NYCRR 704.5 (emphasis added); it reiterated and applied the four-step analysis for determining BTA in New York State (Danskammer Decision, at 4, n 3, and at 19-20).

The Phase II rule itself provides that "[n]othing in this subpart shall be construed to preclude or deny the right of any State ... to adopt or enforce any requirement with respect to control or abatement of pollution that is not less stringent than those required by Federal law" (40 CFR 125.90(d)). In addition, "[t]he Director may establish more stringent requirements as best technology available for minimizing adverse environmental impact

¹⁷ The Phase II preamble contains a sentence stating "[t]he permit requirements in this final rule must be implemented upon the first issuance or reissuance of permits following promulgation" (69 Fed Reg 41643). That sentence, however, appears in a discussion of federal, state and tribal roles that assumes the Technology and Compliance Assessment Information and the Verification Monitoring Plan are already available for review and that does not discuss 40 CFR 125.95(a)(2)(ii).

¹⁸ See also, Danskammer Interim Decision (May 13, 2005), at 26-29.

if the Director determines that your [an applicant's] compliance with the applicable requirements of this section would not meet the requirements of applicable State and Tribal law, or other Federal law" (40 CFR 125.94 (e)).¹⁹

On January 24, 2005, then-Deputy Commissioner Lynette M. Stark wrote to Benjamin H. Grumbles, Assistant Administrator of the EPA, outlining "how the Department will generally implement Phase II rule requirements in its SPDES permit program" (Ex. 19). The Applicant argued that this letter states the DEC will "'continue' to render BTA decisions using the Phase II Rule performance standards." (June 16, 2006 brief, at 20). The Applicant stated that, "NYSDEC implements BTA by applying uniform performance standards to a facility's full-flow baseline. This implementation mechanism ensures fair competition among competing energy facilities. Danskammer Hearing Report at 68-69. In accordance with the Phase II Rule, the use of this approach does not require the use of any one technology. 69 FR 41598. So long as an affected facility meets the BTA performance standards in its SPDES permit, it complies with the BTA requirements. In sum, this is the structure of NYSDEC's 316(b), BTA program." (June 16, 2006 brief, at 19).

The Applicant's brief, at pages 19 and 23, cited a portion of page 5 of Executive Deputy Commissioner Stark's letter but omitted the later portion of page 5. The omitted portion cites "the Department's own cooling water intake structure regulation (6 NYCRR § 704.5)," re-states the four-step analysis for the Department's determination of BTA, and cites the June 2, 2000 Athens Interim Decision and the March 19, 2002 Bowline decision.²⁰

¹⁹ An August 30, 2004 letter from EPA Acting Assistant Administrator Benjamin H. Grumbles to the Attorneys General of several states including New York notes these sections of 40 CFR 125 and states, "EPA is not persuaded that the States will be powerless to impose more stringent requirements in permit proceedings once the Phase II rule takes effect on September 7, 2004" (Letter, at 5). A copy of this letter is attached with Petitioners' September 16, 2005 letter to me.

²⁰ The January 24, 2005 letter, at pages 5 and 6, contains two uses of the term "site-specific." While page 5 refers to a "site-specific" approach as having been applied to SPDES permits issued to electric generating facilities in New York, page 6 states that the Department will not consider a "site-specific" alternative BTA determination, as that term is used by EPA in its

The Applicant's brief also misinterpreted pages 68 and 69 of the Danskammer hearing report, that discussed whether full-flow or flows during past performance should be used in calculating the baseline. Those pages of the Danskammer hearing report concluded that using full-flow would facilitate Staff's ability to determine compliance with the entrainment and impingement performance standards by all Hudson River electric generating facilities, on a comparative basis, regardless of how frequently individual facilities may actually operate.²¹ Although these pages of the report do not use the words "uniform" or "uniformity," the conclusion could be seen as a uniform approach to identifying the baseline flow. The hearing report did not, however, state that DEC "implements BTA by applying uniform performance standards to a facility's full-flow baseline." The Danskammer decision itself used the four-step analysis and considered technologies as well as performance standards (Decision, at 6-16, 19-21). Page 68 of the hearing report also states that "the Department expressed support for nationally-applicable minimum performance standards for limiting mortality from entrainment and impingement" (emphasis added), not for uniform performance standards that would constitute both the minimum and the maximum required performance.

The Petitioners proposed, as the fifth issue in their petition, whether the Phase II Rule applies and, if so, whether DEC Staff has misapplied it in this case. Applicability of the Phase II Rule is a legal issue and not an issue that requires adjudication through presentation of factual testimony. The parties presented their arguments on this legal issue at the issues conference and in subsequent correspondence. Applicability of the Phase II Rule to this case is decided in the present rulings. The portions of Issue 5 that concern how DEC Staff applied the Phase II Rule to this application overlap with parts of the second proposed issue (choice of the baseline, flow reduction, and schedule for submitting the Technology and Compliance Assessment and the Verification Monitoring Plan) and will be discussed in the context of Issue 2.

Ruling: The Phase II Rule does not apply to the Roseton SPDES permit renewal application. The Roseton application must meet the requirements of 6 NYCRR 704.5 and State administrative

Phase II Rule (citing 40 CFR 125.94 (a)(5) and 125.95 (b)(6)).

²¹ The arguments concerning the flow to be used in establishing a calculation baseline for Roseton are discussed in a later section of the present rulings.

decisional precedent, that uses the four-step analysis stated in the Athens, Bowline and Danskammer cases. The Roseton application must meet this state requirement even if it were to be determined, following appeals, that the Phase II rule also applies.

Closed-cycle cooling

Under the four step analysis of BTA, the first question is whether the facility's cooling water intake structure may result in adverse environmental impacts. In the present case, it is clear that Roseton's intake may result in adverse environmental impacts, and therefore subsequent steps of the BTA analysis must be considered. DEC Staff issued a positive declaration under SEQRA for the Roseton, Bowline and Indian Point SPDES permit renewals (Environmental Notice Bulletin [June 3, 1992], at 9-10; Ex. 10, at 10). The FEIS prepared by DEC Staff discusses the adverse environmental impacts of cooling water withdrawals by these power plants, including entrainment of millions of fish at Roseton (Ex. 10, at 1-4, 15-17, 50-54, among other pages). According to the FEIS, "The NYS Water Quality Report for 2002 lists the Hudson River downstream from the federal dam at Troy as being impacted by cooling water use by power plants...current levels of impingement and entrainment impair and may preclude the [water quality classification system's] best usage components of propagation and survival." (Ex. 10, at 51).

Petitioners both argued that closed-cycle cooling, rather than the technologies in the draft permit, represents BTA for this facility (Issue 1), and criticized the conditions in the draft permit as being flawed and inadequate (Issue 2).

With regard to the overall choice of technology, Petitioners stated that a closed-cycle cooling system is the best technology available to minimize Roseton's adverse environmental impacts, and that the cost of such a system is not wholly disproportionate to the environmental benefits. Petitioners proposed to present testimony by Peter Henderson, Ph.D., Director of PISCES Conservation Ltd., and by Bill Powers, P.E., of Powers Engineering. Reports by both proposed witnesses were included with the petition.²² Petitioners also proposed to call David A. Schlissel, Senior Consultant, Synapse Energy Economics, Inc., to analyze the costs of a closed-cycle retrofit in view of Dynegy's

²² Dr. Henderson's report was co-authored by Dr. Richard Seaby.

annual gross revenue, in support of Petitioner's position that the costs of closed-cycle cooling would not be wholly disproportionate to the benefits. The petition did not include a report by Mr. Schlissel.

Petitioners stated that cooling towers can reduce water withdrawals by 97 percent or more, and that no alternative mechanisms, short of plant outage during entrainment season, could reduce aquatic impacts to a level commensurate with closed-cycle cooling. According to the petition, Dr. Henderson would testify that closed-cycle cooling would limit impingement and entrainment commensurate with the reduction in water withdrawals, and that Roseton would continue to damage the fisheries and biotic resources of the river in the absence of such reductions (Petition, at 16-17 and 24). Petitioners argued that closed-cycle cooling would produce a 97 percent reduction in entrainment regardless of how much the station operates (7/19 Tr. 96). Petitioners asserted that the flow reduction strategy in the draft permit would produce only marginal reductions in entrainment, and that the draft permit could even allow increased impingement and entrainment (when compared with the 1987 permit) because the percent reductions are based upon an artificially high baseline (Petition, at 17 and 26-27; see also Petition Exhibit F concerning the proposed testimony on this issue). Petitioners' critique of the draft permit conditions is discussed further in a later section of these rulings.

