

**FINAL FACT SHEET  
NPDES PERMIT REISSUANCE  
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
WASTEWATER TREATMENT PLANT AT BLUE PLAINS  
WASHINGTON, DC  
August 31, 2010**

**NPDES Permit Number: DC0021199**

THE PURPOSE OF THIS ACTION IS THE ISSUANCE OF A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE POLLUTANTS TO WATERS OF THE UNITED STATES PURSUANT TO THE PROVISIONS OF THE CLEAN WATER ACT (CWA).

**1. NOTICE OF PERMIT REISSUANCE**

The United States Environmental Protection Agency, Region III (EPA) has made a determination to revise and reissue a permit for the discharge of treated municipal wastewater from the Blue Plains Wastewater Treatment Plant and treated and untreated combined wastewater and storm water through the District of Columbia's combined sewer system as described in the August 2007 permit application. The permittee is the District of Columbia Water and Sewer Authority.

All permit requirements are based on the Clean Water Act (33 U.S.C. § 1251 *et seq.*), hereinafter referred to as the Act, and NPDES regulations (40 C.F.R. Parts 122, 124 and 133).

**2. PERMITTING AUTHORITY**

The NPDES Permitting authority is the U.S. Environmental Protection Agency, Region III (EPA), Office of NPDES Permitting and Enforcement (3WP41), 1650 Arch Street, Philadelphia, PA 19103. The permit writer is Mary Letzkus (215-814-2087), NPDES Permits Branch.

**3. PERMITTEE**

The Permittee is the District of Columbia Water and Sewer Authority (WASA or the permittee), 5000 Overlook Avenue, Washington, DC 20032. The contact person is Walter Bailey (202-787-4172).

#### **4. EFFECTIVE DATES**

The permit will become effective 30 days after the final determination is made, unless a petition for review by the Environmental Appeals Board (EAB) is filed within 30 days after receipt of the final determination. See 40 C.F.R. §124.19. The final permit shall expire five years from the date of issuance.

#### **5. PUBLIC NOTICE**

This draft permit was offered for a 30-day public comment on May 7, 2009, for which EPA published a notice in the *Washington Times*. In addition to the notice in the *Times*, in accordance with the requirements found at 40 C.F.R. § 124.10(c)(1), EPA mailed copies of the notice, draft permit and draft fact sheet to persons living in the District of Columbia and the surrounding area who are known to EPA to be interested in such matters.

During the public comment period, EPA received letters of comment from Friends of the Earth (represented by EarthJustice), WASA, the Commonwealth of Virginia and the State of Maryland, The Government of the District of Columbia did not comment on the draft permit or fact sheet but it certified that the permit would meet the District's water quality standards, in accordance with Section 401 of the CWA. For detailed information relating to the comments received and responses thereto, please refer to the Response to Comments which accompanies the issued permit and is contained in the administrative record for this matter.

#### **6. DESCRIPTION OF THIS ACTION AND BACKGROUND.**

This action is to revise and reissue the NPDES permit for the Blue Plains wastewater treatment facility. The permit covers two outfalls at the treatment plant and 58 combined sewer overflow (CSO) outfalls in the collection system. The background and relevant history of the permit as it presently stands is set forth below.

On January 24, 2003 EPA reissued WASA's permit. The 2003 Permit applied to the same discharge points as are covered by the proposed permit, except that one of the CSO discharges previously covered has now been eliminated. Outfall 002 is the primary discharge outfall at the wastewater treatment plant. Outfall 001 is the excess flow/bypass outfall at the treatment plant. There are 58 CSO outfalls in the collection system.

Petitions to review certain provisions of the January 23, 2003 permit were filed with the EAB jointly by Friends of the Earth and the Sierra Club (FOE/SC) and also by WASA. On December 16, 2004, following a period of negotiations and after public notice and comment, EPA issued a modified permit which both included revisions to the contested provisions and added provisions to the permit in order to conform to the Phase II permitting provisions of the

1994 CSO Control Policy (CSO Policy).<sup>1</sup>

The new provisions related to the implementation of WASA's Long Term Control Plan (LTCP), designed to bring WASA into compliance with the Clean Water Act, particularly requirements for compliance with state water quality standards (WQS). These are referred to as "Phase II" conditions under the CSO Policy. Both WASA and FOE/SC filed timely petitions for review of certain of the CSO Phase II provisions of the modified permit, specifically to what was at that time Part III. Section E. 1 through 4, Water Quality-Based Requirements for CSOs. In addition, WASA asserted that EPA should have included a compliance schedule for implementation of the LTCP into the permit. There is a schedule of compliance for the LTCP included in a Consent Decree between EPA and the permittee.<sup>2</sup>

Negotiations to resolve the issues underlying the petitions for review of the December 16, 2004 permit modification were unsuccessful. However, EPA decided to propose modifications to the challenged provisions and so EPA withdrew the challenged permit provisions, in accordance with 40 C.F.R. § 124.19(d). The only issue remaining before the Board was the permittee's request that the Board require EPA to include a compliance schedule for the LTCP in the permit. Again, after public notice and comment, on April 5, 2007, EPA issued a second modification of the permit. That modification would have removed the general WQS compliance requirement for CSOs previously contained in Part III. Section E. 1 of the permit, relying instead on the performance standards for the LTCP contained in Part III. Sections C.2.A.3. through C.2.A.9. as the applicable water quality-based effluent limitations (WQBELS) for CSO discharges. The permit modification also would have replaced the previous total nitrogen (TN) discharge goal with a TN discharge limit, effective upon the

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<sup>1</sup> 59 Fed. Reg. 18688 (April 19, 1994). The CWA requires NPDES permits to conform to the CSO Policy. See CWA § 402(q), 33 U.S.C. §1342(q)(1).

