J. Response to Comments Concerning Other Permit Limits

Comment J1: Mirant Kendall claims that EPA has proposed an extraordinarily detailed and complex temperature regime, and argues that there is no basis for defining protective limits with that level of precision. Mirant Kendall contends that it is neither feasible nor appropriate to attempt to establish a compliance regime with this level of precision. Mirant Kendall also complains that the in-stream temperature limits will force the shut down of the Station. Mirant Kendall requests that EPA develop a system that will not force the Station to shut down.

Response to J1: As explained in the DD and the Introduction to Section E, Mirant Kendall elected not to submit a technically sound thermal model for evaluation. Instead, Mirant Kendall asked that EPA develop an in-stream compliance monitoring regime. Because Mirant Kendall declined to propose an acceptable temperature model, EPA therefore established variable instream temperature limits to protect the BIP. These temperatures are based on the most sensitive anadromous and resident species, taking into consideration their various life stages and seasonal conditions, among other critical factors. Sections 5.6 and 5.7 of the DD lay out the step by step, life stage by life stage, time period by time period approach used to justify protective temperatures for the life stages of resident and anadromous species, respectively. Section 5.8 compares all of these analyses to determine the most conservative temperature for each time period, and Section 5.9 and 5.10 tie in ambient conditions, averaging periods, the area needed for protection, and the exceptions to the compliance monitoring (e.g., allowances above maximum limits in the spring). With respect to the precision of the temperature limits, these temperature limits were established in whole degrees Fahrenheit, and the tenths of a degree Centigrade limits were a result of conversion.

With respect to the complexity of the overall regime, it would certainly have been simpler for EPA to impose a temperature compliance scheme with less variability, e.g., by selecting the temperature that would be maximally protective of all relevant species at all relevant stages, and applying that limit at all times. Such an approach would be biologically protective, and would not require an "extraordinarily detailed and complex temperature regime." However, it would also, at some times and in some parts of the Basin, be more stringent than necessary. Since Mirant Kendall requested a CWA 316(a) variance, EPA developed a system that was not more stringent than necessary to protect the BIP. This required making the regime more complex. (See Response to D2).

Mirant Kendall's claim that EPA is seeking "directly to control the operations of a power plant" is unfounded. EPA is seeking to achieve temperatures in the lower Basin that will enable the protection and propagation of a BIP.

Mirant Kendall also requests that EPA revise the temperature limits so as not to "force the Station to shut down." Whether, or how much, the Station curtails its operations is a function of a variety of factors -- including the price of electricity, the cost of natural gas, and Mirant's own economic considerations – that are neither within EPA's control nor legally proper considerations under CWA 316(a), which focuses on protection and propagation of a BIP. (See

Response K1).

Comment J2: Mirant Kendall notes that the draft permit imposes monitoring requirements and enforceable limitations on discharges from a new internal outfall enumerated as 009. Mirant Kendall argues that, under 40 C.F.R. § 122.45(h), flow limitations and standards may be imposed on internal waste streams before mixing with other waste streams or cooling water systems only if it is impracticable or infeasible to impose such standards at the point of ultimate discharge, and only when the Fact Sheet issued with the permit sets forth the "exceptional circumstances" which makes such limitations necessary. Mirant Kendall also argues that, with respect to total suspended solids, Kendall Station is not materially adding any solids above what it receives.

Response to J2: Sections 308(a) and 402(a)(2) of the CWA provide EPA with the authority to require monitoring of outfall 009. 40 C.F.R. § 122.45(h) only applies to limits on internal waste streams, and is inapplicable to the permit's monitoring regime. Moreover, it is appropriate and necessary to monitor this internal waste stream in order to characterize it prior to its mixing with non-contact cooling waters (NCCW). Since there would be considerable dilution to this stream by the NCCW prior to discharge, this is the only location at which this discharge could be effectively characterized. See Fact Sheet at p. 8.

With respect to added solids, Reverse Osmosis (RO) reject waters tend to highly concentrate solids and other parameters that are in the intake water to the RO system. Since Mirant has not provided specific data on this internal stream, this monitoring will provide an understanding of whether some of these parameters may be discharged at levels which could cause or contribute to an excursion from WQS. This is especially important for those parameters which are not monitored at any outfall. See also Response to J6.

