

FACT SHEET

NEW YORK STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) DRAFT PERMIT RENEWAL WITH MODIFICATION

BOWLINE GENERATING STATION (Units 1 & 2) Haverstraw, NY - December 2005

Facility Name: Bowline Generating Station
(Units 1 & 2)
SPDES #: NY-000 8010
DEC Application #: 3-3922-00003/00003
Owner/Operator: Mirant Bowline, LLC..
SIC Code: 4911
Location: Town of Haverstraw, Rockland
County; Hudson River, west shore,
river mile 37.5



I. Introduction:

These fact sheets generally describe the environmental and facility operational issues and draft permit conditions of a modified SPDES permit which the Department of Environmental Conservation (Department) proposes to issue for the Bowline Generating Station, Units 1 & 2 (Bowline) in Haverstraw, New York. The draft permit will be the subject of a public review and comment period, as well as an administrative process (including adjudication, if determined to be appropriate), before the Department issues a final permit.

The draft permit contains conditions which address three aspects of operations at Bowline regulated under New York State law and regulations as well as the federal Clean Water Act (CWA; 33 USC §1251, *et seq.*): (i) conventional industrial pollutant discharges, (ii) thermal discharge, and (iii) cooling water intake structures. Limits on the conventional industrial discharges are not significantly changed from the previous permit. New conditions are included to study the thermal discharge and to implement the “best technology available” (BTA) for minimizing adverse impacts to aquatic resources from the facility’s cooling water intake structure.

Detailed discussions of water quality and biological components of the permit follow at Attachments A and B.

II. Facility Description:

Bowline is located on the western shore of the Hudson River (Figure 1) approximately 37.5 miles north of the Battery at the southern tip of Manhattan. It consists of two existing units that burn either natural gas or #6 oil to produce a combined output of approximately 1,139 MW. Unit 1 began operation in September 1972 and Unit 2 began operation in May 1974. Using an open cycle cooling system, Bowline withdraws cooling water from the Hudson River through an intake structure located on a small embayment of the Hudson River known as Bowline Pond (Figure 2). The intake structure contains 6 circulating pumps with a combined capacity of 1,106 million gallons per day (MGD), trash racks with 3.5 inch openings between the bars, 6 conventional traveling screens with 3/8 inch mesh, and a pipe that returns fish and debris washed off the traveling screens back to Bowline Pond. Heated water is discharged into the Hudson River through a subsurface multiport diffuser located approximately 1,400 ft off shore in about 14 feet of water.

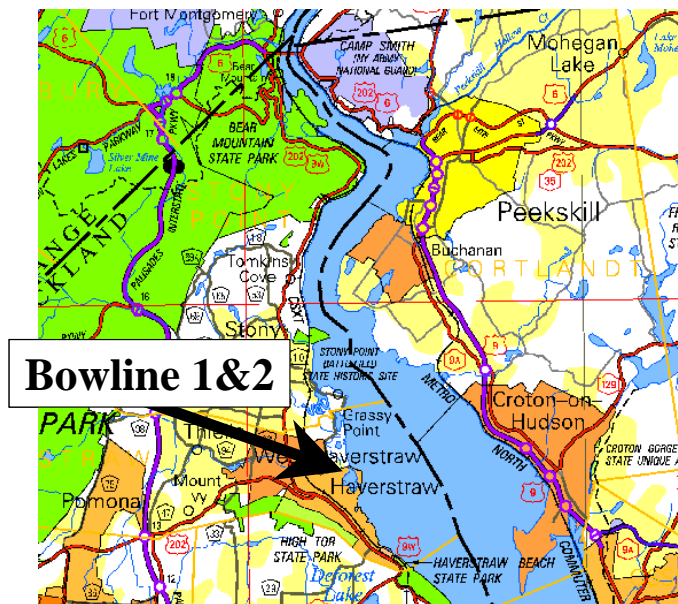


Figure 1. Location of Bowline Generating Station

III. Hudson River Settlement Agreement:

Prior SPDES permits for the Bowline facility (along with the Indian Point and Roseton steam electric generating units) reflected the terms of the 1981 - 1991 "Hudson River Settlement Agreement" (HRSA) and four subsequent Consent Orders (effective 1992 - 1998) that generally extended HRSA conditions. The HRSA and Consent Orders provided, among other things, SPDES permit terms which included specific provisions to partially address thermal discharges, some aquatic organism protection measures, and a series of long-term studies of Hudson River fish species. The last SPDES permit for the Bowline facility expired in 1992, but its terms have been continued under provisions of the NY State Administrative Procedure Act (SAPA).

