Response to Public Comments for Mirant Canal Station

In accordance with the provisions of 40 C.F.R. § 124.17, this document presents the United States Environmental Protection Agency's ("EPA New England" or "EPA") and the Massachusetts Department of Environmental Protection's ("MassDEP" or "DEP") responses to comments received on Draft NPDES Permit (MA0004928), which authorizes discharges from, and cooling water intake to, the Canal Station Power Plant ("Canal Station" or the "Station"). The Canal Station is owned and operated by the Mirant Corporation (also referred to in this document as "Mirant Canal," "Mirant," the "Company," or the "Permittee"). The public comment period on the Draft Permit began on December 22, 2005 and ended on February 4, 2006. This time period included one extension of the comment period.

The following parties commented on the Draft Permit:

Mirant Canal
National Marine Fisheries Service (NOAA)
Massachusetts Division of Marine Fisheries
Massachusetts Coastal Zone Management
Massachusetts Riverways Program

EPA has organized the responses to comments in this document by subject matter. All comments presented in this document have been reproduced verbatim from each comment letter and have not been paraphrased.

After a review of the comments received, EPA and DEP have decided to reissue the permit to Canal Station. As a result of comments on the Draft Permit, the agencies have revised certain permit conditions, improved certain analyses and made certain clarifications. These improvements and changes are detailed in this document and reflected in the Final Permit. A summary of the changes made in the Final Permit is presented below. The analyses underlying these changes are explained in the responses to comments that follow.

This permit is being jointly issued by EPA and MassDEP pursuant to the federal Clean Water Act (CWA) and the Massachusetts Clean Waters Act, respectively. EPA will generally present responses to comments as EPA's; DEP's certification and joint issuance of the permit will establish that the Department agrees with EPA's response.

The most significant changes between the Draft and Final Permits involve revised entrainment [and impingement] reduction requirements under CWA § 316(b). These changes, however, are a logical outgrowth of the conditions in the Draft Permit and do not raise significant new issues warranting that the Region exercise its discretion to reopen the public comment period under 40 C.F.R. § 124.14(b). These changes and the reasons for them are discussed in detail in Chapter IX of this document.

Electronic copies of the Final Permit and these responses to public comments are available at EPA Region 1's web site at epa.gov/regiona01/npdes/mirantcanal/index.html. Copies of the Final Permit also may be obtained by writing or calling EPA's Industrial Permits Branch (CIP), Office of Ecosystem Protection, 1 Congress Street, Suite 1100, Boston, MA 02114-2023; Telephone: (617) 918-1995.

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Changed Permit Conditions

The following changes (shown in italics) have been made to the Final Permit in response to comments:

1. Part I.A.2. – "*once-through*" has been deleted from the outfall 001 description of non-contact condenser cooling water. See Sections III.E and IX.A.1 of this Response to Comments (RTC).
2. Part I.A.2. - footnote 1 has been supplemented with the following: "*This limit only applies to the extent that the Permittee utilizes once-through cooling water.*" See Sections III.E of this Response to Comments (RTC) document.
3. Part I.A.2. - measurement frequency of total residual oxidants has been changed from "*1 sample every 30 minutes during chlorination*" to "*1 sample per Unit during each chlorination event.*" See Section III.A.3 of this RTC.
4. Part I.A.2. - deleted *Footnote 2: " pH shall not be more than 0.2 units outside of natural range.*" See Section III.C.4 of this RTC.
5. Part I.A.2. - measurement frequency of pH has been changed from "*Continuous*" to "*Weekly*" and sample type has been changed from "*Recorder*" to "*Grab.*" See Section III.C.1 of this RTC.
6. Part I.A.2. - temperature limit of 107(°F) has been moved from the "*Maximum Daily*" column to the "*Instantaneous Maximum*" column. See Section III.D.2 of this RTC.
7. Part I.A.2.b. - added: "*If the daily sampling and applicator checks disclose any unresolved abnormality with the applicators or feed rates, all subsequent dosing of chlorine is prohibited until the abnormality is corrected.*" See Section III.A.3 of this RTC.
8. Part I.A.2.c. – ambient water temperature monitoring in the Cape Cod Canal is required once per week "*from July 1 through September 30*" See Section III.D.1 of this RTC.
9. Part I.A.2.e. - added: "*During the period beginning on the effective date and lasting through expiration, the permittee shall submit monthly **TRO Monitoring Reports** providing data for all samples collected and analyzed for the previous month.*" See Section III.A.3 of this RTC.
10. Added Part I.A.2.f., which specifies effluent monitoring requirements and limitations on cooling tower blowdown, pursuant to 40 C.F.R. 423, if the Permittee installs and operates cooling tower technology to meet the requirements of Part I.A.13.g of the Final Permit. See Sections III.E and IX.A.1 of this RTC.
11. Part I.A.3. - deleted *Footnote 1: " pH shall not be more than 0.2 units outside the naturally occurring range.*" See Section IV.A.1 and III.C.4 of this RTC.
12. Part I.A.3. - measurement frequency of pH has been changed from "C*ontinuous*" to "W*eekly*" and sample type has been changed from "R*ecorder*" to "*Grab.*" See Section IV.A.1 and III.C.1 of this RTC.
13. Part I.A.3.a. - "of" replaces "from" in the following requirement: "Temperature and pH shall be monitored at the Cape Cod Canal end of the outfall 002 discharge flume within two feet *of* the water surface." See Section IV.A.2 of this RTC.
14. Part I.A.3.a. - temperature and pH shall be monitored… "when condenser cooling water is discharging." See Section IV.A.2 of this RTC.
15. Added *Part I.A.3.d. - "The outfall 002 discharge flume shall provide sufficient water depth to return impinged organisms to the Cape Cod Canal with minimal stress.*" See Section IV.C.1 of this RTC.

16. Added *Part I.A.3.e. – "Upon completion of the upgrades to the fish return system as required by Part I.A.13.e. of this permit, the Permittee shall monitor and report average monthly and maximum daily flows for the discharges composed solely of intake screen washwater."* See Section IV.D of this RTC.
17. Part I.A.4. - deleted "*during emergencies only*" from the discharge description. See Section V.A of this RTC.
18. Removed Part I.A.4.a. - "*The permittee shall notify EPA and MA DEP within 24 hours by telephone after initiating discharge from this location. A written confirmation report shall be provided within five business days.*" See Section V.A of this RTC.
19. Part.I.A.5. - flow limits for outfall 011 and outfall 012 have been changed to "*Report*". See Sections VI.A.2 and VII.C of this RTC.
20. Part I.A.5. - added "*Total Mercury (mg/L) effluent limitations: Average Monthly - Report; Maximum Daily - Report; Measurement Frequency - Daily; Sample Type - Composite*" and deleted Part I.A.5.*c.* See Section VI.C.1 of this RTC.
21. Part I.A.5.c. - the requirement to submit annual certifications that "*all caustic used has no detectable levels of mercury*" has been replaced with the requirement for the Permittee to "*undertake reasonable best efforts to obtain and to use bulk caustic manufactured using a mercury-free process.*" See Section VI.C.1 of this RTC.
22. Deleted Part I.A.5.*d.* – the additional sampling requirements for boiler chemical cleaning. See Section VI.C.3 of this RTC.
23. Added Part I.A.5.d and Part I.A.6.b.: "The total average monthly combined flow from outfall locations 011 and 012 shall not exceed 0.32 MGD and the total maximum daily combined flow from outfall locations 011 and 012 shall not exceed 0.52 MGD." See Sections VI.A.2 and VII.C of this RTC.
24. Part I.A.6. - sampling frequency for Total Suspended Solids and Oil & Grease has been changed from "1X/Week" to "*Twice per Month.*" See Section VII.B of this RTC.
25. Part I.A.7. has been changed as follows: "During the period beginning on the effective date and *lasting through expiration*, the permittee shall submit *three* annual Heat Load Report*s* providing the following information:" See Section VIII.A of this RTC.
26. Part I.A.7.b. has been changed as follows:

    "Where Q = Heat Load, BTU/Hour

    C_p = Heat Capacity (Specific Heat) of water *with salinity of seawater = 0.94* BTU/pound°F

    m = mass of water (discharged) = flow rate x *density of seawater* = flow rate, gallons per hour (gph) x *8.55* pounds/gallon

    ΔT = discharge - intake temperature, °F ." See Section VIII.A of this RTC.
27. Part I.A.7.d. - "*for each Unit*" and "*Unit Number*" have been deleted from the spreadsheet example. See Section VIII.A of this RTC.
28. Part I.A.7.d. - footnote 2 has been changed to: "Temperature shall be measured *at the end of the discharge flume.*" See Section VIII.A of this RTC.
29. Part I.A.7.e. - the annual Heat Load report due date of "*January 31st*" has been changed to "*February 28th.*" See Section VIII.A of this RTC.
30. Added Part I.A.7.f. - "*The annual Heat Load Report is not required if a closed-cycle cooling system for both electrical generating Units 1 and 2 is in operation to achieve the standard specified in Part I.A.13.g of this permit.*" See Section VIII.A of this RTC.
31. Part I.A.8.a. and b. requirements of the Draft Permit, to submit a Proposal for Information Collection (PIC) and a Comprehensive Demonstration Study (CDS) respectively have been removed. See Section IX.B.2.5 of this RTC.

32. Part I.A.8.c. of the Draft Permit (now simply Part I.A.8) has been changed by removing the requirement for Cooling Water System Data (subject to Phase II suspension) and changing the date the other information is due to January 7, *2009*. [the January 7, 2009, deadline is a one year extension from the Draft Permit's deadline of January 7, 2008, due to the timing of the Final Permit's issuance] See Section IX.B.2.5 of this RTC.
33. Part I.A.10.b. has been changed to include "*sea turtles*." See Section IX.C.2 of this RTC.
34. Part I.A.9.d. – the deadline for completing the inspection and removal of sediment build-up on the face of the Unit 2 intake, "*Within six weeks of effective date of this permit*," has been removed. See Section IX.D.1 of this RTC.
35. Part I.A.11.a. has been changed to: "*From the paved walkway*, the permittee shall visually inspect the shoreline areas adjacent to the discharge canal (outfall 001) *to the limits of Mirant Canal's property* for any sign of environmental stress and/or fish mortality at least *once daily*, for the duration of the permit..." See Section IX.C.3.1 and Section IX.C.3.2 of this RTC.
36. Part I.A.11.b. has been changed as follows: "In the event of fish mortalities in the discharge or thermal plume, *the permittee shall make a reasonable attempt to collect a representative sample of the dead fish* from the receiving waters or from the shoreline within four hours after the fish mortalities have been observed *and hold them up to one week for review by the Division of Marine Fisheries Service*, while also complying with all the monitoring and reporting requirements in this permit." See Section IX.C.3.1.
37. Part I.A.11.c.i(1)(b), regarding the collection of scale samples, has been removed. See Section IX.C.5 of this RTC.
38. Part I.A.13.b. has been changed to: "The permittee shall *equip all traveling intake* screens with fish holding buckets ..." and the requirement to complete this work within 12 months has been removed. See Section IX.D.3 of this RTC.
39. Part I.A.13.c. has been changed to: "The permittee shall ensure that a low pressure (30 psi) screen spray wash is in operation as part of each screenwash system in a manner such that *most* organisms are not exposed to high pressure screen spray...." and the requirement to complete this work within 12 months has been removed. See Section IX.D.4 of this RTC.
40. Part I.A.13.d. - requirement to relocate chlorine injection points within 12 months has been replaced with: "*During chlorination, each screen shall: (1) be continuously rotated to reduce the amount of time impinged organisms are subjected to high levels of chlorine; and (2) either use an alternative water source that is not chlorinated for screen washing or dechlorinate the screen wash water.*" See Section IX.D.7 of this RTC.
41. Part I.A.13.e. - the requirement to complete the reconfiguration of the fish return system within 18 months has been removed. See Sections X.A, XI.A and XII.A of this RTC.
42. Part I.A.13.g. – the BTA-based requirements for entrainment reduction have been changed and Part I.A.13.h has been added as follows:

"*g. The design, location, construction and capacity of the permittee's CWIS shall reflect the best technology available (BTA) for minimizing the adverse environmental impacts of entrainment due to the CWIS. In order to satisfy this BTA standard, the permittee shall reduce current levels of entrainment of marine organisms through the facility's CWISs to an extent comparable to what would be achieved by the use of closed-cycle cooling for all electrical generating units, with the closed-cycle cooling system optimized to maximize cooling water intake flow reductions to the extent practicable in light of site-specific constraints (e.g.,*

restrictions on chloride discharges). The permittee shall fulfill this BTA requirement by either of the methods specified in paragraph 13.g.i or paragraph 13.g.ii below.

i. The permittee shall utilize a closed-cycle cooling system for electrical generating Units 1 and 2 to achieve the standard specified in paragraph 13.g above; or

ii. The permittee shall utilize another method of achieving the standard specified in paragraph 13.g above. In quantifying the entrainment reduction performance of a technological alternative to closed-cycle cooling, the percentage of entrainment reduction achieved shall be reduced by any increase in impingement mortality that results from use of the alternative method.

iii. If the permittee utilizes a method of entrainment reduction under paragraphs I.A.13.g.i - ii, above, that would achieve the same level of impingement mortality reduction as the steps required by paragraphs I.A.13.a - f, above, then the permittee may seek a permit modification to remove the unnecessary requirements.

h. If the permittee later concludes that the requirements specified above in paragraph 13.g do not ensure that the design, location, construction and capacity of the facility's CWIS will reflect the BTA for minimizing adverse environmental impacts, the permittee may request that EPA modify this permit under 40 C.F.R. § 122.62 to provide alternative BTA limits that will ensure that the requirements of Section 316(b) of the Clean Water Act, 33 U.S.C. § 1326(b), are satisfied in light of consideration of the factors specified in 40 C.F.R. § 125.3(d)(3) . EPA will process any requested permit modification consistent with applicable law, including 40 C.F.R. §§ 122.62 and 124.5. (See also Permit Condition II.A.4 ("Reopener").)"

See Section IX.A of this RTC.

The following changes have been made to the Final Permit as administrative edits and for clarification purposes:

1. The page numbers have been changed throughout the permit, as appropriate.
2. This permit shall become effective "*on the first day of the calendar month following 60 days after signature*" instead of "*60 days from the date of issuance.*"
3. This permit and the authorization to discharge expires "at midnight, five (5) years from *the last day of the month preceding* the effective date " instead of "at midnight, five (5) years from the effective date."
4. The Director of the EPA Office of Ecosystem Protection has been changed to "*Stephen S. Perkins*."
5. The acronym for the Massachusetts Department of Environmental Protection, "*MA DEP*" has been changed to "*MassDEP*" through out the permit.
6. Parts I.A.2, 3, 4, 5 and 6 - The sample type for flow has been changed from "Recorder: Pump capacity curve and operational hours" to "Recorder *or* Pump capacity curve and operational hours." See Section VI.B.1 of this RTC.
7. Part I.A.2. – the acronym WET for Whole Effluent Toxicity has been added to the effluent characteristic column because the acronym is used in Part I.A.2.d of the permit.
8. Parts I.A.2 and 3 - The sample type for the temperature rise monitoring requirements of locations 001 and 002 have been changed from "Recorder" to "Calculation."