With respect to the flow and effluent limits, 40 C.F.R. § 122.45(h)(2) authorizes such limits on internal waste streams where "the wastes at the point of discharge are so diluted as to make monitoring impracticable." This is the case for Outfall 009 and the basis for setting technology based limits for this outfall. See Fact Sheet at p. 8. This response also serves as a partial response to those other comments, e.g., J5 and J6, that challenge the imposition of monitoring and/or effluent or flow limits at outfall 009.

Comment J3: In Part I.A.3, on pg. 9, the Draft Permit proposes that Outfall 009 contains "UF & RO water treatment system reject waters, other low-volume waste streams and boiler blowdown from the new HRSG." To correct a potential ambiguity, Mirant Kendall suggests that the clause should read "Boiler blowdown from the new HRSG, UF & RO water treatment system reject waters, and other low-volume waste streams."

Response to J3: This change has been made to the Final Permit.

Comment J4: Mirant Kendall notes that the limitation on total suspended solids from outfall 009 does not account for the occasional significant flushing events in the river (i.e., an extremely

heavy rainfall in a short period of time) that can cause levels of total suspended solids at the intake to experience a dramatic short-term increase. Mirant Kendall contends that the TSS limit should (a) provide for such unusual circumstances, and (b) be tied to the levels of total suspended solids measured at the intake, or the ambient levels in the lower Charles River Basin.

Comment related to J4 from Riverways: The Basin is on the impaired list of waters for many reasons including turbidity. The facility is allowed a TSS daily limit of 100 mg/l using a 24 hour composite probably based on industry standards developed nationally. Given the problems with turbidity in the receiving water and the sampling type, it seems reasonable to adjust TSS requirements to reflect water quality issues in the receiving water. Using the TSS requirement typically imposed on a POTW, 50 mg/l daily TSS maximum, would be a reasonable compromise and will help in efforts to get the Charles River "fishable and swimmable."

Response to J4 and related comment: Mirant requests less stringent TSS limits; Riverways requests more stringent TSS limits.

The TSS limits are based on the effluent limitation guidelines for the Steam Electric Power Generating category at 40 CFR 423 and apply to the low volume wastewaters which are discharged at internal outfall 009. This discharge consists of boiler blowdown and test water and UF and RO reject water. The 100 mg/l limit is established at internal outfall 009 and is necessary to control the solids which will be generated by the UF and RO wastewaters and other miscellaneous discharges that were previously described. If the permittee has difficulty complying with these TSS limits, it must devise a way to treat for and limit the discharge of TSS during such "flushing events."

EPA does not have evidence to suggest that a more stringent limit for TSS is necessary. The NCCW flows, which comprise the majority of the discharge, do not have any appreciable solids component that would require a more stringent effluent TSS limit.

Comment J5: Mirant Kendall notes that a reference on pg. 9 of the Draft Permit to"Footnote 4 on Page 3" should be corrected to "Footnote 5 on Page 4." Mirant Kendall also argues that there is no reason to monitor for total residual chlorine at outfall 009 because there is no reasonable basis for concern that excessive levels of residual chlorine from the RO will reach the Charles River.

Comment related to J5 from Riverways: The Total Residual Chlorine (TRC) limit should be reconsidered to take into account the negligible dilution in this impounded waterbody and the acute criteria. TRC can prove lethal in small quantities and in a short time span. The facility is limited to only two hours of chlorination per day but two hours is enough time to result in mortality to the juvenile fish and other species. The TRC of 0.1 mg/l based on studies for the Canal Electric Permit do not seem applicable in an impounded waterway versus marine waters. The toxic effect was tested on Menhaden, not on juvenile herring who would be in contact with the receiving waters for potentially extended times as they tried to negotiate the locks and barriers at the mouth of the 'river.' Lowering the TRC maximum will help protect juvenile fish

who may be in the Basin waiting to out-migrate when during the lowest flow, most stressed water quality periods of the year.

Response to J5 and related comment: As explained in the Fact Sheet, the chlorination of the NCCW discharge and the permit limit of 0.1 mg/l could lead to certain excursions of the instream, chronic water quality criteria for total residual chlorine (TRC), especially when flows are approaching 7Q10 levels. Therefore, since the NCCW flows may already contain TRC levels that may result in instream water quality excursions within the mixing zone, it is appropriate to also analyze for TRC at the internal outfall 009 in order to assure that there is sufficient dechlorination occurring as any additional TRC levels from the RO system would possibly contribute to such WQS violations. EPA appreciates Mirant Kendall's representations that the wastewater is "enormously diluted" after dechlorination, but such declarations are no substitute for actual data. (See also Response to J2).