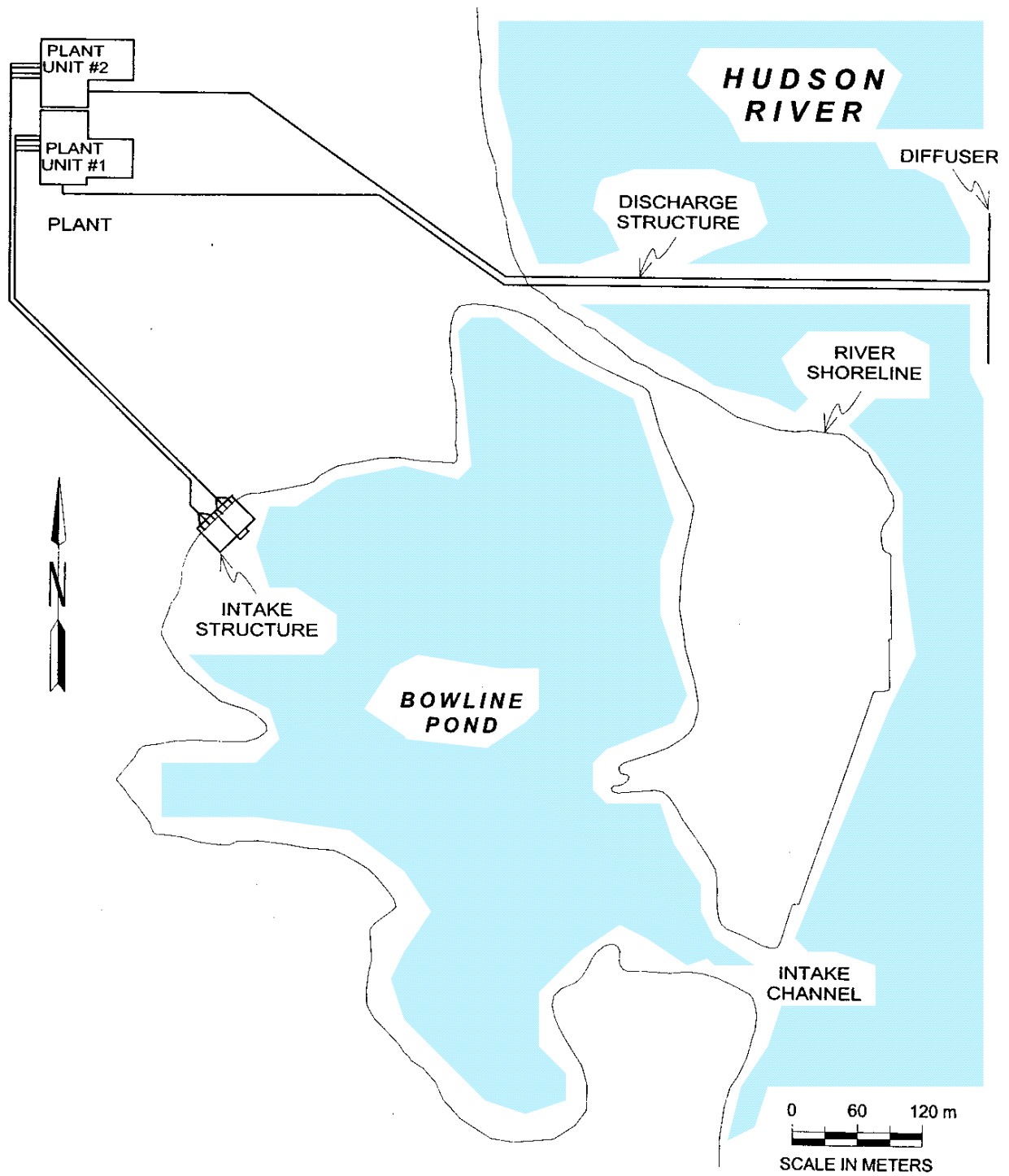


Figure 2. Map of Bowline Generating Station.

IV. Attachments:

- A: SPDES Permit Fact Sheet and summary of proposed permit changes: Wastewater Data, Receiving Water Data, and Permit Limit Derivation.
- B: SPDES Permit Biological Fact Sheet and summary of proposed permit changes: Aquatic Resources and Best Technology Available (BTA) Determination.

