Exhibit F

Mirant Canal Comments on Draft Permit

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I. Overview of Comments

Mirant Canal, LLC ("Mirant Canal" or the "Company") appreciates this opportunity to comment on the Draft National Pollutant Discharge Elimination System (NPDES) Permit to Discharge to Waters of the United States, No. MA0004928 ("Draft Permit") for the Mirant Canal Station ("Canal Station" or the "Station") published for comment on December 22, 2005. According to the accompanying Fact Sheet, this draft renewal permit was developed cooperatively between the United States Environmental Protection Agency ("EPA New England" or "EPA") and the Massachusetts Department of Environmental Protection ("DEP") (collectively, the "Agencies"). Thus, our comments are addressed to both of these agencies, as well as others with an interest in the permit, as described below.

We commend EPA and DEP for the significant effort they have put into drafting this proposed renewal permit. Nevertheless, for the reasons discussed in the following sections, we have significant concerns with, and therefore must object to, a number of changes that EPA has proposed. In particular, Mirant Canal objects to:

- Extensive changes in or additions to monitoring requirements for virtually every outfall, which have been proposed without any adequate basis, and which will in some cases be wholly unworkable and in all cases will impose substantial additional and unwarranted costs and burdens.
- A new requirement, based on errors of fact and law, to segregate chemical and particularly non-chemical metal cleaning wastes from the ash sluice and boiler blowdown waste streams with which all previous permits have authorized co-mingling for treatment and discharge; and
- Extensive structural, operational, and monitoring requirements for the cooling water intake structure which are both unsupported by the record and exceed EPA's authority under § 316(b) of the federal Clean Water Act and the national § 316(b) regulations for existing power plants promulgated by EPA in 2004.

In addition to these concerns, we also have questions and concerns regarding other aspects of the Draft Permit, such as the need to correct statements in the Fact Sheet with respect to the proposed thermal limitations. These and other issues are discussed in detail below, beginning first with general procedural issues, then turning to substantive issues and following the outline of the Draft Permit.

We would welcome an opportunity to discuss these concerns with the Agencies, in hopes of resolving the issues discussed below before the final permit is issued.

II. Procedural Comments

A. EPA and DEP as Intended Recipients of These Comments

The permitting documents are ambiguous as to whether the draft renewal Permit No. MA 0004928 and the other permitting documents were issued by EPA alone or by EPA New England and DEP acting jointly or severally. Mirant Canal understands, however, that the final permit will be issued as a permit by EPA New England under the Federal Clean Water Act and by DEP

under the state Clean Waters Act, each pursuant to EPA New England's and DEP's respective permitting authorities. Under the state's permitting procedures, DEP is required to prepare and issue a fact sheet or statement of basis for every draft surface water discharge permit and also to respond to comments on the draft permit. 314 C.M.R. §§ 2.05, 2.09. Accordingly, Mirant Canal directs these comments both to EPA New England and DEP, treats the permitting documents as if they were issued by both agencies, and anticipates that each agency will respond to these comments.

B. § 401 Water Quality Certification

In addition to issuing renewal Permit No. MA 0004928 as a surface water discharge permit under the Massachusetts Clean Water Act, Mirant Canal expects that DEP will certify the final renewal permit under § 401 of the Clean Water Act, 33 U.S.C. § 1341, and under 40 C.F.R. § 124.53 and 314 C.M.R. 9.09. Fact Sheet, section 9.0. In addition to their other purposes, these comments are directed to DEP for purposes of its consideration of that certification.

C. Comments to MCZM

The Massachusetts Office of Coastal Zone Management (MCZM) must certify that the final renewal Permit No. MA 0004928 is consistent with MCZM's enforceable policies under the Coastal Zone Management Act. In addition to their other purposes, these comments are directed to MCZM for its consideration in making that determination.

MCZM's enforceable policies at 301 C.M.R. 21 include Water Quality Policy #1, which is simply stated:

> Ensure that point-source discharges in or affecting the coastal zone are consistent with federally-approved state effluent limitations and water quality standards.

301 C.M.R. 21.98(3).

For the reasons elaborated in Mirant Canal's submissions in the Administrative Record and in these comments, renewal of the Canal Station's NPDES permit as requested by Mirant Canal will be consistent with state effluent limitations and water quality standards.

D. Incorporation of Prior Submissions

Mirant Canal incorporates each of its prior communications and data submissions to EPA New England or DEP concerning the renewal or modification of Permit No. MA 0004928 as comments on the draft renewal permit. This incorporation by reference includes all submissions by Mirant Canal or its predecessors concerning the permit dating from the initial renewal application in 1994 to the date of these comments. It also incorporates any such submissions by Mirant Canal whether or not they have been identified by the Agencies as part of the Administrative Record, because if they are not in the Administrative Record, they should be. All issues raised by any of those submissions are preserved for purposes of 40 C.F.R. § 124.13.

E. Failure to Share Working Draft of Permit

EPA New England and DEP commonly share their working draft of a NPDES renewal permit with a prospective permittee to resolve permit details in a cooperative manner before issuing a draft permit for public comment. Consultants and counsel working for Mirant Canal have direct, current experience of this practice. Mirant Canal requested that the Agencies follow that practice with respect to the renewal of Permit No. MA 0004928. Instead, the Agencies issued a draft permit for public comment without providing the opportunity for Mirant Canal to review a working draft. As a direct consequence and as detailed in other comments submitted herewith, the draft permit contains many unworkable provisions. The Agencies should reconsider the draft permit in light of these and other public comments, and issue a new draft permit for public comment.

F. Reservation of Right to Supplement Comments

As shown by the body of these comments, the Draft Permit proposes many significant and complicated changes from the existing permit, and would require major modifications to the Station's facilities and operations. EPA issued the Draft Permit without any significant prior discussion of those proposals with Mirant Canal or sharing a preliminary draft, and did so on December 22, 2005, just prior to a well-established holiday period over the following 10 days, with a comment deadline of January 20, 2006.

Given the complexity of the proposed changes, the need for Mirant Canal to coordinate its staff, consultants, and counsel to prepare comments, and the numerous ways that the Draft Permit overlooks important facts about the Canal Station and its physical circumstances, that short time for comments, starting out with a holiday time, clearly was insufficient for Mirant Canal to have an adequate opportunity to provide detailed comments and supporting materials. It was unreasonable for EPA to impose such a comment deadline in the circumstances.

By a letter of January 13, 2006, Mirant Canal accordingly requested an extension of the comment period by 60 days, citing to the need for Mirant Canal to have an adequate opportunity to evaluate the proposed physical and operational changes. By a letter of January 18, 2006, EPA granted an extension of just 15 days.

That 15 day extension is unreasonably short in these circumstances. While Mirant Canal has developed these fairly comprehensive comments by that deadline, the time has not been sufficient to conduct any detailed analyses of the cost or engineering feasibility of some of the proposed physical modifications or of the associated permitting and land use requirements. Nor has Mirant Canal had an adequate opportunity to collect the full range of supporting materials for its comments. Where EPA has taken more than 10 years to issue the proposed renewal permit but has not been willing to engage in any advance discussion of its proposed changes to the Station, where providing 45 additional days for the preparation of comments would not have any material adverse consequences, and where it is extremely unlikely that EPA will issue the final permit with any immediacy, it was entirely unreasonable for EPA to refuse to provide the requested extension.

Accordingly, while Mirant Canal submits these comments now, it also reserves the right to supplement these comments with further comments and supporting evidence as material to the issues raised by its comments and the Draft Permit.

III. Comments on Proposed Revisions to Limits and Monitoring Requirements for Outfall 001

Following are Mirant Canal's comments on the new and revised permit limits and conditions the Agencies have proposed for Canal Station's Outfall 001. Outfall 001 currently receives and is permitted to discharge once-through non-contact condenser cooling water, treated station effluent from internal Outfalls 010, 011, and 012, and storm water. The Draft Permit authorizes the continued discharge of these waste streams albeit with many new restrictions or conditions. Mirant Canal requests clarification of certain provisions and objects to others, for the reasons discussed below.

A. Revisions to Limits for Chlorine

The current permit 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 (1) converts the limit on TRC to a limit on "total residual oxidants" ("TRO"); (2) adds a new "instantaneous maximum" TRO limit of 0.2 mg/l; and, (3) requires grab sampling once every thirty minutes during chlorination, regardless of when chlorination occurs.

First, the proposal to incorporate a new instantaneous maximum TRO limit of 0.2 mg/l is, contrary to EPA's assertion (Fact Sheet, pp. 17-18 of 59), unsupported by the effluent limitations guidelines for the steam electric power generating point source category ("Steam Electric Guidelines"). EPA says that this new limit is necessary because the 0.2 mg/l "maximum concentration" included in the Steam Electric Guidelines (§ 423.13(b)(1)) is an instantaneous maximum concentration that may not be exceeded at any time. *Id.* Contrary to the 1992 EPA memorandum cited as support for this proposition, however, neither the regulations nor the supporting preamble support this position. The preamble to the final Steam Electric Guidelines refers to the Best Available Technology or "BAT" limit for TRC as a "daily maximum" limit, which under the NPDES rules has long been defined as an average value. 47 Fed. Reg. 52293, col. 3 (Nov. 19, 1982) ("EPA is promulgating a daily maximum limitation for total residual chlorine (TRC) ... based upon a concentration of 0.20 mg/l"). Moreover, in contrast to the use of the phrase "maximum concentration" to refer to the two-hour TRC limit, in the same rulemaking EPA presented the BPT guideline for TSS in coal pile runoff (§ 423.12(b)(9)) as a "maximum concentration for any time." That EPA chose to use a different term in setting the BAT limit for TRC/TRO indicates that it did not intend to apply the limit as an instantaneous maximum value. Until now, EPA New England has shared this view of the TRC effluent guideline as an average value applicable over the chlorination period, as evidenced by the fact that it has not previously imposed any limit except the more stringent 0.1 mg/l TRC limit, which is water quality-based. *See* 1983 Draft National Pollutant Discharge Elimination System (NPDES) Permit to Discharge to Waters of the United States, No. MA0004928, Fact Sheet ("1983 Draft NPDES Permit Fact Sheet"), Attachment C.IV.a, p. 2. The previous permit, and the interpretations it reflects, are entitled to a presumption of regularity, especially with respect

to the permit's application of effluent guidelines that had been in effect since 1982. To the extent EPA subsequently issued a memorandum purporting to "clarify" or change the applicable rule, it is without legal effect. *See Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1028 (D.C. Cir. 2000) (EPA may not issue guidance significantly altering rule without going through rulemaking).

Third, the Draft Permit would dramatically increase the frequency of compliance monitoring required for chlorine, without adequate justification. The current permit requires at most one (1) sample per day, five (5) days per week (*i.e.*, sampling daily when the system is in use, except Saturday and Sunday). In setting these requirements and others in previous permits, EPA said, "The monitoring program in the permit specifies routine sampling and analysis which will provide continuous general information on the reliability and effectiveness of the installed pollution abatement equipment." *See* 1983 Draft Permit Fact Sheet, Attachment C., Part IV.a, p. 2. The Agency concluded that "[t]he effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the Clean Water Act" and its implementing regulations. *Id.* at pp. 2-3. The Fact Sheet supporting the 1988 Draft Permit repeats this language in support of the same monitoring requirements. *See* 1988 Canal Station Draft NPDES Permit, Fact Sheet, Part. IV.a, p. 2.

Under the proposed Draft Permit, Mirant Canal would have to sample every thirty minutes during any chlorination event, no matter when it occurs. Assuming daily chlorination for two hours per day per unit, the Station would have to collect and analyze *one hundred and twelve (112)* samples over the course of a week ((4 samples per hour x 4 hours) x 7 days). This is a huge increase in sampling, and it is particularly burdensome because it will require sampling not just during business hours, when daily chlorine sampling usually occurs, but during non-business hours and on weekends when chlorine dosing occurs automatically. The cost of these additional requirements will go far beyond the additional analytical costs, requiring additional personnel and overtime costs.