With regard to the cost of a closed-cycle cooling system, Petitioners proposed testimony by Mr. Powers concerning the cost of retrofitting Roseton with a plume-abated (or hybrid) closed-cycle wet cooling system. The petition described the costs projected by Mr. Powers for such a system and the effect of retrofitting on the cost of power production. Petitioners also stated that Mr. Powers' estimate of costs was nearly \$60 million less than the Applicant's estimate for a closed cycle retrofit at Roseton (Petition, at 18-25). According to the petition, retrofitting Roseton with closed-cycle cooling would involve a capital cost of \$82 million and an annual cost premium of \$4.7 to \$5.6 million per year (Petition, at 18). The Applicant's report on technologies to reduce impingement and entrainment predicted a total capital cost for a closed-cycle cooling water system at Roseton of approximately \$139 million (Ex. 13, at 5-31 to 5-32). Mr. Powers' report also discussed closed-cycle retrofits performed at other power plants and the duration of outages needed for closed cycle retrofits (Petition Exhibit E). According to the petition, closed-cycle cooling would add 3 to 6 percent to the cost of power production from the facility while

nearly eliminating the adverse impacts of water withdrawals (Petition, at 18).

As discussed in the prior section of these rulings, the Applicant argued that as long as it meets the performance standards of the Phase II Rule, it complies with the requirement for using best available control technology. The Applicant stated that DEC considered closed-cycle cooling for Roseton, but that no issue exists concerning closed-cycle cooling because, in the Applicant's view, the draft permit does not violate a statute or a regulation (7/19 Tr. 231-233).

The Applicant also questioned and disputed the Petitioners' cost estimates for a closed-cycle cooling system as presented in the petition and Mr. Powers' report (7/20 Tr. 143-213). The Applicant argued that the question of whether the cost of closed-cycle cooling is "wholly disproportionate" to the benefits need not be considered if the draft permit complies with the Phase II Rule performance standards, but also asserted that the Petitioners had not conducted any economic analysis and had not presented any benefits assessment in support of their position (7/20 Tr. 179 - 182). The Applicant mentioned EPA guidance for preparing an economic analysis (7/20 Tr. 181, 186). The Applicant also argued that a determination regarding "wholly disproportionate" costs is site specific and that costs at other facilities cannot be relied on in evaluating this question (7/20 Tr. 182-184). The Applicant stated that Mr. Schlissel should not be considered to be part of the offer of proof because the petition does not include any report by Mr. Schlissel (7/20 Tr. 144-146).

DEC Staff stated that the Phase II Rule applies to this application, and that the test of "wholly disproportionate" cost only came into play in that "when Staff was coming up with the percentage reductions here, of course, it did ask the Applicant to look into closed-cycle cooling as another alternative to higher percentage reductions" (7/19 Tr. 39-40). DEC Staff stated that it determined that the cost of closed-cycle cooling was wholly disproportionate at this site (7/19 Tr. 40). At the issues conference, DEC Staff did not present arguments concerning Mr. Powers' report and the cost aspects of Petitioners' offer of proof (7/20 Tr. 213).

The SPDES fact sheet prepared by DEC Staff stated,

"Due to the Roseton Station's current operational status as an intermediate generating facility the cooling water systems are off line approximately 70% of each year.

The cost of retrofitting Roseton with a closed cycle cooling system would be many times higher than the selected suite of technologies and operational measures, but would not result in correspondingly greater reductions in impacts to aquatic organisms. As a result, the Department has determined that the cost of a closed cycle cooling system installed at Roseton would be wholly disproportionate to the benefit to aquatic organisms." (Ex. 18, Attachment B, at 5).

Information concerning alternative technologies for reducing impingement and entrainment is presented in the DEIS, the FEIS and the Applicant's June 2004 response to DEC Staff's request for additional information (Ex. 6A, 6B, 10 and 13). The DEIS and the FEIS discussed a system of fish protection points, which were numerical values that "reflect the weekly contribution to the annual entrainment mortality rate that could occur at each plant if it operated at full power using minimum flows for efficient operation." (Ex. 6A, at IV-2). As proposed in the DEIS, a system of tracking accumulated fish protection points would have been used to determine whether flow reduction and outages were occurring to an extent that would ensure the same level of fish protection as provided by the flow and outage conditions in the 1981 and 1987 permits (Id.). DEC Staff and the Applicant confirmed that the fish protection points concept is not used in the draft permit or the application as it stands at present (7/20 Tr. 256-257).

Several mitigation technologies that were discussed in the DEIS, FEIS, and Exhibit 13, and in recent hearings about other power plants, are not at issue in the present hearing. No party is proposing that the Roseton SPDES permit require use of sonic deterrents, wedge-wire screens or a filter barrier ("Gunderboom"). The technologies and operational measures at issue in the present hearing are those identified in Additional Requirements 8 and 9 of the draft permit (see pages 11 and 12 of these rulings), and a closed cycle cooling system, particularly plume-abated closed-cycle wet cooling (Petition, at 16-18). In addition, unlike in the Danskammer hearing, the Applicant has not stated that a closed-cycle system could not be built on the site due to space constraints or other construction problems.

As stated in the Athens Interim Decision, "the 'wholly disproportionate' standard is not a simple cost/benefit analysis" (emphasis in original) (Athens Interim Decision, at 14). The

Athens Interim Decision quotes EPA's Seabrook decision,²³ and then goes on to state, "Thus, in determining BTA, a lone finding that the costs outweigh the environmental benefits to be gained is insufficient; instead, a finding must be made that the costs are 'wholly disproportionate' to the environmental benefits to be gained. This more rigorous standard gives presumptive weight to the value of environmental benefits and places the burden on a permit applicant to demonstrate that the relative costs are unreasonable." (Athens Interim Decision, at 15.)

In the present case, the Applicant has relied primarily on its assertion that if it meets the performance standards of the Phase II rule, the decision-making process would be at its end (7/20 Tr. 180). At the request of DEC Staff, the Applicant did provide a report that describes alternative mitigation measures, certain estimated costs associated with these alternatives and their estimated effectiveness in reducing impingement and entrainment (Exhibit 13). The Applicant's report, however, does not discuss whether and why the costs of the alternatives would be wholly disproportionate to their benefits. In addition, Petitioners have made substantive offers of proof contesting both the Applicant's cost numbers for closed-cycle cooling and the calculations the Applicant used in evaluating the estimated impact reductions that would occur under the draft permit. Consequently, the Applicant's cost numbers for closed-cycle cooling and the predicted benefits are themselves in question.

The documents in the record at present do not include an independent analysis by DEC Staff, but instead present a conclusion that is apparently based on the information presented by the Applicant in Exhibit 13, plus the assumption regarding how much of the time the cooling water system would be off line.

The Petitioner's offer of proof, in addition to contesting information presented by the Applicant, includes analysis of the thermal efficiency penalty of a closed-cycle retrofit of Roseton, analysis of how this retrofit would affect the cost of power production at Roseton under two assumptions about the station's electric capacity factor, and a review of closed-cycle retrofits that have been performed at several electric generating facilities in the United States. Petitioners also proposed testimony regarding retrofit costs in the context of Dynegey's

²³ In re Public Service Company of New Hampshire, 10 ERC 1257 (1977) ("Seabrook"), petition for review dismissed, Seacoast Anti-Pollution League v Costle, 597 F2d 306 (1st Cir. 1979) ("Seacoast").

annual gross revenue, although they did not provide any details of the contents of this latter testimony.

The Applicant argued that Petitioners provided no economic analysis to support their position, and had not provided any assessment of benefits associated with closed-cycle cooling (7/20 Tr. 180-181; 242). The Applicant also argued that "affordability" is not allowed to be part of the BTA analysis (7/20 Tr. 243). The first assertion, however, is contradicted by the petition and the second is contradicted by a subsequent (November 2005) ruling of the Deputy Commissioner, as discussed in the following paragraphs.

