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ENVIR. APPEALS BOARD

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

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 In re: Mirant Kendall, LLC )  
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 Mirant Kendall Station ) NPDES Appeal No. 06-\_\_\_\_\_  
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 NPDES Permit No. MA0004898 )  
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**PETITION FOR REVIEW**

**I. Introduction**

Pursuant to 40 C.F.R. § 124.19, the Conservation Law Foundation (“CLF”) and the Charles River Watershed Association (“CRWA”), by and through their attorney, petition for review of certain conditions of NPDES Permit No. MA0004898 (“Permit”), which was issued to Mirant Kendall, LLC (“Mirant”) on September 26, 2006. CLF was served with notice of the Permit on September 29, 2006, and CRWA was served on

October 2, 2006. Therefore, this Petition is timely filed pursuant to 40 C.F.R. § 124.19. CLF and CRWA (“Petitioners”) both submitted comments on the draft permit before the close of the comment period on October 15, 2004. The comments of CLF and CRWA are attached as Exhibits #1 and #2, respectively.

Simultaneously with this Petition, Petitioners and the United States Environmental Protection Agency, Region I (“Region”), are filing a joint motion seeking modification of the schedule for the submission of a Petition for Review that would allow Petitioners additional time to file a supplement to this Petition that will refine and further support Petitioners’ arguments.

First, CLF and CRWA challenge the thermal discharge limits set out in the Permit, including those in Attachment A of the Permit, on the grounds that the Region clearly erred legally and factually in determining that the permit limits would ensure a balanced indigenous population as required under section 316(a) of the Clean Water Act. 33 U.S.C. § 1326(a). Second, Petitioners further challenge the Barrier Net Requirements (Part I.A.11) on the grounds that the Region’s determination that it has met the requirements of section 316(b) of the Clean Water Act is clearly in error, both legally and factually; and that the Region has failed to meet its independent obligation to ensure compliance with water quality standards. 33 U.S.C. § 1326(a). Third, Petitioners also challenge the Monitoring Program determinations (Part I.A.14) on the grounds that certain determinations are based on findings of fact that are clearly erroneous. Finally, in many instances, the Region has failed to adequately explain its rationale for particular findings. Despite extensive scientific data presented by the Petitioners and others in support of strengthening the draft permit, the Region made few changes to the draft

permit, and provided insufficient justification for its decision to adopt essentially the same permit. See In re Ash Grove Cement Co., 7 E.A.D. 387, 417 (EAB 1997)(explaining that the Region must “articulate with reasonable clarity the reasons for its conclusions and the significance of the crucial facts in reaching those conclusions”)(quoting In re. Carolina Power & Light Co., 1 E.A.D. 604, 606-07 (Acting Adm’r 1978).

Given that the operation of the Mirant Kendall Station (“MKS”) on the banks of the Charles River is a matter of great public concern, the Permit raises important policy considerations. The Charles River is a public resource that is valued by the community for its wildlife, aquatic life, aesthetic values, and for fishing, boating and other active and passive recreational activities. Millions of dollars in public resources have been devoted to restoring the ecological health of the River, and significant progress has been made to date. Under the Permit, MKS will be allowed to have an unacceptable impact on the Charles River, thereby undermining that progress and degrading the resource. For example, just this past summer, the section of the Charles River extending from the North Point Park canals to the Massachusetts Avenue Bridge was effectively closed to public use from August to October when a toxic blue-green algal bloom appeared in the waters surrounding the plant. Algal blooms result from high water temperatures combined with nutrients. The heat loading to the Charles by MKS contributed to the seriousness of this recent bloom. Operation of MKS under the Permit will continue to exacerbate the impairment of the river, thereby leading to additional algal blooms. In sum, it is clear that the Permit allows unacceptable degradation of a critical public resource for private gain.

## II. The Region's Variance Determination is Clearly in Error.

### A. The Region's Legal Analysis Under Section 316(a) is Clearly Erroneous.

The Region fails to correctly apply the standard under section 316(a), which requires that the Region may alter the proposed thermal discharge component of the effluent limitation to a less stringent level [only] if it will still “assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.” 33 U.S.C. § 1326(a) (2004). For example, the Region mischaracterizes the attributes of a balanced indigenous population (“BIP”), and effectively applies a lower standard that will not assure the protection and propagation of a BIP.