An overview of Mirant Canal's current protocol for applying chlorine demonstrates why this is so. At present, it is Mirant Canal's practice to apply chlorine for one two-hour period in the late morning or early afternoon (typically, around 1 p.m.). At that time, on week days plant personnel carefully check the chlorine applicator and the resulting effluent concentrations, which Mirant Canal samples at the bridge immediately adjacent to Unit 2. The second two-hour chlorination period then occurs roughly twelve hours after the first. If chlorine is applied from 1 p.m. - 3 p.m. in the afternoon, the next application will not occur until 1 a.m. in the morning. However, if the afternoon sampling and applicator check disclose any unresolved abnormality with the applicator, the second dose of chlorine is not applied. If the proposed additional monitoring requirements are imposed, the Station would have to make special arrangements for personnel to come on site during late night/early morning hours and on weekends solely for purposes of taking these samples and arranging for their analysis. Thus, instead of the $1500 Mirant Canal estimates it currently spends annually on monitoring for compliance with this limit, the Station estimates it would now have to spend $33,600 annually on compliance sampling for this one limit. This is a *2240%* increase in cost.

There is no environmental or other basis for this increase. EPA has not identified any factual basis for concluding that the Agencies' previous judgments about the appropriate frequency of chlorine monitoring were wrong, nor is there any evidence to suggest that the current sampling regime has failed to detect compliance issues. In fact, the Station's current practice, which takes a precautionary approach with regard to dosing chlorine, already is extremely protective. Moreover, the Canal Station has experienced no instances of non-compliance from 1999 to the present, with the exception of a one-time malfunction of the chlorination system in June of 1999. The Canal Station's precautionary approach to chlorine application is designed to prevent such incidents, which it has done successfully.

B. Whole Effluent Toxicity Monitoring

Part I.A.2 of the Draft Permit also includes a new permit condition requiring extensive monitoring for acute and chronic "whole effluent toxicity" ("WET") using chronic and modified acute test protocols for inland silverside and sea urchin, respectively, specified by EPA New England. Part I.A.2.d further provides, "If, after eight consecutive sampling periods (two years), no test shows a $LC_{50} < 100$ % and a C-NOEC < 20 %, the permittee may request a reduction in toxicity testing. A variance from the ... WET testing schedule may be allowed upon written approval from EPA with concurrence from MA DEP."

This proposed requirement is not based on a determination that there is a reasonable potential for Mirant Canal's discharge to cause toxicity. Rather, as indicated in the Fact Sheet, p. 19, EPA has proposed WET testing because it claims to have "inadequate information" on which to base a determination of reasonable potential. In essence, EPA is requiring WET testing because no WET testing has previously been done at this plant.

In fact, based on long experience with WET testing in similar situations, EPA should determine that there is no reasonable potential for this discharge to cause toxicity. The discharge of large amounts of cooling water, taken from and returned to the Canal, which has its own extremely large flow, with the addition of very minor amounts of pollutants other than heat that WET testing would not evaluate, mean it is certain that this discharge does not have any reasonable potential to cause toxicity as measured by WET tests. EPA should not require Mirant Canal to perform WET tests just for the sake of conducting WET tests, and certainly it should not require the performance of WET tests indefinitely.

Mirant Canal notes that EPA does not always require WET tests from dischargers, even power plants. See, for example, NPDES Permit No. MA0004707 issued November 4, 2004 to the West Springfield Station along the Connecticut River.

Mirant Canal appreciates that the Agencies have provided an opportunity for Mirant Canal to request a reduction in WET testing after two years. To qualify for some reduction in or elimination of either WET test requirement, however, Mirant Canal would have to show that its effluent passes both tests for each consecutive quarters with no "toxicity" as defined by the test methods and the evaluative standards EPA has specified. This is the case, apparently, even if a test "fails" by only the narrowest of margins, such that it may likely be attributable to test variability rather than true effluent toxicity. It also appears to be the case even if an isolated test

failure can be traced to abnormal operating circumstances or otherwise explained by conditions that would not justify "restarting" the eight-quarter test cycle anew.

That relief from the WET testing requirements is available only under such limited circumstances is of concern to Mirant Canal given the substantial cost and burdens that these new testing requirements will impose. As EPA may be aware, each modified acute test can be expected to cost approximately $2000, and each chronic test will cost approximately $3500, with an additional $750 in supporting chemistry costs covering both tests (assuming they can be done simultaneously). This is a total of approximately $6250 per quarter, or $25,000 per year (assuming no test needs to be repeated for any reason)). Such a substantial cost can be justified only where it is clearly warranted. That is not the case here, especially since (1) the state standards include no criterion for WET *per se*, and (2) the Agencies have no independent basis for believing that the Canal Station is causing or contributing to an exceedance of narrative water quality standards. Moreover, unlike other categories of industrial discharges, power plant discharges are relatively non-variable because, while the plant capacity utilization rate may change, the plant processes and the output produced -- power -- does not. Thus, requiring two full years of testing is not necessary to capture effluent "variability." Moreover, while the permit entitles Mirant Canal to request a reduction in WET testing requirements after two years, it provides no assurance that such reductions will be forthcoming, nor does it indicate what level of reduction may be expected.

For the reasons discussed above, Mirant Canal believes that there is no principled basis for imposing the WET testing requirements, and they should be deleted. If, after consideration of all of the facts, EPA finds some independent basis for imposing WET testing requirements, however, Mirant Canal requests that the Agencies revise Part I.A.2.d as follows:

- Reduce the number of consecutive quarters required before a reduction in testing can be requested from eight (8) to four (4);
- Apply the WET testing requirements independently, so that Mirant Canal may request a reduction in either form of test once satisfactory testing in four consecutive quarters has been performed;
- Provide a mechanism by which Mirant Canal may demonstrate that a test result not meeting the evaluation criterion is likely attributable to test method variability or to a specific, remediable cause, in which case the period before which a reduction in testing may be requested would be extended by one (1) quarter, but not restarted; and
- Provide that Mirant Canal may request a reduction in or elimination of WET testing requirements, and the permitting authorities will not unreasonably withhold such approval upon a showing that the provisions of Part I.A.2.d have been satisfied.

C. Revisions to the pH Limit

The Draft Permit, Part I.A.2, revises the current limits on pH, presenting them as "monthly range" values of $\geq$ 6.5 and $\leq$ 8.5 standard units ("S.U.") and requiring monitoring by recorder. The current permit, while imposing a limit, did not specify monitoring type or frequency for this outfall, although the Company has consistently monitored and reported pH via weekly grab sampling, as is required for internal Outfall 010. In addition to the new averaging period and monitoring requirements for pH, EPA also proposes to include a second pH limit in

footnote 3 to Part I.A.2, specifying that "pH shall not be more than 0.2 units outside the naturally occurring range."

Mirant Canal does not believe that EPA is justified in requiring pH sampling by recorder at Outfall 001. Instead, we believe that weekly grab sampling would be more appropriate. If EPA can identify a principled basis for requiring more frequent monitoring of pH at this outfall, then some greater frequency (*e.g.,* daily sampling) might be justified, but monitoring should still be performed via grab sampling. Based on our current evaluation, we believe that retrofitting a recorder at the outfall would be accomplished by installing a pH detector cell at the end of the flume and connecting it to the PI data historian system via a communications cable. The cost of installing even a relatively simple recorder system of this kind is nevertheless likely to be considerable. We estimate that cost of the detector cell and communications cable would be between $10,000 and $15,000. Also, to ensure the accuracy of our data, it is Mirant Canal's current practice to calibrate our pH meters daily with full documentation. Although daily calibration of an automatic recorder is not feasible, given the characteristics of such systems, they will require frequent calibration and maintenance. This will impose additional costs, and during maintenance and calibration it will be impossible to sample with the recorder system, which is not the case with grab sampling.

Imposing these additional costs and burdens is wholly unwarranted, especially given EPA's previous determination regarding the adequacy of far less onerous monitoring requirements, and Canal Station's excellent record of compliance. As noted above, although the current permit does not require pH monitoring at this outfall, the Canal Station nevertheless has monitored and reported pH weekly. The pH range at this outfall consistently ranges between 7.8 - 8.2 S.U., reflecting full compliance with the permit. Thus, Mirant Canal submits that the costs and other burdens imposed by requiring installation of this new system are wholly unwarranted.

In addition to our objection to the new monitoring requirement, the "monthly range" pH limit EPA proposes is confusing and undefined. In the absence of any definition of this term or guidance as to how it is to be interpreted and applied, Mirant Canal respectfully objects to its imposition. Once EPA has supplied an explanation of the term, Mirant Canal reserves a further opportunity for comment.

Mirant Canal also objects to the imposition of a second pH limit requiring that pH be not more than 0.2 units outside the "naturally occurring range" which, according to the Fact Sheet, p. 18, is based on the Massachusetts Surface Water Quality Standards at 314 C.M.R. 4.00. The surface water quality standard in question provides that the pH range for Class SB waters is not more than 0.2 units outside the normally occurring range. There is no evidence from the Fact Sheet or elsewhere in the record that the Agencies have made any evaluation of "reasonable potential" to determine whether this limit is needed, in light of the characteristics of the effluent (which already is subject to pH limits) and the characteristics of the waterbody. To the best of our knowledge, neither agency has ever done any study to characterize the "normally occurring" pH range of waters in the Cape Cod Canal, nor has either considered what pH range would be consistent with this standard. In the absence of such an analysis, there simply is no basis in fact or law for imposing such a limit on the Canal Station.

Also, Mirant Canal notes that the Massachusetts DEP recently proposed modifications to its water quality standards for pH in class SB waters, proposing to substitute the phrase "natural background range" for the current language "normally occurring range." There is no basis or authority for EPA and DEP to transpose a proposed water quality standard into an effluent limitation in a permit, particularly without evidence or reason to expect that there is reasonable potential for the discharge to cause any exceedance of the existing water quality standard for pH.

D. Revised Limitations for Temperature

In Part I.A.2 of the Draft Permit, and subsections a. and c. of that Part, the Agencies propose two new thermal limitations and several new thermal monitoring requirements for Outfall 001. According to the Fact Sheet, pp. 11, 20-24, these limits are intended to reflect EPA's decision to grant Mirant Canal's request for a § 316(a) variance from otherwise applicable water quality-based thermal limits, based on EPA's determinations that the Canal Station's existing thermal discharges have not caused prior appreciable harm to a "balanced indigenous population" ("BIP") of aquatic life, and that continuation of those discharges will not cause appreciable harm to the BIP.[1] The proposed permit limits include: (1) a new maximum daily temperature limit of 107°F, measured continuously by recorder; (2) a new maximum daily limit of 33°F on the temperature rise across the condenser or "ΔT," measured continuously via recorder as the discharge temperature minus the inlet temperature; and (3) a new ambient thermal monitoring requirement, pursuant to which Mirant Canal would be required to record the temperature of the water within the top fifteen (15) from the surface, directly above the discharge diffuser, during slack tide, once per week during the generation of electricity, for the duration of the permit.

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[1] In both 1983 and 1988, EPA evaluated the Canal Station's thermal discharge (which is the same as the present discharge) and concluded that it met the §316(a) variance standard. In the Fact Sheets supporting the 1983 and 1988 draft permits, the Agency said:

> In late 1982, a document was submitted to EPA, entitled, The Effects of Power Generation of some of the Living Marine resources of the Cape Cod Canal and Approaches. The document was authored by personnel from the Massachusetts Department of Fisheries, Wildlife and Recreational Vehicles, Division of Marine Fisheries (the "Division"). Division personnel served as principal investigators of the biological studies that were required by the previous NPDES permit. The major results of the studies indicated that the marine resources in the Cape Cod Canal and surrounding water bodies were adequately protected by the environmental safeguards contained within the NPDES permit....
>
> Since little if any impact from the thermal plume upon the biological community has been detected, and since the station has operated without any obvious environmental degradation, a favorable 316(a) determination can be made.

Fact Sheet, 1983 Draft NPDES Permit MA0004928, Attachment III, Part IV.b, p. 4; Fact Sheet, 1988 Draft NPDES Permit MA0004928, Part IV.b, p. 4.