The relative environmental benefits of closed-cycle cooling in comparison with those of the combination of measures contained in the draft permit would be addressed by portions of Dr. Henderson's proposed testimony, while the economic analysis Petitioners propose to present would be through Mr. Powers' testimony, plus that of Mr. Schlissel.

Although the Applicant mentioned an EPA document concerning economic analyses, and provided a copy of this document at my request,²⁴ the Applicant has not provided an economic analysis that resembles that in the cited document. Even if the Phase II rule applied in this case, DEC has notified the EPA it will not use the Phase II compliance alternative that involves comparison with the costs considered by EPA in establishing the Phase II rule's performance standards (Ex. 19, at 6; 40 CFR 125.94(a)(5)(i)). With regard to determining compliance with 6 NYCRR 704.5, the cited EPA document does not establish any mandatory procedure that applicants, DEC Staff or intervenors must follow.

A ruling of the Deputy Commissioner in the Danskammer hearing, issued after the date of the Roseton issues conference, stated, "The question whether 'affordability' of certain control technologies is an element of the 'wholly disproportionate' test in the context presented here - - the proposed retrofit of an existing facility - - is a significant issue that is best decided based upon a properly developed factual record." (Matter of Dynegy Northeast Generation, Inc. on behalf of Dynegy Danskammer,

²⁴ "Economic and Benefits Analysis for the Final Section 316(b) Phase II Existing Facilities Rule," EPA Office of Water, February 2004 (EPA-821-R-04-005), www.epa.gov/waterscience/316b/econbenefits/final.htm. A copy was attached with Mr. Alessi's letter of October 31, 2005.

LLC (Danskammer Generating Station), Ruling of the Deputy Commissioner on Motion for Leave to File an Expedited Appeal, November 15, 2005, at 3-4). The Danskammer case was subsequently decided without reaching this question (because a closed-cycle system would not fit on the Danskammer site), and it remains an open question. Testimony on "affordability" may be presented in this hearing, along with testimony on other facts relevant to determining whether the cost of closed-cycle cooling is wholly disproportionate to the benefits.

Although the Applicant claimed Mr. Powers' report was incomplete and that parts of it could not be understood, the report itself and Mr. Powers' description of it are a detailed and comprehensible offer of proof (see Petition Exhibit E; 7/20 Tr. 148-165; 214-226). The statements, by counsel for the Applicant, to the effect that the report should have been done differently and should have made different engineering judgments (7/20 Tr. 195-206, 210-213), did not rebut the offer of proof.²⁵

Petitioners' proposed testimony raises sufficient doubt about whether the Applicant's proposal as conditioned by the draft permit meets the requirements of 6 NYCRR 704.5 that further inquiry is required. If Petitioners' position prevails, the outcome would be a major modification of the draft permit and the facility, for example, a limitation on water intake to a rate consistent with closed-cycle cooling, rather than the combination of technologies and operational measures identified in the draft permit.

Ruling: The issue whether closed-cycle cooling is the best technology available for minimizing adverse environmental impacts of the Roseton cooling water intake structure (Petitioners' issue 1) is substantive and significant, and will be adjudicated.

Draft permit conditions

Calculation baseline

The performance standards in the draft permit are stated in terms of reducing entrainment mortality and impingement mortality by specified percentages from "the full flow calculation baseline" for the facility (Ex. 17, Additional Requirements 10

²⁵ "Site-specific" evaluation of mitigation measures does not preclude evidence concerning what similar measures cost and how they worked in comparable situations.

and 11).²⁶ The efficacy of the technologies and operational measures implemented for reducing impingement and entrainment would be evaluated by means of studies comparing these impacts under full flow baseline conditions and actual operating conditions (Ex. 18, Attachment B, at 6). The calculation baseline would be stated in terms of numbers of fish or possibly equivalent juveniles (Ex. 13, Appendix A; 7/19 Tr. 187-188, 199-200).

In the present hearing, the calculation baseline would be relevant to the Phase II rule, if it were applicable. The calculation baseline is also relevant to whether the draft permit would ensure compliance with 6 NYCRR 704.5 because, as set forth in the draft permit, the performance standards against which the effectiveness of the technologies and operational measures would be evaluated are stated in terms of the calculation baseline. According to DEC Staff, the extent of outages and flow minimization would be aimed at meeting the percent reductions from baseline, rather than being specified in terms of flow rates and unit days of outage during particular times of year (7/19 Tr. 118-122).²⁷ Use of a baseline, and percent reductions from the baseline, are not expressly mentioned in the four-step analysis of BTA but could be used in conducting this analysis.

Petitioners assert that the calculation baseline, as identified by the Applicant, is unrealistically high due to several assumptions Petitioners are contesting. Petitioners argue that percent reductions from an "inflated" baseline do not reflect BTA and would not even approach the protection offered by closed-cycle cooling, and that the draft permit might actually

²⁶ The percent reductions are not reductions from the present levels of these impacts.

²⁷ The performance standards for the first two years of the permit are stated in terms of "action levels," in a use of that term that differs from the general meaning of "action levels" in SPDES permits (7/19 Tr. 188-198). The percentages identified for the first two years are essentially a goal, that would be in place for the time period during which the Applicant is installing additional technology. DEC Staff stated that "the Department is requesting the Applicant to strive to obtain the 70 and 80 percent within the first two years, but if for some reason they can only get to 68 percent and 78 percent we are not going to bring some type of enforcement action against them." (7/19 Tr. 192).

reduce the protection of aquatic life from that provided by the current permit (Petition, at 26-27).

The Phase II rule defines calculation baseline as:

"an estimate of impingement mortality and entrainment that would occur at your site assuming that: the cooling water system has been designed as a once-through system; the opening of the cooling water intake structure is located at, and the face of the standard 3/8-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source water body; and the baseline practices, procedures, and structural configuration are those that your facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. You may also choose to use the current level of impingement mortality and entrainment as the calculation baseline. The calculation baseline may be estimated using: historical impingement mortality and entrainment data from your facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of your cooling water intake structure; or current impingement mortality and entrainment data collected at your facility. You may request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if you can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment." (40 CFR 125.93).

Petitioners criticized the Applicant's use of the maximum flow capacity²⁸ in calculating the baseline ("full flow

²⁸ The number stated for the maximum flow rate is not consistent in the SPDES fact sheet (Ex. 18), and was clarified at the issues conference (7/19/05 Tr. 116 - 118). The fact sheet states at page 2 that the cooling system pumps have a combined rated capacity of 641,000 gpm (which is approximately 923 mgd), but also states at Attachment B, page 4, that "Roseton Units 1 and 2 have a combined maximum flow capacity of 980 MGD, which is the basis for the full flow calculation baseline." The Applicant's July 2004 document, however, identifies both the cooling water pump capacity and the maximum flow rate for purposes of the baseline calculation as 641,000 gpm (Ex. 13, at

baseline"), on the basis that the facility has operated in recent years as an intermediate generation facility producing only 30% of its rated capacity for producing electricity, and that the maximum pumping rate has never been achieved for an extended period. Petitioners stated that a full flow baseline does not in any way indicate the plant's performance and is one of the factors that inflate the baseline.

Petitioners also disputed three adjustment factors that the Applicant used in calculating the baseline (A1, A2 and A3, described in Appendix A of Ex. 13). These factors are based on ratios of the Roseton and Danskammer annual impingement densities of each species (A1) and ratios of the Roseton and Danskammer entrainment densities of each species and life stage during concurrent entrainment sampling in 1983 to 1987 (A2). According to Ex. 13, A1 was included in the impingement baseline calculation to adjust for reduced intake velocities and fish escape passages of the Roseton intake, by comparison with numbers from the Danskammer intake, which intake does not incorporate these features; A2 was included in the entrainment baseline calculation to adjust for the location of the Roseton intake away from shallow areas. In addition to A2, the equation for the entrainment baseline also includes A3, identified in Exhibit 13 as an adjustment to reflect changes in abundance over the last 15 years (after the 1983-87 sampling).²⁹

Petitioners proposed testimony by Dr. Henderson, that was described in the petition and in a report attached with the petition. Dr. Henderson criticized the use of a full flow baseline and the three adjustment factors. With regard to A1, used in the impingement baseline calculation, he acknowledged that Roseton should receive credit for having installed specialized screens.³⁰ He stated, however, that using a comparison with Danskammer to account for efforts to reduce

2-2 and Appendix A). DEC Staff stated that correcting Attachment B so that the value is 923 would not affect the outcome of Staff's review (7/19 Tr. 118).