<sup>2</sup> Prior to issuance of the 2003 Permit, several citizen's groups had filed challenges to WASA's compliance with the CSO Policy, alleging that WASA failed to adequately implement the nine minimum controls and to develop and implement an LTCP as required by the Policy. Anacostia Watershed Society, et al. v. District of Columbia Water and Sewer Authority, et al., U. S. District Court of D.C. Civ. Action No: 1:00CV00183TFH. The United States had also filed a Complaint against WASA and the District of Columbia, alleging, *inter alia*, that WASA failed to fully implement the Nine Minimum Controls required by the CSO Policy and violated applicable WQS. U. S. v. District of Columbia Water and Sewer Authority, et al., Civil Action No: 1:002CV02511. These two lawsuits were consolidated as Consolidated Civil Action No. 1: CV00813TFH. WASA is currently subject to two Consent Decrees as a result of these lawsuits. On October 10, 2003, a Consent Decree among the United States, the Permittee and the citizen's groups was entered, resolving a number of issues in the litigation, particularly those issues related to implementation of the nine minimum controls. In addition, on March 23, 2005 a Consent Decree between EPA and WASA was entered (LTCP Consent Decree), which requires implementation of the LTCP, and which includes a schedule for WASA to implement the CSO control measures in the LTCP.

permit's effective date.

Petitions for review of portions of the April 5, 2007 permit modification were filed with the EAB. Pursuant to 40 C.F.R. §124.16, the contested portions of the permit were stayed until completion of review and final agency action.

The challenges to the April 5, 2007 permit modification are as follows:

- by WASA - challenging EPA's decision 1) to place the TN limit in the permit and 2) not to include a compliance schedule for achievement of the limit in the permit;
- by the Chesapeake Bay Foundation (CBF) - challenging EPA's decision not to include a compliance schedule for the TN limit in the permit; and
- by FOE/SC - challenging EPA's decision not to include the general requirement for WQS compliance in the CSO-related provisions of the permit.

On March 19, 2008, the EAB issued a decision on the issues raised in the petitions with respect to the April 5, 2007 permit modification, as well as on the issue remaining from the December 16, 2004 permit modification. *In re District of Columbia Water and Sewer Authority*, 13 EAD 714 (March 19, 2008). The EAB denied the petitions in part and remanded in part. First, the EAB denied WASA's challenge of the total nitrogen limit of 4,689,000 pounds per year. The EAB both denied the petition for review of EPA's decision to include the limit in the permit at this time and rejected WASA's challenge to the limit itself.

Under the April 5, 2007 permit modification, the TN limit would have become effective immediately upon the permit modification's effective date. Both WASA and the CBF argued that EPA erred by not including a schedule for complying with the new TN limit, asserting that such a schedule is required by the District of Columbia WQS. See 21 DCMR 1105.9. The EAB found that the District's WQS require EPA to include a compliance schedule in the permit when a new water quality standard-based effluent limit is included in a permit, consistent with the Clean Water Act and the applicable District regulations and remanded the permit to EPA to take action in accordance with the decision.

Similarly, WASA had also challenged EPA's decision not to include a compliance schedule for implementation of WASA's CSO LTCP in the December 16, 2004 permit modification as contrary to the requirements of DC's WQS regulation. As noted above, a schedule for implementation of the LTCP obligations is already contained in a judicial Consent Decree between WASA and EPA. The EAB found that, while EPA's decision to place the implementation schedule in a consent decree was consistent with the CSO Policy and the CWA, the District WQS regulation also requires EPA to place a compliance schedule in the permit, to the extent the WQS at issue were established after July 1, 1977. See *In re District of Columbia Water and Sewer Authority*, *Id.* at 737, and footnote 42.

Finally, the FOE/SC had challenged EPA's decision to include in the permit only the LTCP performance standards as the WQBELs applicable to CSO discharges. EPA made those requirements immediately effective, based upon its interpretation of the CSO Policy and the CWA - even though LTCP implementation is scheduled to take at least until 2025. The EAB found that EPA's decision to remove the general prohibition against discharging in excess of WQS had not been subject to public notice and comment as required by 40 C.F.R. § 124.10. Therefore, the EAB remanded that provision to EPA, requiring the Agency to either reinstate the prior language to the permit, or reopen the public comment period to allow comment on this issue, provide a response to comments and reissue the permit addressing that provision.