That said, these occurrences are expected to be short term and typically allowed in the mixing zone, consistent with Massachusetts SWQS. Instream TRC monitoring has been established in order to quantify instream TRC levels under varying flow conditions.

For these reasons, no substantive change has been made to the permit's TRC limits or monitoring requirements. The typographical error in the footnote referencing has been corrected.

Comment J6: Mirant Kendall argues that EPA has failed to provide any reason why monitoring of the 126 Priority Pollutants is required at outfall 009 given that the Kendall Station does not add, or have the potential for adding, any of these pollutants to any of the water it withdraws from and then discharges into the Lower Charles River Basin.

Response to J6: RO systems tend to highly concentrate the water that passes through them, resulting in high total dissolved solids counts. This may result in the concentration of toxic substances that may not have been detectable in the influent. Moreover, this RO system will also undergo periodic cleaning and likely have other chemicals added for bacteria or corrosion control purposes. Consequently, monitoring at this point is appropriate and, since it is only required once per year, not unduly burdensome. Mirant Kendall is welcome to apply for a permit modification to reduce the scope of the testing after acquiring sufficient data to establish that priority pollutants are not present in this waste stream or are present at levels below which there would be any water quality impact. (See also Response to J2).

Comment J7: Mirant Kendall agrees with EPA's finding that the anti-backsliding requirements of 40 C.F.R. § 122.44(l) are satisfied, but disagrees with the basis for that finding presented on pp. 17-18 of the Fact Sheet. Specifically, Mirant Kendall argues that the required installation of the barrier net and the retention of a 70 MGD monthly average for April through June mean that the overall set of requirements in the draft permit are at least as stringent as the relevant limitations in the previous permit.

Response to J7: The material and substantial changes that have taken place at the facility are precisely the reason why there is concern that effluent flows will remain higher than historical levels and for longer periods of time, as discussed earlier. See Introduction to Section B and Responses to B1, B2 and B3. These changes have made the plant able to discharge continuously at high flows more efficiently than before the upgrade.

With respect to Mirant Kendall's claim that a 70 MGD annual average with a 70 MGD monthly average for three months of the year is at least as stringent as a 70 MGD monthly average for twelve months of the year, EPA adheres to the explanation on page 18 of the Fact Sheet.

Comment J8: Mirant Kendall requests that EPA precisely define outfall serial numbers 001, 002, 003, and 004 in the permit.

Response to J8: The Fact Sheet defined these outfalls and their locations and Figure 2 of the fact sheet showed these outfall locations. These outfall numbers and their locations have not changed from the previous permit.

Comment J9: Incorrect Description of Outfalls 001-004. The Draft Permit frequently proposes an incorrect description of the discharge from Outfalls 001-004. For example, in Part I.A.1, on p. 2, the Draft Permit proposes that the discharge from Outfalls 001-004 consists of "once-through condenser cooling water, ultra-filter and reverse osmosis (UF & RO) treatment system reject waters and boiler blowdown." In Part I.A.1, in fn. 4 on p. 3, the Draft Permit proposes that the "flow rate is the total condenser cooling water flow from the new heat recovery steam generator [HRSG] unit…" In Part I.A.1, in fn. 9 of p. 5, the Draft Permit proposes the "hourly average discharge temperature shall be measured by temperature probes representing all once-through condenser cooling water…"

This is not an accurate description of the discharged water. An accurate description would read "once-through cooling water," eliminating the word "condenser," because an additional auxiliary cooling water stream, which is separate from the condenser cooling streams, also becomes part of the discharge at Outfalls 001-004. All such places in the permit documents that make this misidentification should be corrected in addition to the three specific spots identified above. To the extent that this incorrect description was intentional, the Agencies have failed to provide any justification or explanation for defining the discharge in this manner.

Response to J9: EPA acknowledges these inconsistencies and has changed the Final permit to address them. Changes were made to pages 2, 3 and 5 as suggested.

Comment J10: Mirant Kendall observes that footnote 9 of page 5 of the Draft Permit could be read to imply that Kendall Station should measure the discharge temperature at the actual point of outfall into the Charles River. Mirant Kendall notes that it is impractical to place the temperature probes directly in the outfalls due to the flow, but that the probes are and have been located as close to the outfalls as possible.

Response to J10: The permit does not require changes to the current temperature probe configuration. The current temperature probe locations are acceptable if the temperature that Mirant Kendall reports for these outfalls effectively approximates the actual discharge temperature to the receiving water. With respect to the phrase "condenser cooling water", see Response to J9.