²⁹ The "intake effect" and "no intake effect" values shown on graphs in Exhibit 13 (for example, page 5-21) represent values with the adjustments and without them, respectively (7/19 Tr. 184-186).

³⁰ Petitioners also acknowledged that Roseton's baseline should be adjusted to take into account the fish passageway (7/19 Tr. 144).

impingement mortality at Roseton overestimates the effectiveness of these efforts because Danskammer's canal configuration is "highly efficient at trapping fish to be impinged" (Petition Exhibit F, at 20; 7/19 Tr. 143-149).

A2 is also based upon comparison of Roseton and Danskammer, using entrainment densities obtained during 1983 to 1987. Dr. Henderson stated that DEC Staff and the Applicant have "mistakenly construed a benefit for a deeper water intake" and that, even if the deepwater effect exists, the Roseton's intake location at the shoreline did not result from an entrainment reduction effort. He also criticized how the Applicant calculated A2 from the Roseton and Danskammer data. With regard to A3, he stated there is "no ecological logic" in the choice of the time periods used in calculating A3 and that if the abundance of fish were to decline in future years the baseline will be too large. Using the example of striped bass eggs in May, Dr. Henderson stated that the entrainment baseline calculation is approximately 121 times that which would be predicted to have actually occurred, at a pumping rate of about 30% of maximum and without the adjustment factors. According to this analysis, with the baseline as proposed by the Applicant the plant could greatly increase striped bass egg mortality while still achieving an 85% reduction from the entrainment baseline.

According to Petitioners, the draft permit's percent reductions from over-estimated baselines do not reflect the best technology available and will not equal or approach the protection offered by closed-cycle cooling.

The Applicant argued that the calculation baseline, as defined in the Phase II Rule, established the characteristics of a hypothetical facility against which reductions in impingement mortality and entrainment would be compared. The Applicant described this concept as allowing facilities to take credit for mitigation measures they have already implemented. The Applicant characterized Petitioners' position as saying Roseton should get no credit for its fish passageway or traveling screens. With regard to the adjustment factors, the Applicant argued that comparison with Danskammer is appropriate and that the adjustment (A3) to reflect historic changes in abundance "is used in both the numerator and the denominator of the calculations" and "applies to both the baseline and any statement of entrainment under alternative conditions." The Applicant stated Petitioners had not cited any reason why the baseline calculation is contrary to the Phase II Rule's definition (7/19 Tr. 81-88, 135-141, 173-175). In its June 16, 2006 brief, the Applicant argued that the Deputy Commissioner's Decision regarding the Danskammer SPDES

permit renewal established that the calculation baseline should be based on full flow.

DEC Staff stated the Phase II Rule allows for use of full flow conditions as the baseline, and that, even if current operating conditions differ from full flow, this baseline condition allows the Department to look at all power plants in the same way. DEC Staff stated the Applicant had been allowed to take credit for fish protection measures as allowed by the Phase II Rule (7/19 Tr. 91-93, 162).

Using a calculation baseline, and reductions from the baseline levels of impingement mortality and entrainment as part of permit conditions, are concepts from the Phase II Rule. Much of the proposed sub-issue regarding the baseline involves whether the definition of this term is applied correctly. The issue is relevant, however, in the present hearing because the Applicant's information about effectiveness of mitigation alternatives is presented in terms of reductions from the calculation baseline. In addition, the draft permit's conditions rely heavily on comparisons between future impacts and the calculation baseline in determining whether the technologies and operational measures to be used during the permit term are effective, and in governing how the operational measures would be used.

While the currently-effective permit specifies the duration and timing of outages, and maximum cooling water flow rates for specified times of year, the draft permit requires that "cooling water flow volume will continue be reduced through outages" and "cooling water flow volume will continue to be reduced through flow minimization..." (Ex. 17, Additional Requirement 8). According to DEC Staff, the draft permit no longer requires specific outages during specific time periods, and no longer contains quantified flow limits, but instead requires the Applicant to run its facility in order to meet the performance standards, i.e., meet the required percent reductions in entrainment mortality and impingement mortality (7/19 Tr. 120-122).

If the hearing record does not support a conclusion that closed-cycle cooling is BTA, the other mitigation alternative that might be required would be the combination of measures in the draft permit. The outcome of the disputes regarding the calculation baseline (as well as certain other sub-issues regarding terms of the draft permit) would then determine whether the draft permit, as currently written, represents BTA for this facility.

In the recent hearing concerning renewal of the Danskammer SPDES permit, an issue was adjudicated concerning the use (in the Danskammer Alternative Technology Evaluation Model, "DATEM") of full pumping capacity to calculate the baseline "despite the fact that the plant never operates near capacity" (Danskammer, Interim Decision of the Deputy Commissioner, at 19 and 20). The Danskammer SPDES permit renewal was subject to 6 NYCRR 704.5 and not subject to the Phase II Rule, but the draft permit contained entrainment and impingement performance standards that were stated as percent reductions from a baseline (see, Danskammer Interim Decision at 30-31, Danskammer Hearing Report at 62-63). While the issue was identified in terms of DATEM, the discussion in the hearing report and the testimony it cites relate to the flow to be used in identifying the baselines for power plant cooling water intakes generally (Danskammer Hearing Report, at 64-69). The Danskammer decision endorsed the reasons presented by DEC Staff in that hearing in support of selecting the full-flow baseline "for purposes of DATEM," but those reasons related in part to being able to compare impacts among multiple power plants (Danskammer Decision, at 18, Hearing Report at 65-66).³¹ The Danskammer decision suggests that full flow would be used in calculating the baselines for power plant cooling water intakes generally.

The letter from then-Deputy Commissioner Stark to the EPA concerning how DEC would implement the Phase II Rule states that percent reductions in impingement and entrainment will be based upon comparison with "a baseline when the facility is operating at full flow and full capacity" (Ex. 19, at 4). The letter, however, also requires applicants to estimate impingement and entrainment at both full flow and under current operation (Ex. 19, at 2 and 3).

DEC Staff's definition of "full-flow," as described in the Danskammer hearing report, is "the flow of cooling water when all pumps at the Facility are continuously operating at full capacity every day of the year" (Danskammer Hearing Report, at 65). DEC Staff is using the same definition in the Roseton case (7/19 Tr. 91). The Applicant's baseline calculation involves using the combined rated capacity of the pumps (641,000 gpm, see Ex. 13, at 2-1 to 2-2) as the flow for every hour of the year (Ex. 13, Appendix A). Petitioners dispute whether this is appropriate, arguing that Roseton has operated as an intermediate generating

³¹ A similar intention of having a common reference point for all power plants was cited by DEC Staff at the issues conference in the present hearing (7/19 Tr. 91-92).

facility during the past five years, and that the maximum pumping rate has never been achieved for an extended period (Petition, at 27).³²

The Danskammer decision accepted DEC Staff's reasons for not using either a standard capacity factor or past performance in establishing a baseline (Decision, at 18). The petition in the Roseton hearing did not specifically identify a preferred method for arriving at a baseline flow value, but appears to favor an approach based upon past performance (Petition, at 26-27; Petition Exhibit F, at 19). In the Danskammer hearing, Petitioners' witness Dr. Henderson recommended using the recent five-year average flow as the baseline (Danskammer Hearing Report, at 67). The petition in the present case does not include a recommendation by Petitioners about the time period to use in quantifying past flows for Roseton, although Petitioner's June 16, 2006 brief recommends using five years of data to determine the average long-term actual use of water (Brief, at 20).