WASA filed a Motion for Reconsideration of the Board's decision on the TN limit, and the motion was denied. *In re District of Columbia Water and Sewer Authority*, April 23, 2008.

On July 15, 2008, WASA filed an appeal of that portion of the EAB decision which upheld EPA's decision on the numeric total nitrogen limit for the Blue Plains facility. *DCWASA v. EPA*, Civil Action No. 08-1251 (D.C. Cir.). EPA moved to dismiss that petition for lack of jurisdiction, and, on December 12, 2008, the Court of Appeals issued an Order granting EPA's motion to dismiss. (December 12, 2008, unpublished.)<sup>3</sup>

The January 24, 2003 Permit expired on February 28, 2008. Pursuant to 40 C.F.R. § 122.6(a), the effective terms of the permit have been administratively extended.

## 7. FACILITY DESCRIPTION.

The Blue Plains Wastewater Treatment Plant is the largest advanced waste water treatment plant in the world. It covers 150 acres, has a design capacity of 370 million gallons per day (mgd), and a peak capacity of 1076 million gallons per day. The collection system includes 1,800 miles of sanitary and combined sewers, 22 flow-metering stations, nine off-site wastewater pumping stations and 16 storm water pumping stations within the District. Separate sanitary and storm sewers serve approximately two-thirds of the District. In older portions of the system, such as the downtown area, combined sanitary and storm sewer systems are prevalent.

The Blue Plains Wastewater Treatment Plant serves the District of Columbia, and portions of Montgomery and Prince Georges Counties in Maryland and Fairfax and Loudoun counties in Virginia.

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<sup>3</sup> Final agency action with respect to permit provisions for which petitions for review have been filed with the EAB does not occur until, following the EAB's determination on any such petitions, EPA issues a final permit decision. See 40 C.F.R. § 124.19(f). Therefore, the contested provisions of the permit, which were stayed in accordance with 40 C.F.R. § 124.16, were never in effect.

The plant has two discharge points, Outfalls 001 and 002. Outfall 002, which discharges to the Potomac River, is the principle discharge point. Treatment for this outfall includes primary treatment, secondary treatment, nitrification, biological nitrogen removal, filtration, disinfection and dechlorination. Outfall 001 functions as an excess flow conduit and is used to avoid hydraulic overloads to the plant during wet weather. Effluent from Outfall 001, which also discharges to the Potomac River, receives primary treatment, disinfection and dechlorination. Outfall 001 has been characterized as a CSO-related bypass, pursuant to the 1994 CSO Policy.

The treatment plant and sewer system discharge to the Potomac and Anacostia Rivers, Rock Creek and tributary waters. In its WQS, the District of Columbia has designated these streams for primary contact recreation, aesthetic enjoyment, aquatic life, water oriented wildlife, raw water source for industrial water supply and for navigational use.

The permittee operates a combined sewer system which has a total of 58 outfalls. There are 16 CSOs which discharge to the Anacostia, 13 CSOs on the Potomac, and 29 CSOs that discharge to Rock Creek. The sewer system is designed to convey waste to the treatment plant and to prevent wet weather flow from exceeding the hydraulic capacity of the sewers and/or the treatment plant. Included among the outfalls identified in the permit are Outfalls 004, 008, 061 and 062, which are emergency relief points at pump stations. They are not authorized to discharge. Outfall 059, identified as Luzon Valley, is no longer covered by this permit, as it discharges only storm water; it is now covered under the District's Municipal Separate Sewer System (MS4) permit.

During the life of this permit, the waste water treatment plant will undergo a program of improvement and rehabilitation intended to reduce the amount of nitrogen discharged from the plant, as well as continuation of the Blue Plains Liquid Process Improvement program (LPIP), a program of upgrades to the liquid process handling facility. EPA recognizes that the construction of upgrades to meet the liquid handling facility and total nitrogen removal process will cause disruptions at Blue Plains. In recognition of these disruptions, the permit allows the relief regarding treatment of flows as discussed at part 8.B.(1)b below.

The Blue Plains Waste Water Treatment Plant consists of the following treatment technologies:

*Primary Treatment* - a waste water treatment process that allows particles which float or settle to be separated from the water being treated. At Blue Plains, this process includes the following processes: raw wastewater pumping; grit removal; grease separation and primary sedimentation. Solids removed from the process are treated by digestion, elutriation and dewatering.

*Secondary Treatment* - is a waste water treatment process used to convert dissolved or suspended materials into a form which can be separated from the water being treated. This

process usually follows primary treatment by sedimentation. At Blue Plains, secondary treatment is accomplished by means of a modified-aeration step-feed activated sludge process. The secondary treatment facilities are comprised of aeration basins, secondary sedimentation basins, sludge return and wasting systems, the secondary blower facilities with associated blowers and diffusers and pumping stations. At Blue Plains carbon is reduced by use of coarse bubble diffused aeration and the plant uses chemical precipitation for phosphorus removal.