Mirant Canal agrees that EPA was fully justified in granting the § 316(a) variance request, consistent with applicable regulations (40 C.F.R. Pt. 125, Subpart H), based on the Company's demonstration that the existing discharge has not caused and will not cause appreciable harm to the BIP. However, we have several concerns with the thermal requirements as proposed.

First, the ambient monitoring requirements imposed are, Mirant Canal believes, unreasonably burdensome for several reasons. The Draft Permit would require such monitoring year round, even though there is no reason to believe that ambient water temperatures would even approach 86°F except during the summer months. Thus, Part 1.A.2.c should be re-written to require sampling only from June 1 through August 31. Also, even if the sampling period were cut back to a more reasonable period, the Draft Permit requires weekly sampling during slack tide for the duration of the permit. As EPA is aware, slack tide in the Cape Cod Canal occurs intermittently and for a fairly brief period -- roughly 25-45 minutes. *See, e.g.,* Mirant Canal § 316(a) Thermal Variance Report: Alternative Discharge Limits Under § 316(a) of the Clean Water Act ("Mirant Canal § 316(a) Demonstration"), p. 8. Arranging for personnel to go out in a boat at exactly the appropriate time, at the appropriate place, regardless of the time of day or weather conditions, every week (even if monitoring is limited to the summer months) for the duration of the permit will be extremely burdensome and is entirely unwarranted. If EPA's goal is to ensure adequate sampling under representative plant and waterbody conditions, Mirant Canal believes that this could be accomplished by requiring ambient monitoring, *bi-weekly* during slack tide, from June 1 through August 31, for two years. If, as we believe, ambient temperatures at the monitoring point are consistently within the required limit, no further monitoring should be required.

Second, although Mirant Canal does not oppose the proposed thermal discharge and ΔT limits so long as they are, as indicated in the Draft Permit, applied as maximum daily values (that is, average values over a 24-hour period), the Fact Sheet creates some confusion by referring to the discharge limitation as a "maximum instantaneous temperature." We do not believe that is what EPA intended, because that is not what EPA provided in the Draft Permit, nor would the application of either limit as an instantaneous maximum be consistent with EPA's findings about the existing discharge. Those findings were based on information presented in the 1976 NEGEA Circulating Water Discharge Temperature Survey (referenced by the Fact Sheet, pp. 11, 23); the Mirant Canal § 316(a) Demonstration, which incorporated more recent information from 1999-2000; and the information EPA itself had collected on the thermal discharge characteristics (*see* Fact Sheet, p. 9, Table 4.3). As the information in those reports and tables shows, (1) discharge temperature is a function of intake temperature, and may vary over time, exceeding 107° F for very brief periods, and (2) ΔT values also will vary with ambient conditions and operating loads, exceeding 33°F periodically. Indeed, EPA itself noted in the Fact Sheet that the highest ΔT measured during the 1976 study was 35°F, and the data provided in Mirant Canal § 316(a) Demonstration, Section B.4, Figure 3.18, indicate ΔTs of 40°F during boat monitoring studies (albeit rarely, and for very brief periods). Moreover, as Table 4.3 indicates, the Canal Station's existing discharge can reach instantaneous maximum temperatures of 111°F (albeit very rarely).

All available data suggest that these brief, periodic instances of higher discharge and Δ temperatures are consistent with ensuring that the 86°F temperature limit is met at the appropriate point instream. Thus, there is no basis in the record for EPA to establish instantaneous maximum limits for the existing discharge at these levels. Nor would the establishment of instantaneous maximum limits be biologically appropriate, given (1) the existence of an ambient limit, which will ensure protection of receiving waters under all discharge conditions, (2) the hydrological conditions instream, which are attributable both to the discharge diffuser and the current speed of the receiving water, both of which ensure rapid mixing, and (3) and the behavioral characteristics of potentially exposed organisms, which are unlikely to be affected by brief periods of elevated temperatures.

In any case, if EPA intended to establish instantaneous maximum limits, it has given neither adequate notice of that intention (due to the discrepancy between the permit and the Fact Sheet), nor an adequate explanation of the basis for the values it has chosen. Thus, before EPA could proceed with establishment of any such limits, it would be obliged under the Administrative Procedures Act to provide clear and adequate notice of the limits it intends to impose and the basis for those limits, as well as an opportunity for comment.

E. Sampling Location

Subsection a. of Part I.A.2 of the Draft Permit specifies that effluent samples shall be taken within the last 10 feet of the 750-foot open discharge flume prior to discharging through the diffuser to the Cape Cod Canal. Mirant Canal requests that, to allow the facility flexibility to choose an appropriate monitoring that is both representative of the effluent discharge and efficient as a measurement point, EPA revise this provision as follows:

> Effluent samples shall be taken at a point within the 750-foot open discharge flume prior to discharging through the diffuser to the Cape Cod Canal. The permittee shall identify the monitoring point(s) for each pollutant on the first DMR submitted after the effective date of the permit, and report any subsequent changes on the DMR submitted in the month in which any such change occurs.

Also, we note that the Draft Permit defines the ΔT as the difference between the discharge temperature and the "inlet temperature." Currently, Mirant Canal measures the inlet temperature at the water box inlet, and we request that EPA confirm that sampling at this location would satisfy the proposed permit requirement.

IV. Comments on Proposed Revisions to Limits for Outfall 002

Following are Mirant Canal's comments on the new and revised permit limits and conditions the Agencies have proposed for Canal Station's Outfall 002. Outfall 002 currently receives and is permitted to discharge intake screen sluice water and approximately 3 MGD of condenser cooling water, which is discharged in order to supplement flows in the discharge flume for fish conveyance and to prevent debris build-up. The Draft Permit authorizes the continued discharge of these waste streams, albeit with some new and significant restrictions.

Mirant Canal requests clarification of certain provisions and objects to others, for the reasons we discuss below.

A. Revised and New Limits for pH

Part I.A.3 of the Draft Permit imposes on Outfall 002 the same permit revisions for pH as were included for Outfall 001. Thus, Mirant Canal incorporates by reference here the comments we made above in Section II.C with respect to these issues.

In addition to those issues, Part I.A.3.a of the Draft Permit imposes a new monitoring location, requiring that pH (as well as temperature) "be monitored at the Cape Cod Canal end of the outfall 002 discharge flume within 2 feet from the water surface." EPA provides no explanation of any kind for this requirement, nor is this requirement reasonable, for several reasons. First, it would require location of new and specialized equipment, which Mirant Canal is not sure is even available for this site. From the limited research we have been able to perform during the comment period, we have located only one device even theoretically capable of monitoring at depths that vary with tidal action, and it is not clear that that device would work at this site or what it would cost. Even more important, at extreme low tide it would be impossible to comply with this proposed requirement, given that the surface and bottom of the flume will not be separated by two feet of water and will, in effect, merge.

Thus, for these reasons and those explained in Section II.C, Mirant Canal requests that EPA revise this requirement to provide for weekly grab sampling at the last reasonably accessible point in the discharge flume, as is required by the current permit.

B. Revised and New Permit Limits for Temperature

As was the case for Outfall 001, the Draft Permit in Part I.A.3 revises the existing temperature limits and imposes new limits. Specifically, the Draft Permit: (1) maintains the current daily maximum discharge limit of 90°F, but specifies that it must be monitored continuously via recorder, and (2) imposes a new ΔT limit of 33°F which must be monitored continuously via recorder. These limits, like those imposed on Outfall 001, are based on Mirant Canal's § 316(a) Demonstration.

As noted above with respect to Outfall 001, Mirant Canal does not object to these limits so long as they are imposed as daily maximum limits (*i.e.*, 24-hour average values). However, for the same reasons we have discussed with respect to the thermal limits for Outfall 001, we ask EPA to clarify any statements from the Fact Sheet which might be read to suggest (erroneously) that these limits are instantaneous maximum, rather than daily maximum, limits.

With respect to the monitoring point proposed in Part I.A.3.a of the Draft Permit (which also applies to pH discharged from Outfall 002), we reiterate our objection to this requirement. Although we do not object to use of a recorder for purposes of monitoring temperature, which is our current practice, it is not possible to ensure that all samples will be taken within two feet of the surface under all tidal conditions. Therefore, we request that this condition be changed to reflect the current monitoring point (*i.e.*, the last accessible point in the 002 discharge flume).

C. New Limits on Condenser Discharge

In Parts I.A.3.b and c of the Draft Permit, EPA proposes to set two new conditions on Outfall 002. We will take them in turn.

Part I.A.3.b provides: "There shall be no condenser water discharge at this location during the times the screen wash is in operation until upgrades are made to the fish return system as required by Part I.A.13.e of this permit." According to the Fact Sheet, pp. 12-13, EPA proposes this limit to protect fish that might be impinged on the screens from contact with heat and chlorine in the condenser cooling water.

Mirant Canal objects to this prohibition because it will impose unnecessary burdens on the Station while, at the same time, doing more harm than good to the impinged fish EPA wishes to protect. To understand why, it is important to understand how chlorine is applied to these units, how it currently is monitored, and what functions the cooling water discharged through Outfall 002 serves. Presently, roughly 3 MGD of condenser cooling water is discharged into the flume leading to Outfall 002 in order to maintain flow in the flume during low tides and keep debris from collecting. Without this flow, impinged fish being returned to the waterbody via the flume could be stranded or risk unnecessary abrasion. When the screens are running for a given unit, the chlorination system is electronically locked out for that unit.

Part I.A.3.c of the Draft Permit provides: "There shall be no condenser water discharge at this location during the chlorination of any Unit condensers." This, the Fact Sheet says (p. 13), is to "obviat[e] the need for TRC monitoring." EPA does not explain, however, why TRC monitoring would be needed in the absence of this prohibition. Although it refers to the fact that the chlorine injection points are located prior to the trash racks, in front of the intake pump bays, it is not clear why this would justify a prohibition on condenser water discharge at this point during chlorination, unless the Agency's theory is that, should a discharge occur, chlorine might not be evenly distributed throughout the condenser cooling water. Given that the facility currently samples for compliance with the TRC limit at the bridge next to Unit 2, which is only about 300 feet from the point of chlorine application, there is little or no chance that the chlorine concentration in effluent from Outfall 002 will differ from that in Outfall 001. Moreover, as noted above, prohibiting discharge of condenser cooling water through Outfall 002 during chlorination would prevent the facility from providing flows needed to return impinged organisms to the Cape Cod Canal during periods of low tide.

D. Flow Limits

The Draft Permit includes average monthly and maximum daily limits on flow of 2.5 MGD and 4.4 MGD, respectively. These limits are the same as those included in the current permit for Outfall 002, and do not take into account any increase in flow that would be required in connection with EPA's proposal to require the Canal Station to rotate the screens continuously, so as to sluice impinged fish from the screens using a new low pressure wash that EPA also proposes to require. Although, for the reasons discussed below in Section IX.C, Mirant Canal objects to the new intake structure requirements and requests that they be deleted, we note for the record that operating such a system would require an increase in this flow value.

V. Comments on Revised Requirements for Internal Outfall 010

Part I.A.4 of the draft permit involves the effluent from the Unit 1 floor drains, which consists of vacuum and pump seal water, fuel heater room discharges, and boiler leakage. The current permit authorizes discharge of this wastewater through an oil/water separator and internal Outfall 010. Mirant Canal's normal practice is to send that wastewater to the Unit 1 precipitator pumphouse for reuse in the precipitator ash sluice system, but Mirant Canal retains Outfall 010 as a backup in case that system is unavailable. The last discharge through Outfall 010 occurred in 1994.

The proposed permit would continue to authorize use of Outfall 010 for that wastewater, but "during emergencies only." Part I.A.4 at p. 5 of 20. That is too restrictive because the need to use Outfall 010 may arise during planned outages of the precipitator system or for other operational reasons not necessarily qualifying as an emergency. The use of the oil/water separator and the monitoring requirements on this discharge are more than sufficient to assure that the internal discharge of these wastewaters, if it occurs, does not have the reasonable potential to cause any problems. The final permit should continue to authorize discharge of these wastewaters through Outfall 010 as operational needs require.