9. Part I.A.2.c. - "*along with*" replaces "*by January 31st. The information shall be reported in*" in the following requirement: "This information shall be submitted to the EPA and MassDEP annually *along with* the annual Heat Load Report."
10. Part I.A.3.b. - changed "*Part 1.A.13.*" to "*Part I.A.13.e.*"
11. Parts I.A.4 and 5: "1X/Day" changed to "*Daily.*"
12. Part I.A.7.a. and Part I.A.7.c - the past year has been clarified as January "*1st*" to December "*31st*"
13. Part I.A.7.d. - the *Total Discharge Flow (gph)* and *Hourly Heat Load (BTU)* columns have been switched.
14. Part I.A.13.b. - the words "at least" have replaced "approximately" in the following requirement: "The permittee shall equip all traveling intake screens with fish holding buckets to hold collected organisms in *at least* 2 inches of water while they are lifted to the fish return system."
15. Part I.A.13.e. – "*both* intake structures" has been changed to "*any* intake structure" to take into consideration the possibility that Canal Station will utilize one intake (for example, this could be the case if intake flow is reduced because of the installation of cooling towers).
16. Part I.A.13.*h.* is now Part I.A.13.*i* and reference to Part I.A.13.b-e has been has been changed to simply Part I.A.13.
17. The language in Part I.A.17 has been replaced with "*This permit may be modified in accordance with 40 Section 122.62(a)(3) if the standards or regulations on which the permit is based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit is issued.*"
18. The following modifications have been made to Part I, Section B – Monitoring and Reporting:
    a. "*the Proposal for Information Collection (PIC) , the Comprehensive Demonstration Study (CDS)*" has been removed;
    b. Sharon *Zaya* is now Sharon *DeMeo*;
    c. Notifications and Reports required by this permit shall also be submitted to:
    Jack Schwartz (Telephone: 978-282-0308 X122)
    Massachusetts Division of Marine Fisheries
    30 Emerson Avenue
    Gloucester, MA 01930
19. Modifications have been made to Section C – State Permit Conditions in order to incorporate by reference the standard conditions contained in 314 CMR 3.19 and MassDEP's water quality certification. The following language has been added:
    "pursuant to M.G.L. Chap. 21, §43 *and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.*
    2. This authorization also incorporates the state water quality certification issued by MassDEP for this permit under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. Any additional requirements contained in Massachusetts' water quality certification are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11."

Section I Overview of Mirant Canal Comments

Comment I.A:

Mirant comments that:

> 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.

Response I.A:

For changes related to monitoring requirements for each outfall, see Response to Comments Section III (A.1-3, B.2-4, C.1-4, D.1-3, and E), Section IV (A.1-2, B.1-2, C.1-2, and D) and Section V (A).

For changes related to the segregation of chemical and non-chemical metal cleaning wastes from the ash sluice and boiler blowdown waste streams, see Response to Comments Sections VI and VII.

For structural, operational, and monitoring requirements for the cooling water intake structure, see Response to Comments Section IX.

Section II Procedural Comments

Comment II.A: EPA and DEP as Intended Recipients of These Comments

Mirant comments that:

> 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.

Response II.A:

EPA is responsible for issuing NPDES permits under the Federal Clean Water Act within the Commonwealth of Massachusetts, since Massachusetts has not received authorization from EPA to administer the NPDES permit program within its borders. Massachusetts maintains separate water pollution control permitting authority under Massachusetts law. Generally, as here, when the Region issues an NPDES permit in Massachusetts under the Clean Water Act, MassDEP will concurrently issue a water permit pursuant to the Massachusetts Clean Waters Act. Thus, under this joint permitting scheme, the Draft Permit, Fact Sheet, Final Permit and Response to Comments are issued concurrently by EPA and MassDEP pursuant to the separate federal and state legal authorities. The Fact Sheet and Responses to Comments reflect the conclusions of both EPA and MassDEP, unless otherwise noted.

Comment II.B: § 401 Water Quality Certification

Mirant comments that:

> In addition to issuing renewal Permit No. MA 0004928 as a surface water discharge permit under the Massachusetts Clean Water[s] 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.

Response II.B:

The comment is noted. The Commonwealth of Massachusetts has certified the Final Permit in accordance with Section 401(a) of the Clean Water Act. *See* Massachusetts' Section 401 Water Quality Certification ("WQC"), dated February 8, 2008.

Comment II.C: Comments to MCZM

Mirant comments that:

> 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.

Response II.C:

MCZM has determined that the renewed permit is consistent with its enforceable program policies. *See* Letter from Leslie-Ann McGee to Shawn Konary, dated March 10, 2008.

Comment II.D: Incorporation of Prior Submissions

Mirant comments that:

> 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.

Response II.D:

Under applicable federal regulations, EPA is only required to respond to materials submitted *during* the public comment period. *See* 40 C.F.R. § 124.17(a)(2). "That is, within the interval of time between the beginning and end of the public comment period, not before, not after." *In re Avon Custom Mixing Servs.*, Inc., 10 E.A.D. 700, 706 (EAB 2002); *see also*, *In re City of Phoenix, Arizona Squaw Peak and Deer Valley Water Treatment Plants,* 9 E.A.D. 515, 524-31 (EAB 2000); *In re Steel Dynamics, Inc.,* 9 E.A.D. 165, 194 n.32 (EAB 2000) ("Permitting authorities are under no obligation to consider comments received after the close of the public comment period."). To be sure, under appropriate circumstances a party can "put the permit issuer on formal notice of any continuing objections" noted before the start of the comment period, by "register[ing] the objections with the permit issuer *during the public comment period.*" *Avon* at 706 n.14 (emphasis in original). However, commenters are obligated to raise all issues "with a reasonable degree of specificity and clarity during the comment period," so that EPA "need not guess the meaning behind imprecise comments." *In re Westborough*, 10 E.A.D. 297, 304 (EAB 2002); *see also Vt. Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council*, 435 U.S. 519, 553-54 (1978) ("Administrative proceedings should not be a game or a forum to engage in unjustified obstructionism by making cryptic and obscure reference to matters that 'ought to be' considered and then, after failing to do more to bring the matter to the agency's attention, seeking to have that agency determination vacated on the ground that the agency failed to consider matters 'forcefully presented.'"). Therefore, a commenter attempting to incorporate to pre-comment period submissions into its comments must identify those submissions with a reasonable degree of specificity and clarity.

The Permittee's blanket incorporation by reference of "all submissions by Mirant Canal or its predecessors concerning the permit dating from the initial renewal application" since 1994 into its comments is unreasonable and does not provide EPA with sufficient clarity about the Company's particular concerns to enable the Agency to craft meaningful responses. See 40 C.F.R. § 124.13. Thus, EPA will only respond to significant comments in the Permittee's submission dated February 3, 2006 (received on February 7, 2006), and declines the invitation to respond to a set of unspecified materials submitted to the agency over the last thirteen years. The Permittee has not made even a cursory attempt to catalogue such materials, explain their relevance to any particular Draft Permit condition, or specify any portions of the materials that it

does not believe require a response. As such, the Permittee's proposed incorporation by reference will likely engender disputes over which materials are actually in the possession of EPA and confusion over how to apply the materials to the Draft Permit conditions.[1] This would frustrate the very purpose of the public comment period, which is to provide predictability and finality to the permitting process. *See, e.g., In re Spokane Reg'l Waste-to-Energy,* 2 E.A.D. 809, 816 (Adm'r 1989) ("Just as 'the opportunity to comment is meaningless unless the agency responds to significant points raised by the public,' so too is the agency's opportunity to respond to those comments meaningless unless the interested party clearly states its position," quoting *Northside Sanitary Landfill, Inc. v. Thomas,* 849 F.2d 1516, 1520 (D.C. Cir. 1988) (internal citations omitted). Indeed, the Permittee's generic incorporation by reference would force the Region into the position of construing materials that pre-dated issuance of the Draft Permit as "comment" on the subsequent draft. In this regard, it is well settled that under EPA's permitting regulations permit issuers need not "guess the meaning behind imprecise comments," *In re Westborough,* 10 E.A.D. 297, 304 (EAB 2002), and are "under no obligation to speculate about possible concerns that were not articulated in the comments." *In re New England Plating Co.,* 9 E.A.D. 726, 735 (EAB 2001).

Mirant's broad claim of issue preservation is also not consistent with NPDES regulations. For the purposes of the Environmental Appeals Board (EAB) review, an issue is not preserved simply because it is generally reflected somewhere in the administrative record. Instead, the issue must have been raised during the public comment period with a reasonable degree of specificity and clarity. *See In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 n.10 (EAB 1999) (burden is on the petitioner to establish that issues were raised during the comment period; "It is not incumbent upon the Board to scour the record to determine whether an issue was properly raised below."). It is not sufficient for a commenter to have raised only a more general or related argument during the public comment period. *See, e.g., Teck Cominco Alaska Incorporated, Red Dog Mine,* 11 E.A.D. 457, 479-82 (EAB 2004) (comment on Alaska's water quality criteria fails to provide basis for appeal of suspended solids effluent limit that allegedly violates Alaska's antidegradation rule); *In re City of Marlborough, Mass. Easterly Wastewater Plant*, 12 E.A.D. 235, 243 (EAB 2005) (comment on length of time an interim phosphorus limit will be in effect is inadequate basis for preserving for appeal a challenge to the stringency of the limit).

Comment II.E: Failure to Share Working Draft of Permit

Mirant comments that:

> EPA New England and DEP commonly share their working draft of an 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.

[1] Any comments submitted during the public comment period are properly part of the administrative record. 40 C.F.R. § 124.18(b)(1). Materials submitted before or after the public comment period may be part of the administrative record insofar as they meet the requirements of 40 C.F.R. § 124.18.

> 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.

Response II.E:

The purpose of the public comment period is to inform the permit issuer of potential problems with a draft permit and to ensure that the permit issuer has an opportunity to address the problems before the permit becomes final. The public comment period, rather than the distribution of a pre-publication courtesy draft, remains the only legally required mechanism for a commenter to point to any problems with a permit provision. As evidenced by the Introductory section of this Response to Comments, comments submitted by the Permittee and others have in fact led to numerous changes in the Draft Permit. The remedy available to a party that still objects to a condition of the Final Permit is to seek review of such condition through the administrative appeals process.

EPA and MassDEP often, but do not always, share a courtesy copy of the draft permit with a permittee. Neither EPA nor MassDEP are under any obligation to provide a draft permit to a permittee prior to the official draft permit being published for public notice and comment by all interested parties. The decision is left to the individual permit writer and their supervisor. In this case, distribution of pre-publication was not deemed to be necessary. The Draft Permit was primarily based on facility-specific information submitted by the Permittee in its permit renewal application. This information was clarified and supplemented by numerous contacts between EPA and the Permittee.

Comment II.F: Reservation of Right to Supplement Comments

Mirant comments that:

> 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.

Response II.F:

The NPDES regulations do not extend the right for Mirant to supplement these comments with further comments and EPA could not give it such a right without reopening the public comment period across the board to all parties. The vast majority of EPA-issued permits have public comment periods of only 30 days, which EPA has found to be sufficient even where complex technical matters are at issue. This timeframe is consistent with and satisfies EPA procedural regulations regarding public comment periods for NPDES draft permits. *See* 40 C.F.R. § 124.10(b). Even though other parties were also conducting a detailed technical review of the Draft Permit, and timely submitted comments, EPA received only one request for an extension to the public comment period. In consideration of Mirant's interest in having a fuller opportunity to evaluate modifications to Canal Station, the absence of additional requests for extensions of the comment period, and EPA's interest in issuing an environmentally protective permit in a reasonably expeditious manner in furtherance of the legal requirements and policy goals of the Clean Water Act, EPA extended the public comment period an additional 15 days. EPA observes the comment period was sufficient for the Permittee to assemble "fairly comprehensive" comments. (In the time since the Draft Permit was issued, EPA has not received from the Permittee any additional cost and/or feasibility analyses or other materials in support of its comments. Given the Permittee's apparent view that materials submitted by it outside the public comment period should at the very least be made a part of the administrative record of the permit, this would appear to indicate that the comment period was of sufficient length to adequately apprise the Region of potential issues with the permit).

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

Section III.A Revisions to Limits for Chlorine

Comment III.A.1

Mirant comments that:

> 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.
>
> 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.

Response III.A.1:

The Total Residual Chlorine (TRC) effluent limitations guideline for steam electric facilities (40 C.F.R. Part 423) was specified as a "maximum concentration" and not as a "daily maximum" limit.[1] After promulgation of the Steam Electric Guidelines in 1982, EPA was asked to clarify the correct interpretation of the term "maximum concentration." EPA studied this issue and, in 1992, issued guidance in the form of a memorandum to all the Regional Water Management Division Directors. The 1992 guidance explains that the term "maximum concentration" is intended to mean "instantaneous maximum." This clarification of the effluent limitation guideline was based on several factors, including the following:

- The history of the TRC effluent limitation guideline, as evidenced for example by early preamble language, indicates that it was distinguished from other limitations that measure compliance based on averaging periods. *See* 39 FR 36185 (October 8, 1974).
- The 1980 Proposed Effluent Guidelines Rulemaking publication stated that the proposed BAT limitation for once through cooling water would be a TRC value "not to be exceeded at any time."
- Handouts, summary papers, and briefing notes for Steam Electric Permit Writers Workshops differentiate between a maximum daily discharge and an "instantaneous maximum."
- The term "average concentration" is used with respect to chlorine elsewhere in the Steam Electric Guidelines to mean the average of analyses made over a single period of chlorination, not to exceed two hours.

EPA disagrees that the phrase "daily maximum limitation" necessarily implies the use of an average rather than an instantaneous maximum and sees no reason to depart from this interpretative guidance on the basis of the comment above. Moreover, the fact that the 1982 regulations use a slightly varying formulation to denote instantaneous maximum for an entirely different effluent limitations guideline (ELG) provides at best equivocal evidence of the drafter's intent. The notion that the rule makers were expressing a preference for a daily maximum rather than an instantaneous value by failing to include the words "for any time" is not a reasonable basis to reject the contrary evidence of the drafters intent cited in the 1992 memorandum and relied upon by the Region. While one might ask why EPA chose not to include the phrase "for any time" in the TRC ELG, an equally legitimate question is why EPA chose not to simply include the word "average" if that is what it truly meant. In sum, EPA believes it is reasonable to conclude that an instantaneous value was intended for purposes of compliance with the TRC (TRO) limit.

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[1] As stated in the Fact Sheet, because the intake water contains bromides (i.e., saline water), the sampling parameter has been changed from total residual chlorine to total residual oxidants (TRO) in accordance with the Steam Electric Power Generating Point Source Category effluent guidelines (see 40 C.F.R. § 423.11).

Comment III.A.2:

Mirant comments that:

> 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, is 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).

Response III.A.2:

As explained in response to comment III.A.1, EPA does not share the commenter's view of the effluent guidelines. The Region has construed the term "maximum concentration" to be an instantaneous maximum value, as evidenced by several relatively recent power plant permits, including Mystic Station, Brayton Point and West Springfield.

As the comment notes, the Region included a 0.1 mg/l water quality-based limit in the previous permit, but not the technology-based 0.2 mg/l instantaneous limit at question. There is nothing irregular or unusual about the need to impose a more stringent permit provision when reissuing a permit. NPDES permitting is necessarily an evolving, iterative process, and EPA revisits all aspects of NPDES permits at the time of permit reissuance. This reevaluation is driven by numerous factors, including the desirability of improving and updating past analyses to incorporate the best available information, in addition to legal and technical insights that may have been overlooked in the past. The imposition of more stringent limitations from permit to permit is also generally consistent with the overall objectives of the Clean Water Act (CWA). Congress made it clear when it enacted the CWA that its goal was not merely to reduce pollution in navigable waters but to eliminate it. *See* CWA § 101(a). The statute expressly provides for technology-based effluent limitations that will "result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants...." *See* CWA § 301(b)(2)(A). Congress clearly intended that EPA can, and indeed often must, revise permit requirements when EPA reissues such permits. This framework does not contemplate grandfathering of earlier permit requirements or analyses. If that were the case, there would be no need for maximum five year terms for permits under the CWA. There would also be little need for detailed permit renewal application requirements. The CWA demands that the permit issuer reevaluate the record at the permit reissuance stage and determine whether new permit conditions are warranted based on the best, reasonably available information.

Here, the failure to include the 0.2 mg/l limit in the prior permit was determined to be an oversight, and this oversight has been corrected in the current permit. EPA concluded that compliance with the existing limit would not necessarily ensure compliance with the applicable technology-based standard. The discharger could, for example, meet the overall limit of 0.1 mg/l even while discharging at an instantaneous concentration of above 0.2 mg/l multiple times during the day. Thus, EPA added the instantaneous maximum of 0.2 mg/l.