In the present case, no issue will be adjudicated concerning an alternative way of arriving at the flow component of the baseline calculations. Although the Danskammer decision did not directly state that full flow, as defined by DEC Staff, would be used in all DEC reviews of cooling water intakes at power plants, the decision endorsed DEC Staff's rationale for using full flow as opposed to past performance. Whether and to what extent a full-flow baseline is unrealistic for evaluating impacts and mitigation measures, however, may be addressed in the testimony concerning whether closed-cycle cooling, the conditions in the draft permit, or some modification of those conditions represents BTA for this facility based upon the four-step analysis used in determining compliance with 6 NYCRR 704.5.

³² At present, the hearing record contains widely diverging descriptions of the extent to which Roseton operates, ranging from a note indicating "baseload," which the Applicant stated was an error, to a statement in the Applicant's June 16, 2006 brief that the capacity factor has been approximately 1.2% or 2% during January 2006 to May 2006 (7/20 Tr. 249-256; Brief, at 4, 49). While capacity factor in terms of electric generating capacity is a different concept from water pumping capacity, in general a lower capacity factor corresponds with a lower quantity of cooling water withdrawn from the river (see, for example, Ex. 18, Attachment B at 4; Ex. 13 at 2-4 and Appendix B).

Petitioners made a sufficient offer of proof regarding the adjustment factors used by the Applicant in calculating the baseline values (A1, A2 and A3), and the Applicant and DEC Staff did not successfully rebut this proposed issue. In effect, Petitioners' arguments contend, among other things, that the impacts at Roseton are being adjusted to compare not even with a hypothetical baseline facility but with a facility (Danskammer) that has impacts greater than a hypothetical baseline facility. The Applicant's arguments about how A3 is used are not supported by the application documents (see Ex. 13, particularly section 5.3 and Appendix A). The entrainment calculation baseline, adjusted using A2 and A3, would be used not only in evaluating the alternatives but also in determining whether the facility is meeting the entrainment performance standard in Additional Condition 10.

The petition identifies specific criticisms of the calculation, and thus of the draft permit's performance standards, that raise doubt about whether the draft permit conditions represent BTA. This portion of the proposed issue is substantive and significant.

Ruling: The portion of the proposed issue that challenges the adjustment factors used in calculating the baseline is a substantive and significant issue and will be adjudicated. No adjudicable issue was raised concerning an alternative way of arriving at the flow component of the calculation baseline. However, testimony concerning whether and to what extent a full-flow baseline is unrealistic for evaluating impacts and mitigation measures may be provided in the context of the closed-cycle cooling and flow reduction issues.

Variable speed pumps and other flow reductions

The draft permit would require the Applicant to install variable speed drives on two or more cooling water circulator pumps "in order to further minimize cooling water flow" (Ex. 17, Additional Condition 9). This installation would be done within 2 years of the effective date of the permit.

The fact sheet that accompanied the draft permit included this measure as one of technologies and operational measures that together represent what DEC Staff determined to be BTA for Roseton. The fact sheet also included, as part of BTA, "institute diurnal cycling matching cooling water flow with generation load in order to minimize cooling water flow between dusk and dawn" (Ex. 18, Attachment B, at 3). This operational

measure is not specified in the draft permit, however. If it is meant to be implied by "further minimize cooling water flow," the requirement is not clear (see, 7/19 Tr. 122-123). The fact sheet states, with respect to diurnal cycling, that "densities of fish, including juveniles and motile larvae, fluctuate on a daily cycle. Increased densities have been observed from evening through sunrise, with maximum densities near dusk and dawn" (Ex. 18, Attachment B, at 2).

The fact sheet, in its discussion of the "capacity" aspect of the BTA standard, stated, "[o]ver the past five years, Roseton has operated as an 'intermediate' generation facility producing only about 30% of its rated capacity for producing electricity. It is no longer a 'base loaded' facility, but is on line more than a 'peaking load' facility. Roseton's lower capacity factor has significantly reduced the quantity of cooling water withdrawn from the Hudson River." The fact sheet goes on to describe "additional measures to further reduce cooling water usage" (installation of variable speed drives and related provisions, and diurnal cycling)(Ex. 18, Attachment B, at 4). The Petitioners argued that young fish are vulnerable to impingement and entrainment during May to October, and Roseton's use as an "intermediate" facility would only reduce these impacts if it is proposed to generate at 30% of its rated capacity during these months. Petitioners stated, however, that past data suggests that electric output can be high during these months (Petition, at 32).

Petitioners contended that the proposed flow reduction measures would not be as effective as suggested by the Applicant and DEC Staff, that flow reduction is unlikely to produce the proposed reductions in impingement and entrainment, and that the draft permit would only achieve "periodic, short-term" flow reductions as opposed to "substantial, definite and year-round" flow reductions associated with closed-cycle cooling. The Petitioners proposed testimony by Dr. Henderson on these subjects. They stated that although variable speed pumps would reduce the volume of water pumped and the number of organisms entrained or impinged, this technology would also increase mortality by increasing temperatures in the cooling system and the river³³ and by increasing the transit time of entrained organisms. The Petitioners stated that the vast majority of entrained organisms are eggs and larvae, and that these do not

³³ The relationship between the requirement for variable speed pumps and changes in the discharge temperature limitations is discussed in more detail below, under "Anti-backsliding."

exhibit diurnal behavior but are caught at all times of the day and night (Petition, at 31-35, 37-38; Petition Exhibit F).

The Applicant characterized Petitioners' position as alleging that variable speed pumps are not BTA, and argued that variable speed pumps are part of a combination of measures that constitute BTA. The Applicant argued that one of the graphs in Dr. Henderson's report demonstrates diurnal variation occurs in the density of striped bass post yolk-sac larvae, that Petitioners' assertion of no diurnal variation is inaccurate, and that some species may have such variations but others may not (7/19 Tr. 200-203, 208-210). The Applicant suggested that the draft permit makes no change in the discharge temperature and that therefore there is no support for the arguments in the petition (7/20 Tr. 39-45), but later acknowledged that at certain times in the year the discharge temperature could be higher under the draft permit than under the existing permit (7/20 Tr. 60-62).

DEC Staff agreed, without any elaboration, with the Applicant's statements concerning diurnal variations in organism density (7/19 Tr. 203). DEC Staff suggested that the extent of diurnal variation and the effectiveness of variable speed pumps would be adequately dealt with as part of verification monitoring during the permit term (7/19 Tr. 213-214).

This proposed sub-issue is substantive and significant, and was not rebutted by the Applicant's and DEC Staff's arguments at the issues conference. The draft permit is not clear concerning diurnal cycling, and Petitioners have proposed testimony that calls its effectiveness into question even if the Applicant's interpretation concerning one life stage of one species is accurate. Installation and use of variable speed pumps is only part of the combination of measures required under the draft permit, but the draft permit's effectiveness relies on it in part and the effectiveness of other aspects of the draft permit are in dispute as well. The outcome of this sub-issue will affect whether the draft permit conditions, a major modification of the draft permit conditions, or closed-cycle cooling is BTA for this facility.

The fact sheet prepared by DEC Staff actually supports requiring further inquiry about whether reductions in entrainment would be offset by increased thermal mortality due to increased discharge temperatures associated with variable speed pumps. The fact sheet states, "[s]ince the last permit was drafted in 1987, further review of entrainment survival data has revealed that temperature induced mortality of entrained fishes across most species does not increase incrementally but rather remains low up

to discharge temperatures³⁴ of 86 to 90 degrees Fahrenheit (30 to 32 degrees Centigrade) and then dramatically increases (EA Engineering Science and Technology, 2000)." The fact sheet, however, also concludes, "Since research has shown little difference in survival as a result of eliminating the seasonal differential, the greater protection of aquatic resources will result from the lower volume of water being withdrawn into the plant." The discharge temperature would be allowed to exceed the 86°F to 90°F range more often under the draft permit than under the existing permit. The only research cited in this section of the fact sheet appears to support a different conclusion from the one quoted above (See Ex. 18, Attachment B, at 2 and 3; Ex. 16 and 27).

Ruling: A substantive and significant issue exists concerning whether installation of variable speed pumps and related provisions, and diurnal cycling, would be effective enough that the draft permit's combination of technologies and operational measures would constitute BTA for the Roseton facility.