Comment J11: Mirant Kendall challenges as unnecessary the permit's monitoring requirements for temperature and pH at Outfalls 005, 006, and 007. Mirant Kendall argues that this screen backwash water is not exposed to anything that would materially change its temperature or pH.

Response to J11: Since the purpose of backwashing is to remove accumulated material that has become debris from the screens, solids in the discharge are not representative of the intake water. The backwashing of these screens has the potential to introduce floating solids into the discharge location. Therefore, monitoring is necessary to verify that the discharge of such solids from the intake screens does not result in floating solids, oil sheen or visible foam in other than trace amounts, or temperature or pH changes. The pH requirement is necessary in order to assure the Massachusetts WQS are met. It is irrelevant that the intake water is essentially the same water that is discharged, albeit it with some solids that are washed off the screens.

EPA has determined that the temperature monitoring for this outfall is not required, because the backwashing procedure does not contribute any heat to the intake water. Therefore, this requirement has been removed.

Comment J12: Mirant Kendall argues that quarterly whole effluent toxicity tests ("WET tests") during the winter months should not be required because the station only chlorinates the condenser cooling water in the summer in order to help reduce and eliminate algae growth.

Response to J12: All WET samples are dechlorinated prior to testing. EPA is concerned about possible synergistic effects of the combination of parameters present in the effluent which otherwise may not be monitored. In addition, there are many chemicals that are used for bacteriological and corrosion control, in addition to the concentrating effects of the RO reject water. These chemicals, which are listed on Page 23 of the fact sheet, need to be characterized for toxicity potential.

Comment J13: Mirant Kendall proposes that EPA modify page 10 of the Draft Permit to articulate that the only fish passage requirements are those that appear on and are described in Attachment A.

Response to J13: EPA intends to use the definition of the ZPH in Attachment A, including the maximum temperature limits, the delta T, and the monitoring points specified, as well as the changes made in the Final Permit, to judge whether fish passage has been blocked or severely restricted. When these requirements are met, including any exceptions listed in the Final Permit, and as long as no additional information to the contrary is available, EPA has concluded that the

discharge from the facility will not block or severely restrict fish passage. While EPA anticipates these requirements as being the sole test for this determination, it is inappropriate for EPA and DEP to preclude the consideration of unforeseeable circumstances in its responsibility to make this determination in the future. Therefore, no change has been made to this permit language.

Comment J14: Mirant Kendall observes that the heat formula in footnote 11 on page 5 of the Draft Permit contains an error.

Response to J14: The equation should have listed the terms of heat load, "Q" as millions of BTUs per hour, not BTU/day. Since the permit requires that the permittee report the hourly and daily heat load values, the permittee shall calculate the hourly heat load with this equation by using the average hourly flow rate (in MGD) and the average hourly delta T. The cumulative total of the 24 individual hourly heat load values for each calendar day shall also be reported. These changes have been made to the Final Permit.

Comment J15: Mirant Kendall observes that in footnote 2 on pg. 3, the Draft Permit proposes a method for determining the Average Monthly Discharge Limitation that could potentially be inconsistent with the default definition of Average Monthly Discharge Limitation in Part II.E.1, on pg. 11.

Mirant assumes that the more specific definition in Part I.A.1 should be used instead of the default definition in Part II.E.1.

Response to J15: Mirant's assumption is correct. The flow shall be calculated and reported as described in footnote 2 on Page 3 of the permit.

Comment J16: Mirant Kendall raises three minor, miscellaneous errata.

Error 1

In Part I.A.3, in footnote 4 on p. 3, "(HRS) unit" should read "(HRSG) unit."

Error 2

In Part I.A.12.a.2, on p. 14, "DMR" should read "DEP."

Error 3
In Part I.A.13, on p. 16, "Section 14.e.7" should read "Section 14.e.9."
Response to J16: These three errors are acknowledged and have been corrected in the Final Permit.

Comment J17 (from MA DMF): Because of significantly increased thermal loading as well as impacts from I&E, we seek clarification as to how EPA considers this draft permit supportive of

the antidegradation provisions of the CWA for the protection of fishery resources, particularly as we work to restore fish species to the river. We recommend that EPA reconsiders permitting this facility to require measures that substantially reduce the amount of water removed from the Charles River. By not doing so, we expect the habitat we rely on to support our enhancement efforts will become more unsuitable and conflict with our restoration efforts.

