ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re: Mirant Canal, LLC	NPDES Appeal No. 08-_____
NPDES Permit No. MA0004928	

PETITION FOR REVIEW OF THE MIRANT CANAL NPDES PERMIT ISSUED BY EPA REGION 1

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INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), Mirant Canal, LLC ("Mirant Canal"), through its undersigned representatives, respectfully submits this petition for review of the final National Pollutant Discharge Elimination System Permit No. MA0004928 (the "NPDES permit") issued by the United States Environmental Protection Agency, Region 1 ("Region 1"). Filed along with this petition is a Joint Scheduling Motion submitted by Mirant Canal and Region 1 seeking additional time for Mirant Canal to supplement this petition and for Region 1 to prepare its response.

Region 1 erred in issuing the NPDES permit because it departed from well-established procedural law governing the permit process. The NPDES permit has requirements based on clearly erroneous conclusions of fact or law that Mirant Canal identified in its public comments, but which Region 1 failed to rationally address. Moreover, the analyses that Region 1 conducted, which are the foundation for many of the appealed permit provisions, fail to consider the data and comments submitted by Mirant Canal and fail to draw rational conclusions from them.

Finally, some requirements in the final permit (notably the requirement that Mirant Canal install closed-cycle cooling or a comparable intake technology) were not in the draft permit, and Mirant Canal did not have adequate opportunity to comment. These new requirements, discussed below, are not "logical outgrowths" of what was proposed in the draft permit.

BACKGROUND

1. Mirant Canal owns and operates the Canal Station, a 1,120-megawatt power plant in Sandwich, Massachusetts, on the banks of the Cape Cod Canal. The Canal Station has operated since the 1960s and has held the NPDES Permit since permitting under the Clean Water Act ("CWA") began. The Station currently operates under a permit issued in 1989.

b. Following the remand, EPA suspended the rule and directed permit writers to make intake structure decisions under § 316(b) of the CWA by using "best professional judgment." 72 Fed. Reg. 37,107-09 (July 9, 2007).

c. The U.S. Supreme Court agreed to review the Second Circuit's decision that costs cannot be compared to benefits. *Entergy Corp. v. EPA et al., cert. granted*, 128 S. Ct. 1867, 1868 (U.S. Apr. 14, 2008).

d. In July 2008 EPA and the Department of Justice filed a brief with the Supreme Court arguing that the Second Circuit erred in its decision on weighing costs and benefits. *See* Brief for the Federal Parties as Respondents Supporting Petitioners, *Entergy Corp. et al. v. EPA et al.*, Nos. 07-588 *et al.* (U.S. July 2008).

Region 1 notes that the suspension of the Phase II rule and the Second Circuit decision are "obviously significant new legal developments that have contributed to significant changes" in the permit's intake structure requirements. Response to Comments IX-52.

BASIS FOR APPEAL: NO CHANCE TO COMMENT AND NO LOGICAL OUTGROWTH

For several issues, discussed below, Mirant Canal's basis for appeal is that a new requirement appeared in the final permit that was not in the draft. The most important of these is the new requirement of closed-cycle cooling as "best technology available," but there are others. In such cases Mirant Canal had inadequate notice of the requirement and inadequate opportunity to comment. The Region suffered too, because it denied itself the opportunity to make a full record and provide itself essential information. The public also lost the opportunity to comment.

A post-proposal permit requirement can be sustained if it is a "logical outgrowth" of the draft permit, but that is not the case with the permit provisions addressed in this petition. A requirement different from what the agency initially proposed is a "logical outgrowth" of the

proposal if interested parties "reasonably could have anticipated" the final requirement from the draft permit. *In re District of Columbia Water and Sewer Authority*, NPDES Appeal Nos. 05-02, 07-10, 07-11 & 07-12, slip op. at 61 (EAB March 19, 2008), 13 E.A.D. __, 2008 EPA App. LEXIS 15, *111-13, *citing NRDC v. EPA*, 279 F.3d 1180, 1186 (9th Cir. 2002).

In *District of Columbia Water and Sewer Authority* ("the *WASA* decision"), the Environmental Appeals Board ("EAB" or "the Board") explained when it will consider reopening the comment period both under the logical outgrowth rule and when comments raise "substantial new questions" under 40 C.F.R. § 124.14(b):

> The regulations advise that when comments submitted during the comment period raise "substantial new questions" about a permit, it may be appropriate for the permit issuer to reopen the comment period. *See* 40 C.F.R. § 124.14(b). Although the reopening of the comment period is discretionary, and the Board often defers to the permit issuer's discretion in deciding not to reopen a comment period, we nonetheless consider changes to draft permits on a case-by-case basis and, depending on the significance of the change, may determine that reopening the comment period is warranted. *See, e.g., Indeck.*, slip op. at 28-29, 13 E.A.D. __ (remanding when the permit issuer did not provide an opportunity for public comment on a significant addition to the permit); *In re Amoco Oil Co.*, 4 E.A.D. 954, 981 (EAB 1993) (remanding permit and directing Region to reopen public comment period when Region failed to provide public with opportunity to prepare an adequately informed challenge to a permit change); *In re GSX Servs. of S.C., Inc.*, 4 E.A.D. 451, 467 (EAB 1992) (remanding and directing Region to reopen public comment period when public was not given opportunity to comment on significant permit changes); see also *Old Dominion*, 3 E.A.D. at 797 (explaining that despite the discretionary wording of the regulations, "there may be times when a revised permit differs so greatly from the draft version that additional public comment is required").

Id., slip op. at 62-63, 2008 EPA App. LEXIS at *113-14 (footnote omitted). The EAB quoted the D.C. Circuit's statement that "where the agency has entirely failed to comply with notice-and-comment requirements, and the agency has offered no persuasive evidence that possible objections to its final rules have been given sufficient consideration," a petitioner need not show

prejudice to prevail. *Id.*, slip op. at 67, 2008 EPA App. LEXIS at *124, *citing Shell Oil Co. v. EPA*, 950 F.2d 741, 752 (D.C. Cir. 1991). Furthermore, "when an agency fails to comply with notice-and-comment procedures, it is inappropriate to place the burden of demonstrating prejudice on the challenger." *WASA*, slip op. at 67, 2008 EPA App. LEXIS at *124, *citing McLouth Steel Prods. Corp. v. Thomas,* 838 F.2d 1317, 1323-24 (D.C. Cir. 1988); *see also U.S. Steel Corp. v. EPA*, 595 F.2d 207, 214 (5th Cir. 1979) ("when an agency fails to comply with notice-and-comment rules, courts cannot apply the harmless error doctrine unless the absence of prejudice is clear"). See *WASA*, slip op. at 67-68, 2008 EPA App. LEXIS at *125.

In the *WASA* decision the EAB found it was clear error for the region to have modified a water quality standards provision without reopening the comment period. The draft permit in that case had a general prohibition requiring combined sewer overflow discharges to meet water quality standards during an interim period before *WASA* implemented its long-term control plan. This prohibition was not in the final permit, and the EAB concluded that the region had significantly changed its underlying interpretation of the CWA and combined sewer overflow policy. *WASA*, slip op. at 64, 2008 EPA App. LEXIS at *118.

In *In re Indeck-Elwood, LLC*, PSD Appeal No. 03-04, 13 E.A.D. __, 2006 EPA App. LEXIS 44 (EAB Sept. 27, 2006), Illinois EPA added a "Condition 9" to a PSD permit. Condition 9 allowed the power plant to be constructed with less capacity than applied for. The Appeals Board said this was a "significant addition":

> Condition 9 clearly changes the substance of the PSD permit, allowing for construction of a facility that is physically different than the one permitted, and which may potentially have different emission characteristics.

Id., slip op. at 30, 2006 EPA App. LEXIS at *56-57. The appeals Board concluded that Illinois EPA should have reopened or extended the comment period.