*Biological Nitrogen Removal (BNR)* - a process whereby ammonia nitrogen is converted to nitrate nitrogen. The process also includes denitrification facilities for nitrogen removal, filtration for effluent polishing and chlorination for effluent disinfection. The Blue Plains retrofit of existing facilities to enable full plant BNR operation was completed in the spring of 2000.

*Nitrification* - an aerobic process in which bacteria change the ammonia and organic nitrogen in waste water into oxidized nitrogen (usually nitrate). The second stage biological oxygen demand (BOD) is sometimes referred to as the "nitrification stage," first stage BOD is called the "carbonaceous stage." Blue Plains employs sparged air turbines for oxygenation.

*Denitrification* - an anaerobic process that occurs when nitrite or nitrate ions are reduced to nitrogen gas and bubbles are formed as a result of this process. The bubbles attach to the biological flocs and float the flocs to the surface of the secondary clarifiers. This condition is often the cause of rising sludge observed in secondary clarifiers or gravity thickeners. At Blue Plains, the denitrification facilities are able to treat the entire plant flow.

In light of the new total nitrogen effluent limitation, a new project is underway to provide a major upgrade of the nitrification/denitrification facilities. This will include rehabilitation or repair of major process equipment that is nearing the end of its useful life and other improvements that will more evenly distribute flows to both the reactors and the sedimentation basins.

*Filtration and Disinfection and Dechlorination* - includes multimedia filtration of nitrified effluent and disinfection of the filtered effluent by chlorination and dechlorination prior to discharge.

*Solids Process* - includes gravity thickening and anaerobic digestion of primary sludges, air flotation thickening of waste activated and chemical sludges, vacuum filtration of the thickened and digested sludges and direct off-site disposal of the vacuum filter cake.

*Chemical Addition* - chemicals may be employed in the liquid stream treatment operations for a variety of functions. The chemicals employed and the treatment applications are described briefly below.

*Odor Control* - chlorine may be applied at raw wastewater pumping station numbers 1 and 2

and to the effluent from the grit removal facilities.

*Settleability Enhancement* - polyelectrolytes (polymers) may be added as follows: influent to primary sedimentation; influent to secondary sedimentation; and influent to nitrification sedimentation

*Phosphorus Removal* - iron salts including ferric chloride, ferrous sulfate and liquid alum may be added to the unit process as follows: primary sedimentation; secondary treatment; nitrification and effluent filtration.

*Metal Salts* - are used for the precipitation of phosphorus and as an aid in enhancing settleability of sludges and mixed liquors.

*pH* - lime is applied to the effluent during nitrification in order to maintain an adequate pH level for the nitrification process.

*Foam Control* - commercial defoamant compounds can be added to secondary treatment and nitrification as needed.

*Disinfection* - the process used to kill most microorganisms in wastewater including essentially all disease causing bacteria. At Blue Plains, chlorine is used to disinfect effluent discharged from both plant outfalls.

*Dechlorination* - as noted above, chlorine is used to disinfect effluent discharged at both plant outfalls; however, excess chlorine is removed from the effluent by the addition of sulfur dioxide.

*Solids Processing* - polymers are used in the dissolved air floatation thickening process as stabilization along with ferric chloride for aiding dewatering during vacuum filtration and at the centrifuges as a dewatering aid.

## **8. PERMIT CONDITIONS**

This proposed Permit carries forward the same conditions and limitations as the 2003 Permit,<sup>4</sup> with the exceptions set forth below:

A. A new Part I. Section A. Definitions was added. This part sets forth key permit terms,

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<sup>4</sup> The permit conditions include: 1) effluent limitations and monitoring requirements for Outfalls 002, 001 and 019; 2) standard conditions for all NPDES permits; 3) operation and maintenance requirements; 4) monitoring and recording requirements; 5) reporting and public accountability requirements; 6) combined sewer system technology-based and water quality-based requirements; and 7) special conditions for: pretreatment, sludge handling, chlorination/dechlorination, total nitrogen, storm water management, PCB monitoring and reduction and whole effluent toxicity testing.



including but not limited to such terms as “Dry Weather Flow”, “Complete Treatment” and “Excess Flow.” The definition portion of the permit formerly at Part II. Section C.11. Definitions has been moved to this section. In addition, the following definitions, included in the draft permit have been deleted, as those terms are defined in 40 C.F.R § 122.2: “daily discharge”, “average monthly discharge limitation”, “average weekly discharge limitation” and “maximum daily discharge limitation”. Numbering has been adjusted accordingly.

## **B. Effluent Limits**

- (1) Part I.B. Effluent Limitations and Monitoring Requirements Outfall 002<sup>5</sup>
  - a. PCBs. A new condition is being added to address the Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (Potomac/Anacostia PCB TMDL), approved by EPA on October 31, 2007. The Potomac/Anacostia PCB TMDL determined that approximately 93% of the total PCB load comes from nonpoint sources (Potomac River, lower basin tributaries, direct drainage, and atmospheric deposition). The remaining 7% comes from CSOs, WWTPs, and identified contaminated sites. WWTPs with the greatest annual flows were included in the waste load allocations (WLAs) calculations for the TMDL, accounting for approximately 95% of the total WWTP flow. The TMDL includes a baseline PCB discharge for Blue Plains of 701 grams per year (g/yr) total PCBs, and establishes a 30.2 g/yr discharge allocation, the achievement of which represents a 95.7% reduction of PCB discharges to the lower Potomac River. Specific WLAs were also calculated for the DC and Alexandria CSO systems. The TMDL assumes that the loads from the permittee’s CSOs will be reduced by 95% as a result of implementation of the CSO LTCP. The new permit condition is based upon Section VII. of the TMDL.