Permit conditions regarding submission of plans

Petitioners objected to the draft permit's deadlines for the Applicant to submit its Technology and Compliance Assessment (three months after the effective date of the permit) and its Verification Monitoring Plan (two years after the effective date of the permit)(Ex. 17, Additional requirements 12 and 13, respectively). Petitioners stated the technologies and operational measures, to be described in the first submission, must be reviewed prior to making a BTA determination rather than after it. Petitioners also stated that, in view of the large amount of data already collected, it is feasible for a monitoring plan to be submitted in advance of the permit. They also proposed that the draft permit require reductions in impingement and entrainment to be achieved as of the effective date of the permit, and that a report demonstrating compliance be submitted within 15 months after the effective date of the permit (Petition, at 35-36).

³⁴ The temperatures discussed here (in connection with entrainment survival) are discharge temperatures, while the temperatures discussed below in connection with the tri-axial study are primarily temperatures in and around a mixing zone outside the outfall.

The Applicant questioned what statute or regulation would be violated by the timing of these requirements (7/19 Tr. 191-192, 222-223, 228). Neither DEC Staff nor the Applicant identified reasons behind the timing of the submissions required by Additional Requirements 12 and 13, other than the Applicant's citation of a section of the Phase II Rule preamble that discusses how much time EPA provided for compliance with permitting requirements under the Phase II Rule (69 FR 41620, middle column of page; 7/19 Tr. 196). With regard to Additional Conditions 10 and 11, DEC Staff stated that the percentage reductions for impingement mortality and entrainment mortality during the first two years of the permit are lower than in the later years because the draft permit requires "installation of additional technology and other regimes" to meet the higher percentages (7/19 Tr. 190- 194).

The draft permit allows for documents that would be significant parts of a permit renewal application under the Phase II Rule to be submitted by the Applicant during the permit term (see 40 CFR 125.95(b)(4), Technology and compliance assessment information, and 125.95(b)(7), Verification Monitoring Plan). These are application materials that would be available for public review, and potentially for consideration during a hearing, if they were available at that time rather than becoming available after a permit is in effect.

DEC Staff identified numbers in Exhibit 13 as the calculation baseline values against which the facility's performance would be measured, but added that these numbers are to be verified as part of the SPDES permit, under Additional Condition 13 (7/19 Tr. 198-199). The Applicant and DEC Staff referred to an additional feature for which the Applicant has been seeking credit in its baseline calculation (the "mud hump", sediment in the channel between the Roseton intake and the main Hudson River channel). The permit may allow for changes to be made during the permit term regarding the conceptual basis by which the baseline values are calculated (see, 7/19 Tr. 136-137, 141-142, 173-174; October 12, 2005 letter from Mr. Sanza, at 2-3; November 29, 2005 letter from Sanjeeve K. DeSoyza, Esq., at 2). The methods for assessing whether the technology and operational measures are effective remain to be proposed, at a later date and after the opportunity for public participation is over. The additional or changed requirements that could result from these further submissions would essentially be modifications of the permit, and might involve material changes in what the permit requires.

This proposed sub-issue would involve only a limited fact question, concerning how long it would reasonably take for the Applicant to prepare the two submissions required by Additional Requirements 12 and 13 in view of the information already available. Otherwise, the issue is mainly a legal question. Petitioners argued, in the petition and their June 16, 2006 brief, that the schedule for submitting these documents violates the Phase II Rule by deferring critical documents until after the effective date of the permit. This application, however, is not subject to the Phase II Rule. The issue instead is whether there is adequate opportunity for review under 6 NYCRR parts 621 (Uniform Procedures), 624 (Permit Hearing Procedures) and 617 (SEQRA), and if not, how to ensure adequate review of the BTA determination or of future changes in the BTA determination.

Ruling: A fact issue exists concerning how long it would reasonably take for the Applicant to prepare the two submissions required by Additional Requirements 12 and 13. Following the adjudicatory hearing, the parties may brief the legal issue identified in the last sentence of the above discussion.

Additional fish species

As part of their Issue 2, Petitioners also proposed testimony by Dr. Henderson to show that DEC Staff only evaluated a small number of common species and omitted species such as Atlantic tomcod, Atlantic sturgeon, American eel, and river herring (Petition, at 38). The petition did not describe the proposed testimony on the subject, however, nor state how the permitting decision would be affected if Petitioners' position prevailed. The FEIS used the term "river herring" to include both blueback herring and alewife, and stated that these species are difficult to differentiate in their early life stages (Ex. 10, at 2). The baseline calculation in Exhibit 13 included both blueback herring and alewife, although it did not include Atlantic tomcod or the other species mentioned. This proposed testimony does not raise an issue for adjudication.

Ruling: No issue was raised for adjudication concerning whether additional fish species should be included in the review of this permit renewal application.

Anti-backsliding

The third issue proposed in the petition was that "the proposed elimination of the flow and outage requirement and the

relaxation of temperature safeguards violates federal anti-backsliding prohibitions." The Applicant and DEC Staff opposed adjudication of this issue, arguing that the anti-backsliding provision applies only to effluent limitations and that the BTA requirement for cooling water intake structures is not an effluent limitation. The Applicant further argued that, even if the outage conditions in the existing permit are considered to be effluent limitations, the revised temperature limits in the draft permit are for the purpose of protecting aquatic resources (reducing impingement and entrainment) and are therefore exempt from the anti-backsliding prohibition.

The "anti-backsliding rule" is contained in section 402(o) of the Clean Water Act (33 USC 1342(o)). The general prohibition against "backsliding" provides that:

"In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, re-issued, or modified on the basis of effluent guidelines promulgated under section 1314(b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. In the case of effluent limitations established on the basis of section 1311 (b)(1)(C) or section 1313 (d) or (e) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313 (d)(4) of this title." (33 USC 1342(o)(1)).

Exceptions to the anti-backsliding provision are listed in 33 USC 1342(o)(2). These include an exception that was cited by the Applicant in its arguments on this proposed issue:

"A permit with respect to which paragraph (1) [general prohibition against backsliding] applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if... (D) the permittee has received a permit modification under section...1326(a) of this title [CWA 316(a), effluent limitations on thermal discharges]" (33 USC 1342(o)(2)(D)).

The 1972 Federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES), which is administered in New York State under the State Pollutant Discharge Elimination System (SPDES). This regulatory system

involves both issuance of NPDES or SPDES permits and establishment of standards by EPA.

The anti-backsliding provision and its context have been briefly described as follows:

"In the absence of national standards, the Act authorizes the Administrator to issue permits on 'such conditions as the Administrator determines are necessary to carry out the provisions of [the Act].' 33 U.S.C.A. § 1342(a)(1)(B). However, in issuing permits on a case-by-case basis using its 'Best Professional Judgment,' EPA does not have unlimited discretion in establishing permit effluent limitations. EPA's own regulations implementing this section enumerate the statutory factors that must be considered in writing permits.... The recent [1987] 'anti-backsliding' amendment to the Act is designed to prevent 'backsliding' from limitations in BPJ permits to less stringent limitations which may be established under the forthcoming national effluent limitation guidelines. It prohibits a permit containing effluent limitations issued under a BPJ determination from being 'renewed, reissued, or modified on the basis of effluent guidelines promulgated under [the national rulemaking] ... subsequent to the original issuance of such permit,' if the permit would contain effluent limitations which are 'less stringent than the comparable limitations in the previous permit.'" (Natural Resources Defense Council, Inc. v U.S. Environmental Protection Agency (863 F2d 1420 [9th Circuit, 1988], at 1425 and 1427.)

Petitioners seek to apply the anti-backsliding prohibition to two kinds of permit conditions in the existing and draft permit. The two kinds of conditions are related factually, through the operation of the cooling system, but they differ legally. The flow and outage requirements limit impingement and entrainment of aquatic organisms, under CWA § 316(b) and 6 NYCRR 704.5, while the discharge temperature limitations protect a "balanced, indigenous population of shellfish, fish, and wildlife" from heat impacts under CWA § 316(a) and 6 NYCRR 704.1 through 704.4 and 704.6. As discussed further below, the flow and outage requirements are not effluent limitations, but the temperature limitations are effluent limitations.