In *In the Matter of Amoco Oil Co.*, 4 E.A.D. 954, 1993 EPA App. LEXIS 20 (EAB Nov. 23, 1993), Region 8 declined to include a definition of "conditional remedies" in a RCRA permit. The Region's rationale was articulated for the first time on appeal, and the administrative record contained no factual evidence supporting the Region's rationale with regard to the possible impact on fish in the Missouri River. *Id.*, 4 E.A.D. at 964, 1993 EPA App. LEXIS at *27. The Appeals Board ordered the Region to provide a detailed explanation supported by the administrative record or reopen the permit proceedings. *Id.*

In *In re GSX Services of South Carolina, Inc.*, 4 E.A.D. 451, 467, 1992 EPA App. LEXIS 77 (EAB 1992), the Board ordered reopening the permit record on the addition of "location standards." These required the permittee to submit three reports demonstrating that (1) the design and operation of the landfill would ensure the protection of adjacent wetlands prior to and beyond the post-closure care period; (2) an adequate buffer zone had been established to mitigate, contain, or eliminate any groundwater releases within the facility's property boundary; and (3) releases of hazardous constituents into the groundwater could be remediated and that the 40 C.F.R. Subpart F corrective action requirements could be achieved.

The new provisions that appeared in the final Mirant Canal permit for the first time are changes at least as significant as the ones that prompted reopening the record in the decisions cited above. Indeed, the "logical outgrowth" test is especially likely to be failed when, as here, the fundamental law on which permit requirements are based changed after the close of the comment period. For example, the Region's proposal in the draft permit to require a study to determine best technology available for intake structures, characterized as a best professional judgment decision, was based on EPA's "Phase II" rule. Then the rule was suspended altogether after the comment period closed. In response, the Region developed a whole new analysis of

best technology available, but it did not allow public comment on that analysis. The Appeals Board should remand the permit for that reason.

Because there were no comments on these new requirements, and little or no administrative record, Region 1 relied on extra-record evidence like newspaper articles or its experience at the Brayton Point Station. Indeed, in setting permit requirements for Mirant Canal, Region 1 relied a great deal on Brayton Point. *See In re Dominion Energy Brayton Point, LLC (formerly USGen New England, Inc.) Brayton Point Station*, 12 E.A.D. 490, 2006 EPA App. LEXIS 9 (EAB Feb. 1, 2006); *In re Dominion Energy Brayton Point, LLC Permit No. MA 0003654*, NPDES Appeal No. 07-01, 13 E.A.D. __, 2007 EPA App. LEXIS 38 (EAB Sept. 27, 2007). From page IX-38 of the Mirant Canal Response to Comments to the end, "Brayton Point" appears 20 times.

Even if the Region had drawn only *legal* conclusions from the precedents it sees in the Brayton Point decisions, those conclusions should be subjected to public comment, especially since the Appeals Board opinions in Brayton Point were published too late to address in comments on the Canal Station. But the Region did more than draw legal conclusions. It relied on the *facts* of the Brayton Point Station, especially facts about the effect of heat and intake structures on fish like winter flounder and menhaden. For example, Region 1 discounts the undesirable visual impact of cooling towers by referring to Brayton Point, where the planned cooling towers will be about the height of the tallest existing stack. Response to Comments IX-38. But Mirant Canal is in a multiuse area, not a purely "industrial" area, and in any event even near Brayton Point the residents are concerned about the towers hurting property values. See Welker, G., Dominion's big plans, *The Herald News* (Jan. 22, 2008), http://www.heraldnews.com/business/x254751044.

There are significant differences between the Mirant Canal Station and Brayton Point. Mirant Canal should have had the opportunity to comment on these differences, and would have if it had known Region 1 would rely so heavily on evidence from Brayton Point.

PROVISIONS APPEALED

Mirant Canal identifies each provision of the NPDES permit that it is appealing in Attachment A to this petition. In summary, the appealed terms and provisions impose requirements in the following categories:

1. Failure to allow a reasonable compliance period for the changes required
2. Chlorine limit and monitoring at Outfall 001
3. "Instantaneous maximum" temperature limit at Outfall 001
4. Limits on cooling tower blowdown
5. Segregating metal cleaning wastes at Outfall 011 and separate flow monitoring for 011 and 012
6. Annual heat load reports
7. Submitting source water physical data and cooling water intake structure data
8. Biological monitoring requirements
9. Modifications to cooling water intake structure and discharges from Outfall 002 to reduce impingement-related impacts
10. Requirement to install closed-cycle cooling or a comparable technology

The specific issues are discussed in more detail below, and Mirant Canal will provide more information in the supplemental filing by September 30, 2008.

1. Failure to Allow a Period for Compliance

The permit becomes effective the first day of the calendar month following 60 days after it was signed July 31, 2008. Hence, but for this appeal, Mirant Canal would have to comply by

October 1, 2008. It is physically impossible to make the changes to the Station required by the permit in that time, especially if the Station has to be converted from its existing cooling system to closed-cycle cooling. It was arbitrary and capricious and a denial of due process of law for the permit to require these changes without allowing a reasonable time for the Station modifications needed to come into compliance, at least one year for most provisions and much longer for others.

Station modifications that cannot be completed by October 1 and thus are the subject of this appeal include but are not limited to:

- Installing a new temperature monitor for Outfall 001 within 10 feet of the end of the discharge flume (Part I.A.2.a)
- Making arrangements for sampling for Total Residual Oxidants ("TRO") and pH within 10 feet of the end of the discharge flume (Part I.A.2.a)
- Measuring water temperature 15 feet below the surface at specified times (Part I.A.2.c)
- Equipment needed for the annual Heat Load Reports required by Part I.A.7
- Modifying the Station to avoid discharging condenser water at Outfall 002 when the screen wash operates or when the condensers are chlorinated and to maintain water depth in the discharge flume (Parts I.A.3.b-d)
- Completing construction and organizational and contracting work and staffing needed to do the biological monitoring and sampling required by the permit, including installing a 20-gallon fish tank (Part I.A.9.c.iv.)
- Modifying the cooling water intake structures ("CWISs") to reduce impingement (Parts I.A.3, .13, and .14)

- Installing closed-cycle cooling or a comparable technology (Part I.A.13)

The provisions in the permit identified on Attachment A to this petition include other requirements that cannot be implemented by October 1 and are therefore appealed on this basis in addition to the reasons set out in the later sections of this Petition.

Region 1 understands there is not enough time to install equipment to comply with the permit. Response to Comments IX-8. It expects to issue an Administrative Compliance Order under CWA § 309(a) that will specify a reasonable schedule for coming into compliance with the new permit requirements. *Id.*

In short, this is a case in which the Region acknowledges that the permit cannot be complied with on time. In such a case a reasonable compliance period be written into the permit so that the permittee can rely on it, not merely offered in the response to comments. Mirant Canal submits that the Region should not have issued a permit that it knows will be violated for years, leaving Mirant Canal vulnerable to citizen suits even if the Region does eventually issue an Administrative Compliance Order. *U.S. v. Smithfield Foods*, 965 F. Supp. 769 (E.D. Va. 1997), shows that a permit issuer cannot change permit requirements by special orders, nor is such an order binding on people who were not parties to it. *Id.* at 788, 790.

Also, at least before mounting an enforcement proceeding, an agency must give "fair warning" of a new interpretation of its regulations. *See General Elec. Co. v. U.S. EPA*, 53 F.3d 1324, 1333 (D.C. Cir. 1995). That requirement is not met by new permit provisions, effective in 60 days, that might take years to implement.

"Schedules of compliance" are governed by 40 C.F.R. § 122.47. A permit may specify a schedule of compliance "when appropriate." 40 C.F.R. § 122.47(a). For "recommencing" dischargers, a schedule of compliance "shall" be available, but only when necessary to allow a

reasonable opportunity to attain compliance with requirements issued or revised less than "three years before recommencement of discharge." 40 C.F.R. § 122.47(a)(2). This provision illustrates the appropriateness of a compliance period for new or changed requirements. Surely a compliance period is appropriate for intake requirements under § 316(b) of the CWA, where the requirements were issued (in the Phase II rule) effective September 7, 2004 but then superseded July 9, 2007, and where the Region has itself imposed a new interpretation of "best technology available" in July 2008. The principle should also apply to the limits for metal cleaning wastes at Outfall 011, where the Region has departed from longstanding EPA guidance (the "Jordan Memorandum") and imposed new limits on non-chemical metal cleaning wastes.

The Region's failure to set a reasonable compliance schedule in the permit is an important legal and policy issue the Appeals Board should review.