EPA believes the presumption of regularity doctrine has been misapplied by the commenter in this instance. The presumption of regularity is a judicial doctrine under which courts presume that, in the absence of clear evidence to the contrary, public officers have properly discharged their official duties. *United States v. Chem. Found., Inc.*, 272 U.S. 1, 14–15 (1926). In the administrative law context, courts will apply a rebuttable presumption that an agency has followed its own regulations. *See Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415 (1971). In other words, the presumption a reviewing court would provide EPA with respect to its application of the Steam Electric Guidelines would run against the commenter because it would support the notion that the Region was properly carrying out its regulatory duties in the current permit. In any event, the Region observes that it has interpreted the TRC (TRO) limit as an instantaneous maximum in several recent permits and the Region has clearly provided a reasonable basis for its approach.

The comment suggests that rulemaking procedures were required for the 1992 memorandum because it clarified a provision in the Steam Electric Guidelines. This is incorrect. By way of background, the Administrative Procedure Act (APA) imposes certain requirements, most importantly notice and opportunity for comment, when EPA promulgates "substantive" or "legislative" rules (*i.e.*, rules intended to establish substantive requirements that bind the public or the agency). 5 U.S.C. § 553. Substantive rules are issued through notice and comment rulemaking procedures pursuant to adequate statutory authority. A substantive rule has the force and effect of law and is legally binding on the public and the agency in the same way as a statute. *American Mining Congress v. Mine Safety & Health Administration,* 995 F.2d 1106, 1109 (D.C. Cir. 1993). A substantive rule modifies or adds to an existing legal norm, based on the agency's own authority. It supplements a statute by resolving inconsistencies or filling in gaps, rather than simply construing existing requirements. *Syncor Intern. Corp. v. Shalala*, 127 F.3d 90, 94–95 (D.C. Cir. 1997).

However, certain other rules, including "general statements of policy" and "interpretative rules," are exempt from notice and comment requirements. *Id.* at § 553(b). Thus, EPA issues general policy statements (often referred to as "guidance documents") and interpretative rules (which construe existing statutory or regulatory requirements) without notice and comment. The function of the APA's interpretive rule exemption is "to allow agencies to explain ambiguous terms in legislative enactments without having to undertake cumbersome proceedings." *American Hospital Assn. v. Bowen*, 834 F.2d 1037, 1045 (D.C. Cir. 1987). An interpretive rule "indicates an agency's reading of a statute or rule. It does not create new rights or duties, but only 'reminds' affected parties of existing duties." *Orengo Caraballo v. Reich*, 11 F.3d 186, 195 (D.C. Cir. 1993). Although interpretive rules cannot go beyond the text of a statute or regulation, this does not "imply that an interpretive statement may only paraphrase statutory or regulatory language... Accordingly, an interpretive statement may 'supply crisper and more

detailed lines than the authority being interpreted' without losing its exemption from notice and comment requirements under [the APA]." *Id.*

The distinction between an interpretative rule and a substantive rule "likely turns on how tightly the agency's interpretation is drawn linguistically from the actual language of the statute." *Syncor*, 127 F.3d at 94 (citations omitted). "If the statute or rule to be interpreted is itself very general, using terms like 'equitable' or 'fair,' and the 'interpretation' really provides all the guidance, then the latter will more likely be a substantive regulation," as opposed to a situation where the government's position "is driven by the actual meaning it ascribes" to the phrase in a substantive rule. *Paralyzed Veterans of America v. D.C. Arena*, 117 F.3d 579, 588 (D.C. Cir. 1997). *See also Health Ins. Ass'n of Am. v. Shalala*, 23 F.3d 412, 423 (D.C. Cir. 1994) (An agency can properly rely on interpretative rules to "resolve . . . ambiguities" or, to transform a "vague . . . duty or right into a sharply delineated duty or right.").

As described in Response III.A.1, the 1992 memorandum clarified the term "maximum concentration" as used in the guidelines and codified at 40 C.F.R. Part 423. The memorandum did not modify the guidelines; rather, the memorandum simply explained the Agency's interpretation of an ambiguous term. In so doing, it describes the basis for EPA's interpretation of "maximum concentration," which includes textual analysis, regulatory history, and contemporaneous evidence of the drafters' intent. In other words, the memorandum does not itself have "the force and effect of law," but rather "spell[s] out a duty fairly encompassed within the [guidelines]." *Paralyzed Veterans*, 117 F.3d at 588. The memorandum was thus interpretative guidance rather than a substantive rule. As such, there was no impediment to EPA issuing the memorandum, without rulemaking proceedings, and there is likewise no infirmity in the Region's subsequent reliance upon it as guidance. *American Hospital Assn.*, 834 F.2d at 1045 (D.C. Cir. 1987).

Comment III.A.3:

Mirant comments that:

> 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.

Response III.A.3:

EPA acknowledges that the Draft Permit would have significantly increased the frequency of compliance monitoring for TRO compared to the prior permit. (Mirant Canal's current permit requires one TRC sample per day when in use, except weekends). The increase in sampling was intended to ensure that the chlorine injection equipment operates properly and was not causing any exceedances of the chlorine limits, particularly as it currently operates unattended most times

(nights and weekends).[2] Automatic chlorination can be precarious because chlorine demand changes throughout the year and flow changes depending on the tide level. Chlorine and chlorine compounds can be extremely toxic to aquatic life and over-chlorination can lead to significant environmental consequences. EPA therefore disagrees that there is no environmental rationale for increased monitoring. Furthermore, in the October, 2003 NPDES Permit Application, Attachment C.1, page A1-8, Mirant indicates that "[o]n June 7, 8, 16, and 22, 1999 the plant experienced problems with the chlorine injections. On these dates, several species were impinged and some in great numbers...." Four documented instances of chlorine injection problems resulting in elevated impingement rates, albeit during one month, does not appear to be a "one-time" malfunction as Mirant claims. EPA also does not regard a cost of $33,600 per year for chlorine monitoring by Canal Station to be excessive if needed to adequately monitor chlorine discharges.

With that said, EPA has concluded that the monitoring frequency can be reduced from that proposed in the Draft Permit while still ensuring representative effluent monitoring. EPA agrees to reduce monitoring frequency to two grab samples during each chlorination event (one grab sample per Unit). According to Mirant's chlorination schedule, this amounts to a maximum of four samples per day. This frequency will ensure that each chlorination event is assessed for the correct dosing and for any equipment malfunctions. EPA does not believe that this is a burdensome requirement compared to sampling performed at other power plants such as Pilgrim Station, which samples every ten minutes during every chlorination event to verify compliance with permit limits. EPA has also added the requirement to report all sampling data for each month that chlorination occurs. Finally, EPA has added the following requirement, "If the daily sampling and applicator checks disclose any unresolved abnormality with the applicators or feed rates, all subsequent dosing of chlorine is prohibited until the abnormality is corrected." This requirement is consistent with Mirant Canal's stated "current protocol."

As explained in Comment III.A.2 above, there is no grandfathering of conditions from prior permits. To the contrary, permit terms can and often do become more stringent based upon an analysis of the information available to EPA during the reissuance process.

Comment III.A.4 **from Commonwealth of Massachusetts - Office of Coastal Zone Management**

MA CZM comments that:

> Section 4.4.1 (p. 16 of 59) of the fact sheet: EPA states that "Considering the high current flows through the Cape Cod Canal, EPA believes there is always more than 6191

[2] EPA does not agree that automatic dosing during non-business hours (night and weekends) is a "precautionary approach." In addition, EPA has no way of determining if compliance sampling is performed at times when chlorine levels are expected to be at the maximum. Furthermore, the facility is not equipped with an alarm system that would indicate either a chlorine exceedance or a malfunction in the chlorine delivery system, which could cause an exceedance of the limits. Therefore, EPA has no way of independently verifying that there have been "no [additional] instances of non-compliance" since the malfunctions in 1999.

cfs of flow to dilute the effluent." However, there are two times each day where the current reverses itself, thus the current flowing in each direction would be diminishing to some point less than 6191 cfs and close to 0 cfs (as noted later in the Fact Sheet, section 5.2.3, p.42). CZM would like an explanation of how long during each tidal cycle the dilution in the canal is less than the dilution factor necessary to achieve the Water Quality Standard of 0.013 mg/l for chlorine (it is likely less than an hour during each 12-hour tidal cycle). CZM is concerned that chlorination during or within an hour of slack tide may result in higher than anticipated chlorine levels in the effluent. CZM recommends that the two hours of chlorine use per day allowed in the permit be limited to when flow in the canal is greater than 6191 cfs (e.g., at least one hour past or before slack tide).

Response III.A.4:

Slack tide occurs briefly for a few minutes around the turning of the tide. Water movement slows for a brief duration at this time, but available dilution does not approach zero. EPA's nationally recommended acute water quality criterion for chlorine, which has been adopted by Massachusetts, is based on a 4-hour exposure time. The limited duration of slack tide in this area makes the probability of a discharge of chlorine during those times fairly limited. If a discharge does occur during slack tide, the duration of lower initial dilution will be a matter of minutes. EPA does not believe that this will lead to a significant risk of acute mortality.

Section III.B Whole Effluent Toxicity Monitoring

Comment III.B.1:

Mirant comments that:

> 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 Mass 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.

Response III.B.1:

EPA explains on its website http://cfpub.epa.gov/npdes/wqbasedpermitting/wet.cfm that:

> "WET tests replicate the total effect and actual environmental exposure of aquatic life to toxic pollutants in an effluent without requiring the identification of the specific pollutants. WET testing is a vital component of the water quality standards implementation through the NPDES permitting process... To protect water quality, EPA recommends that WET tests be used in NPDES permits together with requirements based on chemical-specific water quality criteria... WET tests are designed to predict the impact and toxicity of effluents discharges from point sources into waters of the U.S. WET limits, developed by permitting authorities, are included in NPDES permits to ensure that state or tribal water quality criteria for toxicity are met. WET monitoring requirements are included in NPDES permits to generate data for use in assessing whether a WET limit has been exceeded or to assess if a WET limit is needed."

Mirant Canal is discharging to near-shore coastal waters affecting two different estuarine systems (Buzzard's Bay and Cape Cod Bay). EPA has begun requiring toxicity testing for cooling water discharges in estuarine and coastal areas, such as for Brayton Point Station, Mirant Kendall Station, and Taunton Municipal Lighting Plant. This is in part due to the recognition that these areas provide important spawning and nursery habitat. EPA's 1977 draft Interagency 316(a) Technical Guidance Manual specifically highlights the general incompatibility of cooling water discharges and estuarine spawning and nursery habitat, specifying that "areas supporting critical functions should be avoided." In this case, critical function is defined as "one that is limited in extent and necessary for the propagation and survival of a species." For pre-existing facilities that discharge to coastal and estuarine habitats, EPA wants to ensure that the impacts from discharges to these sensitive habitat areas are being minimized. Because the potential for causing toxicity is unknown at Mirant Canal, WET testing has been included in the permit in order to establish whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion above the toxics criterion, which will aid the Region in assessing the need for future permit limits.[3] In addition, the WET tests allow one to determine the actual

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[3] EPA's Technical Support Document for Water Quality-based Toxics Control (TSD), Chapter 3.2, p. 55, states:

> If the regulatory authority, after evaluating all available information on the effluent, in the absence of effluent monitoring data, is not able to decide whether the discharge causes, has the reasonable potential to cause, or contributes to, an excursion above a numeric or narrative criterion for whole effluent toxicity or for individual toxicants, the authority should require whole effluent toxicity or chemical-specific testing to gather further evidence. In such a case, the regulatory authority can require the monitoring prior to permit issuance, if sufficient time exists, or it may require the testing as a condition of the issued/reissued permit.

See also Massachusetts Water Quality Standards, Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990) (containing recommended methods for toxicity testing for NPDES permits, including coastal and marine waters).

environmental exposure of aquatic life to an effluent or ambient water, even if there is a lack of knowledge of the chemical, physical, and biological characteristics of that discharge or ambient water.

As noted above, and as set forth in Part I.A.2.d of the Draft Permit, EPA is not necessarily requiring the WET tests indefinitely, but has included a mechanism that would allow the Permittee to seek a reduction if test results indicate that there is no toxicity problem associated with the effluent.

Comment III.B.2:

Mirant comments that:

> 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.

Response III.B.2:

There are two major differences between West Springfield Station and Mirant Canal that are relevant for understanding why the former is not currently required to undertake WET testing but the latter is. First, as stated in the prior response, Mirant Canal discharges to coastal and estuarine habitats, while West Springfield Station is a riverine discharge less likely to provide habitat to significant numbers of sensitive, early life stages of aquatic organisms. Second, West Springfield Station sends most of their process waste to the municipal sewer system, so it primarily discharges cooling water. Mirant Canal mixes most of its process wastewater with its cooling water discharge.

Comment III.B.3:

Mirant comments that:

> 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.

Response III.B.3:

Please see Response III.B.2 above for an explanation of the rationale behind the WET testing requirement. Massachusetts Water Quality Standards prohibit the discharge of toxic pollutants in toxic amounts. *See also* Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990) (containing recommended methods for toxicity testing for NPDES permits, including coastal and marine waters).

EPA disagrees with Mirant Canal's premise that their discharge is "relatively non-variable." The chemistry of the source water changes seasonally and from year to year. In addition, the facility's discharge of low volume and metal cleaning wastes is not constant. Thus, EPA believes that the four WET tests per year for two years is a reasonable way to capture this variability.

EPA has determined that WET testing is required and has given the Permittee the opportunity for this requirement to be reduced if effluent consistently satisfies the tests. EPA is not in a position to account for the numerous potential contingencies associated with future WET testing, such as measurement error, in the permit itself. EPA believes that a simple (as opposed to heavily caveated or qualified) statement of the applicable standard will assist both EPA and the Permittee insofar as it provides a clear rule from the standpoint of compliance. Moreover, a failed WET test would be a cause of considerable concern to EPA given the sensitive nature of the receiving waters and, in light of this, EPA would presume its validity unless shown otherwise. The Permittee is free to present information to EPA if a test does not pass due to what the Permittee believes is testing or measurement error. The Permittee can be assured that EPA will assess these future matters reasonably and objectively, as it is in EPA's interest as well as the Permittee's to ensure the data relied on for permitting purposes are valid. EPA will review the data and make a determination on the validity of the test, as well as the continuing need for WET testing, on a case-by-case basis based on all the facts and circumstances available at the time. For instance, the Permittee may pass the eight consecutive WET tests but within a small margin or proper quality control procedures may not have been followed.

Comment III.B.4:

Mirant comments that:

> 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.

Response III.B.4: Each request is addressed individually below:

To assess potential variability, EPA routinely requires a minimum of two full years of testing. Fewer than eight quarterly tests will not provide necessary data to analyze seasonal and year-to-year variability in a statistically meaningful fashion. The Permittee has not provided any particular rationale to reduce testing from eight to four quarters. In light of the fact that the receiving water functions as productive near-shore coastal water, EPA believes it is appropriate to adopt a reasonably conservative approach in this context.

One of the strengths of the WET testing approach is the use of multiple organisms with differing sensitivities to different pollutants. The two test species are representing all life stages of all the resident species. EPA sees no ecological advantage or scientific justification for reducing the number of test species to one. These tests provide snapshots of the possible effects of the discharge. With variable patterns in chlorination and boiler blowdown, the nature of the effluent changes on an hourly basis. As a result, four tests that do not produce toxicity in one species are not sufficient to prove that the effluent is non-toxic to that species. EPA will require that both species be tested as long as there is a need for toxicity testing.

The Permittee is always free to submit information if it feels a certain test result is not valid. EPA will review this information and make an independent, reasonable determination regarding the test's validity.

After eight quarters of testing and assuming that the Permittee requests a reduction or elimination of testing frequency, EPA will review all of the WET results and make an informed decision about the need to continue with this testing regime. At this point in time, as discussed above, EPA will not commit itself to an automatic reduction or elimination of this program before having actual data.