Also, the proposed permit would require 24-hour notice to EPA and DEP, plus a written report in five (5) business days, whenever there is a discharge from this outfall. But these routine wastewaters, even if they utilize Outfall 010, do not warrant such special reporting. Again, the use of the oil/water separator and the monitoring requirements, which would lead to reporting on the monthly discharge monitoring reports, are fully adequate.

VI. Comments on Revised Requirements for Internal Outfall 011

Following are Mirant Canal's comments on the new and revised permit limits and conditions the Agencies have proposed for Canal Station's Outfall 011. Currently, this outfall is authorized to discharge a combination of ash sluice, low volume waste, and chemical metal cleaning waste, which are co-mingled for treatment prior to discharge. The proposed Draft Permit would impose significant new restrictions on both the current treatment system and the discharge via this outfall, as described below. Mirant Canal objects to these restrictions, for the reasons we detail.

A. Requirement to Segregate Chemical and Non-Chemical Metal Cleaning Wastes From Low Volume and Ash Sluice Wastes

Under the current permit, the Canal Station is authorized to discharge ash sluice water, equipment washes, and chemical metal cleaning wastes from Internal Outfall 011, which is defined as the "discharge from the Waste System Blowdown from Waste Ponds A, B, C or D regardless of the actual point of release into the cooling water discharge." *See* Federal Permit No. MA0004928, June 23, 1989, Part I.A.5. The low volume waste streams covered by the general term "equipment washes" include boiler blowdown, air pre-heater wash, SCR catalyst wash, boiler wash, furnace wash, stack and breeching wash, fan wash, precipitator wash, equipment wash dewatering press filtrate, and combustion air heater wash. The combined waste stream is subject to technology-based limits for copper, iron, total suspended solids ("TSS"), and

oil and grease ("O&G"). Weekly grab sampling is required to assess compliance. In issuing the predecessor to this permit in 1983, EPA stated that the limits imposed "are based upon the Steam Electric Power Plant Guidelines ... as promulgated on November 19, 1982," and that those limits "satisfy all technology requirements of the Clean Water Act, including the 1984 BAT requirements for toxic pollutants and BCT for conventional pollutants." 1983 Draft NPDES Permit Fact Sheet, Attachment C.IV, p. 2 (citations omitted). As noted above in Section II.C, EPA also found that the monitoring requirements it imposed fully satisfied applicable regulatory requirements and were adequate for purposes of characterizing compliance with applicable limits.

In the Draft Permit, EPA proposes to require the Canal Station to segregate all metal cleaning wastes, both chemical and non-chemical, from ash sluice water, and to impose on both chemical and non-chemical metal cleaning waste streams the BAT effluent limitations guidelines for copper and iron, for which daily composite sampling would be required. *See* Draft Permit, Part I.A.5. The Draft Permit would specifically prohibit Mirant Canal from combining "low volume" waste streams[2] or ash sluice wastewater with metal cleaning wastewater prior to

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[2] The Fact Sheet, p. 13, states, with respect to "Outfalls 011 and 012":

> Under the current permit, low volume waste, metal cleaning waste and ash sluicing waste are allowed to be combined (in settling ponds) and discharged either through one of two treatment (neutralization) tanks or directly from the ponds. Low volume wastes consist of wastes from floor drains, waste treatment (demineralizer and condensate polisher), boiler blowdown, laboratory wastewater, and boiler seal water. Metal cleaning wastes consist of wastes from air preheater wash, boiler fireside wash, precipitator wash, boiler chemical cleaning, stack and breach wash, equipment cleaning and feedwater heater chemical cleaning.

This characterization is partially incorrect, as a legal and factual matter, for several reasons. First, while it correctly states that the Canal Station is allowed to co-mingle low volume wastes (*i.e.*, non-chemical metal cleaning wastes and boiler water and blowdown), chemical metal cleaning wastes, and ash sluice wastes for treatment and discharge via Outfall 011, it incorrectly suggests that the Canal Station co-mingles or is authorized to discharge other low volume wastes with those waste streams. The remaining low volume wastes covered by the current permit are treated and discharged separately, via Outfall 012. Second, it incorrectly omits from the list of "low volume wastes" the non-metal cleaning wastes currently treated and discharged via Outfall 011. Third, it inaccurately includes in the category of "metal cleaning wastes" those non-chemical metal cleaning wastes (including air pre-heater wash, SCR catalyst wash, boiler wash, furnace wash, stack and breeching wash, fan wash, precipitator wash, equipment wash dewatering press filtrate, and combustion air heater wash) which have been - and legally should be - classified as low volume wastes. Also, we note for the record that, on p. 9 of the Fact Sheet, EPA states that the Canal Station exceeded the average monthly flow limitation for 011 on 7/31/03. In fact, the Canal Station's supporting documentation shows that the actual average monthly flow value for that month was 0.086, which is full compliance with the current permit. The value reported reflects erroneous transposition of a decimal point, which Mirant Canal will correct by separate notice.

discharge to the final effluent flume. The Draft Permit also would require Mirant Canal to (1) submit an annual certification that all caustic used has no detectable levels of mercury, and (2) where chemicals are used for boiler cleaning, require composite sampling and analysis for petroleum hydrocarbons and priority pollutants.

From the discussion in the Fact Sheet, p. 13, it appears that EPA bases the new requirements for separation of both chemical and non-chemical metal cleaning wastes from ash sluice water and (other low volume wastes) on the assumptions that (1) "equipment washes" discharged via Outfall 001 under the current permit have been classified as metal cleaning wastes and, thus, are subject to technology-based limits for iron and copper, and (2) no treatment of chemical metal cleaning wastes occurs in the ash pond. Neither assumption is accurate. As is reflected by the current permit and by previous permit terms, non-chemical metal cleaning wastes have not been characterized, until now, as "metal cleaning wastes" *per se*, but rather as equipment washes. Pursuant to the June 17, 1975 "Jordan Memorandum"[3] equipment washes at the Canal Station were not regulated as "metal cleaning wastes" but instead were considered low volume wastes, to which iron and copper limits do not apply. Because chemical metal cleaning wastes and/or filter cake also are discharged to and treated by the waste treatment ponds, however, the iron and copper limits applied at the end-of-pipe.

That EPA considered the waste treatment ponds to provide treatment of chemical metal cleaning wastes also is evidenced by the fact that it chose <u>not</u> to require segregation of those wastes or set a combined wastestream limit in previous permits.

The practical and economic burdens that would be imposed on Canal Station if it were required to segregate chemical and, in particular, non-chemical metal cleaning wastes from ash sluice water and boiler blowdown are enormous. Given the current capacity of the waste treatment ponds at the Station, ensuring that such wastes would never be co-mingled with ash sluice water or other low volume wastes likely would require extensive modifications to the piping of the existing waste treatment system, as well as other modifications, possibly including construction of an additional waste treatment pond or even an additional clarifier. The cost of these modifications would be substantial. Our best (albeit rough) estimate is that costs would

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[3] Memorandum from J. William Jordan, Chemical Engineer, EPA Permit Assistance & Evaluation Division, to Bruce P. Smith, Biologist, Enforcement Division, Region III, Re: Response to Request for Interpretation of the Chemical Effluent Limitation Guidelines for the Steam Electric Power Generation Industry. The Jordan Memorandum, p. 3, provides EPA's contemporaneous interpretation of the term "metal cleaning wastes" as that term was used when the BPT effluent limitations were adopted in 1974. The memorandum states: "In regard to the question on distinguishing between metal cleaning and low volume wastes, the following classification is offered. All waste washing operations are "low volume" while any discharge from any operation involving chemical cleaning should be included in the metal cleaning category." After the 1982 revisions to the Steam Electric Guidelines, EPA retained this distinction for facilities to which it had previously applied.

approach $500,000, and would be far higher if a new clarifier is required. Moreover, construction of an additional waste treatment pond would require numerous approvals and permits (*see* Section XII on supplemental permitting issues) and likely would take between eighteen months and two years. For all of these reasons, it makes no sense for EPA to change its well-settled application of the technology-based limits for these waste streams.

Even if EPA could justify changing its previous assessment of the treatment capabilities of the waste treatment system to justify the segregation of *chemical* metal cleaning wastes, Mirant Canal believes EPA may not, and should not, require segregation of non-metal cleaning wastes. Instead, non-chemical metal cleaning wastes should continue to be classified as "low volume wastes" that are subject to the same effluent guidelines that apply to ash sluice water. This would avoid the need for new construction, and allow Canal Station to maximize use of existing treatment facilities.

In the event EPA determines that there is some principled basis for reversing its previous determination that chemical metal cleaning wastes may be treated with ash sluice water and some low volume wastes, and finds that segregation of chemical metal cleaning wastes is justified, the relevant maximum daily flow for that wastestream would be approximately 0.36 MGD and the monthly average flow would be 0.30 MGD. [4] The combined flow values for ash sluice, non-chemical metal cleaning wastes, and other low volume wastes routed to 011 would be a maximum daily of 0.40 MGD and a monthly average of 0.25 MGD.[5] Also, if chemical metal cleaning wastes were required to be segregated for discharge, it would be necessary to establish a separate outfall (013) through which only that effluent would be discharged, while allowing the remaining waste streams to continue to be co-mingled for treatment and discharge subject only to the applicable limits for TSS, O&G, and pH.

B. Sampling Requirements

In addition to this overarching issue, Mirant Canal objects to the change in monitoring requirements forOutfall 011, from a weekly grab sample to daily composite using a recorder. First, EPA has not explained why this change is warranted, given its previous conclusion regarding the adequacy of weekly grab sampling. Second, the waste treatment system is a "batch" discharge, meaning that effluent may be discharged intermittently, in several different batches, throughout the day for short intervals (typically 2-3 hours). Batch discharges also may occur occasionally during non-business hours. The addendum to the Draft Permit defines a

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[4] In this regard, we note that EPA proposes to establish flow limits for the discharge of chemical and non-chemical metal cleaning wastes from Outfall 011. The proposed flow limits are limits are 0.12 and 0.18 as an average monthly and maximum daily value, respectively. Those values would be inadequate to cover the combined discharge from both units, chemical and non-chemical cleaning were to occur simultaneously.

[5] In that case, the flows for other low volume waste streams routed to Outfall 012 would be approximately 0.07 MD and 0.12 MGD as an average monthly and a daily maximum value, respectively.

"composite sample" as a "sample consisting of a minimum of eight grab samples collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample collected proportional to flow over that time period." Given this batch discharge configuration, we do not believe it will be possible for the Station to collect a "composite" sample that is consistent with this definition. Nor is it feasible for the Station to use a recorder to monitor flow for this batch discharge.

To the extent it is reasonable for EPA to require any increase in sampling at all (*e.g.*, once per day), any such sampling should involve grab sampling.

C. Requirements for Certification of Caustic and Additional Priority Pollutant Analyses

As noted above, the permit also requires the Station to: (1) submit an annual certification that all caustic used has no detectable levels of mercury, and (2) where chemicals are used for boiler cleaning, require composite sampling and analysis for petroleum hydrocarbons and priority pollutants. According to the Fact Sheet at p. 14, both of these requirements are linked to concerns raised by the results of the Station's testing of boiler chemical cleaning wastewater in June, 2005, which showed low levels of mercury (0.4 ppb and 0.2 ppb in approximately 250,000 gallons). As the Fact Sheet acknowledges, further investigation found that the results were attributable to mercury present in caustic. *Id.* Although the Agency also acknowledges that these concentrations have no reasonable potential to cause or contribute to a violation of applicable water quality standards, EPA nevertheless proposes to impose the certification requirement for caustic as a "best management practice." *Id.* EPA then justifies the additional sampling for petroleum hydrocarbons and priority pollutants based on the "potential for other unexpected pollutants to be present in the boiler chemical cleaning effluent."

Mirant Canal does not agree that EPA has authority to impose a BMP for caustic that is neither required by effluent guidelines nor justified by water quality standards. In addition, we do not agree with the factual premise on which EPA has based the certification requirement (*i.e.*, that mercury-free bulk caustic is readily available (Fact Sheet, p. 14)), nor do we agree that the certification as drafted is appropriate. Upon inquiry among several reputable vendors of bulk caustic, Mirant Canal was told that suppliers would not be willing to guarantee caustic with zero or even non-detectable mercury.

