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.
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> 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.
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> 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.
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> 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.
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> 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."