Attachment A

**SPDES PERMIT FACT SHEET and summary of proposed permit changes:
Wastewater Data, Receiving Water Data, and Permit Limit Derivation.**

(3) Individual Outfall Data Summaries and Permit Limit Development:

Outfall	01E
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Source(s) of Wastewater	Wastewater treatment Facility
Existing Wastewater Treatment Facilities	Physical/Chemical Treatment
EPA Point Source Category & Production Rate	40 CFR 423

Effluent Parameter (Units) <small>(concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)</small>	Existing Effluent Quality				Technology Based Effluent Limit					Water Quality Based Effluent Limit				Permit Basis (T or WQ)
	concentration		mass		conc.	mass	Type	PQL conc.	Basis	AWQC conc.	Effluent		Type	
	Avg/Max	95%/99%	Avg/Max	95%/99%							conc.	conc.	mass	Type
WET TESTING					NA					Recommended?	YES/NO			
Flow Rate, units =	Average	.043	Maximum					NA						
pH (su)	Minimum		Maximum	.72	6.0-9.0		Range		BCT	ACC				T
Solids, Suspended									BCT	ACC				T
Oil & Grease									BCT	ACC				T
Iron					1.0 mg/l				40CFR423					T
Copper (total)					1.0 mg/l				40CFR423	No Std				T
Manganese					2.0 mg/l				BAT/BPJ	0.056				T
Zinc					1.0 mg/l				BAT/BPJ	No Std				T
Nickel					2.0 mg/l				BAT/BPJ	.0082				T
Chromium (hexavalent)					0.1 mg/l				BAT/BPJ	.054				T
Chromium (Total)					1.0 mg/l				BAT/BPJ	No Std				T
Vnadium					6.0 mg/l				BAT/BPJ	No Std				T

Will apply BAT/BPJ Numbers until 316a) issued are resolved.

Misc stormwater outfalls 006-010, 013-016, monitoring 011, 012, 017

(3) Individual Outfall Data Summaries and Permit Limit Development:

Outfall 003

Source(s) of Wastewater	Secondary Containment oil storage
Existing Wastewater Treatment Facilities	O/W Separator
EPA Point Source Category & Production Rate	

Effluent Parameter (Units) <small>(concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)</small>	Existing Effluent Quality				Technology Based Effluent Limit					Water Quality Based Effluent Limit				Permit Basis (T or WQ)
	concentration		mass		conc.	mass	Type	PQL	Basis	AWQC	Effluent		Type	
Avg/Max	95%/99%	Avg/Max	95%/99%	conc.				mass		conc.		conc.		conc.
WET TESTING					NA					Recommended?	YES/NO			
Flow Rate, units =	Average		Maximum											
pH (su)	Minimum		Maximum		6.0-9.0	Range		BCT	ACC			T		
Oil & Grease						15 mg/l		BPJ	ACC			T		
Solids, Total Suspended						50 mg/l		BPJ	ACC			T		
Benzene						100 ug/l		AL	10			T		
Toluene						100 ug/l		AL	430			T		
Xylenes, Total						100 ug/l		AL	170			T		
Ethylbenzene						100 ug/l		AL	41			T		
Napthalene						100 ug/l		AL	140			T		

(4) Additional Issues:

Water Quality Based Effluent Limits (WQBELs):

New York State water quality regulations (for surface waters) are implemented by applying the Total Maximum Daily Load (TMDL) process to watersheds, drainage basins or waterbody segments on a pollutant specific basis. The analysis determines if there is a "reasonable potential" that the discharge of a pollutant will result in exceedance of ambient water quality criteria (AWQC). If there is a reasonable potential for an exceedance of AWQC, the TMDL is used to establish waste load allocations for point sources and load allocations for nonpoint sources of the pollutant. For point sources, the waste load allocations are translated to WQBELs for inclusion in SPDES permits. Reference - TOGS 1.3.1, USEPA Guidance for Water Quality - Based Decisions: The TMDL Process, 40 CFR 130 and the Clean Water Act 303(d).

The following table has been completed only for those parameters for which WQBELs were determined to be necessary.

Parameter					
Amount to be Allocated (TMDL)					
Number of Sources					
Allocation to this Permit					

Statistics:

The statistical methods utilized are consistent with TOGS 1.2.1 and the USEPA, Office of Water, Technical Support Document For Water Quality-based Toxics Control, March 1991, Appendix E. Generally based on lognormal analysis. If other data distributions such as normal or delta-lognormal are utilized it is noted below. Statistical calculations were not performed for parameters with insufficient data. Generally, ten or more data points are needed to calculate percentiles. Two or more data points are necessary to calculate an average and a maximum. Non-detects were included in the statistical calculations at the reported detection limit unless otherwise noted.