If EPA believes that some form of assurance on this score is necessary, Mirant Canal suggests that the permit provide for the annual submission by the Station of a certificate of analysis completed by the *vendor* or vendors supplying bulk caustic to the Station. That certificate would include a certification by the vendor that the caustic contains the lowest mercury concentration reasonably available for supplies of bulk caustic.

With respect to the additional testing, Mirant Canal does not believe that testing for the full range of priority pollutants and petroleum hydrocarbons is warranted after each boiler chemical cleaning event, given that previous testing has not suggested that such pollutants are present at levels of concern. This is especially true given that the cost of each priority pollutant and hydrocarbon test battery runs between $4000 and $6000, and the results of testing during the last three chemical cleanings have shown no levels of concern.

VII. Comments on Revisions to Limits for Outfall 012

Following are Mirant Canal's comments on the new and revised permit limits and conditions proposed for Canal Station's Outfall 012. The current permit authorizes the Canal Station to discharge demineralizer and condensate polisher wastes from Units 1 and 2, and floor drains from Unit 2 via this outfall. As noted above, the Draft Permit would require the Station to segregate all metal cleaning wastes, both chemical and non-chemical, from other low volume wastes and from ash sluice water. It also would authorize discharge of ash sluice water and low volume wastes (consisting of floor drains waster treatment wastes (demineralizer and condensate polisher), boiler blowdown, laboratory washwater, and boiler seal water) through internal Outfall 012.

A. Waste Segregation

For the reasons explained above in Section V.A, Mirant Canal objects to the revisions requiring the segregation of all metal-cleaning wastes, and particularly non-chemical metal cleaning wastes, from other low volume wastes and ash sluice water, and the discharge of ash and low volume wastes through this outfall. We reiterate here our request that EPA reconsider this proposed requirement and amend the provisions applicable to Outfalls 011 and 012 accordingly.

B. Sampling Requirements

The Draft Permit proposes to increase the sampling requirements for Outfall 012 from once every two weeks to once per week. Here again, EPA provides no explanation for this increase. Thus, Mirant Canal objects to the increase in testing and asks that the current sampling frequency be retained.

VIII. New Requirement for Annual Heat Load Report

As a new provision without a counterpart in the existing permit, Part I.A.7 of the Draft Permit proposes to require Mirant Canal to file a Heat Load Report for "at least three years" by January 31 for the prior calendar year. The report must include the net heat load for each hour of the past year according to a specified formula based on intake and discharge temperatures, must provide the amount of water discharged in each hour, and must follow a specified format.

Mirant Canal does not object to the gist of this proposal, but EPA should make three changes in the final permit.

First, the report should not be required after it has been filed for the three years. If EPA is unwilling to set a specific endpoint, the permit should provide the opportunity for Mirant Canal to request termination of this report once it has been filed for the three years.

Second, Mirant Canal requests February 28 as the due date for the reports, as EPA provided for the West Springfield Station in NPDES Permit No. MA0004707 issued on

November 4, 2004. The extra month will lessen the burden of concurrent filings of many year-end reports by Mirant Canal for multiple other reasons.

Third, Part I.A.7.d of the Draft Permit specifies that the data must be provided separately for each Unit, and to facilitate that, n.2 on p. 8 of the draft permit specifies that the "discharge temperature" for purposes of calculating the hourly heat load shall be measured directly after each Unit condenser prior to mixing with any other stream. But measurement at those two points is precisely not a measurement of the thermal load discharged to the Canal. A "heat load report" based on measurements from the locations specified in n.2 would present an entirely inaccurate picture. Both because of the small amount of mixing with the other flows, and more importantly because of the cooling effects of the discharge flume, for Outfall 001, the main discharge, an accurate measurement of the thermal load to the Canal can only be taken at the end of the discharge flume. If the final permit retains a requirement for a heat load report, it should be revised to call for calculation of the actual thermal load to the Cape Cod Canal.

IX. Requirements Proposed for the Cooling Water Intake Structure

A. Background

Although NPDES permits typically cover only discharges of pollutants to waters of the United States, the Clean Water Act also includes a unique provision, § 316(b), that applies to "cooling water intake structures." Section 316(b), 33 U.S.C. § 1326(b), provides:

> Any standards established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

On July 9, 2004, EPA issued regulations governing implementation of § 316(b) for existing power plants such as Canal Station. Those regulations, sometimes referred to as the "Phase II Rules," became effective on September 7, 2004. 69 Fed. Reg. 42577 (July 9, 2004). Prior to establishment of those regulations, § 316(b) was implemented by permit writers case-by-case. Now, these regulations displace that purely case-by-case approach, establishing performance standards for reducing impingement mortality and entrainment, and providing a uniform national process by which permittees will develop and use relevant data and information to select from among various compliance alternatives for achieving those standards, or alternative standards set pursuant to the regulation.

Part I.A.8.a., b, and c of the Draft Permit require Mirant Canal to submit reports or other information required by the new § 316(b) regulations. Part I.A.8.a requires the Company to submit, as expeditiously as practicable but not later than October 7, 2006, a Proposal for Information Collection ("PIC") required by 40 C.F.R. § 125.95(b)(1) of the § 316(b). The PIC must include a description of the information that will be used to support the Comprehensive Demonstration Study ("CDS") required by 40 C.F.R. § 125.95. Part I.A.8.b of the Draft Permit requires Mirant Canal to submit the CDS as expeditiously as practicable, but not later than

January 7, 2008. Part I.A.8.c of the Draft Permit requires the Company to submit not later than January 7, 2008 the information required by 40 C.F.R. §§ 122.21(r)(2), (3), and (5).

Mirant Canal agrees that these reports are required by the § 316(b) regulations, and the Company already has begun work on those reports. The Draft Permit does not stop with those requirements, however. Instead, in Parts I.A.9, 10,11,12,13, and 14, it continues, imposing a host of additional monitoring and reporting requirements, as well as extensive structural changes to the existing cooling water intake structures. These include:

- Extensive biological studies of the occurrence and abundance of entrained fish
- Extensive biological studies of the occurrence and abundance of impinged fish
- Annual submission of a biological monitoring report
- Development of a Marine Mammals Monitoring Program and Response Protocol
- Broad provisions for inspections and reporting related to "discharge-related" mortality
- Provisions for reporting of unusual impingement events
- A requirement that the Station remove sediment build-up on the Unit 2 intake sill within six (6) weeks after the effective date of the permit, and continue to do so periodically
- Requirements to retrofit the cooling water intake structure by
    - equipping the screens with fish holding buckets
    - installing and operating a low pressure spray wash
    - relocating the cooling water chlorine injection from in front of the intake screens to a point at which impinged organisms will not be exposed to chlorine prior to and during impingement
    - substantially reconfiguring the fish return system
- A requirement that, after completion of the reconfigured fish return system, Canal Station operate all screens continuously when the corresponding intake pumps are in operation.

These requirements far exceed EPA's regulatory authority under the Phase II Rules, circumventing the step-wise process EPA put in place to ensure that permittees have an opportunity to select compliance alternatives and design "technology installation and operation plans" ("TIOPs") that will comply with the applicable performance standards. For the reasons discussed in the following sections, Mirant Canal believes that imposition of § 316(b)-related requirements beyond those in Part I.A.8 are neither legally justified nor warranted as a practical or environmental matter. Imposing such requirements, when they are or may prove to be inconsistent with the results of the PIC/CDS process would be arbitrary and capricious, especially given the fairly short period of time involved until those reports are complete.

B. EPA's Proposal to Require Structural Changes to the CWIS as Well as Extensive Biological Monitoring Based on Its "Best Professional Judgment" Circumvents the Phase II Rule, Which Anticipates that the Permittee Will Have an Opportunity to Evaluate and Select From Among Five Compliance Options and Develop a Plan For Implementing the Selected Option

1. Overview of the Phase II Rule

EPA's final Phase II Rule sets national performance standards for reduction of impingement mortality and, for some plants, entrainment. 40 C.F.R. § 125.94(b), 69 Fed. Reg.

41,686. The impingement standards apply to all existing power plants subject to the Phase II Rule. The entrainment standards apply only to power plants that: (1) have a capacity utilization rate of 15% or greater, and (2) withdraw water from either (a) a tidal river, estuary, ocean, or the Great Lakes, or (b) withdraw more than 5% of the mean annual flow of a freshwater river or stream.

The performance standards require a reduction compared to a "calculation baseline" of (1) between 80-95% in impingement mortality, and (2) between 60-90% in entrainment. The "calculation baseline" reflects the amount of impingement mortality and entrainment that would occur at the site if the facility had a shoreline intake structure, flush with the surface, with 3/8 inch mesh traveling screens, and no fish protection of any kind.

The Rule specifically provides that permittees will have substantial flexibility to evaluate and choose among five compliance options for achieving these performance standards. 40 C.F.R. § 125.94(a), 69 Fed. Reg. 42,685. For Canal Station, the most relevant options may include:

> (b) installing, and properly operating and maintaining other design and construction technologies, operational measures, or restoration measures that will achieve the applicable performance standards (§ 125.94(a)(3)); and
> (d) demonstrating that a less stringent alternative performance standard is necessary because the cost of achieving the performance standard at the site exceeds either the cost EPA considered for the site during the rulemaking or the benefits of achieving the standard(s) at the site (§ 125.94(a)(5)).

The Phase II Rule contemplates that permittees will have an opportunity to evaluate their compliance options and demonstrate compliance using the most cost-effective option or options. 69 Fed Reg. 41,576, 41,583 (July 9, 2004). The Rule also requires collection and submission of certain types of data and information, which vary depending on the option selected. For example, permittees who wish to demonstrate compliance using restoration must show that they meet certain pre-requisites (*i.e.*, that technology alternatives or operational measures are less feasible, less cost-effective, or less environmentally desirable) and must prepare a Restoration Plan. 40 C.F.R. § 125.95(b)(5), 69 Fed. Reg. 41,689 (July 9, 2004). Permittees who wish to request alternate, site-specific limits must submit a Comprehensive Cost Evaluation Study, a Site-specific Technology Plan, and, if alternate limits are based on the cost-benefit test, a Benefit Valuation Study. 40 C.F.R. § 125.95(b)(6), 69 Fed. Reg. 41,690 (July 9, 2004). In short, an opportunity to select among performance options must precede and inform data collection efforts required by the Phase II Rule.

The Phase II Rule also anticipates that, for certain compliance options, including options based on design and construction technologies, the permittee will develop a TIOP tailored to the option or options it has chosen. 40 C.F.R.§ 125.95(b)(4)(ii), 69 Fed. Reg. 41,689 (July 9, 2004). The permittee is entitled to request that compliance with the performance standards be assessed based on whether it has complied with its TIOP, rather than using the performance standards themselves as a direct measure of compliance. 40 C.F.R. § 125.94(d), 69 Fed. Reg. 41,686 (July 9, 2004).

By the same token, the Phase II Rule contemplates that permittees will have responsibility -- and flexibility -- in designing and collecting data necessary to evaluate and select among compliance options. The Rule specifically allows permittees to use existing data, so long as the data are representative of current conditions and were collected using appropriate quality assurance/quality control procedures. *See* 40 C.F.R. §§ 125.95(b)(1)(ii), (b)(3)(iii), 69 Fed. Reg. 41687-88. New sampling may be required only if necessary to develop a scientifically valid estimate of impingement mortality and entrainment at the site. 40 C.F.R. §125.95(b)(1)(iv).

2. EPA's Proposed Requirements for the Canal Station are Inconsistent with the Phase II Rule

Mirant Canal has not had an opportunity to evaluate compliance options under the Phase II Rule. Instead, EPA proposes to establish new "BPJ" requirements. This is the case even though EPA, exercising its best professional judgment, has issued several previous permits finding that the existing cooling water intake structure reflects the "best technology available." Indeed, Part A.1.g of the current permit, issued in 1989, provides:

> It has been determined that the circulating water intake structure employs the best technology available for minimizing adverse environmental impact. . . . The present design will be reviewed for conformity to regulations pursuant to Section 316(b) when such are promulgated.