2. Chlorine at Outfall 001 (Part I.A.2)

Outfall 001 discharges noncontact condenser cooling water; treated Station effluent from internal Outfalls 010, 011, and 012; and stormwater. The current permit from 1989 includes a daily maximum limit on total residual chlorine ("TRC") of 0.1 mg/l, with grab sampling required Monday through Friday when the system is in use.

Part I.A.2 of the draft permit proposed to (1) convert the limit on TRC to a limit on "total residual oxidants" ("TRO"); (2) add a new "instantaneous maximum" TRO limit of 0.2 mg/l; and (3) require grab sampling every thirty minutes during chlorination, whenever chlorination occurred.

a. The TRO limit as an instantaneous maximum instead of a daily average

Mirant Canal commented that the 0.2 mg/L "daily maximum" limit, which comes from EPA's effluent limitations guidelines, is an average (the average of all measurements in one day,

not to exceed 0.2). The Region disagreed and kept 0.2 in the final permit as an "instantaneous maximum."

The Region relies for its interpretation on a 1992 guidance memorandum, which is informal guidance but not law. See Response to Comments III-2, citing a 1992 memorandum to Regional Water Management Division Directors. As Mirant Canal said in its comments, EPA Region 1 shared Mirant Canal's view that the TRC effluent guideline is an average over the chlorination period, as shown by the fact that the Region had not previously imposed any limit except the more stringent water quality-based TRC limit of 0.1 mg/l.

The Region's change in position, founded on a 1992 guidance memorandum that was not the subject of notice and comment, at least raises a substantial issue of law and policy that the Appeals Board should review. The Region says it has also applied the new interpretation at Mystic Station, Brayton Point, and West Springfield. Response to Comments III-3. Hence the new interpretation is apparently hardening into Region-wide law, and if the Appeals Board does not review it now, it may never be reviewed at all.

b. Unnecessary sampling nights and week-ends

Mirant Canal also commented that the change in monitoring frequency proposed in the draft permit would require special arrangements for personnel to come onsite late at night, early in the morning, and on week-ends solely to take samples and arrange for analysis. This would increase the cost of monitoring significantly. Finally, Mirant Canal commented that there was no environmental or other beneficial basis for increasing monitoring frequency. Mirant Canal pointed out that its current practice is already protective and that the Canal Station had no noncompliance from 1999 to when the comments were filed. The only noncompliance event was the result of a one-time malfunction of the chlorination system in June 1999.

In response, the Region changed the requirement from one sample every 30 minutes during chlorination to one sample per unit during each chlorination event. But this still requires sampling during the night shift and on week-ends, at considerable expense.

The Region justifies this by saying that automatic chlorination can be precarious because chlorine demand and flow are changeable, that problems with Mirant Canal chlorine injections that occurred four times in June 1999 are more than a "one-time" malfunction, that $33,600 a year for monitoring is not too much, and that other power plants have to do even more monitoring. Response to Comments III-7.

Mirant Canal submits that there is inadequate basis for imposing nights-and-weekends monitoring merely because chlorine-injection equipment can malfunction and did on four occasions in a single month over nine years ago. Mirant Canal appeals on that ground.

c. Stopping chlorination when there is an "unresolved abnormality"

Part I.A.2.b of the final permit requires that chlorination be conducted no more than two hours a day for each condenser unit. This was the same in the draft and the final permits. However, the final permit added a new requirement that "[i]f the daily sampling and applicator checks disclose any unresolved abnormality with the applicators or feed rates, all subsequent dosing of chlorine is prohibited until the abnormality is corrected."

The "unresolved abnormality" requirement was not in the draft permit. Presumably the Region's intent is to make a legal requirement of Mirant Canal's current practice, described in Mirant Canal's comments as follows: "if the afternoon sampling and applicator check disclose any unresolved abnormality with the applicator, the second dose of chlorine is not applied." Mirant Canal Comments at 5. The only justification in the Response to Comments is these two sentences:

> Finally, EPA has added the following requirement, "[i]f the daily sampling and applicator checks disclose any unresolved abnormality with the applicators or feed rates, all subsequent dosing of chlorine is prohibited until the abnormality is corrected." This requirement is consistent with Mirant Canal's stated "current protocol."

Response to Comments III-7.

Mirant Canal appeals this new "abnormality" requirement because there was no opportunity to comment on it, it is arbitrary and capricious, and it has inadequate basis in the record. Also, it fails to give the permittee notice of what is required, since "abnormality" is undefined and subject to being arbitrarily interpreted by federal or Massachusetts enforcement personnel (or citizen plaintiffs) in the future. If Mirant Canal judges that an incident is not an "unresolved abnormality" and EPA disagrees, Mirant Canal risks a permit violation.

It is true that "unresolved abnormality" is taken from page 5 of Mirant Canal's comments, and Mirant Canal had an operational meaning in mind. If Region 1 had tied the requirement to Mirant Canal's own protocol or asked Mirant Canal to define the term, there would be less reason to object. But to take a term from comments and write it into a new legal requirement that was not previously in the permit without taking additional comments should not be allowed.

The record basis for this requirement is thin. Record document 053 has some discussion of the 1999 malfunction but does not appear to support the Region's conclusion about the protocol. There is, in short, little justification for the new requirement, and there was no opportunity to comment on it.

d. Monthly reporting of all chlorine data

Part I.A.2.e requires Mirant Canal to submit monthly TRO Monitoring Reports "providing data for all samples collected and analyzed for the previous month." This

requirement was not in the draft permit. The explanation in the Response to Comments is this sentence:

> EPA has also added the requirement to report all sampling data for each month that chlorination occurs.

Response to Comments III-7. Mirant Canal asks the Board to review the Monthly TRO Report requirement because it was not in the draft permit and is not a logical outgrowth of the draft permit and because Mirant Canal had no opportunity to comment on it. Also, because Mirant Canal will have to report TRO results on the monthly Discharge Monitoring Report in any event, the requirement to provide additional detail in a separate report is unnecessary, arbitrary and capricious, and not supported by the record. The Region gives no reason why it routinely needs each month's detailed TRO data.

e. Change from Total Residual Chlorine to Total Residual Oxidants

Mirant Canal in this appeal does *not* challenge the change from Total Residual Chlorine to Total Residual Oxidants, so long as the Region agrees that the method of testing may be ASTM D125303 or, preferably, a colorimetric test such as ISO 7393-2.

If, on the other hand, the Region intends that some *different* analytical method be used, Mirant Canal appeals the TRO (instead of TRC) requirement also, on the ground that Mirant Canal had inadequate notice of and inadequate opportunity to comment on the method by which compliance will be determined.

3. Instantaneous Maximum Temperature of 107° F at Outfall 001, Measured Continuously in the Last 10 Feet of the Discharge Flume (Part I.A.2)

The permit imposes an instantaneous maximum temperature limit of 107° F at Outfall 001, measured continuously by recorder within the last 10 feet of the open discharge flume before discharging through the diffuser to the Cape Cod Canal.

Mirant Canal asks the Board to review and remand the temperature requirements for 001 on two grounds: First, the instantaneous maximum limit of 107° F is arbitrary and has inadequate basis in the record. Second, the requirement for continuous monitoring is arbitrary and lacks basis in the record. Also, Mirant Canal appeals both requirements as unreasonable without a compliance period to allow a new monitor to be installed in the new location within ten feet of the end of the flume. Mirant Canal believes it will take at least a year to install and test the new monitor.

In its comments on the draft permit, Mirant Canal said that the proposed thermal discharge limit should be applied as a maximum daily value (that is, the average of measurements over a 24-hour period). The draft permit listed the 107° F requirement as a "Maximum Daily." The Fact Sheet, however, referred to the limit as a "maximum instantaneous temperature."

In the final permit EPA changed the 107° F limit to "Instantaneous Maximum," explaining that the version in the draft permit was a "clerical error" and that it was the Fact Sheet that was correct. Notwithstanding the discrepancy, Region 1 believes Mirant Canal had an opportunity to comment. Response to Comments III-19.

Region 1's explanation is that an average of 107° F can be met even if temperatures sometimes spike higher and that based on the Region's experience at other power plants, temperatures above 95° F are acutely toxic to Atlantic menhaden. Response to Comments III-19.