With the approval of the Potomac/Anacostia PCB TMDL, the water quality-based effluent limitations (WQBELs) in NPDES permits that are issued, reissued or modified after the TMDL approval date must be consistent with the assumptions and requirements of the WLAs. (40 C.F.R. 122.44 (d)(1)(vii)(B). The Potomac/Anacostia PCB TMDL describes an approach to implement WLAs. This approach first entails additional data collection from selected NPDES permitted facilities to better characterize PCB discharges. Also, based on existing or subsequently developed data, where warranted, non-numeric BMPs

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<sup>5</sup> Outfall 001 was originally the main discharge outfall at the plant. However, Outfall 002 was subsequently constructed and became the discharge outfall for fully treated wastewater from the plant. Outfall 001 is now used as a bypass point for discharges of partially treated effluent under limited specified wet weather flow scenarios. In this permit, for clarity, the effluent limits for Outfall 002, which is the discharge outfall for fully treated effluent, are listed first.

will be implemented. The BMPs will focus on PCB source tracking and elimination at the source.

During TMDL development, the Interstate Commission on the Potomac River Basin (ICPRB) analyzed four samples from the Blue Plains facility using EPA Method 1668A. These samples were used for development of the baseline loads used in the TMDL. NPDES permit application data for PCBs submitted for this permit were analyzed using EPA Method 608 established under 40 C.F.R. Part 136. EPA Method 608 did not detect PCBs in the discharge. EPA is requiring monitoring of both influent and effluent for PCBs using EPA Method 1668B (an update to test Method 1668A) in order to provide low level congener-specific data, in order to develop more information regarding PCB discharges from Blue Plains.

The samples required for Outfall 002 are two dry weather and two wet weather composite samples per quarter. The samples required for Outfall 001 are two wet weather grab samples per quarter. The Permittee must also sample its influent during one dry weather and one wet weather sampling event.

EPA's regulation at 40 C.F.R. 122.44(k)(3) allows permit writers to express WQBELs as best management practices (BMPs) in lieu of numeric limits when numeric effluent limitations are infeasible to calculate or BMPs supplemental to numeric limitations where such BMPs are reasonably necessary to achieve effluent limitations and standards or to carry out the goals of the CWA under 40 C.F.R. §122.44(k)(4). In the event that PCBs detected in any of the samples are at levels which may cause an exceedance of a DC water quality standard, the permittee is required to develop and implement a series of BMPs to focus on PCB source tracking and elimination of the PCBs at the source. At a minimum, the BMPs must include the submission of a Pollutant Minimization Plan (PMP) for PCBs. In addition to the above mentioned sampling, the BMP for Blue Plains must include the following: 1) a compilation of all sources of PCBs which are known by the permittee to be released, or have the potential to be released into the combined sewer system; 2) a compilation of all material that is known to contain PCBs but is not being released; 3) the collection and analysis of twelve in-stream samples; 4) the submission of a report of sites which may require the reduction of PCBs; 5) a plan to work with the Interstate Commission for the Potomac River Basin (ICPRB) on a plan to control the sources; and 6) the permittee shall develop and implement a program to identify whether industrial users have the potential to contribute PCBs to the collection system.

- b. Flows<sup>6</sup> - Flow rates for complete treatment and discharge from Outfall 002 and for discharges from Outfall 001, the excess flow discharge outfall<sup>7</sup>, have been either continued or modified to meet the needs imposed by: 1) continuation of the Blue Plains Liquid Process Improvement Program (LPIP)<sup>8</sup>; 2) construction of the facilities required to meet the new total nitrogen (TN) discharge limit for Outfall 002 (see Section 9.D.below); and 3) to reflect the changes to flow treatment and change to the LTCP due to implementation of enhanced nitrogen removal (ENR) processes that will be constructed and operated to achieve the TN limit.

Continuation of the LPIP:

Construction accommodation and discharge from Outfall 001 was approved under the previous permit for the Blue Plains LPIP.<sup>9 10</sup> EPA's determination was set forth in the Fact Sheet for the December 2003 Permit and supported by other documents in the administrative record for that permit action. This reissued permit changes the dry and wet weather flow scenarios to accommodate the continuation of the LPIP, which includes implementation of newly developed improvements necessary in order for WASA to comply with the TN limit imposed by this permit action.<sup>11</sup> In approving the

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<sup>6</sup> This discussion applies to both Outfall 002 and Outfall 001, as it relates to flows that will receive complete treatment and be discharged from Outfall 002 and flows that will receive excess flow treatment and be discharged from Outfall 001.