The Hudson River Settlement Agreement, which is included as Appendix F-II of the FEIS (Ex. 10), established flow restrictions and outages for the power plants covered by the agreement. For Roseton, it required an outage of either one or both units for an

aggregate of 30 unit-days each year between May 15 and June 30 (HRSA, section 2.B). The HRSA also required "best reasonable efforts to keep the volumes of river water drawn into the Roseton plant at the minimum required for its efficient operation" and identified approximate flow rates for five approximate periods of the year, related to average maximum river temperatures during those periods (HRSA, section 2.E.2). The HRSA also included provisions for suspension and make-up of outages, and for cross-plant outage credits (HRSA, sections 4.D, 4.E and 4.G).³⁵

The HRSA agreement was incorporated into the 1982 and 1987 SPDES permits,³⁶ the latter of which is still in effect pursuant to SAPA (Ex. 10, at 8-10). The draft permit would require that "[c]ooling water flow volume will continue to be reduced through outages" and "[c]ooling water flow volume will continue to be reduced through flow minimization by actively managing flow to utilize the minimum volume of water needed to cool the condensers and comply with the thermal limits of this permit" (Ex. 17, Additional Requirement 8.c and 8.d (Ex. 17, at 11)). The draft permit, however, specifically deletes references to the HRSA requirements (Ex. 18, Attachment B, at 7). The SPDES fact sheet describes Additional Requirement 8 of the draft permit only as requiring "the continued use of measures in place during the previous term" (Id.) Under the draft permit, the adequacy of the flow minimization and outages that occur would be evaluated under as-yet-to-be determined assessment methods.

Although the omission of the HRSA outage and flow restrictions might make the draft permit less stringent than the existing 1987 permit, the outage requirements and flow restrictions are not effluent limitations and are not subject to the anti-backsliding prohibition. Petitioners argued that "what goes out must come in" and that the outage requirements and flow restrictions are effectively effluent limitations (7/20 Tr. 127). These permit conditions, however, are mitigation measures to

³⁵ The copy of the HRSA that is included in the FEIS is missing page numbers on some of the pages, probably due to how they were photocopied. The provisions cited in this paragraph are at pages 4, 8-10 and 21-26 of the HRSA.

³⁶ September 11, 1987 SPDES permit, page 10, Additional Requirement 5. This requirement also specifies cooling water flows for four time periods. Two of the five time periods in the HRSA had the same approximate flows, and these two time periods are listed as one in the 1987 permit (October 17 to December 31, and December 31 to May 14).

reduce fish mortality by reducing impingement and entrainment, focusing on a time of year when these impacts are particularly critical, in contrast with effluent limitations intended to limit thermal discharges (see Ex. 6A, at VIII-3 to VIII-5; Ex. 10, at 8 and 32).

As part of flow minimization under the draft permit, the Applicant would install and use variable speed pumps in order to have greater control of the cooling water flow rate and to thereby reduce impingement and entrainment. On February 10, 2005, the Applicant wrote to DEC Staff, stating that "in order to optimize the fish mortality reductions using the variable pumping/load following alternative, elimination of the current summer delta-T limitation (18°F), would be needed. Thus the winter delta-T limitation (36°F) would be observed throughout the year. The maximum discharge temperature limitation (99°F) would remain unchanged and in effect year-round." (Exhibit 16). The draft permit includes this change.

The draft permit would allow a longer period of the year during which the discharge temperature could be higher than that allowed under the existing permit. Based upon the river temperatures used in the Applicant's illustration on this subject (Ex. 27; see also, river temperatures shown in Petition Exhibit F, at 11), the discharge temperature could reach 99°F earlier in the year, during June and July, and stay at such temperatures later in the year, during August to mid-October, than has been allowed under the existing permit.³⁷

Although the Applicant stated that the petition suggested the discharge temperature would be allowed to reach 116°F under the draft permit (7/20 Tr. 39-40, Ex. 27), this position is not reflected in the petition itself. The petition recognizes the existence of the 99°F cap at river temperatures up to 81°F

³⁷ Exhibit 28, presented by the Applicant at the issues conference and entitled "Comparison of discharge temperature limitations in the 1987 SPDES permit and the 2005 draft SPDES permit," fails to note the elimination of the summer temperature difference requirement. The 1987 permit limited the intake-discharge temperature difference (delta T) to 18°F during May 15 to October 16, and limited the intake-discharge temperature difference to 36°F during October 17 to May 14 (Permit, at 2). The draft permit would limit the intake-discharge temperature difference to 36°F during the entire year (Ex. 17, at 3). Both permits include the maximum temperature limit.

(Petition, at 40; Petition Exhibit F, at 1, 16).³⁸ Under the draft permit, taking into account the daily maximum discharge temperature as stated on page 3 and in the notes on page 9, the maximum discharge temperature on dates in two portions of the year would be allowed to be higher than under the permit currently in effect.

Heat is a pollutant, in the context of the Clean Water Act and the Department's water quality regulations (33 USC 1362(6); 6 NYCRR 700.1(a)(32)). Limitations on discharge temperatures fit the statutory and regulatory definitions of "effluent limitations" cited in DEC Staff's brief (ECL 17-0105(15); 6 NYCRR 750-1.2(a)(31)). These define "effluent limitation" as "any restriction on quantities, quality, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are discharged into" waters of the state. CWA 316(a) (33 USC 1326(a)) is written in terms of "effluent limitation[s] proposed for the control of the thermal component of any discharge."

Although the Applicant and DEC Staff propose to eliminate the separate "summer" temperature difference requirement in order to accommodate measures (use of variable speed pumps) proposed as BTA for minimizing impacts of the cooling water intake structure, this proposed change would still result in an effluent limitation that is less stringent than the comparable limitation in the previous permit. This would be backsliding.

The next question would be whether this change is exempt from the "anti-backsliding" prohibition because of the reason for the change. The Applicant argued, in its June 16, 2006 brief, that the thermal limitations in the draft permit are exempt from the anti-backsliding prohibition because they are for the purpose of increasing protection of aquatic resources, by reducing the flow of water into the plant (see 33 USC 1342(o)(2)(D), quoted above). This argument, however, assumes that the permittee "has received" a permit modification under 33 USC 1326(a), which has

³⁸ The situation discussed at page 13 of Petition Exhibit F involves a river temperature of 81°F and a discharge temperature of 101°F, not a discharge temperature of 116°F. While the discharge temperature under the draft permit would be 99°F at this river temperature, not 101°F, the discussion in Exhibit F does not use the "Riverkeeper inference" temperatures depicted by the Applicant in Exhibit 27. The discrepancy between 101°F and 99°F would be a subject for cross examination, not a reason to reject this proposed issue.

not yet happened for the Roseton permit. There is a disputed issue, as discussed above, about whether use of variable speed pumps and the other measures in the draft permit will be determined to be BTA. There has not yet been a determination that the existing temperature limits are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made (33 USC 1342(o)(2)(D) and 33 USC 1326(a); CWA § 402(o)(2)(D) and CWA § 316(a)).

Ruling: A substantive and significant issue exists, and will be adjudicated, concerning whether the draft permit violates the prohibition against backsliding with regard to the change in the discharge temperature limitation (delta T) but not with regard to flow and outage requirements.

Thermal discharge limits

The petition's fourth issue asserts that the draft permit's thermal discharge provisions would result in increased mortality of river life and other adverse environmental impacts. Portions of Petitioners' arguments and proposed testimony concerning this issue overlap with the issues concerning variable speed pumps and anti-backsliding, already discussed earlier in these rulings. The remaining aspect of the proposed thermal issue is discussed in this section.

The draft permit would require the Applicant to conduct a tri-axial (three-dimensional) thermal study. The study would delineate water temperatures "under critical ambient temperature and tidal current conditions when all Roseton units are operating under summer conditions," in order to define the characteristics of the mixing zone and to determine compliance with 6 NYCRR 704.2(b)(5) (Ex. 17, Additional Requirement 7). The fourth proposed issue argues that the tri-axial thermal study should have been undertaken prior to issuing a draft permit and that, because the outfall³⁹ was presumably designed to handle lower temperatures than are now proposed, it is not clear that the outfall will produce an acceptable mixing zone.