Region 1 also responded, apparently based on Mount Hope Bay, that even a brief excursion above 107° F in the Mirant Canal discharge flume could cause the receiving water to exceed 86° F:

> Available instream temperature data does not cover a potential worst case scenario, which would be discharge temperatures in

> excess of 107°F at periods of slack tide. The periods of higher temperature with reduced dilution could result in ambient temperatures exceeding the thermal tolerance of Atlantic menhaden. The biological basis for instantaneous temperature limits is to prevent mass mortalities of Atlantic menhaden, which have been shown to suffer these in Mount Hope Bay after a brief exposure to warm water. Instantaneous temperatures above 107°F in the discharge flume could also increase water column temperatures above 86°F, thereby exceeding avoidance temperatures for Atlantic menhaden, winter flounder, American lobster, and Atlantic silversides. EPA does not believe that this clarification amounts to a substantial new question warranting reopening of the public comment period. Notwithstanding the discrepancy between the Fact Sheet and the Draft Permit, the commenter has been provided with an opportunity to comment on the instantaneous temperature limit actually being imposed in the permit, and indeed has done so.

Response to Comments III-20.

In its comments Mirant Canal acknowledged that discharge temperature is a function of intake temperature and may vary over time, exceeding 107° F for brief periods. Indeed the existing discharge can reach instantaneous maximum temperatures of 111° F (though only rarely). However, all available data suggest that these brief, periodic higher discharge temperatures are consistent with ensuring that the 86° F limit is met at the appropriate point instream. The Region does not identify contrary evidence. Thus, there is no basis in the record for EPA to establish instantaneous maximum limits for the existing discharge at these levels.

Nor would instantaneous maximum limits be biologically appropriate, because (1) the ambient limit will ensure receiving waters are protected under all discharge conditions, (2) the hydrological conditions in-stream, attributable both to the discharge diffuser and the speed of the receiving water, ensure rapid mixing, and (3) the behavior of potentially exposed organisms makes them unlikely to be affected by brief elevated temperatures. Finally, achieving an instantaneous maximum temperature of 107° F would force the Station to shut down or curtail

operation at times. The Region seems not to have considered this adverse, and unnecessary, consequence of the instantaneous temperature limit.

In short, Region 1 gave Mirant Canal inadequate opportunity to comment. Moreover, Region 1's reliance on its experience elsewhere is inadequate response to the facts recited in Mirant Canal's comments and summarized above.

4. Measuring Water Temperature 15 Feet Below the Surface During Slack Tide Weekly July through September *and During Generation of* Electricity (Part I.A.2.c)

Part I.A.2.c requires that water temperature be measured 15 feet below the surface, directly above the discharge diffuser, during slack tide, once per week from July 1 through September 30 and during the generation of electricity. Mirant appeals this requirement because it lacks a rational basis in the record and because a reasonable compliance period for it is not provided.

5. Limits on Cooling Tower Blowdown (Part I.A.2.f)

The final permit contains a new Part I.A.2.f that was not in the draft permit. It requires that cooling tower blowdown (if cooling towers are installed) be limited and monitored for flow rate, free available chlorine, the 126 priority pollutants, total recoverable chromium, and total recoverable zinc.

Mirant Canal did not comment on this requirement because it was not proposed. Instead, it grows out of the new requirement that Mirant Canal install closed-cycle cooling or a comparable technology, which was also not proposed in the draft permit. EPA's explanation is as follows:

> In addition to the effluent monitoring requirements for the open discharge flume (outfall 001) and consistent with the use of closed-cycle cooling (as discussed in response to comment IX.A), the Final Permit includes limits on cooling tower blowdown, only if the Permittee chooses to comply with Part I.A.13.g of the Final Permit by using closed-cycle cooling to reduce the impacts of

impingement and entrainment. See Part I.A.2.f of the Final Permit. The description of outfall serial number: 001 has been changed to reflect that cooling tower blowdown may also discharge at this location by removing the term "once-through" from: "once-through non-contact condenser cooling water" in Part I.A.2 of the Final Permit. Furthermore, the TRO limit of 0.2 mg/L is required for once-through cooling water pursuant to 40 C.F.R. 423.13(b)(1) at outfall 001 while cooling tower blowdown is not subject to this limit. Therefore, footnote 1 of Part I.A.2 of the Final Permit has been supplemented with the following: "This limit only applies to the extent that the Permittee utilizes once-through cooling water." If, for instance, the Permittee decides to convert the entire Station to closed-cycle cooling (i.e. cooling towers) to meet the BTA requirements of Part I.A.13.g of the Final Permit, the 0.2 mg/L TRO limit does not apply to the cooling tower blowdown. The limit does apply, however, to the outfall 001 discharge to the extent that the Permittee employs an alternative method of complying with Part I.A.13.g of the Final Permit (e.g., partial conversion to closed-cycle cooling, flow reduction, etc.) that continues to generate once-through cooling water.

Response to Comments III-25.

Mirant Canal asks the Board to review Part I.A.2.f because it is not a logical outgrowth of the draft permit, because Mirant Canal did not have adequate opportunity to comment on it, and because it is arbitrary, capricious, and without adequate basis in the record. The following specific permit requirements on cooling tower blowdown are included in this appeal:

1. Continuous monitoring of flow rate
2. Limit on free available chlorine of 0.2mg/l (monthly average) and 0.5 mg/l (daily maximum)
3. Daily measurement of free available chlorine
4. No detectable concentrations of 126 priority pollutants
5. Yearly measurement of composite sample for priority pollutants
6. Limit on total recoverable chromium of 0.2 mg/l (monthly average) and 0.2 mg/l (daily maximum)

7. Total recoverable chromium measured two times a month using a composite sample

8. Limit on total recoverable zinc of 1.0 mg/l (monthly average) and 1.0 mg/l (daily maximum)

9. Total recoverable zinc measured two times a month using a composite sample

6. Outfall 011 (Part I.A.5)

Internal Outfall 011 (metal cleaning waste systems) consists of air preheater wash, boiler fireside wash, precipitator wash, boiler chemical cleaning, stack and breach wash, equipment cleaning and feed water heater chemical cleaning, and metal cleaning sludge dewatering filtrate.

a. Report on flow at Outfall 011 (Part I.A.5)

The draft permit proposed average monthly and maximum daily limits on flow rate. The final permit changed this to a report on the average monthly and maximum daily flow rate (Part I.A.5) plus limits on the combined flow from outfalls 011 and 012 (Parts I.A.5.d, I.A.6.b).

Mirant Canal accepts the limits on combined flow but appeals the requirement of a report on average monthly and maximum daily flow for 011. Since the combined flow from Outfalls 011 and 012 is subject to permit limits, there is no purpose to reporting the separate flow of Outfall 011 alone. This requirement is arbitrary and capricious, lacks basis in the record, and has no apparent purpose. Mirant Canal had inadequate opportunity to comment on it.

In truth, it would be better to leave the current limits on Outfalls 011 and 012 separately and monitor them separately. But if the Region insists on having a combined limit, monitoring separately makes no sense.

b. Segregating metal cleaning wastes and reclassifying low volume wastes (Part I.A.5.b)

Both the draft and the final permits have identical limits on total copper and total iron at Outfall 011. These are taken from the "best available technology" requirements for "chemical metal cleaning wastes" in EPA's effluent limitations guidelines.

Outfall 011 discharges a combination of ash sluice, low volume waste (known as "equipment washes"), and chemical cleaning waste. These waste streams are co-mingled and treated in Waste Ponds A, B, C, or D before being discharged.

The draft and final permits impose a new requirement Part I.A.5.b that "[l]ow volume wastewater or fly ash wastewater shall not be combined with metal cleaning wastewater prior to discharge to the final effluent flume." Hence Mirant Canal must now redesign its wastewater system to segregate the ash sluice water from (1) the chemical metal cleaning waste and (2) those parts of the "equipment washes" that the Region classifies as (non-chemical) "metal cleaning waste." The iron and copper limits would be applied separately to the chemical and non-chemical metal cleaning wastes instead of to the combined stream, and daily composite sampling would be required for the metal cleaning streams instead of the weekly grab sampling now required.