<sup>7</sup> Discharge through Outfall 001 is a bypass, as it does not provide for complete treatment. Outfall 001 was identified as a bypass when the permit was last reissued in January 2003. Previously, Outfall 001 had been listed as a CSO, which was an incorrect designation since the outfall is located past the headworks of the facility.

<sup>8</sup> The LPIP is a multi-year, multi-faceted program directed at improving and upgrading the performance of all components of the liquid treatment processes at the POTW.

<sup>9</sup> EPA's approval of the CSO-related bypass at that time was on an interim basis, based upon the agency's review of the draft LTCP, as well as on the accommodations necessary for the LPIP.

<sup>10</sup> The permit provided that the approved flow treatment rates would expire June 28, 2007, unless within 90 days prior to that date, the permittee submitted a written demonstration to EPA's satisfaction that completion of construction under the LPIP has been delayed "due to circumstances beyond permittee's control." On March 26, 2007 the Permittee requested an extension of the flow treatment requirements for several years, due primarily to the change in the TN discharge limits which necessitated changes to the design of the nitrification-denitrification portion of the LPIP. By letter dated June 13, 2007 EPA granted an extension of the reduction through the end of the permit term - February 28, 2007, and noted that any additional extension would be addressed in the reissuance of the permit.

<sup>11</sup> In light of the Chesapeake Bay agreement, as amended, a total nitrogen discharge goal of no more than 8,467,200 pounds per year was included in the December 2003 permit. WASA has exceeded that goal, discharging substantially less than that in the years 2003 - 2006. Given development of the Chesapeake Bay tributary strategies and changes to the affected states' water quality standards, on April 5, 2007, EPA modified the permit to, among other things; include a nitrogen discharge limit of 4,689,000 pounds per year. WASA challenged that limit, but it was upheld by the Environmental Appeals Board, and is included in this final permit action, along with a compliance schedule to achieve the limit.

change to the flow scenarios, EPA considered WASA's evaluation of feasible alternatives, as well as information on the effect of the continuation of the LPIP and the construction of the additional nitrogen reduction facilities at Blue Plains. See discussion below.

#### The LTCP and the Total Nitrogen Discharge Limit –

The December 16, 2004 permit modification incorporated "Phase II" permit requirements under the CSO Policy. These conditions identified the selected LTCP controls and required immediate implementation. WASA developed its LTCP including elements required by the CSO Policy: characterization, monitoring and modeling of the combined sewer system, public participation, consideration of sensitive areas, evaluation of alternatives, cost/performance considerations, an operational plan, maximizing treatment at the existing POTW treatment plant, a schedule for implementation and a post-construction compliance monitoring program. The final LTCP controls include: low-impact development (LID), pump station rehabilitation, storage tunnels, interceptors, sewer separation, CSO outfall consolidation, improvements to the wet weather excess flow treatment process at Blue Plains and operation of the excess flow discharge as a CSO-related bypass.<sup>12</sup> Implementation of the LTCP controls is expected to result in an overall 96% reduction in CSO volume, reducing the average number of overflows annually into the Anacostia River, the Potomac River and Rock Creek from 179 to 10. CSO flows will be diverted to the treatment plant.

LTCP implementation will result in much greater volumes of flow reaching the treatment plant for treatment during wet weather, which is one of the primary goals of the CSO Policy. In developing the LTCP, WASA considered alternatives to the continued use of the excess flow treatment system and discharge through Outfall 001 as a CSO-related bypass in accordance with the CSO Policy requirements for evaluation of feasible alternatives.<sup>13</sup> However, the evaluation of costs balanced against any potential additional improvements to water quality resulted in a recommendation to retain the excess flow treatment system, with improvements to enhance its reliability. Those measures included, among other things, the addition of four primary clarifiers, and improvements and modifications to the chlorine contact tank and wet well levels, recordkeeping and time keeping and communication during excess flow events.

In order for EPA to approve a CSO-related bypass, the POTW has to meet the

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<sup>12</sup> At the time that the LTCP Consent Decree was entered in 2005, LTCP implementation was estimated to cost \$1.2 billion.

<sup>13</sup> These included: 1) total sewer separation – infeasible due to cost as well as disruption to the metropolitan area as well as not resulting in increased benefit to water quality; 2) increased secondary treatment – infeasible due to space limitations at the facility; 3) satellite high rate treatment – cost infeasible when compared to water quality benefit; and, 4) expansion of tunnel size – cost infeasible when compared to water quality benefit. Evaluation of alternatives is reflected in the LTCP at Chapter 12.

requirements of the bypass regulation at 40 C.F.R. § 122.41(m) (4).<sup>14</sup> The CSO Policy provides that “ for the purposes of applying this regulation to CSO permittees, “severe property damage” could include situations where flows above a certain level wash out the POTW’s secondary treatment system. That is the situation with the Blue Plains treatment system. The cut off points for diversion of excess flow from secondary treatment were analyzed in the LTCP. The CSO Policy goes on to state that “EPA further believes that the feasible alternatives requirement can be met if the record shows that the secondary treatment system is properly operated and maintained, that the system has been designed to meet secondary limits for flows greater than the peak dry weather flow, plus an appropriate quantity of wet weather flow, and that it is either technically or financially infeasible to provide secondary treatment at the existing facilities for greater amounts of wet weather flow. .... As part of its consideration of possible adverse effects resulting from the bypass, the permitting authority should also ensure that the bypass will not cause exceedances of WQS.” 59 FR 18694. The Blue Plains facility also meets those requirements, as the secondary treatment system is properly operated and maintained (in fact, it is undergoing a substantial overhaul under the LPIP), it is technically infeasible to provide secondary treatment for additional wet weather flow due to space constraints, and the bypass will not cause exceedances of WQS.