Before that, in 1983 EPA evaluated intake structure effects and, after reviewing a 1978 report on intake effects entitled "Final Report on Fish Entrapment, Canal Units 1 & 2 Intake Screens" (Hall and Morrow 1978), and subsequent letters confirming that impingement values had remained within the expected range, agreed that "fish entrapment at the station was minimal." 1983 Draft Permit Fact Sheet, Part. IV.c, p. 4. In 1988, the Agency undertook a follow-up review, evaluating more recent information on impingement effects. The Fact Sheet concluded that "the installation of chutes to transport impinged fish back into Cape Cod Canal water greatly improved the survival of impinged fish. Studies during the past few years show that the numbers of fish observed on the intake screens has remained within the range expected based on the previous studies. Finfish entrapment still appears to be minimal at the station." Fact Sheet, 1988 Draft NPDES Permit MA0004928, Part IV.c, p.4.

The updated § 316(b) study submitted as part of the Canal Station's NPDES Permit Renewal Application compared more recent data collected in 1999 and 2000 with the 1978 study. It found that the new data confirm Hall and Morrow's finding that "impingement losses at Canal were generally among the lowest for any large-volume once through cooling power plant in the Northeast. Exceptions were episodic, and related to malfunction of the isolated chlorine dosage system in June, 1999 and episodes of impingement of juvenile clupeids in November and December, 1999." Evaluation of Cooling Water Intake Impacts on Aquatic Life and Potential Technologies to Reduce Impacts, p.7.

EPA nevertheless implies that it is obliged to require technology changes before the appropriate Phase II studies have been completed because "[t]he impingement data collected by

the permittee documents adverse impacts to large numbers of fish and invertebrates from the Cape Cod Canal due to the Canal Station's two CWIS." At no point does EPA explain what criterion or standard it used to arrive at the conclusion that the number of organisms currently impinged is large enough to justify imposition of these requirements. Facility operation has not changed appreciably over the past 30 years, and there is no evidence that levels of impingement mortality and entrainment have changed over that period, except perhaps as would be expected due to naturally occurring variability. Yet EPA's previous "best professional judgment" has led it to conclude consistently that the existing intake at the Canal Station is "BTA." The Agency offers no legitimate rationale for any change in that judgment at this time, nor is there one.

In the absence of any legitimate justification, EPA's proposal to impose new technology requirements based on a conceptual-level evaluation of technology alternatives submitted before Mirant Canal has had an opportunity to evaluate and select among its compliance options pursuant to the Phase II Rule is inconsistent with both the letter and the spirit of the Phase II Rule. It clearly is not based on Mirant Canal's selection of a compliance option under the Phase II Rule and resulting proposal for assuring compliance with performance standards using that option.

3. EPA's View of Its BPJ Authority Is Too Broad

Section 125.95(a)(2)(ii) of the Phase II rule provides that, between the time a permit expires and the time an NPDES permit containing requirements consistent with the Phase II rule is issued, permit writers will continue to determine BTA requirements on a BPJ basis. 69 Fed. Reg. 41,687 (July 9, 2004). EPA apparently views this provision as giving it *carte blanche* to impose any new § 316(b) requirements it chooses, even if they are potentially inconsistent with the conclusions the permittee might reach once its studies have been completed, so long as they can be justified by the permit writers' "best professional judgment." Such an interpretation would undercut one of EPA's stated purposes in developing the Phase II Rule, which was to bring some measure of consistency to the § 316(b) determination process. 67 Fed. Reg. 17,121, 17,124 (April 9, 2003).

That view also would be inconsistent with prevailing case law, which requires that permit writers set BPJ requirements as close as possible to what they can discern the national technology-based standards for the industry as a whole would require. In issuing permits on a case-by-case basis using its "Best Professional Judgment," EPA does not have unlimited discretion in establishing permit effluent limitations. The authority to make this determination comes from CWA § 402(a)(1), which allows EPA to issue permits containing conditions "necessary to carry out the provisions of this chapter" prior to the agency promulgating the implementing regulations required by the CWA. 33 U.S.C. § 1342(a)(1); *see* EPA, NPDES Permit Writers' Manual at 68, EPA-833-B-96-003 (1996). Therefore, BPJ is supposed to be the permit writer's "highest quality technical opinion" of the permit conditions required by the CWA, taking into account "all reasonably available and pertinent data and information." NPDES Permit Writers' Manual at 68.

EPA's own regulations implementing § 402(a)(1) with respect to effluent limitations guidelines enumerate the statutory factors that must be considered in writing permits. *See* 40 C.F.R. § 125.3(c), (d) (1987). See also 51 Fed. Reg. at 24915 ("In developing the BPJ permit

conditions, [the EPA] Regions are required to consider a number of factors, enumerated in [33 U.S.C. § 1314 (b)]. . ."). In addition, courts reviewing permits issued on a BPJ basis hold EPA to the same factors that must be considered in establishing the national effluent limitations. *See, e.g., Trustees for Alaska v. EPA*, 749 F.2d 549, 553 (9th Cir. 1984) (EPA must consider statutorily enumerated factors in its BPJ determination of effluent limitations); *API*, 787 F.2d at 972, 976 (applying statutory factors in reviewing effluent imitations in a BPJ permit); *NRDC v. EPA*, 863 F. 2d 1420, 1425 (9th Cir. 1988); *Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928 (5th Cir. 1998) ("Individual [BPJ] judgments thus take the place of uniform national guidelines, but the technology-based standard remains the same"); *NRDC v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988) (When issuing permits according to its BPJ, EPA is required to adhere to the technology-based standards set out in § 1311(b)). In this instance, the best evidence of what the national standards for the industry as a whole would require are reflected in the Phase II Rule, the specifics of which are yet to be implemented.

It is not enough for EPA to say that Mirant Canal will have an opportunity to evaluate its compliance options under the Phase II Rule during subsequent permit renewals. Obviously, once Mirant Canal has invested in a CWIS technology, that investment is a sunk cost that cannot be recouped. If the requirements imposed are different than the Rule requires, then even if the permit requirements can be altered, that would provide no remedy with respect to the initial capital costs. Indeed, because the Draft Permit requires Mirant Canal to present a PIC and CDS for compliance with both the impingement mortality and entrainment standards, there is no guarantee that those studies will not identify technologies just as stringent as, but inconsistent with, the "BPJ" technology EPA has identified. Of course, it is entirely possible that, after the more detailed analysis of options contemplated by the Phase II Rule, including more detailed engineering review of the structural and operational changes the Draft Permit proposes, Mirant Canal may conclude that some or all of the elements EPA proposes to require would form part of the most cost-effective compliance option. Were EPA to require structural changes at Canal Station before the study proceeds, however, those required changes inevitably will shape, if not dictate, any subsequent evaluation of other alternatives, since any analysis of alternatives must consider what already is in place. In short, if EPA were to go forward with permit requirements that preclude Mirant Canal from completing its evaluation of compliance alternatives at the most logical time, it will have in effect foreclosed any truly meaningful consideration of those options.

EPA's proposal to require Canal Station to undertake substantial impingement mortality and entrainment monitoring *for the life of the permit* also exceeds the Agency's authority under the Phase II Rule, and will serve no legitimate purpose. That monitoring, which experts consulted by Mirant Canal have estimated will cost between $125,000 and $180,000 *annually*, goes far beyond anything needed to provide a scientifically valid estimate of impingement mortality and entrainment at the facility, which is all that the rule requires. Moreover, as noted above, the Phase II Rule expressly allows permittees to use existing data.

In this case, Mirant Canal already has developed substantial biological data and other information of the type required by the Phase II Rule, such as characterization of species and life stages in the vicinity of the CWIS, and impingement mortality and entrainment data sufficient to evaluate inter-annual variability. *See* 40 C.F.R. § 125.95(b), 69 Fed. Reg. 41,687-89. Mirant Canal also has evaluated a number of technology options, although it has not had an opportunity

to do detailed site-level engineering of any alternative, nor has it had an opportunity to evaluate some of the compliance options available under the rule (such as restoration or alternative performance standards) or to develop a TIOP. In fact, Mirant Canal believes that it has collected and submitted much of the biological information it would need to satisfy the basic requirements of the Phase II Rule. Mirant Canal recognizes that it is important to synthesize that information in a format that corresponds to the Phase II Rule's requirements. Mirant Canal might also need to collect some additional information, should it decide to pursue the compliance option authorized under § 125.94(a)(5) of the Phase II Rule, or to incorporate restoration in its compliance plan as authorized by § 125.94(a)(3). Unless it does so, however, Mirant Canal submits that it has done all that the Rule requires for characterizing entrainment and impingement mortality at the site. EPA's additional requirements are simply unauthorized.

EPA implies it must move forward with new and more stringent BPJ requirements for the CWIS because working through all the potential Phase II issues could be a difficult, time-consuming process. Fact Sheet, pp.26-27 This simply is not the case. Although Mirant Canal does not contend that its submissions fully satisfy the Phase II Rule and agrees that some limited data collection could be needed, Mirant does not agree that the process is likely to be so difficult or time-consuming as to justify the approach EPA proposes. Indeed, the schedule EPA has included in the Draft Permit would not allow it. Even if EPA were to issue the permit immediately, and the Canal Station were to immediately begin collecting the data EPA proposes (which is not possible, given the start-up time needed to arrange for sampling), it would have only seven months of additional data to use for purposes of developing the PIC, and only, as a practical matter, a few months more to use in crafting the CDS. In short, this extensive data collection effort is little more than arbitrary make-work.

Nothing in the Phase II Rule or in the information submitted to date dictates that EPA must impose new BPJ requirements at this time if it would be more appropriate to allow adequate time for further information development. Rather, it would be far more reasonable in this situation for EPA to carry over the existing BPJ provisions and to establish, as it also proposes in the Draft Permit, a reasonable schedule under which Mirant Canal will promptly complete the § 316(b) evaluation and application process contemplated by the Phase II Rule. Moreover, none of the other reasons that EPA gives for moving forward with more stringent requirements are adequate to justify going forward, especially when weighed against the hardship and unfairness to Mirant Canal of going forward without an adequate opportunity for option selection.

C. Concerns Regarding EPA's Specific BTA and Related Requirements for the CWIS

Having concluded, without any meaningful substantive analysis, that current levels of impingement mortality and entrainment are of concern, EPA goes on to evaluate alternative cooling water intake structure technologies for application at Canal Station, and to propose a host of new structural, operating, and monitoring requirements as "BTA" for the Canal Station. Besides being unnecessary and *ultra vires* for the reasons discussed above, the requirements EPA proposes raise a variety of other technical and legal issues detailed below. For ease of reference, we address them in the order in which they appear in the Draft Permit.

1. Biological Monitoring

For the reasons discussed above in Section IX.3, Mirant Canal objects to the requirements for conducting impingement mortality and entrainment monitoring beginning thirty days after the effective date of the permit and continuing thereafter for the life of the permit. This requirement is wholly unwarranted, is not authorized by the Phase II Rule, and is, to the best of our knowledge, wholly unprecedented.

Whatever EPA's theory is for requiring this monitoring, it cannot prevail where it conflicts directly with the provisions of the Phase II Rule, as is the case here. The Rule specifically provides that *permittees* are to be responsible for proposing any sampling programs necessary to establish the calculation baseline and for developing a proposed verification monitoring program designed to confirm that the technology installed is achieving the compliance standards. EPA's biological monitoring requirements are neither authorized by the Rule nor necessarily adapted to the Canal Station's compliance obligations.

Even if EPA were entitled to usurp the permittee's role under the Rule (which we submit it is not), the proposed monitoring requirements could not be justified. For example, the entrainment monitoring requirements are in no way related to assessing the performance of the technologies EPA proposes to require, all of which are designed to reduce impingement mortality rather than entrainment. Equally important, such extensive sampling seems inconsistent with EPA's desire to ensure that living impinged organisms are returned safely to the waterbody. In the absence of any information suggesting that current data are not adequate for this purpose, requiring the facility to collect and identify impinged organisms necessarily will cause additional, unnecessary mortality.