Internal Waste Stream Monitoring:

40 CFR 122.45(h)(1) allows the permit authority to monitor and limit parameters at internal locations when controlling them solely at the final outfall is impractical or infeasible. Dilution of a process wastewater with large volumes of cooling water and/or storm water is one example of when the use of an internal monitoring point is justified.

Indicator Parameters:

In accordance with 40 CFR 122.44(e)(2), The permit writer has determined that effective treatment and/or acceptable performance for specific parameters is indicated by one or more other parameters which are limited and therefore a decision has been made to not limit or monitor these specific parameters. This judgement is based on the similarity between this and the regulated parameter(s) and historical data where available. The use of indicator parameters is not appropriate for WQBELs.

Schedule of Compliance: See permit page 9 for schedule of compliance.

(5) Summary of Proposed Permit Changes:

Compared to the issued permit this draft is intended to replace, the following significant changes are proposed -

- Addition of requirement to conduct thermal study in accordance with 6 NYCRR Part 704.
- Biological monitoring requirements in Attachment B (SPDES PERMIT BIOLOGICAL FACT SHEET and summary of proposed permit changes: Aquatic Resources and Best Technology Available (BTA) Determination).

(6) Explanatory Notes:

Please note that some of these terms are not applicable to every fact sheet.

AL -	Action level calculated in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs). See the permit for a complete definition.
AVG or Av -	Average. The arithmetic mean.
AWQC -	Ambient water quality criteria for the receiving water. The applicable standard, guidance value or estimated value in accordance with TOGS 1.1.1, TOGS 1.3.1 and 6NYCRR 700-705.
Basis -	The technical analysis, internal guidance, regulation and/or law upon which an effluent limit or monitoring requirement is proposed.
BAT -	Best Available Technology Economically Achievable in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
BTA -	Best Technology Available
BCT -	Best Conventional Control Technology in accordance with TOGS 1.3.4, 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
BPJ -	Best Professional Judgement in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 122 and 125, 6NYCRR 754.1, ECL 17-0811 and the Clean Water Act.
BPT -	Best Practicable Control Technology in accordance with TOGS 1.2.1, 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
Conc. -	Concentration in units of mg/l, ug/l or ng/l.
Design Flow -	Treatment system design capacity as noted in an approved engineering report.
Final -	Final permit period requirements. A level of performance that must be achieved according to a schedule specified in either the permit or a consent order.
g/d -	Grams per day discharged.
GW -	Groundwater effluent limitation developed in accordance with TOGS 1.2.1 (nonPOTWs), TOGS 1.3.3 (POTWs), TOGS 1.1.2 and 6NYCRR 703.
Ind -	Indicated parameter. See definition in section (4).
Interim -	Interim permit period requirements. A level of performance that must be achieved while improvements are being implemented in order to achieve final permit period requirements.
lbs/d or #/d -	Pounds per day discharged.
Mass -	Mass discharge in units of #/d or g/d discharge.
Max or Mx -	The maximum value.
MGD -	Million gallons per day.
mg/l -	Milligrams per liter.
Dilution/Mixing -	Used to determine dilution available in receiving waters. For lakes, estuaries and slowly flowing rivers and streams, mixing zone dilution is generally assumed to be 10:1 unless data is available to indicate otherwise.
Model -	Calibrated water quality model applied in accordance with TOGS 1.3.1.
Mon -	Monitor only.
NA -	The characteristics of this parameter and the reported discharge levels do not justify routine monitoring or a limit. Also indicates "not applicable".
ng/l -	Nanograms per liter. 1000 ng/l = 1 ug/l = 0.001 mg/l.
PQL -	The DEC published or site specific practical quantitation limit; the concentration in wastewater at which analytical results are thought to be accurate to within approximately plus or minus thirty percent.
R -	"Rolled Over", i.e. the specific requirement in this permit is equivalent to the previous permit. R(T) is roll over of a technology based requirement and R(WQ) is roll over of a WQBEL.
Range -	The discharge is limited to a range of effluent values, e.g. a pH limit of (6.0-9.0) SU.
RREL -	EPA's Risk Reduction Engineering Laboratory treatability database.
T -	Technology based effluent limit or requirement.
TOGS -	Technical and Operational Guidance Series. Internal guidance to permit drafters used by the NYSDEC Division of Water to aid in permit drafting. Copies of these guidance documents may be obtained from the internet at http://www.dec.state.ny.us/website/dow/togs/index.htm .
ug/l -	Micrograms per liter. 1000 ug/l = 1 mg/l.
WET-	Whole Effluent Toxicity (testing). See TOGS 1.3.2.
WQ -	Water quality.
WQBEL -	Water quality-based effluent limit. See information in section (4).
7Q10 -	The minimum average 7 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving aquatic health based AWQC.
30Q10 -	The minimum average 30 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving human health based AWQC.
95% -	The 95th percent confidence interval for the historical effluent data used to draft the permit.
99% -	The 99th percent confidence interval for the historical effluent data used to draft the permit.
133 -	Secondary treatment requirements in accordance with TOGS 1.3.3, 40 CFR 133, 6NYCRR 754, ECL 17-0509 and the Clean Water Act.
+ -	These parameters represent scans. Detections vary among the compounds which are included in the scans. The listed value represent the maximum detected level of any compound in the scan.