Comment III.B.5 from Commonwealth of Massachusetts - Riverways Program

> The permit will require quarterly Whole Effluent Toxicity tests with two different organisms to determine if the effluent may be causing acute or chronic toxicity. Unfortunately the WET testing will fail to capture the influence of the thermal pollutant discharged by this plant on both the organisms directly and the possible synergistic interactions with other pollutants present in the effluent. Would it be possible to amend the WET testing protocols to have the laboratory growing conditions faithfully mimic the conditions in the receiving water plus providing a more accurate picture of the potential for chronic or acute effects on the test organisms and, by extrapolation, the potential for the effluent to impair the propagation of an indigenous, balanced population of fish, shellfish and wildlife?

Response III.B.5:

Dilution modeling and in stream monitoring at the point of discharge suggest that the thermal plume dissipates fairly quickly (in a matter of minutes at most) to temperatures equivalent with background. The thermal plume covers a fairly limited geographical area and moves with the tide. Organisms in the receiving water should be exposed to elevated temperature for relatively brief periods of time. Thus, EPA does not see a need to deviate from the standard protocol for toxicity testing.

Section III.C Revisions to the pH Limit

Comment III.C.1:

Mirant comments that:

> 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.

Response III.C.1:

EPA is aware that the current permit had permit limits for pH but did not require monitoring or reporting. To ensure that the pH limits are being met, EPA is now requiring monitoring and reporting. EPA agrees that continuous monitoring is not necessary as long as representative weekly grab samples are taken. EPA agrees that weekly grab samples should be adequately representative for pH of the discharge because the discharge is primarily heated seawater and there is a lack of significant variability from day to day in the pH of seawater, even at elevated temperatures.[4] Therefore, EPA requires weekly grab samples for pH at outfall 001 in the Final Permit.

Comment III.C.2:

Mirant comments that:

> 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.

Response III.C.2:

EPA has removed the requirement for continuous pH monitoring. See Response to Comment III.C.1 above.

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[4] The change in temperature of seawater (at pH 8) from 25°C to 85°C, changes pH measurements less than 0.2 units. See http://www.sensorex.com/support/education/pH_education.html

Comment III.C.3:

Mirant comments that:

> 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.

Response III.C.3:

The pH limit ($\geq$ 6.5 and $\leq$ 8.5 s.u.) is an instantaneous limit that must be met at all times pursuant to the Massachusetts Water Quality Standards. EPA requires in the Final Permit that Mirant Canal report the highest and lowest pH reading of each month as well as all violations (see Part II.D.g of the Final Permit).

Please see Response to Comment II.E regarding Mirant Canal's reservation of rights to comment. *See also, In re Caribe Gen. Elec. Prods., Inc.*, 8 E.A.D. 696, 705 n.19 (EAB 2000) (explaining that the appellate review process provides petitioner with the opportunity to question the validity of material in the administrative record, including new information added by the permit issuer in response to comments).

Comment III.C.4:

Mirant comments that:

> 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.

Response III.C.4:

Water Quality Standards for Massachusetts specify that the pH for Class SB waters "[s]hall be in the range of 6.5 through 8.5 standard units and not more than 0.2 units outside of the natural background range." *See* 314 C.M.R. 4.05(4)(b)(3). After consulting with MassDEP, EPA is

removing the second requirement that the pH shall not be more than "0.2 units outside of the natural background range" due to uncertainty about what precisely constitutes the natural background range.

Comment III.C.5:

Mirant comments that:

> 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.

Response III.C.5:

This requirement has been removed from the Final Permit. See response III.C.4 above.

Section III.D Revised Limitations for Temperature

Comment III.D.1:

Mirant comments that:

> 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.[5] The proposed permit

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[5] 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....

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.

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.

Response III.D.1:

The thermal limit and monitoring requirements were set with the goal of protecting the balanced indigenous population (BIP) of organisms in and on the water body receiving Canal Station's thermal discharge. In order to protect the BIP, the thermal tolerances of all life stages of the

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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.

representative important species need to be taken into account. For example, the various life stages (eggs, larvae, juveniles and adults) have substantially different thermal requirements. Winter flounder eggs are most prevalent in late winter/early spring and their hatching rate and the size of emerging larvae are temperature-dependent. If ambient temperatures are elevated above their preferred range, hatching success quickly declines. It is necessary for EPA to continue to receive these data on an ongoing basis to ensure that the thermal limit is sufficiently stringent to reasonably assure the protection and propagation of the BIP. Thus, to ensure the protection of the BIP, EPA is concerned about the potential for thermal impacts year-round.

EPA is interested in determining what ambient water temperatures are under worst case conditions, which is at slack tide. This does not necessarily need to be done manually by personnel in a boat. We suggest a more efficient way to collect this information is to deploy a series of continuous temperature recording devices in the proper location around and in the discharge. There are several small, inexpensive (about $100 a sensor) sensors that could be deployed for up to 30 days and collect data at predetermined time intervals. These sensors can be retrieved, the data downloaded and then redeployed. This approach would require one boat trip every 30 days at a time of the Permittee's choosing and it would give the regulators a more complete picture of plume dynamics than just weekly collection of single discrete data points. Again, EPA believes it is necessary to continue to receive these data on an ongoing basis to confirm that the thermal limit is sufficiently stringent to reasonably assure the protection and propagation of the BIP. The Permittee has not provided any specific rationale for limiting this data collection at two years. However, EPA does believe that the Permittee provides a valid point regarding ambient monitoring necessary only during the warmest time of the year. The applicant offers to collect ambient data from June 1 to August 31. EPA believes a slightly modified schedule would be more appropriate; monitoring from July 1 to September 30 would reflect the time of year when ambient water temperatures are highest. EPA will benefit from having a statistically robust data set on worst case conditions in the Canal in order to inform future permitting decisions and meet its statutory obligation to *assure* the protection and propagation of the BIP.

Comment III.D.2:

Mirant comments that:

> 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).

Response III.D.2:

The Fact Sheet is correct; the thermal discharge limit is intended to be an instantaneous maximum. There was a clerical error in the Draft Permit which has been corrected in the Final Permit. EPA does not believe that this clarification amounts to a substantial new question warranting reopening of the public comment period. Notwithstanding the discrepancy between the Fact Sheet and the Draft Permit, the commenter has been provided with an opportunity to comment on the instantaneous temperature limit actually being imposed in the permit, and indeed has done so. If the commenter is dissatisfied with EPA's response to its comment, it may petition the Environmental Appeals Board (EAB) for review of the condition.

A permit limit defined as a daily average discharge of temperature of 107° F could allow prolonged durations (hours) of discharge at 107° F or even higher. Based on EPA's experience at other power plants, discharges of temperatures at or above 95° have been shown to be acutely toxic to Atlantic menhaden. At Brayton Point Station, mass mortalities of Atlantic menhaden occurred in the discharge canal when water temperature exceeded 95° F. Atlantic menhaden is an important component of the BIP in the receiving water and should not be exposed to temperatures that could trigger a mass mortality. Temperatures in the mid to high 90s can result in acute toxicity to various life stages of alewives, blueback herring and striped bass, all species which are important components of the BIP in this area.

The delta T (ΔT) limit of 33 ° F is a daily average limit as indicated in the Draft Permit. EPA believes that the combination of a discharge temperature limit measured instantaneously with a maximum daily calculated ΔT limit is a sufficiently protective approach to prevent acute mortality to Atlantic menhaden and should not result in significant habitat avoidance by other species.

Comment III.D.3:

Mirant comments that:

> 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.

Response III.D.3:

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

Comment III.D.4 from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> The Fact Sheet provides a thorough overview and explanation of the issues, permit conditions and facility operations. The Draft Permit is equally thorough and detailed. The Fact Sheet explains the temperature monitoring at the facility has been in the discharge flume and information in a 1976 report is used to interpolate the temperature in the waters above the diffuser. The addition of a permit requirement to monitor the water temperatures above the diffuser in addition to the discharge flume temperature is welcome. The facility has been relying on correlations determined nearly 30 years ago for a discharge releasing a significant volume of heated effluent; this additional monitoring will provide essential in situ data on the thermal impacts in the receiving water. We would also like to advocate for further adjusting the maximum instantaneous temperature limitation so the receiving water will reach a predicted and actual daily maximum of only 85°F, (State Water Quality Maximum Daily Temperature for Class SB

water) instead of 86°F. While only a degree in difference the slight change to meet State Water Quality Standards is a minimum goal.

Response III.D.4:

The Draft Permit granted a §316(a) variance allowing the thermal discharge to exceed Massachusetts Water Quality Standards for temperature. In EPA's judgment, the instantaneous maximum temperature limit is protective of the balanced indigenous population. The added monitoring requirements, however, will provide valuable information for future permit decisions.

Comment III.D.5 from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> We would also suggest the annual reporting of the receiving water temperatures above the diffuser (Part 1.A.2.C) be reconsidered. Should there be issues with unpredicted and unacceptable temperature increases due to the effluent discharge, there could be a significant delay in noting the problem or trend if there is only annual reporting. Since monthly reporting is required for most all other parameters on the discharge monitoring report, we would like to advocate for a monthly reporting requirement for this weekly temperature measure.

Response III.D.5:

EPA does not feel that it is necessary to receive monthly reports for the in-stream Cape Cod Canal temperature monitoring requirement because the Permittee is required, pursuant to Part II.D.1.e and g of the Final Permit, to report all instances of non-compliance. Furthermore, Part II.A.3 and Part II.C.2.b of the Final Permit provide that the Regional Administrator may request this information at any time.

Comment III.D.6 from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> It is unclear if the thermal plume modeling was undertaken with only outfall 001 effluent flows or if the additional heated effluent from outfall 002 was also included in the modeling. The variance to allow for outfall 002 uses, as justification, the rapid dissipation modeled for outfall 001 as indicative of an even more rapid assimilation for the smaller outfall 002 discharge. This may not be as transferable since, it appears, outfall 002 does not have a diffuser and the interaction between the two outfalls thermal plumes has not, apparently, been tested.

Response III.D.6:

Outfall 002, to EPA's knowledge, was not included in the thermal plume modeling. However, this outfall only discharges approximately 3 million gallons per day of heated condenser water

(from outfall 001) which is used to flush debris from the flume. EPA feels that 3 million gallons, even when discharged from a single point rather than a diffuser, would not substantially alter the thermal conditions dominated by discharge of 518 million gallons per day, particularly because dissipation of the plume is not only related to the diffuser, but is strongly associated with the powerful currents in the canal.

Comment III.D.7 from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> The required biological monitoring will provide valuable information on the entrainment and impingement losses associated with the intake. Unfortunately the monitoring will not capture the potential impacts occurring due to the thermal discharge from the facility. The Fact Sheet states the EPA is unaware of, "any biological evidence of past appreciable harm to a balanced indigenous population" in the receiving water but has there been a directed assessment of the receiving water to determine if the thermal inputs are having a deleterious effect on a BIP? Without such a study, the impact of the thermal pollutant from the facility remains speculative. Given the obvious, (relative) abundance of marine life in the canal, it would be judicious to determine if there are overlooked impacts from the thermal plume in this dynamic environment. This could be accomplished by requiring an expanded study to determine impacts to the receiving water biota from the thermal inputs in addition to the impingement and entrainment impacts.

Response III.D.7:

Under Part 1.A.11, the Permittee is required to visually inspect the shoreline areas adjacent to the discharge canal daily for any sign of environmental stress and/or fish mortality. Characterization of fish killed and water quality analysis will follow an event with more than 25 dead fish within any 24 hour period. EPA feels that discharge related mortality monitoring is sufficient in this case to identify adverse impacts of thermal discharge on the Balanced Indigenous Population.

Comment III.D.8 from Commonwealth of Massachusetts - Division of Marine Fisheries

MA Division of Marine Fisheries comments that:

> Section 5.1 of the Fact Sheet presents thermal discharge modeling to support granting a waiver under section 316(a) of the Clean Water Act by EPA. Modeling results for temperature at the bottom of the canal were not included. Increased temperatures from the discharge could adversely alter the benthic habitat. Several of the species listed in Table 5.3 are demersal, and temperature requirements for some of these species are listed in Table 6.2. Based on this information, it appears the heated effluent from the discharge could render the benthic habitat unsuitable. EPA should evaluate thermal discharge modeling of bottom temperatures to determine whether a waiver from 316(a) may adversely impact demersal fishery resources.

Response III.D.8:

The 1999 Canal Station Thermal Monitoring Study indicates that Cape Cod Canal is well-mixed with little thermal stratification. Further, the thermal plume from Canal Station is predominantly a surface feature with limited penetration in the water column, and is quickly dissipated by strong currents. EPA feels that thermal discharge limits in the Draft Permit are sufficient to protect demersal fishery resources in the canal.

Comment III.D.9 from Commonwealth of Massachusetts - Office of Coastal Zone Management

MA Office of Coastal Zone Management comments that:

> Section A.2 of the permit and Section 5.1 (pages 21-23 of 59) of the fact sheet: It isn't clear how raising the permit limit for the Canal Station discharge temperature from 86° F to 107°F (with a limit of 86° F in the upper 15 feet of water above the diffuser) is protective of the fisheries resources in the Cape Cod Canal on a year-round basis. In particular, benthic fisheries resources appear to have been overlooked. Section 6.C of the fact sheet states that "based on the thermal monitoring and hydrodynamic modeling as discussed in Section 5.1 of this fact sheet and the temperature tolerance data for the relevant EFH [Essential Fish Habitat] species, EPA does not believe that significant impacts will occur to essential fish habitat." Section 5.1 of the fact sheet mentions a 1999 Canal Station study on the thermal plume that consisted of a two-month survey using thermistors and an intensive one-day study using data from fixed thermistors and observations made from a boat. This information and Figure 5.1 suggest that the thermal studies were only performed in July and August.
>
> Because important temperature-dependent spawning activities occur in months other than July and August (e.g., winter flounder spawning in late winter/early spring) CZM does not believe that a Clean Water Act section 316(a) variance from Water Quality Standards for temperature is appropriate until the magnitude, extent, and potential effects of the thermal plume are investigated for time periods other than July and August.

Response III.D.9:

EPA agrees that important temperature-dependent spawning activities occur in months in which thermal discharge has not been monitored, and is requiring year-round, weekly monitoring of water column temperature 15 feet above the discharge to supplement the data provided in the study. The prior thermal studies were performed during the time of year (July and August) which represented a worst case scenario, with maximum water column stratification that would result in reduced vertical mixing of the thermal plume. EPA believes that similar studies at other points of the year would show a similar or greater level of dispersion. Thus, given that the plume is predominantly confined to surface waters and dissipates quickly in the strong currents, EPA feels the thermal discharge limits of 107° F at the diffuser and 86° F within the 15 feet above the diffuser is sufficient to protect all life stages of benthic species.

Section III.E Sampling Location

Comment III.E:

Mirant comments that:

> 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.

Response III.E:

EPA determined that the most representative sampling location that is reasonably accessible for outfall 001 was within the last 10 feet of the 750-foot open discharge flume prior to discharging through the diffuser in the Cape Cod Canal. This sampling point will allow for complete mixing and/or heat dispersion afforded by the lengthy discharge flume and will provide a more accurate characterization of the actual discharge for compliance purposes. The Permittee itself states that "because of the cooling effects ... an accurate measurement of the thermal load to the Canal can only be taken at the end of the discharge flume." (See Comment VIII.A, in which Mirant discusses the measurement point for the plant's heat load determination). The Permittee does not provide any explanation as to why it cannot conduct sampling for any of the required parameters (heat, pH, TRO and WET) within 10 feet of the discharge flume, and EPA is not aware of any impediment to its doing so. While the permit condition proposed by the Permittee would provide it with an extra measure of flexibility, from EPA's perspective it could also lead to confusion or unnecessary complexity when analyzing sampling data to the extent sampling points change from one DMR to the next. EPA will therefore retain the sampling location language in the Final Permit.

Inlet temperature measurement can be taken at the "water box inlet" if the water temperature at this location is representative of the incoming ambient cooling water.

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

Section IV Comments on Proposed Revisions to Limits for Outfall 002

Section IV.A Revised and New Limits for pH

Comment IV.A.1:

Mirant comments that:

> 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.
>
> 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 [III].C [1-5] respect to these issues.

Response IV.A.1:

Please see Responses III.C.1 and III.C.4.

Comment IV.A.2:

Mirant comments that:

> 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 [III].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.