As CLF stated in its comments, it is well established that a BIP represents the population that would be present but for past pollution. CLF Comments at 3. See In re. Dominion Energy Brayton Point L.L.C., NPDES Appeal No. 03-12 (Remand Order) (EAB, Feb. 1, 2006) E.A.D. \_\_\_, at 90-91 (regulatory definition of BIP “clearly envisions a consideration of more than the population of organisms currently inhabiting the water body;” legislative history “indicates that the BIP can be the indigenous populations that existed prior to the impacts of pollutants, not solely the current populations of organisms.” (emphasis added). However, the Region incorrectly rejected that definition. For example, CLF, CRWA, the National Oceanic and Atmospheric Administration (NOAA), and the Massachusetts Division of Marine Fisheries (DMF) all sought limits that would be protective of American shad, citing current American shad restocking efforts underway in the Charles. Nevertheless, while acknowledging that American shad

is clearly an indigenous species, and that “the agencies did provide evidence that American shad were present in the lower Basin in colonial times,” the Region concluded that it “did not receive sufficient documentation to establish that American shad were present...in sufficient numbers to qualify as part of the BIP,” and thus deliberately failed to set limits protective of American shad. Response to Comments (“RTC”) at C103. Here, the Region clearly misinterprets the meaning of a BIP, and thus fails to meet its obligation to assure the protection and propagation of a BIP.

As CLF stressed in its comments, section 316(a) requires that the Region assure the protection and propagation of a BIP. CLF comments at 2-3. Nevertheless, the Region repeatedly sets a lower standard for itself. For example, it states that the Zone of Passage and Habitat (ZPH) only need be kept at levels “that avoid such effects large enough to significantly impair the ability of the BIP to occupy the lower Basin [of the Charles River].” RTC at C61 (emphasis added). Given the fact that a BIP no longer exists in these waters, the Region needs to go further than avoiding “significant impairment” of the BIP in order to assure its protection and propagation. In addition, the Region admits that “temperatures in the ZPH do not ensure an ideal habitat for the species, but attempt to ensure that the ZPH is sufficiently hospitable that the BIP will be maintained in the lower Basin as a whole.” RTC at C65-C66. (emphasis added). As discussed in Petitioners’ comments, there are a number of components of the BIP that are migratory (e.g., river herring, shad), making the conditions in the vicinity of MKS, including the ZPH, particularly important to the protection and propagation of the BIP. The migratory fish must traverse the area within the vicinity of MKS, either within the degraded habitat of the ZPH, or closer to the discharge, where conditions are even worse. Thus, protection

and propagation of the BIP in the lower Basin as a whole cannot be assured without assuring the protection and propagation of the BIP within the ZPH.

B. The Region's Determination under Section 316(a) is Based on Errors of Fact and is not Supported by the Record.

The record does not support the Region's variance decision. The specific temperature limits included in the permit are not adequately protective of a balanced indigenous population. As explained in some detail in CLF's comments on the draft proposal, water temperature regimes are critical to the support of a balanced indigenous population in any river. The excess thermal loading of the Charles River allowed under this permit will add to existing impacts, thwarting ongoing efforts to re-establish migratory fish and undermining efforts to restore health to this river. For fish specifically, water temperature influences the migratory behavior of adults and young, as well as the survival and development of eggs and larvae.

In responses to some of the important comments on the impacts of the thermal discharge and the cooling water intake by CLF, CRWA and others, the Region does not provide sufficient supporting data, analyses, or documents to allow a full evaluation of the scientific basis of the conditions detailed in Attachment A of the Permit. In contrast, in the comments of CLF, CRWA, and others, considerable scientific information was provided in support of conditions that would be protective of a BIP in the Charles River. Nevertheless, the details of the schedule of temperature maxima presented in the 2004 draft permit are virtually identical to those of the current Permit with the exception of additional conditions added for the late spring through fall (12 June-31 October) and winter (1 November-29 March) periods. Importantly, without any credible justification,

the permit does not reflect changes to the spring period when impacts to inward migrating anadromous fish are expected based on the best available science (See Petitioners' Comments and Clean Water Act NPDES Permitting Determination Document for Thermal Discharge and Cooling Water Intake for Mirant Kendall Station (MKS) in Cambridge, MA, Chapter 5 ("Determination Document") [hereinafter DD]).