Attachment B

**SPDES PERMIT BIOLOGICAL FACT SHEET and summary of proposed permit changes:
Aquatic Resources and Best Technology Available (BTA) Determination**

1. Ecological Resource

The waters surrounding Bowline are moderately saline (brackish) and contain a diverse assemblage of both resident and migratory species of fish. The station is located on the Hudson River estuary where water flows are dominated by tidal cycles with a net downstream movement of water that varies with seasonal freshwater input from the upper watershed and tributaries. More specifically, Bowline is on the northern portion of Haverstraw Bay, which is a relatively shallow portion of the Hudson, contains extensive shoal areas, and is over 3 miles wide at Bowline Point. The aquatic community near Bowline is a reflection of this depth profile as well as salinity, bottom sediments, and other habitat characteristics. As a result, documented levels of impact and species affected by operations at Bowline are different from other Hudson River power plants which tend to be in areas of the Hudson with different habitat characteristics.

Each year under current operations, Bowline Units 1 and 2 cause the mortality of more than 62 million fish from entrainment and impingement. Entrainment occurs when small fish larvae and eggs (with other aquatic organisms) are carried into and through the plant with cooling water, causing mortality from physical contact with structures and thermal stresses. Impingement occurs when larger fish are caught against racks and screens at the cooling water intake, where these organisms may be trapped by the force of the water, suffocate, or otherwise be injured. Although more than 30 different species of fish are impinged and entrained at Bowline (Normandeau Associates 2004, EA 1987), losses are distributed primarily among 6 species of fish, including bay anchovy (*Anchoa mitchilli*), striped bass (*Morone saxatilis*), white perch (*Morone americana*), blueback herring (*Alosa aestivalis*), alewife (*Alosa pseudoharengus*), and American shad (*Alosa sapidissima*).

2. Alternatives Evaluated

The following feasible technologies and operational measures were evaluated for use at Bowline:

- Fine mesh Ristroph screens
- Cylindrical wedgewire screens
- Aquatic filter barrier
- Seasonal deployment of fine mesh barrier net
- Current restricted flow operation with coarse mesh barrier net
- Variable speed drives or pumps added to existing circulating water pumps
- Mechanical draft wet cooling towers
- Natural draft cooling towers
- Hybrid wet/dry mechanical draft cooling towers

Mirant evaluated all these technologies and operational measures as to their individual and, in some cases, combined efficacy for reducing impingement and entrainment of aquatic organisms (ASA 2004). Mirant's analysis was based on in-plant impingement sampling data (1993 - 1996) and in-plant entrainment sampling data (1984 - 1987) collected at Bowline. However, since entrainment data were over 17 years old, Mirant adjusted entrainment estimates to reflect current ichthyoplankton densities in the Hudson River using Longitudinal River Survey data (1997 - 2001) (ASA 2004a). The Department used Mirant's evaluation and other relevant information to evaluate and compare the benefits to aquatic organisms as measured against the full flow calculation baseline for the existing intake structure. In addition to estimates of benefits, Mirant provided estimates of the costs to install, operate, and maintain these alternative technologies and operational measures (Alden 2003). This information was used by the Department to determine if the costs of technologies and operational measures were "wholly disproportionate" to the environmental benefits of using these technologies.