The Region's decision depends on an interpretation of the effluent limitations guidelines. The BAT iron and copper limits are for "chemical" metal cleaning wastes. 40 C.F.R. 423.13(e). In the guidelines, BAT guidelines for "non-chemical" metal cleaning wastes are expressly "reserved," presumably for future rulemaking. As Region 1 explains (Response to Comments VI-6), EPA's reason for reserving non-chemical requirements was uncertainty over the differences between oil-burning and coal-burning plants and "the cost and economic impact that

would result from requiring that non-chemical metal cleaning wastes satisfy the same limits that had been set for chemical metal cleaning wastes." 47 Fed. Reg. 52,297 (No. 19, 1982).

At Mirant Canal the "cost and economic impact" of the Region's changes would approach half a million dollars, and more if an additional clarifier is needed (Response to Comments VI-3). Nevertheless, the Region resolved the issue EPA Headquarters "reserved"; the Region concludes that the BAT standard for chemical metal cleaning wastes applies to non-chemical metal cleaning wastes as well. Response to Comments VI-6.

The Region also rejected the guidance of the "Jordan Memorandum." The Jordan Memorandum explained the best practicable control technology ("BPT") limits for iron and copper on metal cleaning wastes, which were adopted in the 1970s. Mr. Jordan explained that "metal cleaning wastes" means *chemical* cleaning wastes. When EPA updated the effluent limitations guidelines in 1982, it adopted a new definition "clarifying" that metal cleaning wastes means *all* metal cleaning wastes, except for facilities that had permits based on the Jordan Memorandum. EPA said "the previous guidance policy may continue to be applied in those cases in which it was applied in the past." 47 Fed. Reg. 52,297 col. 3 (Nov. 19, 1982).

One reason Region 1 gives for rejecting the Jordan Memorandum is that the author of the guidance is an engineer and not a lawyer. Response to Comments VI-8. As to that, EPA said that originally the policy in the Jordan Memorandum was adopted *by EPA* -- "EPA adopted the policy," 45 Fed. Reg. 68,328, 68,333 (Oct. 14, 1980).

A more serious reason was that, in the Region's view, EPA rejected the Jordan Memorandum for BAT purposes in the 1980 proposed amendments. Response to Comments VI-9, *citing* 45 Fed. Reg. 68,328, 68,333 (Oct. 14, 1980).

Although Region 1 says it is not clear the Jordan Memorandum was applied to Mirant Canal in the past, the fact is that past permit conditions have been consistent with it, until now. The Region has not explained why, assuming EPA meant what it said in the 1982 preamble cited above about applying the Jordan Memorandum to non-chemical metal cleaning wastes where it had been applied in the past, the definitions should not be interpreted consistent with that instruction.

Region 1 acknowledges that even after determining the Jordan Memorandum was incorrect, it still allowed it to be used where it had been followed before due to equitable considerations. These same equitable considerations apply to the Mirant Canal Station, where the copper and iron limits have been applied to the combined wastestream at Outfall 011 since the 1989 permit was issued, and where segregating ash sluice water from chemical and non-chemical cleaning wastes would be burdensome and expensive.

The Region's new legal conclusions about the treatment of non-chemical metal cleaning wastes are an important legal and policy issue that deserve the Board's review. This is especially so where the interpretation will require a redesign and reconstruction of a waste treatment system at a cost of more than a half million dollars and where the copper and iron limits already apply to the combined wastestream of which the metal cleaning wastes (both chemical and non-chemical) are a part.

Moreover, the Region's conclusion that the iron and copper limits should apply to non-chemical metal cleaning wastes heretofore classified as "equipment washes" is based on an elaborate "best professional judgment" analysis purporting to apply the statutory factors for BAT requirements. *See* Response to Comments VI-12 to -16. This analysis goes through the factors of age of equipment, process employed, engineering aspects, process changes, cost, and

environmental impacts. But Mirant Canal had no opportunity to comment on this analysis, since it appeared for the first time in the Response to Comments.

Accordingly, Mirant Canal appeals the ban on combining metal cleaning wastewater with the other waste streams discharged through Outfall 001.

c. Daily composite sampling instead of weekly grab sampling (Part I.A.5)

Mirant Canal also appeals the change from weekly grab sampling to daily composite sampling, on the ground that there is *inadequate justification* in the record for the change. Mirant Canal commented that the waste treatment system is a "batch" discharge, occasionally during non-business hours, and that Mirant Canal did not believe it possible to collect a "composite" sample consistent with the Region's definition (Mirant Canal Comments at 17-18). The definition of "composite sample" required a minimum of eight grab samples over a 24-hour period, and Mirant Canal explained that this is not feasible for a batch discharge lasting only two or three hours.

The Region responded that daily composite sampling *when discharging* "is appropriate," because "EPA has little data showing the characteristics of this waste stream" and "composite sampling captures variability in the effluent over time" (Response to Comments VI-18). The Region says that composite sampling can be flow-weighted or time-weighted and that aliquots could be collected (for example) every 15 minutes during the 2-3 hours of a batch discharge.

Mirant Canal appeals, on the ground that the Region's justification for daily composite sampling is inadequate and that the requirement is arbitrary and lacks basis in the record.

d. Samples from the waste neutralization tanks (Part I.A.5.a)

Both the draft and the final permits require that effluent samples be taken from the spigot on the discharge line of one of the two waste neutralization tanks prior to discharging into the

final effluent plume for each day metal cleaning wastes are discharged. Mirant Canal appeals this requirement (Part I.A.5.a).

Sampling at the spigot is inconvenient, especially in light of the location of the proposed sampling point, which comes off the same line that feeds the spigot. The difference is that the better sample point (a recirculating water line) runs into the building and is much easier to work with, especially if composite samples are being taken. This sample point allows samples to be taken inside, out of the weather.

Accordingly, Mirant Canal appeals the requirement that samples be taken from the spigot on the discharge line, because it is arbitrary and lacks adequate basis in the record.

e. Monitoring and reporting total average monthly combined flow from Outfalls 011 and 012 separately (Parts I.A.5, I.A.5.d & I.A.6.b)

The draft permit would have required limits on flow rate at Outfall 011 and continuous monitoring using the pump capacity curve and operational hours. The final permit retains the monitoring requirement and requires reporting of, but no limits on, Outfall 011 flow.

For Outfall 012 the draft permit would have required the same monitoring (using pump capacity curve and operational hours) and flow limits. The final permit requires the same monitoring and a report instead of flow limits on Outfall 012 alone.

After comments on the draft permit were filed, Region 1 added limits on the *combined flow* from Outfalls 011 and 012:

> I.A.5.d. The total average monthly combined flow from outfall locations 011 and 012 shall not exceed 0.32 MGD and total maximum daily combined flow from outfall locations 011 and 012 shall not exceed 0.52 MGD.

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In short, after the comments were filed the Region replaced separate flow limits on Outfalls 011 and 012 with flow limits on their total combined flow. But the Region retained the requirement that flows for the two outfalls are to be monitored separately.

There appears to be no rational basis for measuring flow on the two components of the combined flow. Since the limits apply to the combined streams, it should be enough for Mirant Canal to monitor and report the combined flow as well. On this ground Mirant Canal appeals the requirement that it monitor and report the flow rate at Outfalls 011 and 012 separately.

f. Collecting WET samples when metal cleaning waste is being discharged (Part I.A.2.d)

Part I.A.2.d requires that whole effluent toxicity testing ("WET") samples be collected at times when metal cleaning waste is being discharged.

Mirant Canal appeals this requirement on the ground that the record has inadequate basis for it and the Region did not draw rational conclusions from the comments Mirant Canal submitted. There is no evidence that metal cleaning wastes have a "reasonable potential" to contribute to an excursion above Massachusetts water quality standards at Outfall 001. Also, the reasons Mirant Canal is appealing the requirement to segregate metal cleaning wastes, above, apply to this issue as well.

7. Annual Heat Load Reports Unless Closed-Cycle Cooling is Operating (Part I.A.7)

Both the draft and the final permits require annual Heat Load Reports for three years (Part I.A.7). Mirant Canal did not object to the gist of this proposal (Mirant Canal Comments at 19). However, Mirant Canal does appeal this requirement on the ground that the permit allows not enough time for compliance. Mirant Canal estimates that it will take considerable time to install equipment necessary to report annual heat load.