³⁹ The outfall of the condenser cooling water system (outfall 002) is a pipe 12 feet in diameter and 1540 feet long, submerged in the river, with a multiport diffuser at the end consisting of a row of 14 discharge nozzles, each of which are 3 feet in diameter (Ex. 6A, at IV-10, VI-21 and Fig. IV-4).

At the issues conference, Petitioners cited 6 NYCRR 704.2(b)(5) as the provision that would be violated. This section provides that the water temperature at the surface of an estuary shall not be raised to more than 90°F at any point. This section also limits the portion of the river, specified in terms of cross sectional area, volume and distance along the surface, in which the temperature shall not be raised above 83°F or by more than 4°F, or by more than 1.5°F, depending upon the water temperature prior to addition of heat of artificial origin.

The Applicant argued that the petition did not identify any statutory or regulatory criterion that would be violated, that Petitioners' witness Dr. Henderson is not qualified to testify about thermal mixing, and that Petitioners had done no more than raise uncertainties. The Applicant argued that the DEIS summarized thermal studies that conclude mortality from thermal discharges is negligible in the Hudson River (7/20 Tr. 44-52). The Applicant also presented a graph depicting the results of temperature modeling, that depicts the plume centerline temperature as declining below 90°F within one minute after discharge (7/20 Tr. 106-113; Ex 29).

DEC Staff stated the tri-axial study is for the purpose of verifying compliance with the thermal criteria in 6 NYCRR part 704, and that Petitioners have not alleged the draft permit violates these criteria (7/20 Tr. 58).

At the issues conference, I inquired how Petitioners' position concerning the timing of the tri-axial study would affect the permit, if their position were to prevail. Petitioners responded that the change in the intake-discharge temperature difference (ΔT) should be declared to be illegal, and should not be allowed until the Applicant has demonstrated this change would not kill more fish or violate the water quality standards (7/20 Tr. 102-103). Petitioners did not propose that renewal of the permit be postponed until after the study is completed.

The petition does not discuss 6 NYCRR 704.2(b)(5) or allege that it would be violated. The petition also does not contain an offer of proof that thermal limits in the draft permit might lead to violation of the very specific limits in 6 NYCRR 704.2(b)(5).

Petitioners did not explain how the outcome they seek (not allowing the change in ΔT) relates to the information to be obtained from the tri-axial study. The study appears to be intended to examine temperatures under conditions when a violation of 6 NYCRR 704.2(b)(5) would be most likely to be seen.

The reference to "summer conditions" and full operation suggests that the testing would take place at times when the discharge temperature would be highest, and would be the same temperature, under either the existing permit or the draft permit. If violations of section 704.2(b)(5) would instead be most likely during times when the draft permit would allow different discharge temperatures than the existing permit, Petitioners failed to identify this.

The petition asserts, "[i]t is far from clear that the outfall will produce an acceptable or efficient mixing zone as the outfall was presumably designed to handle lower temperature (sic) than now proposed" (Petition, at 43). Petitioners did not offer any proof in support of this presumption, and there is no basis to presume it in the absence of an offer of proof. If anything, the massive size of the outfall suggests, in the absence of information to the contrary, that it exists as it was built prior to the initial NPDES permit.

The Applicant cited the DEIS as concluding that mortality from thermal discharge is negligible in the Hudson River (7/20 Tr. 47). The FEIS, however, concluded that the discharges were inadequately addressed in the DEIS and that the thermal analysis needed to be updated to reflect recent, more extreme conditions (Ex. 10, at 72). The FEIS stated that the strong potential for several power plants' effects to be additive, recent "dramatic declines" in two cold-water fish species, and temperature profile data for the river make it prudent to seek additional thermal discharge data for each HRSA facility (Ex. 10, at 72-73, see also 66-69). The FEIS stated the DEC anticipated requiring tri-axial thermal studies as conditions to each of the SPDES renewals (Ex. 10, at 73). Such a requirement is in the draft permit for Roseton. Under this requirement, DEC Staff would review the study results and determine whether the requirements of 6 NYCRR 704.2 have been met. Apparently this is still an open question, but Petitioners' arguments and offer of proof do not have the potential to change the timing of the thermal study requirement.

Ruling: No issue has been raised for adjudication concerning the timing of the tri-axial study or how this timing would affect other provisions of the draft permit.

Clarifications of draft permit

In a memorandum dated September 6, 2005, I inquired about the wording of Additional Requirement 12 of the draft permit and suggested the requirement would be clearer if it were rephrased.

DEC Staff responded, by Mr. Sanza's letter of October 12, 2005, and said the condition could be reworded as set forth on page 7 of the September 6, 2005 memorandum.

The first sentences of Additional Requirements 10 and 11 should be broken into two sentences, to make it clear that the percentages for the third year and later years are requirements rather than action levels (7/19 Tr. 193-194).

The draft permit states that percent reductions will be calculated from the full flow calculation baselines of this facility, but the draft permit does not identify the baselines, either by including them or referring to a place in the application materials where one could find the numbers or methods of calculating them (Ex. 17, Additional Requirements 10 and 11). At the issues conference, DEC Staff clarified that the baseline numbers are the numbers labeled "high" in Table 3-4 of Appendix A of Exhibit 13, and that these numbers would be verified during the permit term through the verification monitoring plan (7/19 Tr. 198-200, see also 187-188). This table, however, includes both numbers of fish and equivalent juveniles, and it is not clear which would be used for the baseline.

The draft permit should be clarified by including a specific reference to where the calculation baseline for Roseton is set forth, for at least the first two years of the permit.

The draft permit also does not identify what information would be collected and how impingement and entrainment would be quantified for comparison with the baselines during the first two years of the permit. The Hudson River Settlement Agreement included a biological monitoring program, but the draft permit deletes the existing permit's reference to the HRSA requirements (Ex. 18, Attachment B, at 7; Additional Requirement 5 of the existing permit; Ex. 10, Appendix F-II, at 2.J and Attachment V). Further, based upon the method used in Exhibit 13 to predict reductions in impingement and entrainment for certain mitigation alternatives (Ex. 13, at 5-1 through 5-5), it appears the comparison between baseline and actual performance might be done using the sum of fish of all species considered in Exhibit 13, rather than a species-by-species comparison, but this is not stated.

The above clarifications should be made if a permit similar to the draft permit will be issued. Depending on the outcome of the issues to be adjudicated, some of these conditions might be revised or replaced.

In addition, my September 6, 2005 memorandum asked that DEC Staff or the Applicant provide a clearer copy of pages 15 and 16 of the draft permit, that show a map and a diagram of monitoring locations. On October 31, 2005, the Applicant notified me it does not have a clearer copy. One will need to be prepared for inclusion in the permit.

Appeals

Pursuant to 6 NYCRR 624.6(e) and 624.8(d), these rulings on party status and issues may be appealed in writing to the Deputy Commissioner on an expedited basis. While 6 NYCRR 624.6(e)(1) provides that such appeals are to be filed with the Commissioner in writing within five days of the disputed ruling, this time frame may be modified by the ALJ, in accordance with 6 NYCRR 624.6(g), to avoid prejudice to any party. Due to the length of this ruling, a longer time is being provided.

Any appeals must be received at the following address no later than 4:00 P.M. on October 20, 2006: Deputy Commissioner Carl Johnson, c/o Louis A. Alexander, Assistant Commissioner for Hearings and Mediation Services, New York State Department of Environmental Conservation, 625 Broadway, 14th Floor, Albany, New York 12233-1010.

If appeals are submitted, any replies must be received at the same address no later than 4:00 P.M. on November 17, 2006.

Copies of any appeals and replies must be transmitted to all persons on the interim service list at the same time and in the same manner as they are sent to the Deputy Commissioner, with two copies being sent to my address. Service by fax or e-mail is not authorized.

Albany, New York
September 22, 2006

_____/s/_____
Susan J. DuBois
Administrative Law Judge

To: Persons on 7/10/06 interim service list