3. Discussion of Best Technology Available

Pursuant to 6 NYCRR § 704.5 - *Intake structures* and § 316(b) of the federal Clean Water Act, the location, design, construction, and capacity of cooling water intake structures must reflect the "best technology available" (BTA) for minimizing adverse environmental impact. 40 CFR § 125, subpart J, attempts to establish minimum national performance standards for reducing adverse environmental impact. In addition, federal case law [Seacoast Anti-Pollution League vs. Costle, (1st Cir. 1979)] and New York administrative precedent [Bethlehem Energy Center, Athens Generating Station, Bowline 3 Generating Station] require that the costs of any BTA technologies should not be "wholly disproportionate" to the environmental benefits derived.

A. Location

All options evaluated except for cylindrical wedgewire screens would withdraw water from the existing intake structure.

Cylindrical wedgewire screens - Mirant evaluated 0.5 mm wedgewire screens installed approximately 3,000 feet from the existing intake in the main stem of the Hudson River. Mirant estimated that these screens would virtually eliminate impingement and would reduce entrainment by about 30%.

B. Design

Several of the options evaluated included changes in the design of the cooling water intake structure.

Fine mesh Ristroph screens - This option would replace the existing traveling screens with fine mesh screens (0.5 mm mesh) and under one scenario would include expanding the existing intake to lower the velocity of water through the screens. While these fine mesh screens would reduce entrainment of fish larvae, the larvae prevented from entering the condensers would be impinged on the fine mesh screens. Studies have shown that impingement mortality of fish larvae on Ristroph screens varies by species and life stage of fish (summary in Alden 2003). Using information from these studies, Mirant estimated that the installation of these screens would yield an 82% reduction in impingement mortality and a 24% reduction in entrainment.

Aquatic filter barrier - This option would seasonally install a fabric filter barrier designed to exclude aquatic organisms from entering the intake structure. Mirant proposed an aquatic filter barrier in the main stem of the Hudson and estimated that this technology would achieve a 99% reduction in impingement and about an 80% reduction in entrainment.

Cylindrical wedgewire screens - As discussed above, Mirant estimated that these screens would virtually eliminate all impingement and would reduce entrainment by about 30%.

Seasonal deployment of fine mesh barrier net - Deployment of a fine mesh barrier net was attempted at Bowline in 1993 and 1994, but experienced some problems (LMS 1996). More recently, Mirant evaluated a different design that included stronger attachment points and a plan for changing the net when clogged or biofouled (Alden 2003). This more recent design consists of a 3 mm mesh net installed approximately 300 feet from the intake structure between mid-May and late-August. Mirant estimated that this fine mesh barrier net could yield substantial reductions in older larvae (post yolk sac larvae) and juvenile fish (ASA 2005).

Seasonal deployment of coarse mesh barrier net - This option is currently deployed at Bowline between mid-October and mid-May and consists of a 3/8 inch mesh net installed approximately 100 feet from the intake structure. Studies conducted at the plant have documented that this barrier net substantially reduces impingement of fish on the traveling screens (LMS 1983) and when deployed can yield a 91% reduction in impingement (Hutchison and Matousek 1988). The net

is deployed during fall, winter and spring when about 70% of the historic impingement occurred.

Sonic Deterrent- While this technology has been shown to reduce impingement of alewife (Ross et al. 1996) and would likely reduce impingement of other fishes in the genus *Alosa* (e.g., herring and shad), the expected reduction in impingement at Bowline are relatively small because *Alosa* spp. do not dominate the impingement occurring at Bowline.

C. Construction

Short and long term construction impacts will result from the installation of some technologies.

Short Term Impacts - Short term construction impacts on aquatic resources would be associated with the installation of the fine mesh barrier net, wedgewire screens, and the expansion of the existing intake. Many of these short term impacts would be minimized using appropriate construction practices and any remaining impacts would be outweighed by the long term benefits to aquatic resources from reducing impingement and entrainment.

Long Term Impacts - The construction of cooling towers would likely have longer term impacts caused by the filling of existing wetlands. Although mitigation of these impacts would be required, restoration of the full complement of wetland benefits would, at best, take many years to achieve.

D. Capacity

The most effective way to reduce impingement and entrainment is by reducing the amount of cooling water used by the facility. Mirant evaluated the use of three methods of reducing water flow: closed cycle cooling, variable speed drives or pumps, and on-going flow restrictions (originally required in the HRSA). Closed-cycle cooling would likely achieve the greatest reductions: 97% reduction in impingement mortality and 96% reduction in entrainment over baseline conditions. Assuming a 50% capacity factor, variable speed drives or pumps would likely achieve a reduction in impingement mortality of 84% and a reduction in entrainment 43%, while on-going flow restrictions would achieve a 79% reduction in impingement mortality and a 24% reduction in entrainment.