2. Marine Mammals Monitoring Program and Response Protocol

In developing the Draft Permit, EPA evaluated the potential for Mirant's discharge to have adverse effects on endangered species found in the area and determined, correctly, that there will be no significant adverse environmental impact to the endangered species that migrate through or inhabit areas in the vicinity of the Station. Fact Sheet, p. 58. The ability of the organisms of concern to swim away from the intakes and the submerged outfall, along with the rapid flows in the Cape Cod Canal, combine to eliminate any serious concerns. Indeed, the last recorded observation of a marine turtle in the vicinity of the intakes occurred almost 30 years ago, in 1977. Mirant Canal has never recorded an instance of a marine turtle or marine mammal being affected by its operations.

Nevertheless, in Part I.A.10 of the Draft Permit, EPA proposes to require Mirant Canal to submit and to implement a "Marine Mammals Monitoring Program and Response Protocol," under which the permittee would be obligated to report any sightings of marine mammals (whether or not they are listed as endangered species) in the vicinity of the Station. It is not clear what else might be required but the term "monitoring program and response protocol" suggests more than just reporting observations.

There is, however, no basis in EPA's or DEP's permitting authority under the federal Clean Water Act or the Massachusetts Clean Waters Act or their implementing regulations, or

under the federal or state endangered species statutes, for the imposition of this reporting requirement, particularly given EPA's correct determination that the discharge will not have a significant impact on the species of concern. This provision should be entirely removed. Also, if it is retained despite that comment, it should be refined to specify just what "vicinity" of the Station is subject to observation by the Station personnel, and the label of the requirement should be changed to "Marine Mammal Reporting" to remove any uncertainty over its scope.

3. Discharge Related Mortality Inspection and Reporting

Part I.A.11 at pp. 12-13 of the Draft Permit proposes to require Mirant Canal to conduct inspections of "shoreline areas" adjacent to the discharge canal (Outfall 001), once per operating shift, for "any sign" of environmental stress and/or fish mortality throughout the year and for the duration of the permit. A fish would be considered "dead" not only if it actually was dead, but if it has exhibited a "loss of equilibrium." If more than 25 "dead" fish were observed within any 24-hour period, Mirant Canal would be required, among other things, to notify EPA New England and DEP, apparently to collect all dead fish; to record data about the collected fish; to collect scale samples for the Massachusetts Division of Marine Fisheries; and to suspend all unit chlorination operations.

There is no basis for this proposed requirement. There simply is no warrant for imposing a separate requirement for Mirant Canal to conduct thrice-daily, year round inspections in the Cape Cod Canal for impacts related to the discharge.

Specifically, there is no reason to expect fish kills from the plant's unit chlorination operations, which operate only intermittently during a day, have existed for decades without having that effect, and are limited to levels of total residual chlorine well below any expected impact on fish. Nor is there any reason to expect fish kills from the thermal component of the discharge. History does not show any such impact, and the Agencies have not shown that there is any lethality from the expected discharge, which will be limited to the same 107° F as in the current permit and involves discharges to a very high flow waterbody.

This proposal is particularly troubling because there is no evidence that the plant's discharge has been or would be responsible for any fish kills. It is very likely that any dead fish identified under this program would clearly be related to some cause other than the plant's operations, such as commercial or recreational fishermen operating from the nearby marina. Yet under the proposed provision, even if the fish were observed to have drifted into the inspection area from upstream, the proposed requirements would take effect and Mirant Canal would be required to collect the dead fish and conduct the required studies. Whatever that circumstance should be called, it cannot be justified as "discharge related mortality."

There is not a sufficient basis in the history of the Canal Station or any projection of its future for the Agencies to find that the Station's discharge is likely to cause fish kills. The requirement of Part I.A.11 should be removed from the final permit or revised to take account of these comments.

The other vague aspect of these requirements is the strange specification of the meaning of "dead fish." Mirant Canal proposes that a more biologically accurate (and "user-friendly")

definition of a dead fish is: "a fish that shows no body or opercular movement and that does not respond to gentle prodding."

Also, the clause "shoreline areas adjacent to the discharge canal" is not defined or easily identifiable. Mirant Canal assumes it means only areas on its side of the Cape Cod Canal, but it is unclear how far up and down the shoreline must be inspected.

Also, it is entirely unreasonable to require such inspections on each shift. It is not clear how this could meaningfully be done at night. And walking along the riprap which makes up the shoreline at this location is not safe excepting up on the top of the bank, particularly in winter or in other inclement weather, so it is not likely that dead fish in the fast-moving waters out over the diffuser would even be visible or collectible without arranging for a vessel. And for any observed fish, given the tidal surges and predation and scavenging, it is unlikely they will persist for long at any one place either in the Canal or along the banks.

This entire provision should be removed. If any similar provision is retained, at most it should provide that Mirant Canal shall observe the shoreline on the plant's side of the Cape Cod Canal to the extent visible from the walking path at the centerpoint of Outfall 001, once per operating day. If more than 25 dead fish are observed, Mirant Canal shall notify the Regional Administrator and the Commissioner within 24 hours as required by Part II of this Permit. When not in conflict with safety concerns or other company policies and procedures, the permittee shall make a reasonable attempt to collect a representative sample of the dead fish and hold them up to one week for review by DMF. Those fish identified as being washed off the traveling screens or dead fish floating from upstream shall be identified as such and placed in a separate category, along with the justification for making the determination.

Finally, the Draft Permit does not propose a definition of the potentially ambiguous term "fish." Mirant Canal assumes because these fish must be observable from a visual inspection that "fish" refers to free swimming, readily observable fish and not larvae or other life stages that cannot swim or that are not readily observable by a visual inspection.

4. Inspection and Reporting of Unusual Impingement Events

Although a similar condition was included in the previous permit, that condition was imposed before EPA had established the Phase II Rule. Now that EPA has established applicable requirements, Mirant Canal believes that this requirement should be deleted. To the extent EPA nevertheless retains this provision, it should confirm that the procedures Mirant Canal currently follows for assessment and reporting satisfy this requirement.

5. Structural and Operational Requirements

a. Removal of sediment from Unit 2 intake sill

Part I.A.9.d of the Draft Permit would require Mirant Canal, within six weeks of the effective date of the permit, to inspect and remove sediment build-up from the face of the Unit 2 intake sill to return the sill to its original design capability. Thereafter, Part. I.A.13.a requires the Station to remove sediment build-up "periodically."

EPA does appear to have considered how much effort this would entail or what kinds of permits, if any, would be required for dredging and disposal of dredged material. Although Mirant Canal has not had an adequate opportunity to determine the volume of sediment involved or determine whether permits would be required, it is highly likely that completing the required work pursuant to the proposed permit terms would be impossible. *See* Section XII. Moreover, depending on when the permit is issued, weather conditions may limit Mirant Canal's ability to conduct the required dredging. And, depending on the season, there may be little reason to remove sediment to reduce impingement, if impingeable organisms are not present at that time.

In any case, because this is part and parcel of the technology requirements EPA has developed on a "BPJ" basis, Mirant Canal asks that it be allowed to assess it as part of the PIC process, rather than having it included in the permit at this time.

b. Modifications to the screens and fish return, and requirement for continuous screen rotation

EPA proposes to require extensive changes to the intake screens and fish return, including:

(1) retrofitting fish buckets to the current screens;
(2) requiring continuous rotation of the screens;
(3) installing a low pressure spray wash system which will (a) ensure that fish are never exposed to high pressure spray and (b) separate fish from debris, except for seaweed; and
(4) retrofitting a bi-directional fish return, which will ensure that fish are returned to the Cape Cod Canal with no vertical drop and are transported away from the intake structures on the tide.

The Fact Sheet suggests that EPA has incorrectly assumed that all of these changes to the existing intake structure are (1) technically feasible, (2) the most cost-effective means of reducing impingement and increasing survival of impinged fish, and (3) will be reasonably inexpensive. One or more of these assumptions is in error for each of these proposed requirements, however.

Moreover, to the extent EPA suggests it has based its conclusions on the Evaluation of Fish Protection Alternatives for the Canal Generating Station ("Alden Report") prepared by Alden Research Laboratory, Inc. ("Alden") and submitted by Mirant Canal with its 2003 Supplement to the Permit Renewal Application, we believe that EPA has overlooked critical caveats and information provided in that report.

For example, as the Alden Report clearly stated with respect to the change in operation underlying all of the structural changes -- *i.e.*, switching to continuous rotation of the traveling screens -- making such a change would, in essence require replacement of the traveling screens themselves, because the existing screens lack the structural components necessary to withstand continuous rotation. *See* Alden Report, p. 3-3. As the Alden Report explains:

> One option to improve impingement survival would be to upgrade the existing screens for continuous operation. However, extensive upgrades of moving parts are required to maintain the traveling screens for continuous operation. The costs associated with the upgrades to operate continuously are not substantially lower than the costs of retrofitting with Ristroph screens. In addition, the added costs of Ristroph screens are usually balanced by the increase in fish survival. Therefore, continuously operated screens were not evaluated further.

Id.

In short, as Alden explained, it simply is not possible, as EPA has assumed, to tack on fish buckets, a low pressure spray system, and a reconfigured fish return to the current system without also replacing many other significant structural components. To explain why, Alden Laboratory has prepared a brief report, which is Attachment A to these comments. Because extensive structural changes would be required both to facilitate continuous rotation and, as the report explains, to accommodate reconfiguration of the fish return, the true capital cost of the retrofits EPA proposes is not the cost of the individual components, as EPA assumed. Instead, the true cost is more likely to approach or exceed the $2.4 million (plus $267,000 in operating and maintenance costs) associated with retrofitting coarse mesh Ristroph screens that EPA determined it could not reasonably require. *See* Alden Report, Tables 5-4 and 5-5, pp. 5-6 to 5-7; Fact Sheet, p. 43.

In Attachment A, Alden also explains why it is neither technically feasible nor environmentally desirable to require separation of fish from debris, and why it is not possible to guarantee that impinged fish that are not removed by the low pressure spray will not be carried over to the back side of the screen well, where they will be exposed to the high pressure wash.

With respect to the fish return requirements, Attachment A also explains why prohibiting a vertical drop from the fish return is not necessarily environmentally desirable.

Equally important, by exercising its BPJ to select technologies now, EPA is effectively foreclosing Mirant Canal from considering new and potentially more effective screening technologies, such as Geiger screens, which are even now being tested at Mirant Mid-Atlantic's Potomac River plant in Virginia. For a description of Geiger technology, see http://www.geiger-international.de/pdf/kettenumlauf_e.pdf; *see also* http://www.geiger-international.de/pages/prod_en/5_0_fishprotection.html. This study involving a collaboration between EPRI and Mirant Mid-Atlantic had not been commenced when Alden prepared its 2003 report. The preliminary results to date of the Geiger screen configuration (which, among other features, does not carry over to the condenser side), suggest that it may be highly effective in reducing impingement mortality for some species and life stages in an environment and under operating circumstances that appear fairly similar to the Canal Station's. Of course, the study would need to be completed and further analysis would need to be done before any conclusions could be drawn about the potential applicability of that technology to the Canal Station. Nevertheless, the technology appears to hold great promise. By requiring Mirant Canal to move forward with major intake structure modifications based on EPA's "BPJ" assessment, the

Agency would wholly foreclose any potential for application of this technology, the incremental costs of which could not be justified.

c. Moving chlorine injection point

Part I.A.13.d would require Mirant Canal to move the chlorine injection point to a point behind the screens, so as to avoid exposing impinged organisms to chlorinated water. Mirant Canal is concerned that this provision, in addition to being costly, interfere with operation of the facility and compromise reliability by preventing adequate treatment of the circulating water pump house structure. Thus, we do not believe that this change should be required, subject to further study during the CDS.