Response IV.A.2:

EPA requires monitoring within 2 feet from the water surface at outfall location 002 because the heated condenser cooling water discharging into the 002-discharge flume is positively buoyant. Thus, to guarantee an accurate measure of the pH and temperature of the thermal plume, samples must be taken from within 2 feet of the water surface. EPA notes that samples do not have to be taken **at** a depth of 2 feet, but **within** 2 feet of and including the surface. Even at extreme low tides, when the depth of the water in the flume is less than two feet, compliance with this requirement can still be attained as even several inches of water would be "within two feet from the water surface." EPA does not see an issue with collecting samples when the water in the flume is less than 2 feet deep. For clarification the permit language has been changed from "within two feet *from* the water surface" to "within two feet *of* the water surface" and also that samples shall be collected "when condenser cooling water is discharging."

Further, EPA believes that there are available means of monitoring at depths that vary with tidal action. For example, monitoring probes can be fastened to a floatation device anchored within the discharge flume. A continuous temperature monitor enclosed in a buoy is deployed at Monticello Reservoir near Jenkinsville, SC, owned by South Carolina Electric & Gas Company (SCE&G). The monitor and buoy are located in a high energy, high velocity, high volume canal where the water can flow in either direction depending on the mode of the near-by pumped storage facility.[1]

For reasons explained in Response to Comment III.C.1, EPA requires weekly grab samples for pH at outfall 002 in the Final Permit. Temperature, however, remains a continuous monitoring requirement.

Section IV.B Revised and New Permit Limits for Temperature

Comment IV.B.1:

Mirant comments that:

> 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

[1] John Nagle, EPA, 9/25/2007 email to Sharon DeMeo, EPA. Also see https://www.ysi.com/portal/page/portal/YSI_Environmental/Products/Product_Family/Product?productID=SYS_6952

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.

Response IV.B.1:

The discharge and delta T (ΔT) limits at this location are maximum daily limits (based on the average over a 24-hour day) as indicated in the Draft Permit. EPA believes that the significantly lower flow and temperature limit at this location, compared to outfall 001, combined with a ΔT limit, is a sufficiently protective approach to prevent acute mortality to Atlantic menhaden (and other species) and should not result in significant avoidance by other species. Also see Response III.D.2.

Comment IV.B.2:

Mirant comments that:

> 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).

Response IV.B.2:

EPA requires monitoring for temperature within 2 feet of the water surface at outfall location 002 because the heated condenser cooling water discharging into the 002-discharge flume is positively buoyant. See Response IV.A.2.

Section IV.C New Limits on Condenser Discharge

Comment IV.C.1:

Mirant comments that:

> 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.

Response IV.C.1:

This issue is two-fold. EPA is trying to eliminate or reduce the amount of time that impinged fish are exposed to high levels of chlorine both (1) while trapped on the intake screens and (2) within the return flume (outfall 002). Once the fish are washed off the screens and into the fish return flume, they are additionally subject to heated condenser cooling water from two pipes on the back wall of the return flume that continuously discharge heated (sometimes chlorinated) condenser cooling water.

Since chlorine injection occurs prior to the intake screens, the Draft Permit required that the chlorine injection points be relocated so that impinged fish on the screens were not exposed to chlorine. EPA now understands, however, that the relocation of the chlorine injection points is not possible, as discussed later in Response to Comment IX.D.7. Therefore, the Final Permit requires that the screens are continuously rotated during chlorination to minimize the time that impinged fish are exposed to chlorine on the screens. See Part I.A.13.d of the Final Permit.

Mirant Canal indicates that "[w]hen the screens are running for a given unit, the chlorination system is electronically locked out for that unit." Not only is this contrary to what EPA is requiring as explained in the previous paragraph but this procedure is insufficiently protective. Again, EPA is concerned about a situation where fish are unnecessarily subjected to chlorine, as well as where fish are subjected to chlorine plus heat. Since the fish return flume is common for both units, fish returned to the outfall 002 flume may still be subjected to heated, chlorinated condenser cooling water while *the other unit* is being chlorinated. Therefore, the requirement that "[t]here 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" remains in the Final Permit. This requirement along with the added requirement of continuous screen rotation during chlorination (Part I.A.13.d of the Final Permit) also means that the Station may no longer discharge condenser cooling water through outfall 002 during any chlorination event. This prohibition is set forth in Part I.A.3.c of the Draft Permit and remains in the Final Permit.

In the Region's view, the Permittee has not specified what burdens would be entailed as a consequence of complying with the proposed condition and has not provided a persuasive reason to justify removal of the condition. The Region appreciates that there is a benefit to having additional flow in the discharge flume (*i.e.*, without sufficient water depth impinged fish being

returned to the waterbody via the flume could be stranded or risk unnecessary abrasion). This benefit can be achieved, however, without the use of condenser cooling water as the source of flow augmentation, since this effluent stream can be toxic to fish. The Permittee is free to determine how this should be done. For example, the Permittee may opt either to extend the existing fish return trough or to provide another source of unheated, unchlorinated water (such as increased screen wash water) to the return flume. The Final Permit requires that "The outfall 002 discharge flume shall provide sufficient water depth to return impinged organisms to the Cape Cod Canal with minimal stress" (*e.g.*, minimize the risk of stranding or abrasion).

Comment IV.C.2:

Mirant comments that:

> 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.

Response IV.C.2:

In the absence of the requirement that chlorinated condenser water not be discharged at this location, TRC monitoring would be appropriate, similar to the temperature and pH monitoring imposed on this outfall. However, EPA's purpose in imposing the condition was to protect impinged fish during screen washing from harmful exposure to heat and chlorine and was not to "obviate the need for TRC monitoring." Prohibiting the discharge of condenser cooling water when the screens from either unit are being rotated and washed (and fish are being returned to the outfall 002 flume) achieves this purpose.

Section IV.D Flow Limits

Comment IV.D:

Mirant comments that:

> 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.

Response IV.D:

EPA requires that continuous screen rotation commence after the improvements to the fish return system are complete. See Part I.A.13.f of the Draft Permit. When the changes are made to the fish return system as required in Part I.A.13.e of the Draft Permit and also as described in the Permittee's supplemental information report submitted to the EPA on October 30, 2003, outfall 002 will no longer receive screen wash water. Therefore, higher flow limits will not be necessary. Screen wash water, including any impinged organisms will be returned to the Cape Cod Canal at either end of each Unit so that during ebb tide, the fish trough flow for both Units would discharge to the west of the intakes and during flood tide, the fish trough would discharge east of the intakes. These discrete discharges of intake screen washwater to the Cape Cod Canal are expected to have the same chemical and thermal characteristics as the water withdrawn from the Cape Cod Canal. To gather information for future permit development and to determine more information regarding the volume and operation of the screen wash system under various conditions, EPA has added the following requirement (Part I.A.3.e) concerning these discharges of the screen wash water after improvements are made to the fish return system: "Upon completion of the upgrades to the fish return system as required by Part I.A.13.e of this permit, the Permittee shall monitor and report average monthly and maximum daily flows for the discharges composed solely of intake screen washwater."

Section V Comments on Revised Requirements for Internal Outfall 010

Comment V.A:

Mirant comments that:

> 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.

Response V.A:

The Draft Permit requirement authorizing the use of outfall 010 during "emergencies only" was based on information EPA gathered during permit development, including personal communication with Mirant staff during a site visit on December 8, 2004. *See* EPA Site Visit Report for Mirant Canal Station, December 8, 2004. Based on the new information above, EPA agrees that Mirant Canal should be able to use this outfall during planned outages of the precipitator system or for other operational reasons and has removed this emergency only requirement from the Final Permit. All discharges from outfall 010, for whatever reason, are subject to permit limits and monitoring conditions required by Part I.A.4. The reporting requirement, Part I.A.4.a, has also been removed as it pertained to emergency situations.

Section VI Comments on Revised Requirements for Internal Outfall 011

Comment VI.A.1: Requirement to Segregate Chemical and NonChemical Metal Cleaning Wastes From Low Volume and Ash Sluice Wastes

Mirant comments that:

> 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.
>
> 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[1] or ash sluice wastewater

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

with metal cleaning wastewater prior to 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"[2] equipment washes at the Canal Station

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> 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-[chemical] 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.

[2] 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.

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 not 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 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-[chemical] 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.

Response VI.A.1:

1. Regulation of Nonchemical Metal Cleaning Waste Discharges

Canal Station has many different types of pollutant discharges, including heated cooling water (i.e., thermal pollution), "chemical metal cleaning wastes," and "ash sluice blowdown" (which is an "ash transport water" waste).[3] It also discharges "nonchemical metal cleaning wastes," which

[3] *Cf.* 42 Fed. Reg. 15690, 15693 (Mar. 23, 1977) (Interim Regulations, Pretreatment Standards for Existing Sources, Steam Electric Generating Point Source Category) (listing the different types of wastewaters discharged by power plants as follows: metal cleaning wastes (without distinguishing between chemical and nonchemical metal cleaning wastes); cooling system wastes; boiler blowdown; ash transport water; and low volume waste).

have in the past been referred to in the context of this permit as "equipment washes." Specifically, as noted in Canal Station's comments, the facility's "equipment washes" include wastewater from the following nonchemical, metal process equipment washing processes: air pre-heater wash, SCR catalyst wash, boiler wash, furnace wash, stack and breeching wash, fan wash, precipitator wash, and combustion air heater wash.

Canal Station's existing permit (issued June 23, 1989) applies limits of 1.0 mg/L for both total copper and total iron in the discharge from outfall 011, which consists of wastewater combining chemical metal cleaning wastes, nonchemical metal cleaning wastes (*i.e.*, "equipment washes"), and "ash sluice blowdown." *See* 1989 Permit, Part I.A.5.a. EPA's new Draft Permit proposed changing this regime by requiring (a) that the nonchemical metal cleaning wastes (*i.e.*, equipment washes) and the chemical metal cleaning wastes both be discharged from outfall 011 and subjected to the 1.0 mg/L limits for total copper and total iron, and (b) that these two types of metal cleaning wastes be separated from the ash sluice blowdown, with the latter to be discharged from outfall 012 and not subject to the copper and iron limits.

In its comments on the Draft Permit, Mirant opposes the proposed changes to the existing permit. Although Mirant accepts the total copper and total iron limits as applied to the chemical metal cleaning waste stream, it submits that the nonchemical metal cleaning waste (or equipment washes) should be regarded as "low volume waste" and, as such, not subjected to the total copper and total iron limits.[4] Mirant also comments that there is no need to segregate the metal cleaning waste stream(s) from the ash sluice blowdown waste stream, and that the total copper and total iron limits should continue to be applied at outfall 011 to the combined discharge of the chemical metal cleaning, nonchemical metal cleaning (*i.e.*, equipment washes) and ash sluice blowdown waste streams.

EPA disagrees with these comments and retains the conditions from the Draft Permit in the Final Permit. As explained in the Fact Sheet, and elaborated upon here, the Final Permit's limits are consistent with the relevant provisions of the CWA and EPA's regulations promulgated thereunder.

The basic requirements of the CWA NPDES permit program are well understood. CWA § 301(a) makes unlawful the discharge of any pollutant except in compliance with, among other

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[4] In footnote 1 above, Mirant comments that low volume wastes consisting of demineralizer and condensate polisher wastes are discharged from current outfall 012 and are not combined with the discharge through outfall 011 of ash sluice, "equipment washes" and chemical metal cleaning wastes. Mirant expresses concern that the Fact Sheet incorrectly suggests that the demineralizer and condensate polisher wastes are combined with the metal cleaning wastes in the waste treatment ponds and then discharged from outfall 011. EPA agrees that the demineralizer and condensate polisher wastes are discharged from outfall 012 and not combined with the metal cleaning waste streams. EPA also concurs that the Fact Sheet was confusing on this point. On page 14, the Fact Sheet correctly addressed the demineralizer and condensate polisher wastes, but the text on page 13 does appear to suggest that these waste stream were combined with the metal cleaning wastes prior to discharge through outfall 011. EPA has now clarified the matter in this footnote. The Agency also notes, however, that this point is inconsequential to EPA's analysis and conclusion regarding waste stream segregation and the effluent limits and treatment requirements applicable to the chemical and nonchemical metal cleaning wastes.

things, CWA §§ 301 and 402. 33 U.S.C. § 1311(a). *See also* 40 C.F.R. § 122.1(b)(1). CWA § 402(a)(1) provides (in pertinent part) that EPA:

> . . . may . . . issue a permit for the discharge of any pollutant, . . . notwithstanding section 1311(a) of this title, upon condition that such discharge will meet either (A) all applicable requirements under section[] 1311 . . ., or (B) prior to the taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this chapter.

33 U.S.C. § 1342(a)(1)(A) and (B). *See also* 33 U.S.C. § 1342(a)(2) and (b)(1)(A); 40 C.F.R. §§ 122.43(a), 122.44(a) and 125.3. CWA § 301(b) sets forth in narrative form the technology standards that pollutant discharges must satisfy and the deadlines by which compliance with them must be achieved. Effluent limitations based on application of the "best practicable control technology" (BPT) were generally to be achieved by July 1, 1977, 33 U.S.C. § 1311(b)(1)(A). *See* 33 U.S.C. § 1311(B)(3)(A); 40 C.F.R. § 125.3. Effluent limitations based on the "best technology economically achievable" (BAT) were to be achieved no later than March 31, 1989. 33 U.S.C. § 301(b)(2). *See also* 40 C.F.R. §§ 125.3.

When EPA has promulgated national effluent limitation guidelines (ELGs) applying the statute's narrative technology standards to a particular industrial category's pollutant discharges, then those ELGs provide the basis for the discharge limits included in the NPDES permits issued to individual facilities falling within the industrial category in question. 33 U.S.C. §§ 1342(a)(1)(A) and (b). *See also* 40 C.F.R. §§ 122.43(a) and (b), 122.44(a)(1) and 125.3. In the absence of a categorical ELG, however, EPA develops NPDES permit limits by applying the statute's narrative technology standards (such as the BAT standard) on a case-by-case, best professional judgment (BPJ) basis. 33 U.S.C. § 1342(a)(1)(B); 40 C.F.R. §§ 122.43(a), 122.44(a)(1) and 125.3.

EPA has promulgated national ELG regulations for the "Steam Electric Power Generating Point Source Category," of which Canal Station is a member. *See* 40 C.F.R. Part 423 (the Steam Electric Power Plant ELGs). These current ELG regulations define "metal cleaning waste" as:

> any wastewater resulting from cleaning [with or without chemical cleaning compounds] any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning.

40 C.F.R. § 423.11(d).[5] Thus, the plain language of this regulation defines *metal cleaning waste* to include *any* wastewater generated from *either the chemical or nonchemical cleaning of metal process equipment*. Furthermore, the regulations define "chemical metal cleaning waste" as "any wastewater resulting from cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning." EPA also uses, but does not expressly define, the term "nonchemical metal cleaning waste" in the regulations when it states that it has "reserved" the development of BAT ELGs for such wastes. 40 C.F.R. § 423.13(f). While the

[5] EPA's current permitting decision is made under the present regulations, but earlier versions of the regulations are also discussed below to the extent they are relevant to EPA's present analysis of the issues.

regulations provide no definition of "nonchemical metal cleaning waste," the definitions of *metal cleaning waste* and *chemical metal cleaning waste* make clear that *nonchemical metal cleaning waste* is any wastewater resulting from the cleaning without chemical cleaning compounds of any metal process equipment. Finally, the regulations define "low volume waste" as:

> . . . wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume wastes sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

40 C.F.R. § 423.11(b). The waste sources listed as examples of low volume wastes include various process and treatment system wastewaters and do not include wastewater generated from washing metal process equipment. Therefore, low volume wastes are distinct from metal cleaning wastes.

The ELG regulations establish BPT daily maximum and 30-day average limits of 1.0 mg/l for both total copper and total iron in discharges of "metal cleaning waste." On the face of the regulations, these limits apply to both chemical and nonchemical metal cleaning wastes because, as stated above, both are included within the definition of "metal cleaning waste." 40 C.F.R. § 423.12(b)(5), 423.11(d). Thus, under the effluent limitation guidelines, the facility's nonchemical metal cleaning wastes are subject to BPT limits of 1.0 mg/l (maximum and 30-day average limits) for both total copper and total iron.