4. Determination of Best Technology Available

After evaluating all of the available alternatives, the New York State Department of Environmental Conservation (NYSDEC) has determined that, in combination, the following technologies represent the best technology available for minimizing adverse environmental impacts from the cooling water intake structure.

Current restricted flow operation with coarse mesh barrier net

Variable speed drives or pumps added to existing circulating water pumps

Seasonal deployment of fine mesh barrier net or alternative technologies/operational measures

In combination, these technologies and operational measures must achieve at least a 95% reduction in impingement mortality and an 80 % reduction in entrainment. The estimated cost of these selected technologies represents less than one percent of Bowline's average annual gross revenue (2000-2004), when amortized over 20 years. The Department has determined that the cost of these technologies and operational measures is therefore not wholly disproportionate to the environmental benefits to be gained by use of these technologies.

Evaluated Alternatives Not Selected

Closed Cycle Cooling- The estimated cost of retrofitting Bowline with a closed cycle cooling system is more than 30 times greater than the selected suite of technologies yet yields approximately equivalent reductions in impingement mortality. While potential entrainment reductions from closed-cycle cooling would be approximately 10 -15% greater than called for in this permit, the Department has determined that, at this time, the cost of closed cycle cooling at Bowline is wholly disproportionate to the reductions.

Ristroph Screens- This type of modified traveling screen has been shown to improve the survival of some species of fish impinged, when compared to conventional screens. Ristroph screens are significantly more expensive than conventional screens and their installation would require major alterations at the Bowline intake structure. However, this cost yields less protection than the selected suite of technologies.

Aquatic Filter Barrier- The effectiveness of this technology in reducing entrainment and impingement has been demonstrated. While extensive testing has been conducted on prototype systems, the first full plant deployment of an aquatic filter barrier was initiated in 2004 and continues at the Lovett Generating Station. Ongoing design and construction issues associated with this system make this technology not available for this facility at this time.

Cylindrical wedgewire screens- The estimated cost of installing wedgewire screens at Bowline is about 10 times greater than the selected suite of technologies. However, this cost yields lower reductions in impact than the selected suite of technologies.

Sonic Deterrent- Use of sonic deterrent would not result in reductions in entrainment and would only result in limited reductions in impingement. The selected technologies result in a better protection of aquatic resources. Thus, the Department determined that the installation of a sonic deterrent system was not justified.

5. Monitoring Requirements

The permittee is required to submit both a *Technology and Compliance Assessment* and a *Verification Monitoring Plan* for Department review and approval. These plans detail the methodology and procedures necessary to assess compliance and to confirm that the reductions in impingement mortality and entrainment required by this permit are being achieved. At a minimum, the plan must include two years of full scale impingement mortality and entrainment studies during this permit term. These studies will quantify, by species, the numbers of fish and shellfish impinged and entrained at the facility under both estimated full flow baseline conditions and actual operating conditions during the two year study period. The studies must also evaluate the effectiveness of technologies and operational measures implemented to reduce fish and shellfish mortality. The specific requirements of the *Technology and Compliance Assessment* and the *Verification Monitoring Plan* are set forth in Biological Requirements 10 and 11 of the modified SPDES permit.

6. Federal Requirements

The Department has determined that Bowline (Units 1 & 2) is a Phase II existing facility as defined by 40 CFR §125.91 and therefore subject to Subpart J of 40 CFR §125 - Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities Under 316(b) of the Clean Water Act. The Phase II rule contains standards for the National Pollutant Discharge Elimination System (NPDES) program and delegated programs such as the New York State Pollutant Discharge Elimination System (SPDES) program. Applicable Phase II requirements are correlated with conditions of the attached draft SPDES permit in accordance with 6 NYCRR §§704.5 and 750-1.11 in Table 1 below.

Table 1. Phase II rule for cooling water intake structures and the requirements contained in the draft State Pollutant Discharge Elimination System (SPDES) permit for Bowline Units 1&2.