Response to J17: The increase in permitted heat load is limited to the allowance for an annual average flow limit of 70 MGD, rather than a monthly average flow limit of 70 MGD. (The 70 MGD monthly average limit has been retained for the months of April, May and June only). This indeed may result in an increased permitted heat load in certain months. In the Final Permit, however, EPA and DEP are relying primarily on the in-stream monitoring and temperature compliance limits as a more precise and protective means of monitoring and regulating the plant's thermal discharge in a manner that assures that there is no degradation to designated uses, while allowing operational flexibility for the permittee. See also responses B1, B8, and B9(3). Regarding the CWIS, the provisions of the Final Permit represent the first, specific best technology available (BTA) requirements for this facility and are thus improving rather than degrading the designed uses.

Comment J18 (from ACN): The power plant also creates the hazards of a million gallon tank of jet fuel and a million and a quarter tank of fuel oil. Both of these flammable liquids are brought in by truck through the inhabited areas of East Cambridge.

Response to J18: The transportation of such materials falls under the purview of City, State and/or Department of Transportation regulations. The EPA or MassDEP does not control or regulate the shipment of these fuels to the facility. However, the facility has implemented a Spill Prevention Control and Countermeasure (SPCC) plan regarding the storage of these fuels. In addition, the permittee has coverage under EPA's multi-sector general permit (MSGP) for storm water. This permit requires an implemented storm water pollution prevention plan (SWPPP) which must address best management practices regarding the storage, loading and unloading of such fuels on the property in ways that would minimize any release of such fuels into surface waters or the drainage system. (This response's references to Mirant's SPCC and SWPPP plans are not intended to express any view on the adequacy of those plans, but rather simply to note their place in the regulatory regime in order to respond to the comment.)

Comment J19 (from Stash Horowitz): We urge you to carefully weigh the environmental costs against the benefits and exercise care and caution in the issuance of any NPDES permit, whether temporary (which we urge), or an extension of the existing one.

Response to J19: EPA has thoroughly considered all the aspects of these discharges and all public comments received and has permitted them accordingly. The Final Permit expires five years from the effective date. At the end of this period, or earlier if appropriate, EPA will again review the permittee's application and available information in order to reissue the permit. Extensions to NPDES permits are not necessary because after the expiration date a permit is administratively continued and still in effect.

Comment J20 (from Stash Horowitz): Any help that you or the DEP can give the citizens of Cambridge in securing from Mirant the already agreed upon benefits of a public walkway and a floating dock, or benefits similar in effect and quantity, would be appreciated.

Response to J20: EPA agrees that these projects could enhance the public use of this area and would encourage Mirant to reach agreement with local groups on how best to accomplish these projects. However, EPA cannot require any such projects through this NPDES permit. Citizens may contact the City of Cambridge, the Massachusetts Department of Conservation and Recreation, and/or other appropriate local, regional, or state agencies regarding this request.

Comment J21 (from Jay Avin): How can a Chapter 11 company be concerned about getting a permit and upgrading a facility if they filed Chapter 11?

Response to J21: The facility upgrade occurred in 2002 and since that time, even under bankruptcy proceedings, the permittee has operated this facility at average flows ranging from 40 to 70 MGD and has often approached its maximum flow limit of 80 MGD. As of January 2006, the Mirant Corporation has emerged from bankruptcy protection.

Comment J22 (from Jay Avin): I read in the Boston Herald that they (Mirant Kendall) don't even have a sprinkler system in their plant.

Response to J22: EPA does not regulate sprinkler systems or other fire prevention equipment. Thus, EPA generally cannot impose conditions in a NPDES permit regulating fire safety and has not done so in this permit. This issue also falls under the purview of City and/or State regulations.

Comment J23 (from Dr. Raymond Walther): The excess warmth of the additional power reverses these projects which have improved the biologic and recreational capacities of a viable Charles River over the years.

Response to J23: See Response to comments related to C2, C3, C7 and response to comment related to C15 from CLF.

Comment J24 (from CRWA): Although we support the use of natural gas over dirtier sources like coal and oil, the environmental benefits to our air should not come at the expense of the Charles River's aquatic ecosystem.

Response to J24: Mirant Kendall is subject to State and Federal air emission requirements. The NPDES permit requirements were established independent of the air requirements and are conditioned to protect the BIP in the lower Charles River and meet Federal and state WQS.