The regulations also set BAT daily maximum and 30-day average limits of 1.0 mg/L for both total copper and total iron in discharges of *chemical metal cleaning waste*, 40 C.F.R. § 423.13(e), while indicating that EPA has "reserved" specification of BAT ELGs for nonchemical metal cleaning waste. 40 C.F.R. § 423.13(f). Thus, although the regulations only set national, categorical BAT ELGs for *chemical* metal cleaning waste, they nevertheless indicate that the BAT standard applies to nonchemical metal cleaning wastes. EPA explained in the preamble to the Steam Electric Power Plant ELGs promulgated in 1982, that it was "reserving" the specification of BAT ELGs for nonchemical metal cleaning waste because it felt that it had insufficient information regarding (a) the potential for differences between the inorganic pollutant concentrations found in the nonchemical metal cleaning wastes of oil-burning and coal-burning power plants, and (b) the cost and economic impact that would result from requiring that nonchemical metal cleaning wastes satisfy the same limits that had been set for chemical metal cleaning wastes. 47 Fed. Reg. 52297 (Nov. 19, 1982). Of course, as explained above, in the absence of an applicable national ELG, EPA applies the CWA's narrative technology standards on a case-by-case, BPJ basis in order to develop NPDES permit limits. 33 U.S.C. § 1342(a)(1)(B); 40 C.F.R. § 125.3(c)(2).

Therefore, the plain text of the CWA and EPA regulations indicate (1) that EPA set categorical BPT ELGs applicable to Canal Station's metal cleaning wastes, both chemical and nonchemical, that impose limits of 1.0 for total copper and total iron, (2) that EPA set categorical BAT ELGs

applicable to Canal Station's chemical metal cleaning wastes that impose limits of 1.0 for total copper and total iron, (3) that EPA has reserved development of a BAT ELG for nonchemical metal cleaning wastes, but BAT permit limits for such wastes should be developed on a BPJ basis, (4) that the statutory deadlines for achieving compliance with the BPT and BAT standards have long since passed, (5) that nonchemical metal cleaning waste is not a low volume waste, and (6) that low volume wastes are not subject to the total iron and total copper limits that were developed for metal cleaning waste.

In its comments, Canal Station contends that its nonchemical metal cleaning wastes (*i.e.*, "equipment washes") – which include air pre-heater wash, SCR catalyst wash, boiler wash, furnace wash, stack and breeching wash, fan wash, precipitator wash, and combustion air heater wash – should be treated as "low volume wastes" and not subjected to the effluent limits for iron and copper developed for the metal cleaning wastes. The commenter maintains that nonchemical metal cleaning wastes at Canal Station were considered "low volume wastes" in the past and should continue to be categorized as such. In support of its view, the commenter relies on past EPA permit determinations, a 1975 EPA memorandum referred to as the "Jordan Memorandum" and EPA's later treatment of that memorandum in the preamble to the 1982 Revisions to the Steam Electric ELGs. As explained below, in EPA's view, Canal Station's comments do not identify a reasonable basis for EPA to address the facility's nonchemical metal cleaning wastes as low volume wastes not subject to effluent limits for total copper and iron in the new NPDES permit.

EPA first promulgated the ELG regulations for the Steam Electric Generating Point Source Category in 1974. 39 Fed. Reg. 36186 (Oct. 8, 1974). These regulations defined "metal cleaning wastes" to mean:

> . . . any cleaning compounds, rinse waters, or any other waterborne residues derived from cleaning any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning and air preheater cleaning.

39 Fed. Reg. 36199 (*see* former version of 40 C.F.R. § 423.11(j)). On its face, this regulatory definition encompasses both chemical and nonchemical metal cleaning wastes, as it covers both any cleaning compounds and any rinse waters or other waterborne residues from cleaning metal process equipment, and does not in any way exclude nonchemical metal cleaning waste. The 1974 ELG regulations also defined "low volume wastes" to mean:

> . . . taken collectively, as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in this subpart. Low volume waste sources would include but are not limited to waste waters from wet scrubber air pollution control systems, ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, floor drainage, cooling tower basin cleaning wastes and blowdown from recirculating house service water systems.

39 Fed. Reg. 36199 (*see* former version of 40 C.F.R. § 423.11(h)). This regulatory definition does not appear to include metal cleaning wastes of any sort. Taken together, the two definitions

identify a clear distinction between metal cleaning wastes (whether chemically or nonchemically based) and low volume wastes.

Nevertheless, in 1975, a biologist in EPA's Region III Office wrote to an engineer in EPA Headquarters' Office of Enforcement seeking clarification regarding, among other things, whether "effluent streams that result exclusively from water washing of ash found on boiler fireside, air preheater etc. should be considered in the low volume or ash transport waste source categories," as opposed to the metal cleaning waste category, while only chemical cleaning wastewaters should be categorized as "metal cleaning wastes." *See* Letter from Bruce P. Smith, Delmarva-D.C. Section, EPA Region III, to Mr. Bill Jordan, EPA Headquarters (May 21, 1975), p. 2. In posing the question, Mr. Smith acknowledged that the ELG regulations clearly do *not* exclude nonchemical waste streams from the definition of metal cleaning waste, but indicated that some ambiguity was suggested by text in EPA's technical "Development Document" for the Steam Electric Power Plant ELGs.

Mr. Jordan responded to Mr. Smith with a memorandum stating as follows:

> [i]n regard to the question on distinguishing between metal cleaning wastes and low volume wastes, the following clarification is offered. All water washing operations are 'low volume' while any discharge from an operation involving chemical cleaning should be included in the metal cleaning category.

See Memorandum from J. William Jordan, Chemical Engineer, Permit Assistance & Evaluation Section, Office of Enforcement, EPA Headquarters, to Bruce P. Smith, Biologist, Enforcement Division, EPA Region III (June 17, 1973) (the Jordan Memorandum), p. 2.[6] Thus, with no explanatory analysis provided, Engineer Jordan appears to propose that wastes from nonchemical washing of metal equipment (i.e., "water washing operations") should be treated as "low volume waste" (and not subject to BPT effluent limitations for total copper and total iron in metal cleaning waste) contrary to the text of the ELG regulations.

In 1977, EPA promulgated new pretreatment standards for the Steam Electric Power Plant ELGs. *See* 42 Fed. Reg. 15690 (Mar. 23, 1977) (Interim Regulations, Pretreatment Standards for Existing Sources, Steam Electric Generating Point Source Category). In the preamble to the Final Rule, EPA identified five categories of wastewater produced by steam electric power plants, including metal cleaning wastes, cooling system wastes; boiler blowdown; ash transport water; and low volume wastes. *Id.* at 15693. In its discussion, EPA did not distinguish between chemical and nonchemical metal cleaning wastes and gave no suggestion that that latter should be regarded as low volume waste. EPA's discussion, instead, indicated that nonchemical metal cleaning wastes would be included within the metal cleaning waste category. *See id.* ("Metal cleaning wastes are those wastes which are derived from cleaning of metal process

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[6] The bulk of the Jordan Memorandum addresses a question other than the one about how to categorize nonchemical metal cleaning waste. Specifically, Mr. Smith's letter had also asked how effluent limits should be applied when non-similar waste streams such as metal cleaning waste, low volume waste, and ash sluice water are all discharged to an ash pond prior to discharge. The Jordan Memorandum, at pp. 1-2, focuses largely on responding to that question and outlined several possible different approaches.

equipments."). *See also id.* (list of examples of metal equipment the cleaning of which would yield metal cleaning wastes and discussion of what constitutes low volume wastes). EPA also explained that pollutants in metal cleaning wastes include iron and copper, among other pollutants. Properly categorizing wastes within the metal cleaning waste category was no idle concern for EPA in developing pretreatment standards because EPA had determined that copper (and certain other constituents) would be incompatible with the operation of publicly owned treatment works (POTW) and, therefore, had imposed a pretreatment standard for copper in metal cleaning wastes discharged to a POTW but not for low volume wastes. *See id.* at 15695-96 (40 C.F.R. §§ 423.14(b)(2), 423.24(b)(2), 423.34(b)(2)). Therefore, improperly categorizing a waste that included copper as a low volume waste could result in excessive copper being discharged to a POTW despite its incompatibility with POTW operations.

In 1980, EPA proposed amendments to the Steam Electric Power Plant ELGs. 45 Fed.Reg. 68328 (October 14, 1980). In the preamble to the proposed rulemaking, EPA expressly reconsidered and rejected the Jordan Memorandum's exclusion of nonchemical metal cleaning waste from the metal cleaning waste category, noting that a distinction between the chemical and nonchemical wastes was contradicted by the existing regulations. The Agency explained that the existing requirements applied to *all* metal cleaning wastes, regardless of whether they resulted from cleaning with chemical solutions or with water only. *See id.* at 68333. EPA further indicated that its decision to reject the Jordan Memorandum's conclusion was supported by (a) cost and technology data supporting the original copper and iron limits, which were based on all metal cleaning wastes, not just the chemically-based ones, and (b) the presence of "toxic pollutants in these waste streams even where only water is used for washing." *Id.* EPA concluded that "the regulations proposed below make clear that the 'metal cleaning waste' definition will apply according to its terms, and the question of whether washing is done with water only will be irrelevant." *Id.*

Nevertheless, EPA went on to propose that, "[b]ecause many dischargers may have relied on EPA's memorandum of June 1975, . . . the regulations proposed below adopt the memorandum's position for purposes of BPT only." *Id.* EPA proposed to implement this apparently equitably-based approach by taking the following three steps:

1. Revising the definition of "metal cleaning wastes" to even more explicitly *include both chemical and nonchemical metal cleaning wastes.* The new proposed definition was subsequently retained in the final regulations and remains in the current regulations. It is quoted above in this response. *Id.* at 68350 (proposed 40 C.F.R. § 423.11(d)).
2. Adding a definition of "chemical metal cleaning waste." *Id.* at 68350 (proposed 40 C.F.R. § 423.11(c)). The proposed new definition was subsequently retained in the final regulations and remains in the current regulations. It is quoted above in this response.
3. Changing the BPT ELGs so that they would only apply to "chemical metal cleaning wastes," rather than to "metal cleaning wastes" generally. *Id.* at 68351 (proposed 40 C.F.R. § 423.12(b)(5)).
4. Promulgating new BAT ELGs applicable to "metal cleaning wastes" generally, which imposed effluent limits for copper and total iron. *Id.* at 68352 (proposed 40 C.F.R. § 423.13(g)).

EPA's approach would have amended the Steam Electric Power Plant ELGs to correctly categorize nonchemical metal cleaning wastes as "metal cleaning wastes" while legally exempting them from the application of the BPT ELGs for copper and iron. This result would have been consistent with the effect of the Jordan Memorandum even as it corrected its mistaken underlying conclusion. It also would have correctly applied BAT ELGs to both chemical and nonchemical metal cleaning wastes going forward.

In the Final Rule, however, EPA shifted course somewhat in response to public comments received on the proposal. 47 Fed. Reg. 52290 (Nov. 19, 1982). EPA retained the clarified definition of "metal cleaning waste" and the new definition of "chemical metal cleaning waste," *id.* at 52305 (40 C.F.R. §§ 423.11(c) and (d)), but it dropped the regulatory language that applied the BPT limitations only to chemical metal cleaning wastes. *Id.* at 52297, 52306 (40 C.F.R. § 423.12(b)(5)). Thus, the regulations applied the BPT limits to *all* metal cleaning waste. With regard to BAT limitations, however, EPA decided to promulgate effluent limitations only for the *chemical* metal cleaning wastes and to "reserve" development of the limitations for the nonchemical metal cleaning wastes. *Id.* at 52297, 52307 (40 C.F.R. §§ 423.13(3) and (f)). EPA explained that while the BAT standard applied to nonchemical metal cleaning wastes, certain issues raised in the public comments, as discussed above, required further investigation. *Id.* at 52297. *See also id.* at 52307-08 (40 C.F.R. §§ 423.15(e), 423.16(c), 423.17(c)). Specifically, EPA felt it had insufficient information to determine whether the waste streams from oil-burning and coal-burning facilities had significant differences or whether the costs would be excessive on a national, industry-wide basis. *Id.* at 52297. In addition, EPA once more addressed its apparent equitable concern about the Jordan Memorandum by stating in the preamble that "until the Agency promulgates new limitations and standards, the previous guidance policy may continue to be applied in those cases in which it was applied in the past." *Id.* Thus, although it had concluded that the Jordan Memorandum was inconsistent with the regulations and its conclusion was fundamentally flawed, EPA indicated that it could apply it on a discretionary basis in cases where it had been applied in the past ("may continue to be applied").

Having considered all of the above, EPA concludes that it would be unreasonable to exempt Canal Station's nonchemical metal cleaning waste streams from effluent limits for copper and iron based on the Jordan Memorandum and EPA's past discussion of it in the preambles to the Steam Electric Power Plant ELGs. EPA reaches this conclusion for a number of independently sufficient reasons. First, to do so would be inconsistent with the CWA's requirements that BPT and BAT standards be satisfied by now (i.e., no later than 1977 and 1989, respectively) and that NPDES permits include limits reflecting such standards based on ELGs or, in the absence of ELGs, BPJ determinations. Second, issuing an NPDES permit to Canal Station without copper or iron limits applicable to its "equipment washes" (which are nonchemical metal cleaning wastes), based on treating them as low volume wastes, would be inconsistent with the plain language of the regulations, which treats nonchemical metal cleaning wastes as a type of metal cleaning waste subject to copper and iron limits. The commenter incorrectly states that the Jordan Memorandum represents a "contemporaneous interpretation" of the term metal cleaning waste used in the regulations. The June 1975 Jordan Memorandum was, instead, a later-in-time opinion about how the terms from the October 1974 regulations should be applied, and it included no analysis of the regulations whatsoever. Rather than *interpreting* the regulations, the

Jordan Memorandum *contradicts* the regulations, as EPA indicated in the 1980 preamble to the proposed Steam Electric Power Plant ELGs.

Third, as EPA stated in the preamble to the revised Steam Electric Power Plant ELGs proposed in 1980, the Jordan Memorandum was not only inconsistent with the regulations, and provided no analysis to support its conclusion, but it was incorrect as a matter of fact and inadvisable as matter of policy. The technology and cost data upon which EPA had based the BPT limitations for copper and iron in metal cleaning waste were based on both chemical and nonchemical metal cleaning wastes, and not just on the former. Furthermore, EPA pointed out that like chemical metal cleaning wastes, nonchemical metal cleaning wastes can contain toxic pollutants. At the same time, Canal Station has not provided a description of its operations or any monitoring data to indicate that its nonchemical metal cleaning wastes are free from toxic pollutants. Subjecting nonchemical metal cleaning wastes to BAT standards is thus also reasonable from the standpoint of environmental protection.

Fourth, while it is unclear to EPA that it would have the authority to issue Canal Station an NPDES permit inconsistent with the statute and regulations based on the equitable concern noted in the Steam Electric Power Plant ELG preambles (*i.e.*, past reliance on the Jordan Memorandum), EPA does not believe it would be appropriate to exercise any such authority in this case. EPA's stated equitable concern about parties who may have relied on the Jordan Memorandum is best understood as a concern about the application of BPT limits, which were the limits for which compliance was required at the time of the Jordan Memorandum and the 1980 and 1982 preambles. In 1980, EPA proposed changing the ELGs to specify that *BPT* limits would not apply to nonchemical metal cleaning wastes because of past reliance on the Jordan Memorandum, though it later dropped that idea in the final ELGs. EPA never suggested, however, that nonchemical metal cleaning wastes should also potentially be exempted from the BAT standards for which compliance was to be required in the near future. While EPA ended up *reserving* the development of national, categorical BAT limitations because of insufficient information on certain issues, the Agency did not suggest BAT limits should not be applied because of the Jordan Memorandum. Thus, it is appropriate that EPA's new NPDES permit for Canal Station apply BAT limits on a BPJ basis to the facility's nonchemical metal cleaning waste discharges.