8. Source Water Physical Data and Cooling Water Intake Structure Data (Part I.A.8)

Part I.A.8 of the draft permit required, first, that Mirant Canal submit the Proposal for Information Collection ("PIC") and Comprehensive Demonstration Study ("CDS") that were required by EPA's intake structures rule for existing facilities, 40 C.F.R. § 125.95. That regulation is now suspended while the U.S. Supreme Court reviews EPA's Phase II rule for cooling water intake structures. Second, the draft required Mirant Canal to submit source water physical data, cooling water intake structure data, and cooling water system data required by 40 C.F.R. 122.21(r)(2), (3), and (5). The final permit keeps the second requirement but eliminates the (r)(5) requirement for cooling water system data.

These requirements are appropriate if Mirant Canal is to perform a CDS as proposed in the draft permit. They are unnecessary, however, if the facility must install closed-cycle cooling (or comparable technology) as the final permit requires.

Mirant Canal therefore appeals these requirements as arbitrary and unnecessary *if* the closed-cycle cooling requirement remains in the permit. This issue is linked to the larger issue whether the closed-cycle requirement itself is lawful (discussed below).

9. Biological Monitoring (Parts I.A.9 through I.A.12)

Parts I.A.9 through I.A.12 of the final permit impose biological monitoring, sampling and reporting requirements many of which are more extensive and expensive than Region 1 can justify based on Canal Station's historical or anticipated impacts and, therefore, bear no rational relation to their expressed purpose. Some provisions in the final permit are vague or ambiguous making it impossible for Mirant Canal to gauge its compliance. Still others related to impingement and entrainment monitoring may be practically superfluous if Mirant Canal installs cooling towers, a wrinkle that might have been ironed out had the Region resubmitted the permit for public comment. To the extent that Mirant Canal did not previously provide pointed

comment on certain of the biological monitoring requirements but does so here, Mirant Canal points to the Region 1's new requirement to add cooling towers (or the equivalent) as so changing the permit as to require additional consideration of these issues.

a. Unjustifiable duration of biological monitoring

Mirant Canal appeals the final permit's requirements that it commence biological studies thirty (30) days after the effective date of the final permit and continue those studies for the life of the permit. Parts I.A.9.a. and I.A.9.e. As Mirant Canal commented, given the high annual cost of the required monitoring -- $125,000 to $180,000 per year -- Region 1 should be able to point to some high risk or ongoing concern that requires such an extensive array of studies. But Region 1 has not identified a high risk, and the Station's ongoing impingement and entrainment impacts have been studied already. Even if, as Region 1 contends, additional study were warranted to address the Region's concern that Mirant Canal's 1999-2001 study period is insufficient to account for year-to-year and season-to-season variation, certainly an additional year or two of studies would be adequate to establish the desired baseline. Last, the monitoring and sampling required by the final permit necessitates physical construction, organizational and contracting work, as well as potential staffing arrangements that Mirant Canal cannot reasonably be expected to complete by October 31st, which is 30 days after the effective date (October 1) of the final permit.

b. Failure to tailor biological monitoring and sampling requirements to other permit requirements

As discussed elsewhere, there are numerous outgrowths of Region 1's decision to not repropose the permit for public comment following its surprising addition of cooling tower (or equivalent) technologies to reduce entrainment at the Station. For one, if Mirant Canal installs cooling towers, the impingement and entrainment regime imposed by the final permit would be

almost entirely unnecessary; Mirant Canal's intake would be so minimal that only the most minimal monitoring could possibly be justified. Even if Mirant Canal installs an alternative entrainment-reduction technology, the entrainment monitoring provisions of the final permit would be grossly out of proportion to the Station's impacts.

Specifically, the following provisions, as currently written, cannot be justified in light of the final permit's entrainment reduction requirements:

1. **Parts I.A.9.b.i. through I.A.9.b.vi.:** There would be little or no need for entrainment monitoring if Mirant Canal installs cooling towers or an equivalent technology. At the very least, entrainment monitoring should be reduced to monthly sampling from the discharge which would provide data on the Station's overall entrainment impacts.

2. **Parts I.A.9.c.i. through I.A.9.c.vi. and I.A.9.d.:** There would be very minimal need for Mirant Canal to conduct impingement monitoring if it installs cooling towers or an equivalent technology. The Station would require much less water and, therefore, the intakes would draw substantially fewer fish towards the Station. Of those fish, the reduced velocity would mean that more fish could swim away from the intakes, thus further reducing impingement.

3. **Parts I.A.12.a. and I.A.12.b.:** If Mirant Canal installs cooling towers there would be almost no need for the Station to rotate and inspect its intake screens. If Mirant Canal installs an equivalent entrainment-reduction technology instead, there still might be considerably less need for such inspections. Not only might fewer fish risk impingement, but far less debris would be drawn to and trapped against the intake screens. Consequently, there is no justification for requiring the Station to rotate and visually inspect the intake screens every 8 hours. Also, given the greatly reduced levels of impingement that could be expected if Mirant Canal installs

cooling towers, the provisions of Part I.A.12.b. would not be necessary. Region 1, therefore, cannot support leaving those provisions in the final permit.

Because Region 1 did not select an entrainment-reduction technology, the precise scope of any monitoring that might be justified based on the Station's operations is impossible to determine, but contrary to Region 1's apparent position, there is no such thing as a one-size-fits-all approach to biological monitoring.

c. Overbroad Ichthyoplankton entrainment monitoring

Mirant Canal commented that the scope of the monitoring and sampling required by the final permit is not supported by the Station's nearly 40 years of operation and that variations in entrainment have been due to naturally occurring, seasonal variability, not to the Station's operations. The thrust of those comments is greater now in the face of EPA's post-comment period addition of entrainment reduction improvements to the final permit. Consequently, a far lesser degree of entrainment monitoring and sampling would be adequate to verify compliance with the final permit and satisfy EPA's obligations under the Act.

For instance, Part I.A.9.b.iii. of the final permit requires Mirant Canal to take entrainment samples from the intake structures, notwithstanding the fact that Mirant Canal's earlier sampling activities were performed in the discharge. Fact Sheet, p. 32. Given the significant expected reduction in entrainment, it will be important to determine exactly which organisms passed through the Station and sampling in the discharge promises a more accurate result. Sampling in the discharge rather than the intakes is also a simple and available means of reducing the final permit's entrainment monitoring obligations and expenses by half without sacrificing data: there is one discharge compared to two intake units.

Sampling in the discharge offers the additional benefit of improving sampling results, because sampling at the intakes is affected by the tides and is best done at low tide. The final

permit requires entrainment sampling at 8 a.m. on Monday morning, 2 p.m. on Wednesday afternoon, and 8 p.m. on Friday evening; but those times will not always correspond to low-tide. Part I.A.9.b.ii. Sampling in the discharge is not affected by the tides, so regardless of how Mirant Canal proceeds with entrainment reduction improvements, sampling in the discharge would produce superior entrainment sampling results.

Part I.A.9.b.ii. of the final permit also suffers, when read along with Part I.A.9.c.ii, from a serious ambiguity. The former requires both cooling water circulating pumps for each unit to operate during the sample period; the latter provides that impingement sampling is required only when both pumps are operating. It is not clear whether the Region intended these to be parallel provisions, but the ambiguity created by their differences presents Mirant Canal with two competing and unpalatable options: conduct sampling that is not required in order to ensure compliance with the final permit or choose the less onerous interpretation and risk noncompliance.

Further, it is not clear, pursuant to Part I.A.9.b.ii., if Mirant Canal must activate idle circulating pumps solely for the purpose of conducting monitoring activities. As Region 1 understands, the Station regularly runs with only one pump and sometimes neither pump is operating depending on the Station's generation status. Fact Sheet, p. 37. Thus, in contrast to Region 1's contention that the required monitoring does not increase mortality, the final permit requirements would produce impingement and entrainment mortality solely for the purpose of measuring impingement and entrainment, not for the purpose of measuring the Station's real operational impacts. In addition, the calculations and estimates required by Parts I.A.9.b.vi and I.A.9.c.vi. would be rendered worthless if based on data manufactured by permit requirements rather than the Station's actual operations. To the extent that Region 1 justifies the required

biological monitoring and sampling on the basis that the resulting estimates will verify permit compliance and will inform future NPDES permitting for the Station, the Region has not provided a valid justification for the final permit's biological monitoring provisions.