For example, the Region selects temperature limits that are outside the ranges supported by the best scientific studies, without citing sufficient additional research leading to different conclusions. See In re. Dominion Energy Brayton Point, L.L.C. ("the Region provided a reasonable rationale for ultimate selection of the temperature threshold values, which notably were within the range of the reported values in the scientific studies it considered." In re. Dominion Energy at 126 (emphasis added). Throughout the Response to Comments, the Region repeatedly rejects the results of published science research cited by CLF and others on the grounds that using such numbers would result in an "overly conservative approach." RTC at C57. The Region does not adequately explain why it is protective of the BIP to base estimates of season-appropriate "ambient temperatures" on data from the Charles, a river that is known to be under thermal stress. In fact, the use of such data provides an incorrectly elevated assessment of what is normal for the River and, consequently, the Permit temperature limits are not appropriate limits for the BIP. This approach is clearly at odds with the Region's legal obligations and a precautionary biological perspective, which is required in light of the already degraded habitat. While the Region claims to have considered additional stressors, as required under section 316(a), and acknowledges the various stressors to the Basin, it does not provide examples of changes it made as a result of those considerations. In fact, rather

than taking a precautionary approach, it consistently selected inadequate temperature limits, especially in the spring months when migrating and breeding fish are particularly vulnerable.

CLF commented that fish in the Charles were already subject to a variety of well recognized stressors, such as sudden changes in water conditions when they cross the New Charles River Dam, which had not been properly analyzed by the Region, and that the Permit should address the documented problem of migrating herring swimming into the discharge pipe. CLF comments at 14-15; RTC C42-C43. In its response, the Region cites to a Massachusetts Department of Environmental Protection (“DEP”) analysis of such impacts in the Determination Document, and states that these will require further study. This is not an adequate response; the Region offers no analysis, data or studies that counter the concerns regarding herring swimming into the discharge pipe, and no solution, only mandating further study two years after the issue was identified in comments on the draft permit. Further, it is unclear whether the Region took the stress to the fish caused by crossing the New Charles River Dam into account.

III. The Region’s Determinations under Section 316(b) are Clearly Erroneous.

A. Region I’s Decision to Apply the Phase II Rule, and its Interpretation of the Rule, Are Clearly Erroneous.

The Region not only unjustifiably applied the Phase II Rule; it also misinterpreted it to support insufficiently protective permit conditions. It is clear that applying the Phase II Rule to Mirant’s permit application is not permissible, and that the Region’s decision to do so is clearly erroneous. The Region states that it did not apply the Phase II Rule,

but used it to “inform its BPJ [best professional judgment]” determination. RTC at H21. However, it appears to have gone farther than this; as explained below, it cites the Phase II Rule as a rationale for making particular determinations. Further, when it did apply the Phase II Rule, its analysis was clearly erroneous as well.

In its Response to Comments, the Region claims that it applied the Best Professional Judgment (“BPJ”) standard in determining proper CWIS limits in light of the “express terms of the Phase II Regulations, EPA’s General NPDES regulations, and CWA §402.” RTC at H2. In its comments, CLF also argued that BPJ should be the operative standard, citing regulatory and statutory authority as well as the fact that the Phase II Rule is currently the subject of ongoing litigation, and clearly vulnerable to remand. CLF comments at 21-23. Nevertheless, the Region effectively applied the Phase II Rule, which is clearly irrelevant, and should not have been used to shape the Region’s decision-making.

The Region’s interpretation of the Phase II Rule, which it uses to support inadequate entrainment conditions, is also erroneous. The Region adopts Mirant’s recommendation that it consider the lower Charles Basin a “lake” under 40 C.F.R. § 125.93, and thus not subject to entrainment performance standards. The Region did not address this issue in its Determinations Document; however, given the importance of this analysis to its 316(b) determination in the Response to Comments, its reasoning should be examined. First, the Region finds that the lower Basin meets the definition of “an inland body of open water...” RTC at H11. “Inland” is defined as “located in, or confined to the interior of a country or region; away from the coast...”(emphasis added) Webster’s New World Dictionary 726 (2d ed. 1980). However, the Region states that the

“lower Basin is created by the downstream dams and locks that have been placed between the Charles River and its connection to Boston Harbor and the ocean beyond.” RTC at H10 (emphasis added). Clearly, the Basin is not “an inland body” of water. The Region also finds that the Basin is “surrounded by land or by land and a man-made retainer,” because there is an upstream dam in Watertown, notwithstanding the fact that in the Determinations Document, the Region defined the lower Charles Basin as “that area bracketed by the New Charles River Dam at the mouth and the Boston University bridge upstream.” DD at 11. The Watertown dam is six miles from the Boston University bridge, far beyond the area defined as the lower Basin. Thus, the lower Charles River Basin cannot be characterized as being “surrounded by land and a man-made retainer.” Finally, the Phase II Rule states that a lake has “an average retention time of more than 7 days.” The Region decided to calculate retention time on an annual basis even though it concedes that “the average retention time would be less than seven days in some months.” RTC at H11 (emphasis added).