D. EPA's Evaluation of Other CWIS Technologies and Close-cycle Cooling

For the reasons discussed above, the existence of the final Phase II Rule makes the alternatives analysis the Agency undertook unnecessary. Assuming for the sake of argument, however, that that were not the case, following are Mirant Canal's comments on EPA's alternatives analysis.

We note at the outset that we agree with EPA that, based on the information available at this time, none of the technology alternatives EPA rejected would qualify as "BTA," nor would EPA have had any reasonable justification for requiring them.

We also note that for none of these technologies had Mirant Canal performed the kind of detailed engineering, biological, and cost assessment necessary to select among options for purposes of the Phase II Rule, or to determine whether an alternative performance standard is appropriate for this site. Indeed, for many technologies that might be considered, pilot testing could prove necessary to adequately assess performance in this environment.

With respect to EPA's assessment of specific technologies, we have the following comments.

1. Retrofit Intake with Submerged, Cylindrical Wedge Wire Screens

Based on information provided by the Army Corps of Engineers (Corps), EPA concludes:

> EPA does not at this time designate this as BTA for Canal Station's NPDES. However, if the engineering issues were resolved, and depending on the results of further evaluation of the entrainment and impingement impact reduction benefits of the technology, EPA believes that permit limits based on the installation of Alternative 2 [cylindrical wedge wire screens] might be able to satisfy CWA § 316(b)'s BTA requirements and that this Alternative should continue to be considered in future analyses as a potential means of compliance.

Fact Sheet, p. 43.

This statement suggests that EPA believes the serious navigation, ice damage, dredging, and noise issues presented by this alternative can somehow be resolved, and tends to minimize the concerns expressed by the Corps, whose permitting authority over navigable waters gives it an absolute veto over projects of this kind. Although Mirant Canal would not wholly foreclose further analysis of this alternative, it does not believe that these issues can be treated so casually.

2. Install Coarse Mesh Ristroph Screens

EPA similarly rules out coarse mesh Ristroph screens since they do not reduce entrainment and will cost $2.4 million. As we note above, Mirant Canal agrees that this cost is excessive for this site. We also note above, however, that the requirements EPA has proposed are likely to cost at least as much, if not more.

3. Retrofit Plant with Closed-cycle Cooling System

With respect to EPA's analysis of the potential applicability of wet recirculating cooling at the Canal Station, Mirant Canal disagrees with EPA's statement that this alternative "remains open" as a potential means of compliance. Fact Sheet, p. 44. At a projected cost of $122.2 million, even without detailed cost-benefit analysis, the cost of this option is self-evidently "significantly greater" than the benefits and could not be justified under the Phase II Rule. Equally important, this option raises a number of environmental concerns, including creation of a fog bank in the area of the plant (and associated road hazards to navigation), noise impacts, aesthetics, creation of drift and solid waste, and others. Mirant Canal also notes that EPA specifically concluded, as part of its Phase II rulemaking, that retrofitting re-circulating cooling should not be used as the basis for setting BTA performance standards.

We note also that EPA says with respect to this alternative that "[a]nother option that could be considered would be to provide closed-cycle cooling for some, but not all, of the plant's cooling needs." In addition to the objections noted above, which apply equally to this option, it would diminish potential entrainment and impingement benefits while not necessarily reducing the costs.

E. Other Cooling Water Intake Structure Requirements

1. Requirement for Return of Live Organisms and Provisions for Return of Debris

If EPA, over Mirant Canal's serious objections, proceeds with its proposal requiring the Canal Station to make numerous structural and other changes to the CWIS, the Agency should recognize that those requirements make this provision wholly superfluous. Thus, it should be deleted. If, as Mirant Canal requests, EPA deletes those provisions, Mirant Canal has no objection to this provision.

F. Massachusetts' Authority to Impose More Stringent Requirements for CWIS

At pp. 28-29 of the Fact Sheet, EPA explains state Water Quality Standards also may apply to the development of permit conditions for cooling water intake structures. It goes on to

say that "[I]n this case, Massachusetts Water Quality Standards apply and the Commonwealth has in the past confirmed that its Water Quality Standards, as well as other state law requirements, do, in fact, apply to regulating the adverse environmental effects of cooling water intake structures. Thus, the Draft Permit's limits under CWA § 316(b) must also be sufficiently stringent not to cause or contribute to a violation of Massachusetts Water Quality Standards, including designated uses and narrative criteria." *Id.* p. 28.

Mirant Canal does not believe that Massachusetts DEP has any applicable laws that govern the Canal Station CWIS. Thus, DEP has no law to apply to the CWIS via § 401 certification. Even if that were not the case, however, that is not the end of the inquiry. Even if Massachusetts could show that its water quality standards law, for example, could be interpreted so broadly as to give it authority to regulate CWIS (as EPA implies), the Commonwealth also must show that it has an applicable standard, that that standard applies to the CWIS, and that the technology requirements are insufficient to assure attainment of the standard. *See* § 125.94(f), 69 Fed. Reg. 41,687; *compare* 40 C.F.R. § 122.44(d)(1)(vi). Mirant Canal submits that no such standard exists, nor could such a showing be made, even if EPA were not to require the intake structure modifications it has proposed.

EPA also suggests in its discussion of this issue that the United States Supreme Court, in its decision in *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology,* 511 U.S. 700, 711-12 (2000), has construed § 401 of the CWA so as to create state regulatory authorities that far exceed EPA's authority to impose under the Clean Water Act itself. This is not the case. Although § 401(d) may indeed, as the Court held, be read to authorize additional conditions or limitations on the activity to the extent the activity is subject to regulation by the federal agency in question, that is not the case where the federal agency's jurisdiction is itself limited to the discharge.

Finally, Part I.A.15.a of the Draft Permit provides generally that "Discharges and water withdrawals" shall not impair any Class SB use of the Canal and shall not violate any applicable narrative criteria from the state water quality standards, etc. Mirant Canal does not object to Part I.A.15.a to the extent that it concerns discharges. However, for the reasons discussed above, EPA and DEP do not have authority to regulate Mirant Canal's water withdrawals under the Mass. Water Quality Standards because those standards do not contain any standards applicable to water withdrawals.

X. Easement Issues

Several proposed changes to the existing permit either directly (new fish return lines) or indirectly (likely need to replace the traveling screen systems) may require Mirant Canal to seek additional or modified easements from the U.S. Army Corps of Engineers. At present, the Canal Station has the benefit of extensive easements granted at various times by the Corps or its predecessors to authorize the initial construction and subsequent expansion of a generating station on land now held in fee by the Corps of Engineers along and in the Cape Cod Canal. Typically those easements restrict Mirant Canal's facilities to facilities shown on specific plans developed in connection with the grant of the various easements and their amendments. Accordingly, installation of new facilities such as the fish return systems, which depending on the design, may extend beyond any existing easements, and modifications to facilities shown on

existing easement plans, may require the Corps to grant additional easements or agree to modify existing easements.

The Canal Station also is subject to or the beneficiary of a variety of additional easements from or to railroad companies, electric companies, and others associated with rail lines, electric transmission lines, natural gas pipelines, and other facilities concomitant with the operation of a major generating station. Depending on the final designs of any additional modifications required in order to comply with the final permit, modifications or additions to some of easements also may be required. There can be no guarantee that Mirant Canal would be successful in obtaining such easements within any particular time or at all.

Accordingly, the final permit should not contain any deadlines or effective dates (a) for installations of such modifications, or (b) for compliance with permit conditions that can be met only through obtaining all necessary easements and making the installations operational, without taking account of the time required to obtain those easements. Alternatively, the final permit should abjure deadlines while placing an obligation on Mirant Canal periodically to report on its progress.

XI. Supplemental Permitting and Time of Year Restrictions

Several proposed changes to the existing permit either directly (*e.g.*, new fish return lines) or indirectly (e.g., likely need to replace the entire traveling screen systems and their housings; likely need to install additional wastewater lagoon) would require Mirant Canal to seek and obtain supplemental permits from other federal, state, local or regional agencies before it could proceed with installation and operation of those improvements. There can be no guarantee that Mirant Canal would be successful in obtaining such permits within any particular time period or at all.

Also, some of the potential work may be subject to permit conditions on the appropriate time of year for conducting dredging or other permitted activities in waterways or wetlands. Those time of year restrictions also may affect when such work may be completed and become operational.

Accordingly, the final permit should not contain any deadlines or effective dates (a) for installations of such modifications, or (b) for compliance with permit conditions that can be met only through obtaining all necessary permits and making the installations operational, unless those deadlines or effective dates take appropriate account of the applicable, supplemental permitting requirements, including the real potential for appeals of those permits.

Alternatively, the final permit should abjure rigid deadlines while placing an obligation on Mirant Canal periodically to report on progress.

Specifically, at least the following supplemental permit proceedings may be necessary.

- Permits from U.S. Army Corps of Engineers for any structures affecting the Cape Cod Canal, which is a public waterway owned and controlled by the Corps. These permits under Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act may apply to the revised fish return system, and may also affect

modifications to the traveling screens and to the dredging of the build-up on the sill of the Unit Two intake.

- Water quality certificate and waterways license from Massachusetts DEP. A water quality certificate from DEP under Section 401 of the Clean Water Act, as well as a waterways license from DEP for any new structures or changed uses in the Cape Cod Canal, may be required with respect to any activities in the Canal or along its banks. These requirements affect at least the modified fish return system.

- Approval by the Cape Cod Commission of modifications to a Development of Regional Impact ("DRI"). Past improvements to the Canal Station have been reviewed by the Cape Cod Commission as DRIs. All of the exterior modifications to the Canal Station resulting from the final NPDES permit may be subject to the Commission's review, including any dredging and any activities in areas of wetlands resources or their buffer zones.

- Certificate of Appropriateness from the Old King's Highway Regional Historic District Commission. Canal Station lies within a historic district, and past changes to its visual appearance have involved review and approval by this commission. Alterations to the structures housing the traveling screens and the new fish return system, at least, may require this approval.

- Order of conditions from the Sandwich Conservation Commission. Any activities within wetland resource areas or their buffer zones in the vicinity of the Canal Station will require a determination of applicability or an order of conditions from the Sandwich Conservation Commission. The Commission's determinations are appealable by and to the DEP under DEP's Wetlands Regulations at 310 CMR 10, and are also appealable to Superior Court under the Town of Sandwich's Wetlands Bylaw. The requirements for the Commission's approvals apply to all of the modifications noted above, including a new lagoon, which most likely would be sited near the existing lagoons within the buffer zone to existing bordering vegetated wetlands near the Canal Station.

XII. Implementation Time for Design, Procurement, Fabrication, Installation, and Initial Operation

As discussed in the preceding comments, EPA proposes to require the Canal Station to implement a host of new monitoring requirements, as well as to make significant structural and operational changes. In many cases (as, for instance, with respect to the proposed requirements that the Station switch from grab sampling to sampling by recorder, or segregate chemical and non-chemical metal cleaning wastes from ash sluice water and boiler water), EPA has provided *no compliance period whatsoever.* In other cases, EPA has acknowledged the need for some compliance period (*e.g.*, providing six weeks from the effective date of the permit ("EDP") to remove sediment build up from the Unit 2 intake sill, beginning extensive biological sampling thirty days after EDP, and providing twelve to eighteen months from EDP to complete various major structural changes to the cooling water intake structure).

In addition to the timing issues identified in the comments in Sections IX and X regarding easements and supplemental permitting, the modifications to the Station directly or indirectly required by the Draft Permit also will involve significant time to prepare designs and specifications for bidding or other procurement, for negotiation and implementation of construction contracts, for fabrication of equipment, for installation, and for initial operations prior to acceptance of the work. It does not appear from the Fact Sheet that EPA has provided any consideration to those issues in developing the effective dates of the proposed requirements.

Accordingly, the final permit should not contain any deadlines or effective dates (a) for installations of such modifications, or (b) for compliance with permit conditions limitations that can be met only through obtaining all necessary permits and/or making the installations operational, unless those deadlines or effective dates take appropriate account of the time needed for design, procurement, fabrication, installation, and initial operation of such modifications.

Alternatively, the final permit should abjure rigid deadlines while placing an obligation on Mirant Canal periodically to report on progress.