Code of Federal Regulations	Summary of Phase II Requirement	Requirement in SPDES permit for Bowline Units 1&2
§ 125.95(b)	Requires the permittee to submit a <i>Comprehensive Demonstration Study</i> characterizing impingement and entrainment and describing the operation of the Bowline 1&2 Cooling Water Intake.	The permittee previously submitted Entrainment and Impingement reports that document the long term studies conducted at the facility.
§ 125.94(a)	Requires the permittee to select and implement alternatives for establishing best technology available for minimizing adverse environmental impacts.	Technologies and measures required to be maintained or implemented by Biological Requirements 2, 3, 4, and 7 of the attached permit are consistent with this requirement.
§ 125.94(b)(1)	Establishes national performance standards for reductions in impingement mortality.	The standards contained in Biological Requirement 9 of the attached permit are consistent with this requirement.
§ 125.94(b)(2)	Establishes national performance standards for reductions in entrainment.	The standards contained in Biological Requirement 8 of the attached permit are consistent with this requirement.
§ 125.95(b)(4)	Requires <i>Technology and Compliance Assessment Information</i> to be submitted if the permittee chooses to use design and construction technologies and/or operational measures.	Biological Requirements 1 through 10 of the attached permit contain provisions that are consistent with this requirement.
§125.95(b)(7)	Requires a <i>Verification Monitoring Plan</i> that includes at least 2 years of studies to monitor full scale implementation of technologies and operational measures which have been implemented.	Biological Requirement 11 of the attached permit is consistent with this requirement.

Code of Federal Regulations	Summary of Phase II Requirement	Requirement in SPDES permit for Bowline Units 1&2
§125.97(a)	Requires the permittee to keep records of all the data used to complete the permit application and show compliance with the requirements of § 125.94, any supplemental information developed under § 125.95 and any compliance monitoring data submitted under § 125.96, for a period of at least three years from the date of permit issuance.	Biological Requirement 16 of the attached permit is consistent with these requirements.
§ 125. 97(b)	Requires the permittee to submit a status report to the Department every two years, that includes appropriate monitoring data and other information specified by the Department in accordance with § 125.98(b)(5).	Biological Requirement 12 of the attached permit are consistent with these requirements.

7. Legal Requirements

The requirements for the cooling water intake structure in this State Pollutant Discharge Elimination System permit are consistent with the policies and requirements embodied in the New York State Environmental Conservation Law, in particular - Sec.1-0101.1.; 1-0101.2.; 1-0101.3.b., c.; 1-0303.19.; 3-0301.1.b., c., i., s. and t.; 11-0107.1; 11-0303.; 11-0535.2; 11-1301.; 11-1321.1.; 17-0105.17.; 17-0303.2., 4.g.; 17-0701.2. and the rules thereunder, specifically 6 NYCRR §§ 704.5 and 750-1.1 et seq. Additionally, the requirements are consistent with the Clean Water Act, in particular Section 316(b) and the rules thereunder, specifically Subpart J of 40 CFR §125.

8. Summary of Changes

Deletions

Page 8, Additional Requirement 3	References to the Hudson River Settlement Agreement (HRSA).
Page 8, Additional Requirement 5	Biological Monitoring Requirements and references to the HRSA. Requirements for handling sturgeon incorporated into Biological Requirement 13 of the new SPDES permit.
Page 9, Additional Requirement 11	References to the HRSA.
Pages 11 & 12, Memorandum of Agreement between New York State Department of Environmental Conservation and the Hudson River Utilities	Biological Monitoring Requirements and references to the HRSA..

Additions

Biological Requirement 1	Requires engineering plans and reports regarding variable speed drives or pumps.
Biological Requirement 2	Requires installation of variable speed drives or pumps.
Biological Requirement 3	Requires continued installation of coarse barrier net.
Biological Requirement 4	Requires continued flow reductions.
Biological Requirement 5	Requires study plan evaluating fine mesh barrier net and alternate technologies/operational measures.
Biological Requirement 6	Requires engineering report and installation plan for fine mesh barrier net or alternate technologies/operational measures.
Biological Requirement 7	Requires installation of fine mesh barrier net or alternate technologies/operational measures.
Biological Requirement 8	Requires minimum reductions in entrainment of fish and shellfish.
Biological Requirement 9	Requires minimum reductions in impingement mortality of fish and shellfish.
Biological Requirement 10	Requires submission of a <i>Technology and Compliance Assessment</i>
Biological Requirement 11	Requires submission and implementation of a <i>Verification Monitoring Plan</i> .
Biological Requirement 12	Requires status reports.
Biological Requirement 13	Requires a report detailing the cumulative reductions in fish mortality achieved through the first four years of this permit term and a review of technologies that could be installed at the facility to further reduce fish mortality.

Additions

Biological Requirement 14	Requires prior Departmental approval of changes to the facilities cooling water intake.
Biological Requirement 16	Requires all data, reports and analysis pertaining to compliance with relevant state and federal regulations to be maintained by the permittee for 10 years from the date the SPDES permit is issued.

9. References

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