Given the current degraded state of the Charles, the Region has an obligation to take a precautionary approach, rather than unjustifiably force the lower Basin into a category which would exempt it from entrainment performance standards. In fact, the Basin better fits the definition of a river, which does require entrainment standards, and requires more protective permit conditions. See 40 C.F.R. § 125.94(a)(5). Nevertheless, the Region unjustifiably weakens the draft permit condition by removing the 60% entrainment reduction objective (which “was based on the Region’s application of the BTA standard”), “in light of the Phase II Rule.” RTC at H54 (emphasis added). Further, the Region states that it “is not including entrainment performance goals as a technology-

based requirement as part of our BPJ determination...because the Phase II Rule would not require such goals... the Region does not believe it would be reasonable in this case to impose technology-based compliance requirements that the Rule would not require.” RTC at H29 (emphasis added). Thus, the Region’s determination was clearly impermissibly based on Phase II standards, despite its contention that it was not.

B. The Region’s Determinations that the Barrier Net Conditions are Best Technology Available and Will Minimize Environmental Impacts Are Clearly Erroneous and Unsupported by the Record.

The Region did not properly apply the requisite standards under section 316(b). Section 316(b) requires that the “location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.” 33 U.S.C. § 1326(b) (emphasis added). The Region has neither identified the best technology available (“BTA”), nor does the Permit minimize adverse environmental impact. Further, the Permit does not take into account requisite considerations such as the significant biological value of the lower Basin, another required factor in the 316(b) analysis, or assess cumulative impacts: that is, other stresses in addition to the CWIS in making BTA determinations. In the Determinations Document, the Region acknowledged that the “overall cumulative effects of multiple CWIS withdrawals, increased thermal discharges at MKS and existing impairment in the lower Basin are not assessed in any detail or quantitatively in the current section 316(b) analysis for the MKS permit. DD at 201. Over two years after that statement, the Region acknowledges that it did not conduct a quantitative analysis of the cumulative impacts on

the ecosystem, as urged by CLF, yet, without credible supporting evidence, states that it “did consider those impacts.” RTC at H87. In fact, if it had considered such impacts, it would not have weakened the impingement and entrainment conditions even further than in the draft permit conditions. See e.g. RTC at iii, #12 (entrainment performance goal of 60% entrainment reduction has been removed and replaced with a requirement to minimize impacts).

A recurring theme throughout the Response to Comments section on the CWIS is that the BNS is unproven. Indeed, the Region states that “the performance capabilities of the barrier net system have yet to be fully documented or established.” RTC at H61. Thus, it is difficult to understand how the Region can have determined that such a questionable system with a negative track record can be BTA and will minimize environmental impacts as required under section 316(b).

In their comments, both CLF and DMF stated that the BNS is not BTA, yet the Region did not counter this assertion with convincing evidence. CLF and DMF both recommended that aquatic filter barriers (such as Gunderbooms) which can be raised to address public boat access issues, be required as BTA. MKS’s own tests showed that the barrier net prototype did not prevent entrainment and impingement, and that at times, more fish and larvae were found in front of the nets than behind them. CLF Comments at 23-24; RTC at H58. The Region acknowledges the “uncertainty regarding the exact performance levels” of the BNS (citing that as a reason for failing to set a performance requirement), yet rejects the Gunderboom technology because its performance capability is “unclear,” and because “modification and assessment has been necessary to overcome operational problems” at Mirant’s Lovett Station power plant. It is unclear why the

Gunderboom technology, which would have greater entrainment and impingement benefits, should be rejected in favor of BNS, which is acknowledged to be unproven, and will also be subject to modification and assessment in order to determine how it can best be operated. RTC at H60.

In its comments regarding impingement, CLF stated that the Phase II regulations should not be applied, but that if they were, that the Phase II requirement that impingement be reduced by 80-95% be stringently applied, and MKS subject to the 95% standard in light of the degradation of the lower Basin and the significant impingement and entrainment impacts of MKS. However, the Region again adopted Mirant's view and eliminated any requirement to meet even the lowest standard of 80%, stating that it is "reasonably confident" that barrier net is BTA, and that it will require further study before requiring performance standards "at the next renewal." RTC at H30. This statement offers little reassurance in light of the Region's earlier acknowledgement that MKS's permit was last issued in 1988, that the Region is unable to timely reissue permits every five years in many cases, and that litigation can tie up new permits, so the next permit could end up remaining in effect for "significantly longer than 5 years." RTC at H25. Further, the Region states that the "issue of the exact percentage that the Region chooses to apply to MKS...is not relevant." RTC at H30. The Region's statement that the percentage limits in the performance goals are irrelevant calls into question the efficacy of such goals.