Fifth, while EPA suggested that it had discretion to continue applying the Jordan Memorandum in cases where it had been applied in the past, it is not clear to EPA that it ever was applied to Canal Station, which is the precondition for applying the Jordan memorandum on a discretionary basis. Neither the 1989 Permit nor the Fact Sheet for that permit state that the nonchemical metal cleaning wastes (or "equipment washes") were being treated as low volume wastes or that they were not subject to effluent limits for copper and iron. Instead, EPA's permit applied copper and iron limits at outfall 011 to a combined discharge of chemical metal cleaning wastes, nonchemical metal cleaning wastes (equipment washes), and ash sluice blowdown. As discussed below, it was incorrect for EPA to apply the limits to these commingled wastestreams, but EPA's approach does not indicate that EPA thought that the limits did not need to be applied to the nonchemical metal cleaning wastes.

Finally, even as an equitable matter it does not make sense to exempt Canal Station from BPT or BAT effluent limits in a 2008 NPDES permit based on an unsubstantiated (and oft questioned) memorandum from more than 30 years ago. To the extent that the Jordan Memorandum was ever applied to Canal Station in the past – and it is not clear to EPA that it was – the facility would already have received many years of benefit to the detriment of a public resource. Moreover, continuing to misapply the law and regulations could arguably give an unfair competitive advantage to Canal Station over other facilities not excused from complying with permit limits based on the ELGs or based on a BAT limit determined on a BPJ basis.

2. BPJ Determination of BAT Limits

In the absence of an applicable effluent limitation guideline, EPA must exercise its Best Professional Judgment to establish an effluent limit based on BAT.[7] According to 40 C.F.R. § 125.3(c)(2), in determining BAT requirements, EPA should consider the "appropriate technology for the category of point sources of which the applicant is a member, based on all available information," and "any unique factors relating to the applicant."[8]
According to the CWA's legislative history, "best available" technology refers to the "single best performing plant in an industrial field." *See* 45 Fed. Reg. 68333.[9] EPA also considers the following factors: (i) age of the equipment and facilities involved; (ii) process employed; (iii) engineering aspects of the application of various types of control techniques; (iv) process changes; (v) the cost of achieving such effluent reductions; and (vi) non-water quality environmental impact (including energy requirements). *See* CWA § 304(b)(2) and 40 C.F.R. § 125.3(d)(3). EPA has determined that the BAT-based effluent limits for nonchemical metal cleaning waste discharges at Canal Station should be at least as stringent as the applicable BPT limitations for such nonchemical metal cleaning wastes. Therefore, for this permit, EPA has determined, based on its Best Professional Judgment, that equipment washes (or nonchemical metal cleaning wastes) at Canal Station should be subject to concentration-based effluent limits of 1.0 mg/L for total copper and total iron.

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[7] *See Tex. Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998) ("In situations where the EPA has not yet promulgated any [effluent limitation guidelines] for the point source category or subcategory, NPDES permits must incorporate 'such conditions as the Administrator determines are necessary to carry out the provisions of the Act.' 33 U.S.C. 1342(a)(1). .... In practice, this means that the EPA must determine on a case-by-case basis what effluent limitations represent the BAT level, using its 'best professional judgment.' 40 C.F.R. § 125.3(c)-(d). Individual judgments thus take the place of uniform national guidelines, but the technology-based standard remains the same."); *Trs. for Alaska v. EPA*, 749 F.2d 549, 553 (9th Cir. 1984) (same for BCT).

[8] EPA is not aware, and the Company has not identified, any unique factors applicable to the facility that would impact the selection of the BAT in this case. EPA has taken into account site-specific factors in the course of discussing the six BAT considerations below.

[9] *See also Texas Oil & Gas Ass'n*, 161 F.3d at 928 (quoting *CMA v. EPA*, 870 F.2d at 226); *CMA v. EPA*, 870 F.2d at 239; *Kennecott v. EPA*, 780 F.2d 445, 448 (4th Cir. 1985); *Ass'n of Pacific Fisheries*, 615 F.2d at 816-17; *American Meat Inst. v. EPA*, 526 F.2d 442, 463 (7th Cir. 1975).

(i) Age of the equipment and facilities involved

In determining BAT for Mirant Canal Station, EPA accounted for the age of equipment and the facilities involved. Canal Units 1 and 2 first came online in 1968 and 1976, respectively. Canal Station is equipped with waste treatment tanks and has been performing treatment of chemical metal cleaning wastes consisting of boiler chemical cleaning wastewater. [10] There is nothing about the age of the equipment and facilities involved that would preclude the use of the same or similar technology to treat nonchemical metal cleaning wastes (*i.e.*, equipment washes) at the facility. Indeed, Mirant in its comments discusses how the existing facility could be retrofitted with new technology, albeit at some expense, to comply with the new requirements and by implication acknowledges that the age of the facility by itself poses no bar to compliance.

(ii) Process employed

In determining BAT for Mirant Canal Station, EPA considered the process employed at the facility. Mirant Canal Station is a 1120 MW, fossil fuel-burning, steam-electric power plant with the primary purpose of generating electrical energy. Treating nonchemical metal cleaning wastes to the same level as chemical metal cleaning wastes will not prevent the Permittee from maintaining the primary production process of energy generation. Mirant Canal already segregates for treatment of chemical metal cleaning waste generated as a result of operations at the facility, and this treatment process is equally applicable to nonchemical metal cleaning wastes.[11] Chemical metal cleaning wastewater (specifically boiler cleaning) is treated prior to discharge using effluent segregation in one of four possible holding ponds, pH adjustment, solids removal and sludge dewatering.

(iii) Engineering aspects of the application of various types of control techniques

Technologies to treat metal cleaning wastes for copper and iron are in wide use at large existing steam-electric power plants around the country. Typically, this treatment process entails pH adjustment, metal coagulation and solids removal. This is fairly straightforward, standard technology applied to treat many types of metal containing waste waters.[12] The Mystic Station power plant in Everett, Massachusetts, for instance, requires nonchemical metal cleaning wastes to receive the same level of treatment as chemical metal cleaning wastes and both must meet mass-based limits equivalent to concentration-based limits of 1.0 mg/L for total copper and total iron. *See* Mystic Station NPDES Permit No. MA0004740.

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[10] See Mirant Canal's letter, dated March 14, 2005, describing the treatment and discharge of boiler cleaning wastewater. Also see subsequent emails between Sharon Zaya, EPA and Robert Bartolome, Mirant, on April 4, 2005 and May 4, 2005.

[11] See Mirant Canal letters, dated April 23, 2003 and March 14, 2005.

[12] See pages 441-455 of the Final Development Document for Effluent Limitations Guidelines and Standards and Pretreatment Standards for the Steam Electric Point Source Category, November, 1982, for treatment technologies for metal cleaning wastes.

As mentioned, technology to treat chemical metal cleaning wastewater already exists at Mirant Canal Station. Specifically, this wastewater is treated prior to discharge using pH adjustment and solids removal within waste ponds and neutralization tanks. The Station can utilize existing treatment technologies at the facility to meet the proposed BAT standards for copper and iron for nonchemical metal cleaning wastewater. Furthermore, existing treatment capacity (360,000 gallons) exists within the four waste storage ponds to accommodate the nonchemical metal cleaning wastes.

In order to employ this existing treatment capability, some wastewater streams would need to be redirected before and during metal cleaning treatment. Because this effluent stream is currently commingled with ash sluice water (and possibly low volume wastes under certain circumstances), it must be segregated before treatment or a combined waste stream formula could potentially be applied. The Permittee has acknowledged that waste segregation would be possible from an engineering standpoint at Mirant Canal Station.[13] Several communications between EPA and Mirant Canal took place during permit development in 2005 in which EPA sought to determine whether segregating chemical and nonchemical metal cleaning wastes for treatment would be feasible.[14] The permit writer, Sharon Zaya (DeMeo), explained that EPA was considering segregation of wastestreams for the Draft Permit and provided the rationale for so doing. During a March 28, 2005 phone communication, Mirant indicated that the metal cleaning waste segregation proposed for the Draft Permit could be accomplished with scheduling changes and the facility's existing treatment technology. Mirant stated that it would need to change the timing of nonchemical cleaning operations to coincide with either chemical cleaning operations or outages.

Contrary to these discussions, in its comments on the Draft Permit, Mirant objects to segregating the ash sluice water and boiler blowdown from its chemical and especially nonchemical metal cleaning wastes on the grounds that it may require extensive piping modifications, a new treatment pond and/or a new clarifier, and that it would be expensive (Mirant estimates costs approaching $500,000.00 or more) would potentially require time for obtaining permits. EPA responds to these comments by noting that the "scheduling changes" approach outlined above might be feasible and would obviate the difficulties noted in the comments. EPA also points out that the comments indicate that any necessary changes would be technologically feasible, albeit at some expense (cost is discussed below) and effort. Finally, it may also be possible to avoid waste segregation by taking a combined waste stream formula approach. Mirant did not, however, provide any data showing copper and iron concentrations of each of the relevant waste streams so that a combined waste stream formula could be applied. Nevertheless, the Permittee may provide this information in the future and EPA will consider a possible permit modification to limit copper and iron based on a combined waste stream formula. In addition, another option

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[13] Mirant Canal's letter, dated April 23, 2003, describes a proposed boiler cleaning waste treatment operation utilizing "D" pond and four 20,000 gallon FRAC tanks. Mirant estimated that they would be discharging between 200,000 and 275,000 gallons from this operation.

[14] Email from Sharon Zaya, EPA to Leslie Alden, Mirant, January 20, 2005; same email forwarded to Robert Bartolome, Mirant, May 5, 2005; email from Sharon Zaya, EPA to Leslie Alden, Mirant, June 30, 2005; notes from phone communication between Sharon Zaya, EPA and Leslie Alden, Mirant, January 19, 2005 and phone communication between Sharon Zaya, EPA and Leslie Alden and Robert Bartolome, Mirant, March 28, 2005.

available to the Permittee is the collection and off-site treatment and disposal of the metal cleaning wastes.

(iv) Process changes

EPA has also evaluated the process changes associated with treatment of nonchemical metal cleaning wastes. As discussed, nonchemical metal cleaning wastes can be treated using existing technology currently in use at the plant. Since metal waste treatment is a separate process from power generation, the treatment of nonchemical metal cleaning wastewater does not impact power generating operations at the Station.

(v) Cost of achieving effluent reductions

In its comments, Mirant indicates that waste stream segregation and additional treatment of the nonchemical metal cleaning wastes could be accomplished, but now estimates that it will require extensive engineering modifications and associated expenditures approaching $500,000 (or more if a new clarifier is needed). It is not clear to EPA that this will be the case in light of the options discussed above. Still, engineering costs on the order of magnitude cited by Mirant can reasonably be borne by the Company from an economic standpoint. Since Mirant has emerged from bankruptcy, it has been a profitable company, and should be able to afford the expense associated with mandated technology for NPDES compliance. The Company's recent financial reports, released on August 9, 2007 indicated an adjusted net income of $291 million for the first 6 months of 2007, and Earnings Before Income Taxes, Depreciation and Amortization (EBITDA) of $451 million. (Source - Mirant Corporation Second Quarter 2007 Earnings Release.) Although these numbers reflect the sale of some business units, the company demonstrated upward trends in profitability with adjusted quarterly EBITDA increasing by 177% between the second quarters of 2006 and 2007. In addition, should the Company choose to pursue either the "scheduling changes" or the "combined waste stream formula" options, the costs required to comply with the permit limits could be still less than required for waste stream segregation. EPA recognizes that even more substantial costs may result from steps needed to comply with CWA § 316(b), but concludes that it is feasible for the Facility to assume the total costs.

(vi) Non-water quality environmental impacts (including energy requirements)

Finally, EPA considers the non-water quality environmental impacts associated with the treatment of nonchemical metal cleaning wastes, including energy consumption, air emission, noise, and visual impacts at Canal Station. In particular, EPA believes that the Permittee should be able to treat the nonchemical metal cleaning wastes with a similar amount of energy usage, air emissions and noise as presently occurs at the facility. As previously stated, Mirant indicated that the metal cleaning waste segregation proposed for the Draft Permit could be accomplished with scheduling changes and the facility's existing treatment technology. Moreover, EPA would expect the volume of nonchemical metal cleaning waste water to be considerably less than the chemical metal cleaning wastewater already generated at the site. In addition, EPA does not expect any change in the visual impacts of the plant from the redirection of waste streams. EPA

has determined the non-water environmental impacts from the steps needed to comply with the BAT effluent limits would be negligible.

3. Segregation of Waste Streams

Mirant comments that EPA should not require segregation of the nonchemical metal cleaning wastes and that they should be regarded as low volume wastes not subject to the copper and iron limits for metal cleaning wastes. EPA has explained why it disagrees with this comment above. EPA has also explained that waste segregation is one approach that Canal Station may take to meet the permit limits, but that it may also seek to regulated under a combined waste stream formula by providing adequate information to support a permit modification by EPA.

During permit reissuance, EPA determined that ash sluice blowdown, chemical and nonchemical metal cleaning wastes and (possibly) low volume wastes (boiler blowdown) were combined prior to sampling for compliance. Consistent with this determination, Canal Station's comments acknowledge that a combination of ash sluice, equipment washes, boiler blowdown and chemical metal cleaning waste are co-mingled for treatment prior to discharge through outfall 011. The 1989 permit applied a maximum concentration limit of 1.0 mg/l for both copper and iron to the co-mingled, non-similar waste streams. EPA has concluded that this limitation was incorrectly applied in the 1989 permit, as explained below and the Agency therefore corrects the error in this permit.

The Steam Electric Power Plant ELGs require that when separately regulated waste streams (i.e., "waste streams from different sources") are combined for treatment or discharge, each waste stream must independently satisfy the effluent limitations applicable to it. 40 C.F.R. §§ 423.12(b)(12), 423.13(h). *See also* 40 C.F.R. § 125.3(f) (technology-based treatment requirements may not be satisfied with "'non-treatment'" techniques such as flow augmentation). It is not acceptable to determine compliance after mixing (or diluting) the different waste streams with each other unless the effluent limits applicable to them are the same. The effluent limitations for the low volume and ash wastes are the same and, as a result, these two waste streams may be combined prior to sampling for compliance. The chemical and nonchemical metal cleaning wastes may also be combined together because they are subject to the same limitations. The metal cleaning wastes may not, however, be combined with the ash and low volume wastes because the metal cleaning wastes are subject to additional effluent limitations for copper and iron.[15] Either these two sets of waste streams must be separately monitored for compliance with copper and iron limitations, or a combined waste stream formula must be developed for the co-mingled waste stream. Allowing the Permittee to discharge copper and iron at a concentration of 1.0 mg/l for the combined ash/low volume/metal cleaning waste streams would potentially allow the Permittee to dilute the chemical metal cleaning waste stream rather than treat it and discharge a total mass of copper and iron in excess of the ELGs. In addition, if chemical metal cleaning wastes are greatly diluted, removal of the pollutant metals in the chemical metal cleaning wastes becomes more difficult and less efficient.

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[15] The BPT ELGs apply copper and iron limits to both types of metal cleaning wastes, the BAT ELGs apply limits to chemical metal cleaning wastes, and the current BPJ determination of BAT by EPA applies limits to the nonchemical metal cleaning wastes.

A combined waste stream formula calculation or waste stream segregation are the two means of correcting this oversight in the previous permits.[16] EPA currently has insufficient information and data to derive a combined waste stream limit, therefore, EPA is imposing limits on the waste streams separately in the Draft and Final Permits. This effectively results in compliance being achieved by waste segregation, however, the Permittee may gather data and make a demonstration regarding the application of a combined waste stream formula in lieu of waste segregation. If the Permittee chooses to make a demonstration, EPA will evaluate the information and determine if a permit modification is warranted.

Comment VI.A.2

Mirant comments that:

> 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. [17] 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.[18] 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.

Response VI.A.2

EPA has determined that separation of low volume/fly ash and metal cleaning (using chemicals and without using chemicals) wastes is necessary to ensure compliance with effluent guidelines at 40 C.F.R. Part 423 for copper and iron in the metal cleaning wastestream. *See* Responses in Section VI.A.1 above.