Finally, Mirant Canal points to Part I.A.9.c.iv., effectively requiring permanent installation of an aquarium at the Station, as an example of the type of work required by the final permit but which cannot reasonably required within the 90 days provided by the final permit. The Region has failed to consider the additional infrastructure needed for such apparatus.

d. Unnecessary marine mammal monitoring

Part I.A.10 of the final permit requires Mirant Canal to submit to EPA and to adhere to a Marine Mammals Reporting Program and Response Protocol ("Protocol"). The Region makes a half-hearted to attempt to justify the provision as meant to ensure that adverse environmental impacts are minimized, but Region 1 cannot point to any adverse impacts to marine mammals or marine turtles. EPA previously determined the Station would have no significant adverse impact on endangered species that migrate through or inhabit areas in the vicinity of the Station. Fact Sheet at 58. Mirant Canal agreed with EPA's determination and further commented that there is no recorded instance of marine species having been affected by the Station's operations. Response to Comments IX.C.2. Indeed, in its comment letter on the draft NPDES renewal permit, even the National Marine Fisheries Service ("NMFS") found that impingement of sea turtles and marine mammals on the Station's intakes was unlikely because they are "able to readily avoid" it. NMFS Letter, dated January 25, 2006, at p.3 (A.R. 175).

Because there is no support for this provision, the Region's response to comments tries to assure Mirant Canal that the requirement is no big deal. First, Region 1 explained that the Protocol was drafted for Canal Station in 1999, but skips over the fact that the Station operated under different ownership at that time. The Region also glosses over the fact that the Protocol

was submitted to EPA informally. Response to Comments IX.C.2. It is no justification for a NPDES permit provision that the now-mandated activity was previously proposed or even undertaken by another entity on a voluntary basis. Second, the Region explains that if there is no likelihood of impingement of marine species, then nothing is required of Mirant Canal. But it is no justification for an enforceable NPDES permit provision that it does not require any action by the permittee. Just the opposite, that is reason to omit the provision.

In terms of what is actually required by the final permit, Region 1 explains that Part I.A.10.a. requires a response from Mirant Canal only if marine species are subject to "entrapment," but the Region fails to define that term. Mirant Canal is left wondering whether entrapment means "pinned against a screen and unable to move" or "remaining in the intake for a few hours because there is an abundance of food there." Similarly vague is Region 1's attempt to clarify Mirant Canal's obligation under Part I.A.10.b. Response to Comments IX.C.2. The Region explains that nothing additional is required of Mirant Canal beyond what it already does; it is only obligated to report sightings of marine species that its personnel observe "in the vicinity" in the course of their normal activities. But the Region provides no basis for finding that Mirant Canal has adopted the Protocol its predecessor had proposed. In fact the normal activities of Mirant Canal's personnel do not include scanning the vicinity for marine species or reporting sightings that might occur.

Last, the Region provides a dictionary definition of "vicinity" and explains that Mirant Canal is responsible only for what can be seen from the Mirant Canal property. Obviously, the Station's location on the Cape Cod Canal provides a great deal of visibility in both directions, thus Region 1's supposed limitation both makes Mirant Canal responsible for distant sightings and suggests that this requirement is not rationally related to monitoring the Station's impacts,

but rather seeks to impose upon Mirant Canal an ongoing task to survey marine species in the Cape Cod Canal.

e. Unjustified monitoring for discharge related mortality

Part I.A.11. of the final permit is based on the unsupported presumption that the Station impacts fish in the Cape Cod Canal in a manner that, as Mirant Canal commented, there is no reason to expect. Nor has Region 1 shown evidence of fish kills resulting from the Station's discharge. Still, the final permit requires that Mirant Canal conduct daily visual inspections of the shoreline adjacent to the Station for "dead fish." Part I.A.11.a. The Region points to a single instance in which a chlorination error may have impacted fish mortality. Response to Comments IX.C.3.1. But that problem was corrected and, in fact, Mirant Canal reported that incident as a result of observed impingement, not because it spotted fish floating in the Cape Cod Canal. Mirant Canal Permit Application; Attachment C.1, Appendix 1, pg. A1-8.

Moreover, if Mirant Canal identifies, through those unwarranted inspections, 25 or more dead fish in a 24-hour period, then it must collect and analyze those fish and curtail operations at the Station. Part I.A.11.b-I.A.11.c. Mirant Canal must arrange to have those dead fish measured and identified by species, it must collect water samples and suspend chlorination for at least 24 hours, and it must undertake additional monitoring activities that are not otherwise required, including monitoring of dissolved oxygen levels. Parts I.A.11.b and c. Aside from the fact that Region 1 has not justified these requirements, they are overly burdensome to the extent that they would require action necessitating the presence of available personnel at all times. Parts I.A.11.b. and c.

With respect to the requirement that Mirant Canal monitor dissolved oxygen levels, the Station is not otherwise required under its existing permit or the renewal permit to monitor for dissolved oxygen. Therefore it does not have the necessary equipment at hand. The Region has

provided no basis in the record as to why the Station's operations plausibly would have any effect on dissolved oxygen levels in the Cape Cod Canal, and there is no reason to expect any effect. The Region cannot reasonably require the Station to purchase and maintain equipment necessary for monitoring of dissolved oxygen that will only be required in an uncommon event that would have nothing to do with dissolved oxygen levels in the Cape Cod Canal.

Region 1 also defended the requirement for collection of dead fish on the ground that it is required only for fish linked to the Station's discharge or thermal plume. Response to Comments IX.C.3.1. However, Region 1 does not specify how Mirant Canal is supposed to determine which fish are linked to its discharge or thermal plume? The Cape Cod Canal is not a closed waterbody, but is affected by numerous factors, near and far. The final permit calls for Mirant Canal to determine that dead fish are not linked to its operations and, consequently, to risk noncompliance.

As a fallback position, the Region asserted that the final permit's discharge related mortality requirements are standard provisions and points to the Brayton Point Station on Mt. Hope Bay. The fact that certain monitoring is required at one or more other facilities is not justification for an identical requirement at this Station. Furthermore, the fact that Region 1 has required certain monitoring for Brayton Point Station in particular does not justify that requirement for Canal Station, a very different Station which is located on a very different body of water.

Mirant Canal also commented on Region 1's application of the term "dead fish" to fish that are not dead. In its response to comments, the Region clarifies that it uses "dead fish" as a term of art meaning a fish that has lost equilibrium, but that explanation fails to remove the ambiguity from the face of the final permit. Also, there are many reasons why a fish might lose

equilibrium, so the Region's explanation that a loss of equilibrium is an early sign of an unusual event is not sound. Response to Comments IX.C.3.3. As Mirant Canal has previously suggested, the term "dead fish" should mean "a fish that shows no body or opercular movement and that does not respond to gentle prodding."

f. Unjustified monitoring for unusual impingement events

As discussed above, Parts I.A.12.a. and b. will be almost entirely unnecessary if Mirant Canal installs cooling towers, and it is highly questionable whether they would be necessary in light of Mirant Canal's possible selection of an alternative entrainment-reduction technology. The Station rarely comes close to or exceeds 40 impinged fish during an 8-hour period and then only during seasonal migration of menhaden and river herring in November and December. Accordingly, the definition of "unusual" impingement related mortality monitoring should exclude November and December when those fish migrate. The variable leading to such a higher than usual impingement event is not the Station's changed operations, but that seasonal migration of fish.

In any event, the final permit should not require Mirant Canal to undertake analysis of the Station's operation even if there were an unusual impingement event, because there is no basis to presume that the Station causes such impacts.

10. Requirements Applicable to Intake Structures and Outfall 002 (Parts I.A.3, I.A.13, and I.A.14)

Several portions of the NPDES Permit collectively address the Station's CWISs and the associated Outfall 002. The provisions concerning modifications to the CWISs to achieve entrainment reduction are the subject of the next section of this Petition; this section seeks review of other portions of the permit as they pertain to the CWISs, impingement reduction measures and Outfall 002.

The Station's existing CWISs comprise several components, chiefly:

- two intake flumes from the Cape Cod Canal, one each for Units 1 and 2 at the Station;
- chlorination equipment, which chlorinates the intake water for up to two hours/day/unit in order to protect the condenser piping from biofouling; and
- two screen houses, one for each Unit, containing intake screens, associated pumps and spray wash equipment, and debris removal and fish return troughs.