In many instances, the Region did not adequately justify its decisions under 316(b). For example, CLF, CRWA, NOAA and Massachusetts Coastal Zone Management all recommended that the barrier net be placed at the mouth of the Board

Canal to allow eggs and larvae a better chance to be freed from the net, to avoid re-impingement, and to use Basin flow to help reduce impingement. RTC at H68. However, without adequate justification, the Region then goes on to say that the Agency does not believe that one location is clearly superior to another, and thus leaves the location of the net to the discretion of MKS. Similarly, the Region cites the “air burst system,” which is presently functioning well at Mirant’s Lovett Station “in a much more challenging environment than that in the Charles,” which can remove and return impinged eggs and larvae to the river, and which “may be one suitable method for addressing this issue,” yet fails to require it here, saying that “components intended for the safe removal of impinged larvae,” will be addressed in the DEP plan approval process. RTC at H56, H68. Thus, despite the existence of a viable, superior alternative, the Region declines to require its usage.

C. The Permit Conditions Do Not Ensure Compliance with Water Quality Standards.

The Region failed to meet its independent obligation to ensure compliance with state water quality standards. Massachusetts classifies the Charles River as a Class B water. MASS. REGS. CODE tit. 314 § 4.06, Table 19 (classifying Charles River Basin as Class B). Class B waters must support habitat for fish, other aquatic life and wildlife, as well as primary and secondary contact recreation. In the Response to Comments, the Region acknowledges that,

[I]n the case of Kendall Station, given the mesh-size proposed by the facility, it is expected that when it is deployed, the barrier net should avoid the difficulties of some species’ larvae but not others and would not prevent the entrainment of fish

eggs...[t]herefore, the Region and MassDEP have concluded that this system shows promise for helping to protect the basin's use as a habitat for fish.

RTC at H87 (emphasis added). In order to ensure compliance with water quality standards, it is not enough to "show promise for helping to protect" designated uses. Id. Further, it is difficult to see how a system that allows certain larvae through and does not prevent fish egg entrainment would ensure a system that "support(s) habitat for fish, other aquatic life and wildlife..."<sup>1</sup> MASS. REGS. CODE tit. 314 § 4.05(3)(b). It is especially difficult to argue that the BNS complies with water quality standards in light of the significant adverse effects have been documented to occur in this degraded ecosystem as a result of MKS's CWIS, and the fact that projected increased flows will result in even greater impacts. See RTC at H51 ("it is entirely reasonable to assume that if Mirant increases its intake flows, as it is proposing to do, it will result in increased entrainment and impingement.")

#### IV. The Monitoring Program

Certain aspects of the monitoring program set out in Part I.A.14 of the Permit are based on facts that are clearly erroneous. For example, CRWA commented that "temperatures measured at the Background Station (Station 1) will not represent ambient conditions. Upstream CSO discharges will have a negligible effect on temperature, when compared to the Cottage Farm Facility. CRWA recommends that the Background Station be moved upstream to avoid the influence of Cottage Farm." CRWA comments at p. 2. Nevertheless, under the Permit, the Background Station (Station 1) is located downstream of the Cottage Farm facility, and thus will not be representative of background temperatures due to CSO discharges from that facility. The Region's

response, that although “there could be other factors that may periodically affect the data collected at this station, such as CSOs or other thermal discharges, for the majority of the time, this station is the best option for characterizing background conditions[,]” is erroneous. RTC at I6. The Region bases its rejection of locating this station further upstream on “a change in flow and stratification patterns as the Charles River assumes more riverine characteristics upstream of the BU bridge.” Id. There is no evidence provided by the Region to support this statement. In fact, there is no significant change in flow ½ mile upstream of the Cottage Farm CSO outfall and the bathymetry upstream from Station 1 is within the same range as that at Station 1. See Spatial Distribution, Temporal Variability and Chemistry of the Salt Wedge in the Lower Charles River, Massachusetts 1998-1999 (USGS). Additionally, the salt water intrusion can extend as far upstream as the Larz Anderson bridge, and the upstream CSO discharges in both Boston and Cambridge are over one mile upstream of the BU bridge and the Cottage Farm CSO outfall (above the Weeks Footbridge). Therefore, the Region is clearly incorrect in its assertion that upstream flow and stratification patterns render a station upstream “disadvantageous” for measuring ambient conditions. Further, the Permit conditions for monitoring organisms drawn into the intake area are not adequate to provide an accurate and clear picture of the disruption of behavior and mortality associated with the CWIS.

## V. Conclusion

For the foregoing reasons, as well as for those to be provided in a supplemental brief, Petitioners request that the Board grant this Petition.

Respectfully submitted,

**CONSERVATION LAW FOUNDATION,**

and

**CHARLES RIVER WATERSHED  
ASSOCIATION**

By their attorney,



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