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[16] The law is clear that when an administrative agency recognizes that it has made an error, it not only has the right - but also the obligation - to correct that error. *See Southwestern Penn. Growth Alliance v. Browner*, 121 F.3d 106, 115 (3d Cir. 1997), *Davila-Bardales v. I.N.S.*, 27 F.3d 1, 5 (1st Cir. 1994), *Puerto Rico Cement Co. v. EPA*, 889 F.2d 292, 299 (1st Cir. 1989).

[17] 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 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.

[18] 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.

EPA based the flow limits in the Draft Permit on the flow diagram provided by the Company (see Attachment A of EPA's 2005 Fact Sheet for the Mirant Canal Draft Permit). EPA is changing the flow limits in the Final Permit for outfalls 011 and 012 to "Report" based on Comment VII.C and EPA's response to that comment. By reporting the flows, EPA will be able to collect and assess accurate flow data during the permit term. In order to ensure that the Station is not allowed to discharge pollutants at a higher mass-based load than the current permit, EPA has included the following provision in the Final Permit to satisfy anti-backsliding regulations: "the total average monthly combined flow from locations 011 and 012 shall not exceed 0.32 MGD and the total maximum daily combined flow from locations 011 and 012 shall not exceed 0.52 MGD." Mirant Canal consistently meets these flow limits. There is no need to create a new outfall 013 because the current outfall descriptions for outfalls 011 and 012 have been changed to reflect the segregation of the waste streams in accordance with the Final Permit.

Comment VI.B.1: Sampling Requirements

Mirant comments that:

> In addition to this overarching issue, Mirant Canal objects to the change in monitoring requirements for Outfall 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 "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.

Response VI.B.1:

Under the Draft and new Final Permit, outfall 011 is dedicated to the discharge of metal cleaning wastewater (chemical and nonchemical), unlike the previous permit. EPA has little data showing the characteristics of this waste stream and has been informed that this discharge will occur infrequently (primarily during outages and depending on scheduling changes). In addition, composite sampling captures variability in the effluent over time. Therefore, EPA believes that daily composite sampling *when discharging* is appropriate. Composite sampling can either be flow-weighted or time-weighted as defined in Part II of the Draft and Final permits. A time-weighted composite is defined as a composite sample consisting of a mixture of equal volume

aliquots collected at a constant time interval. For example, aliquots could be collected every 15 minutes during the 2-3 hours of a batch discharge.

With respect to the measurement of flow, EPA has clarified this requirement throughout the Final Permit by changing the Draft Permit description: "Recorder: Pump capacity curve and operational hours" to "Recorder **or** Pump capacity curve and operational hours"

Comment VI.B.2 **from Commonwealth of Massachusetts - Office of Coastal Zone Management**

MA CZM comments that:

> Section 4.4.6 (p.18 of 59) of the fact sheet and Section I.A.5. of the permit: The reasoning for the 1.0 mg/l maximum daily copper limit in the permit is the technology-based national effluent limitation guideline specified in 40 C.F.R. Part 423. However, the EPA recommended water quality criteria for copper in salt waters are 0.0048 mg/l (acute) and 0.0031 mg/l (chronic). Of the ten major NPDES permit holders in coastal Massachusetts, nine have permit limits for copper that are less than 1.0 mg/l (the only one that has a limit higher than 1.0 mg/l relies on substantial dilution from the Merrimack River). Clearly both the State and EPA recognize the toxic effects of copper to salt water biota and have sought to limit its discharge through the NPDES program. CZM recommends that EPA reduce the average monthly and maximum daily discharge limits for copper in the Canal Station permit to 0.024 mg/l and 0.036 mg/l, respectively, based upon the EPA recommended water quality criteria and the EPA-calculated dilution factor of 7.7.

Response VI.B.2:

Part I.A.5 of the Draft Permit sets forth the monitoring requirements for the internal outfall location consisting of the facility's metal cleaning waste streams. When setting permit limits, EPA compares water quality and technology limits and applies the more stringent of the two. EPA determined that the technology limit applied at internal outfall 011 would result in compliance with water quality-based limits in the receiving water. EPA's calculated dilution factor of 7.7 was used to evaluate the water quality-based limit for chlorine at outfall 001. This dilution factor applies to the flow of once-through cooling water (518 MGD or 804 cfs) compared to the flow through the Cape Cod Canal (6191 cfs). The flow of the metal cleaning wastewater (internal outfall 011) is less than 1 MGD, which is significantly less than the once-through cooling water flow. Therefore, the dilution factor for the metal cleaning wastewater is close to 4000. In this case, the technology-based limits are more stringent than the calculated water quality-based limits.

Comment VI.C.1: Requirements for Certification of Caustic and Additional Priority Pollutant Analyses

Mirant comments that:

> 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.

Response VI.C.1:

EPA has broad authority to require the monitoring and reporting conditions of the permit under sections 402(a)(1) and 308(a) of the CWA. Under the authority of section 402, the Administrator may impose best management practices that he determines are necessary to carry out the provisions of the Act, but there must be a "rational connection" between the permit condition and either the achievement of effluent limits in the permit or the fulfillment of the purposes of the Act. *See NRDC v. Costle*, 568 F.2d 1369 (D.C. Cir. 1977) (Section 402(a)(1) gives EPA considerable flexibility in framing a permit to achieve a desired reduction in pollution discharges); Decision of the General Counsel No. 33 (October 21, 1975) (EPA has authority to include sludge-handling requirements in permit that can be shown to influence the attainment of limitations); Decision of the General Counsel No. 19 (June 27, 1975) (EPA could include condition in permit requiring proper operator qualifications as there is a reasonable relationship between this condition and the plant's attainment of effluent limitations). Likewise, Section 308(a) confers broad authority on the Agency to impose monitoring requirements on any point source.

EPA believes there is sufficient authority under each of these provisions to impose the conditions referenced above. Specifically, EPA is concerned about mercury in the boiler cleaning and other metal cleaning wastewaters, especially those waste streams requiring neutralization with sodium hydroxide (a.k.a caustic), because mercury, which is used in the manufacturing process for sodium hydroxide, is a toxic pollutant that is known to bio-accumulate in the food chain. In response to Canal Station's representation in its comment that obtaining mercury-free caustic, and a certification that it has been obtained, is not possible, and that mercury may be present in the discharge, EPA has decided that in lieu of the certification process proposed in the Draft Permit, the Final Permit will require the Permittee to: (1) undertake reasonable best efforts to obtain and to use bulk caustic manufactured using a mercury-free process,[19] which will minimize the amount of mercury discharged into the Canal, and (2) require daily, composite monitoring and average monthly and maximum daily reporting for mercury at outfall 011, without limits. This will provide representative data regarding the amount of mercury entering the Cape Cod Canal from Mirant Canal's metal cleaning waste streams.

Comment VI.C.2:

Mirant comments that:

> 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.

Response VI.C.2:

EPA has removed the certification requirement and replaced it with a requirement to test for mercury at outfall 011. See Response VI.C.1 above.

Comment VI.C.3:

Mirant comments that:

> 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

[19] EPA believes that caustic manufactured using a mercury-free process is available. Both JohnsonDiversey UK and We Energies, Wisconsin have changed their purchasing policies to buy caustic made in a mercury-free process. The ion-exchange membrane-cell and porous diaphragm-cell process are two technologies that do not use mercury. Mirant Canal may also request "certificates of analysis" from their chemical suppliers when purchasing caustic soda and other materials. The certificate of analysis should list mercury content in parts per billion (ppb) and the detection method used in the analysis. A Material Safety Data Sheet (MSDS) is not comparable to a Certificate of Analysis because low level concentrations of mercury in products (less than 10,000 ppm) are not required to be listed on MSDS's.

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.

Response VI.C.3:

The Draft Permit proposed testing of the priority pollutant metals and not the entire 126 parameter priority pollutant scan ("full range of priority pollutants"). However, EPA agrees that data from boiler cleaning have previously shown no levels of concern and agrees to remove this requirement from the Draft Permit.

Comment VI.C.4 from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> The operational changes in outfall 002 to prohibit heated, chlorinated effluent discharges during screen washing operation is another needed step to reduce impacts to the marine biota of the receiving water. This is also true of asking the Permittee to use mercury-free caustic, a reasonable limitation given the ready availability of alternatives. The related requirement to undertake priority pollutant testing will further protect the marine system and is a valuable addition to the permit requirements.

Response VI.C.4:

See Response VI.C.1 above.

Section VII Comments on Revisions to Limits for Outfall 012

Comment VII.A: Waste Segregation

Mirant comments that:

> 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.
>
> For the reasons explained above in Section V[I].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.

Response VII.A:

EPA has concluded on a BPJ basis that treating non-chemical metal cleaning wastes to the same level as low volume wastes does not reflect BAT. *See* Response VI.A.1. EPA has determined that non-chemical metal cleaning wastes should be treated to the same level as chemical metal cleaning wastes and, thus, meet additional requirements for copper and iron. Separation of metal cleaning wastes, chemical and non-chemical, from low volume fly ash wastes is necessary to ensure compliance with effluent limitations guidelines at 40 C.F.R. Part 423.

Comment VII.B: Sampling Requirements

Mirant comments that:

> 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.

Response VII.B:

EPA changed the descriptions of outfalls 011 and 012 from the previous permit issued in 1989 in order to separate the metal cleaning waste streams from the low volume/ash sluice waste streams

because metal cleaning wastes must meet technology-based limits for copper and iron. See Response to Comment VI.A.1.

EPA initially thought increased sampling was appropriate to accompany the new permit limits, but , upon further evaluation, EPA has agreed to reduce the monitoring frequency from once per week to twice per month as the commenter requests. EPA believes that twice monthly monitoring will still provide representative data based on the small effluent variability of these waste streams in general and the total number of samples that will be collected over the permit term.

Comment VII.C from Commonwealth of Massachusetts - Riverways Program

MA Riverways comments that:

> The flow limitations for two of the outfalls are different from the existing permit's average monthly and daily maximum flows. For outfall 011 the flow limits have been reduced by approximately half. A reduction in effluent is a positive action and we support this reduction. Unfortunately this modest reduction is more than offset by the more than four fold increase proposed for outfall 01[2]. The Fact Sheet does not discuss this flow increase or the anti-backsliding implications of this flow increase. The monitoring data, submitted by the Permittee, shows the outfall consistently meets the existing and lower flow limits. We strongly advocate for keeping the existing flow limitations for outfall 01[2].

Response VII.C:

As explained on pages 13 through 15 of the Fact Sheet, EPA changed the descriptions of outfalls 011 and 012 from the last (1989) permit in order to separate the metal cleaning waste streams from the low volume/ash sluice waste streams because metal cleaning wastes must meet technology-based limits for copper and iron. The outfalls are now configured as follows:

1989 Permit Outfalls

011 – "Equipment Washes, Chemical Cleaning and Ash Sluice Blowdown"

012 – "Demineralizer and Condensate Polisher Wastes from Unit No. 1 and 2, and Floor Drains from Unit 2"

2008 Permit Outfalls

011 - "metal cleaning waste streams (*consisting of air preheater wash, boiler fireside wash, precipitator wash, boiler chemical cleaning, stack and breach wash, equipment cleaning and feedwater heater chemical cleaning, metal cleaning sludge dewatering filtrate*)"

012 – "ash sluice wastewater and low volume waste streams (*consisting of floor drains, water treatment wastes (demineralizer and condensate polisher), boiler blowdown, laboratory wastewater, and boiler seal water*)"

Consistent with applicable anti-backsliding regulations, EPA agrees that the total net flow for both locations combined should not exceed the current permitted combined flow limits.[1] EPA has added the following requirement to the Final Permit: "the total average monthly combined flow from outfall locations 011 and 012 shall not exceed 0.32 MGD and the total maximum daily combined flow from outfall locations 011 and 012 shall not exceed 0.52 MGD." See Part I.A.6.b of the Final Permit. At this time EPA does not have the necessary data or information to accurately apportion flows between the two outfalls. EPA has therefore changed the flow limits at each location to "Report" in the Final Permit and currently anticipates imposing flow limits to the respective outfalls in the next permit cycle.

[1] The current permit allows the discharge of chemical metal cleaning and ash sluice wastewater through outfall 011. Mirant Canal consistently meets the flow limits at this location mainly because chemical metal cleaning of the boiler, which results in the majority of the metal cleaning wastewater generated (approximately 250,000 gallons), is performed during plant shutdowns (generally occurring once per year) when ash is not being generated. Mirant discharges this metal cleaning waste without the added ash sluice wastewater during the shutdown period at flow volumes that meet the permitted limits. However, Mirant may not need to discharge metal cleaning every month, let alone every day. The ash sluice water is now a part of outfall 012 along with low volume wastes.

Section VIII New Requirement for Annual Heat Load Report

Comment VIII.A:

Mirant comments that:

> 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 <u>not</u> 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 <u>end</u> 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.

Response VIII.A:

EPA's intent was to require the facility to collect and submit three years worth of heat load data during the five year permit term. The permit wording has been modified to clarify this requirement. All data needed to calculate heat load is already collected by the facility. EPA does not expect this permit provision to be burdensome. In addition, EPA agrees to extend the

due date for the Annual Heat Load report to February 28th as requested. This change is reflected in the Final Permit.

EPA requested the heat load data for each Unit individually to determine the amount of water withdrawn for condenser cooling versus the amount withdrawn to meet NPDES permit limits for temperature. EPA agrees, however, that data collected from the end of the discharge flume will provide a more precise measurement of the thermal load discharged to the Canal from the facility and has changed the Final Permit accordingly.

The annual Heat Load Report is not required if the Permittee utilizes a closed-cycle cooling system for electrical generating Units 1 and 2 to achieve the standard specified in Part I.A.13.g of the Final Permit given the significant reduction in thermal load to the Cape Cod Canal from that technology. This provision has been added to the Final Permit (Part I.A.7.f).

In addition, in responding to these comments, EPA realized it had inadvertently failed to adjust the heat load equation for the salinity of ocean water. Specifically, the heat capacity of seawater is 0.94 BTU/pound °F[1] as opposed to the heat capacity of pure water which is 1.0 BTU/pound °F and the density of seawater is 8.55 pounds/gallon[2] as opposed to that of pure water which is 8.344 pounds/gallon. The heat load equation in the Final Permit is adjusted accordingly.

$Q = Cpm(\Delta T)$

Where Q = Heat Load, BTU/Hour
Cp = Heat Capacity (Specific Heat) of water with salinity of seawater = 0.94 BTU/pound °F
m = mass of water (discharged)
= flow rate x density of seawater
= flow rate, gallons per hour (gph) x 8.55 pounds/gallon
ΔT = discharge - intake temperature, °F

[1] See Fan Engineering Handbook, 8th edition, Appendix D, pg. D-5
[2] Ibid.

Section IX Requirements Proposed for Cooling Water Intake Structures

For the Final Permit, EPA has significantly revised the cooling water intake structure (CWIS) requirements proposed in the Draft Permit. These revisions have been made as a result of EPA's re-assessment of these proposed requirements in light of public comments and subsequent legal developments. EPA received a variety of public comments concerning the Draft Permit's CWIS limits and EPA responds to these comments below, while also explaining, in accordance with 40 C.F.R. § 124.17(a)(1), the provisions of the Final Permit related to CWISs that have been revised from the Draft Permit.

Section IX.A

Comment IX.A: Overall comments regarding § 316(b) permit requirements and their derivation

EPA received a number of conflicting comments touching on the Draft Permit's proposed cooling water intake requirements under CWA § 316(b). These comments address a range of issues, including the biological effect of Canal Station's cooling water withdrawals, the proper relationship of EPA's CWA § 316(b) "Phase II" Rule to the development of limits for the Canal Station permit, and the evaluation of alternative technologies for meeting the BTA standard under § 316(b) at Canal Station. Immediately below EPA describes and responds to comments by Mirant and by several federal and state natural resource protection agencies. These comments conflict in various respects but are discussed together here to facilitate EPA providing a coherent, coordinated response.

1. Mirant's Comments

EPA quotes Mirant's comments below:

> 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