With respect to establishing no feasible alternatives to bypass, WASA demonstrated that it conducted an adequate no feasible alternatives analysis for the Outfall 001 bypass, through its LTCP development process. EPA’s entry into the March 23, 2005 LTCP Consent Decree was an acceptance of the no feasible alternatives to the continued use of the excess flow outfall in the LTCP. Further, EPA determined that the record supported the CSO-related bypass in the selected LTCP controls and included its determination in the record for the December 16, 2004 permit modification, which applied the “Phase II” CSO permit requirements to the Blue Plains permit. The record of the permit decision included data to support approval of the CSO-related bypass in accordance with 40 C.F.R. §122.41(m) as an anticipated bypass.

In accordance with the CSO Policy (59 FR 18693), the prior permit (2003) defined the specific flow parameters under which EPA will exercise its enforcement discretion and the treatment, monitoring and other requirements that apply to the discharge. The permit included requirements that the flow discharged from Outfall 001 will receive a minimum of primary clarification, solids and floatable removal and disposal and disinfection (including dechlorination). The permit also included a requirement that the permittee report each

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<sup>14</sup> 40 C.F.R. § 122.41(m)(4) provides:

Prohibition of bypass. (i) bypass is prohibited, and the Director may take enforcement action against a permittee for bypass unless:

- (A) Bypass was unavoidable to prevent loss of life, personal injury or severe property damage;
- (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- (C) the permittee submitted notices as required under paragraph (m)(3) of this section.

discharge from Outfall 001 within 24 hours from commencement of the discharge. Further, the permit provided that the approval for the CSO-related bypass will be reviewed and that it may be modified or terminated if there is a substantial increase in the volume or character of pollutants being introduced to the POTW.

As discussed in Section 6, above, after the December 16, 2004 modification to the permit to include the Phase II CSO conditions, the permit was again modified on April 5, 2007 to include a Total Nitrogen (TN) discharge limit. In order to comply with the TN limit for discharges from the Blue Plains facility in April 2007, as discussed below, WASA developed a Total Nitrogen/Wet Weather Plan (TN/WW Plan). This plan had to address achievement of a new Total Nitrogen discharge limit at the same time that, due to implementation of the LTCP, the plant would be treating increased flows during wet weather. In developing its nitrogen removal plan, WASA determined that optimal nitrogen removal occurred at lower flows than those specified in the LTCP for complete treatment. Therefore, WASA considered several different treatment options, including ones involving changes to the flow volume and treatment provided to flows discharged from Outfall 001.

Among other things, the TN/WW Plan called for modifying the accepted LTCP controls by adding some wet weather flow storage capacity by extending one of the storage tunnels to the plant and replacing the construction of four additional primary clarifiers with the construction of enhanced clarification (ECF) capable of treating 225 mgd for discharge through Outfall 001. WASA again analyzed feasible alternatives to the proposed change to the flow scenarios, to supplement the previous no feasible alternatives analysis. In the no feasible alternatives analysis, WASA provided justification for the change to the cut-off point at which flows will be diverted from the secondary treatment portion of the treatment plant.

Enhanced clarification provides for substantially greater reduction of total suspended solids and biochemical oxygen demand than does conventional primary clarification. Therefore, the change to the flow adjustments would result in reduced pollutant loading to the Potomac River from discharges for Outfall 001.<sup>15</sup> <sup>16</sup> Because the treatment capacity of 225 mgd of the ECF is less than the 336 mgd of the existing excess flow treatment, and due to the substantial increase in flow coming to Blue Plains for treatment, the excess flow treatment may be used more frequently than was previously the case. However, the quality of the effluent to be discharged is predicted to be better.

EPA had extensive discussions with WASA regarding the TN/WW Plan, including the analysis of alternatives to the changes to the previously approved bypass. Ultimately, the components of the TN/WW Plan have been accepted by EPA. Apart from achievement of the TN limit, implementation of the TN/WW Plan is predicted to result in more effective and

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<sup>15</sup> Enhanced clarification also removes pathogens and particulates from wastewater and reduces turbidity and disinfectant-consuming constituents thereby increasing the effectiveness of subsequent disinfection.

<sup>16</sup> WASA estimates the cost of the nitrogen removal facility upgrade to be \$800 million.

efficient operation of the POTW, resulting in lower pollutant loads than originally predicted for the LTCP. In addition, the permit continues to require operation of the plant to maximize complete treatment of influent.