Outfall 002 is an open air flume connected to the Cape Cod Canal and placed between the two intake flumes. Discharges at Outfall 002 chiefly consist of:

- fish returning from the intake screens;
- debris washed off the intake screens and associated spray wash water;
- a portion of the condenser cooling water discharge, some of which is diverted from the channel to Outfall 001 in order to provide adequate flow within Outfall 002 to return fish and debris to the Cape Cod Canal.

The NPDES permit, in addition to the entrainment-related provisions addressed in the next section of this Petition, imposes numerous new requirements for the CWISs and Outfall 002, falling into several categories:

- physical modifications to the CWISs, intended to reduce the effects of impingement;
- modifications to the Station's operating practices at the CWISs, also intended to reduce the effects of impingement; and
- new limitations and monitoring requirements on the discharge from Outfall 002.

Importantly, the NPDES permit imposes all of the requirements addressed in this section of this Petition irrespective of its separate, entrainment-related requirements for the CWISs. Those separate, entrainment-related requirements, however, require cooling towers (or equivalent) that

could be implemented only through major design modifications to the existing CWISs, potentially including replacement of the existing CWISs with a new intake, and would entail drastically different operating practices than contemplated by the impingement-related requirements to modify the existing CWISs.

In this section, Mirant Canal seeks review of the non-entrainment related requirements in Parts I.A.3, I.A.13 and I.A.14 of the NPDES permit, as follows.

a. Effect of requiring cooling towers (or equivalent)

In the draft permit, the Region proposed many of the same non-entrainment related requirements for the CWISs and Outfall 002 that it has now included in the final NPDES permit in somewhat modified form. The draft permit also proposed to require Mirant Canal to conduct the extensive studies then required under the § 316(b) Phase II rule. Those studies would have involved an evaluation of both the entrainment-related and the impingement-related effects of the existing CWISs at the Station. Mirant Canal commented on the draft permit that the Region should not require any modification to the CWISs until Mirant Canal could complete those studies and propose modifications pursuant to the Phase II rule.

In the final NPDES permit, the Region nevertheless imposed major modifications to the CWISs and related operations designed to reduce impingement impacts, even though the final permit still did not resolve what modifications to the CWISs are required to address potential entrainment issues. While the final permit reflects the Region's determination that cooling towers likely are required to reduce entrainment, it also leaves open the possibility that equivalent improvements, such as installation of Wedgewire screens, would be sufficient, and leaves that decision for post-permit decision making through administrative enforcement. Thus the Region has left muddied the question of what modifications to the CWISs may be required to address entrainment issues.

What is abundantly clear, however, is that any future modifications to the CWISs intended to address entrainment impacts certainly would affect whatever modifications, if any, are needed to reduce impingement impacts. Installation of Wedgewire screens, for instance, would eliminate the need for the existing intakes and screen houses. Installation of cooling towers would drastically reduce the needed quantity of intake with resulting significant differences to the impingement-related effects of the Station, and also would entail significantly modified or new intake structures. It is arbitrary and capricious for the Region to require major modifications to the existing CWISs and their operations to address impingement without any concurrent resolution of what modifications may also be required to address entrainment-related issues, particularly where the most likely modifications to reduce entrainment impacts would largely obviate and likely would actually conflict with the modifications imposed now. The Region's explanation -- that the existing facility has impingement-related impacts -- is not a sufficient explanation where those impingement impacts are relatively minor. Instead, the final NPDES permit should have assured that any future modifications to the CWISs intended to address impingement are imposed on the same schedule as modifications intended to address entrainment.

Mirant Canal acknowledges that the NPDES permit holds out the possibility that the Region would amend the permit if entrainment-related modifications to the CWISs justified a different approach to the impingement-related requirements - see Part I.A.13.g(iii). It is arbitrary and capricious, however, for the Region to require major modifications to the CWISs that it acknowledges may not be needed depending on the later resolution of other required modifications, and to offer to resolve that tension only through the vagaries of a permit amendment process. Rather, all modifications to the CWISs should be addressed concurrently.

Mirant Canal accordingly seeks review of all parts of the NPDES permit that involve modifications to the CWISs or their operating procedures that should not occur until any entrainment-related modifications of the CWISs are resolved. Specifically, on this basis Mirant Canal requests review of Parts I.A.3.b, 3.c, and 3.e; Parts I.A.13.b, 13.c, 13.d, 13.e, and 13.f; and Part I.A.14.

b. Finding of adverse impacts from impingement

In its Fact Sheet accompanying the draft permit, as well as in the Response to Comments, the Region determined that the existing CWISs are having unacceptable adverse impacts as a result of impingement, chiefly by citing Mirant Canal's reported impingement numbers. Mirant Canal commented on the draft permit that EPA's conclusion that impingement was of concern was not based on any meaningful substantive analysis. Nevertheless, in the Response to Comments the Region continued to avoid any serious analysis under § 316(b) of whether the numbers of impinged fish, the seasonal pattern of impingement, or the value of the impacted species warrant the finding of unacceptable impact, and ignored evidence in the record that those impacts are de minimis and certainly do not warrant the costly and difficult modifications proposed in the draft permit and imposed in the final NPDES permit. Nor did the Region consider whether less drastic modifications also would be sufficient. Even worse, the Region did not consider whether the entrainment-related requirements would obviate most of those small impingement effects thus obviating the need for the impingement-related improvements.

Mirant Canal accordingly seeks review of the Region's determination under § 316(b) and the state's water quality standards that the required improvements to the CWISs are required in order to reduce impingement impacts.

c. Discharge of condenser water at Outfall 002

The NPDES permit contains several requirements imposing operational changes to the current practice of discharging some amounts of condenser water through Outfall 002. The purpose of these requirements is to reduce impingement-related impacts from the CWISs. Specifically, Mirant Canal seeks review of each of the following provisions.

Part I.A.3.b prohibits discharge of condenser water at Outfall 002 during times that the screen wash is in operation within a screen house, at least until the required upgrades to the fish return system are made pursuant to Part I.A.13.e of the NPDES permit. The stated purpose of this provision is to prevent impinged fish that are being returned to the Cape Cod Canal through Outfall 002 from being exposed to elevated water temperatures as they are washed out of the screens into the Cape Cod Canal. There is no rational basis in the record for that requirement, however, for the following reasons:

- The Region did not analyze whether the duration of the exposure of concern is sufficient to have any adverse impacts on the affected fish. In fact, that duration is so brief that any impacts are negligible.
- The Region did not analyze whether the amount of temperature elevation would have any impact. Pursuant to the existing permit, as well as the new NPDES permit, the discharge temperature within Outfall 002 is limited to 90° F as well as to a Δ T of 33° F. The Region supplied no explanation of why brief exposure of the returning fish to temperatures so limited would have any adverse impacts.
- This requirement is in conflict with the separate requirement at Part I.A.3.d for the Outfall 002 discharge flow to provide sufficient water depth to return impinged organisms to the Cape Cod Canal. The Region does not explain how Mirant Canal

could or should obtain such flow without using a portion of the condenser cooling water discharge as it does now.

For those reasons and others, it was arbitrary and capricious for the Region to include this provision.

Part I.A.3.c of the permit prohibits the discharge of condenser water at Outfall 002 during the chlorination of any Unit condensers. The Region included that provision in the draft permit with the explanation that it would "obviat[e]" the need for monitoring of chlorine. Fact Sheet at p. 13.

In its comments in the draft permit, Mirant Canal pointed out that the facility currently samples for compliance with the chlorine limit only about 300 ft. from the point of application, so there is virtually no chance that the concentration of chlorine in Outfall 002 would differ from the levels in Outfall 001. Mirant Canal also pointed out that prohibiting the discharge of condenser cooling water through Outfall 002 during chlorination would prevent the facility from providing the necessary flow to return impinged organisms to the Cape Cod Canal during low tide.

In response, the final permit did not change the requirement. The Response to Comments failed to address Mirant Canal's comment, but provided a new, conclusory explanation. Now the stated purpose is to protect impinged fish during screen washing from "harmful exposure to heat and chlorine." Response to Comments IV-5.

The Region's explanation, however, included no data or information suggesting that an exposure of impinged fish for brief times to the low levels of residual chlorine still present in the condenser cooling water as discharged through Outfall 002 is likely to have any impacts whatsoever, harmful or otherwise. The Board should review and remand this provision for