EPA is continuing to designate Outfall 001 as an approved CSO-related bypass in this permit, on the basis of the following: the bypass comports with the requirements of the CSO Policy and 40 C.F.R. § 122.41(m); the permit requires immediate compliance with the WQBELS per the Phase II permitting requirements of the CSO Policy; and there exists a federal Consent Decree that establishes a compliance schedule for implementation of the LTCP. The permit provides that the CSO-related bypass is only approved provided that the permittee remains in compliance with the LTCP implementation schedule requirements of the March 23, 2005 LTCP Consent Decree. The permit continues to prescribe the specific flow parameters under which EPA will exercise its enforcement discretion, as well as to specify that the flow discharged from Outfall 001 will receive a minimum of primary clarification, solids and floatable removal and disposal and disinfection (including dechlorination). The permit also includes a requirement that the permittee report each discharge from Outfall 001 within 24 hours from commencement of the discharge. Further, the permit provides that the approval for the CSO-related bypass will be reviewed and that it may be modified or terminated if there is a substantial increase in the volume or character of pollutants being introduced to the POTW.

Both the LTCP and the TN/WW Plan are part of the administrative record, as are numerous presentations made to EPA and the public by WASA as well as relevant correspondence between EPA and WASA regarding the LTCP and the TN/WW Plan. The information in the record supports this permit decision.

#### Total Nitrogen Discharge Limit

As plant operations will be disrupted during construction of the nitrogen removal facilities, as demonstrated by WASA in its TN/WW Plan and other information provided to EPA, Therefore, EPA has approved treatment of excess flows through Outfall 001 during construction.

Ultimately, once the nitrogen removal facilities have been upgraded, use of Outfall 001 will continue as a CSO-related bypass, in order to allow for efficient operation of the nitrogen removal facility and as reflected in the modification to the LTCP. High weather flows, especially combined with times of high water use, can have a significant impact on the denitrification process.

The conditions and limitations of effluent discharge from Outfall 002 are set forth below:

Flow Condition and Period	Times	Measured Influent Flow Rates to Receive Complete
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		Treatment
A. DWF, through permit expiration date	All times	Up to and including 511 mgd
B. CSSF		
1. From effective date of permit And following placing ECF in operation unless otherwise authorized or approved by EPA	First 4 hours After 4 hours	Up to and including 555 mgd and Up to and including 511 mgd
2. Until Completion of Nitrification Denitrification Facilities upgrade, but no later than March 1, 2011	First 4 hours After 4 hours	Up to and including 511 mgd and Up to and including 450 mgd
3. During construction of improvements to existing nitrogen removal facilities, period(s) to be determined by permittee and EPA from completion of design and construction schedules.	First 4 hours After 4 hours	Up to and including 511 mgd and Up to and including 450 mgd
4. During construction of the ECF and tie-ins to the existing facilities. Periods to be determined by permittee and EPA from completion of design and construction schedules.	First 4 hours After 4 hours	Up to and including 511 mgd and Up to and including 450 mgd

c. *E. coli (Escherichia coli)* – Based on a 2005 revision to the District of Columbia Water Quality Standards, the bacteriological criterion has been changed from fecal coliform to *E. coli*, effective January 1, 2008. 21 DCMR 1104.8. The limits for *E. coli* are expressed as an average monthly limit of 126 cfu/100 ml geometric mean. In accordance with the District of Columbia Water Quality Standards, a footnote has been added which clarifies that the single sample value for *E. coli* is 410 cfu.

d. Total Nitrogen – The allocation for Blue Plains is 4,689,000 pounds per year total nitrogen, based on the nitrogen cap loadings established pursuant to the EPA Bay Criteria Guidance, state water quality standards and the tributary strategies developed for the Chesapeake Bay. Previously, EPA had applied the Bay allocation for Blue Plains by setting a limit of 4,689,000 pounds per year applied to the combined discharges from Outfalls 001 and 002. However, WASA provided information demonstrating that unlike the discharges from Outfall 002, the nitrogen discharges from Outfall 001 will fluctuate, based on weather conditions and temperature. Therefore, EPA has applied a specific nitrogen limit only to Outfall 002, of not more than 4,377,580 pounds per year. The modeling used to establish the



load allocations for the Bay considered rainfall in the years 1985 to 1994. The wettest year in that period was 1989, with a rainfall of 50.32 inches reported at Ronald Reagan National Airport. Had the controls in the TN/Wet Weather Plan been implemented in 1989, WASA projects that Outfall 001 would discharge 311,420 pounds total nitrogen. It is expected that will be the maximum discharge from Outfall 001. Therefore, in order to assure compliance with the nitrogen allocation for Blue Plains, a limit of 4,377,580 pounds per year has been assigned to Outfall 002: 4,689,000 lbs/yr (total allocation) – 311,420 lbs/yr (Outfall 001) = 4,377,580 lbs/yr (Outfall 002)

The permit includes a requirement to monitor nitrogen discharges from Outfall 001 to determine total annual discharges. In the event that discharges from that outfall exceed 311,420 pounds per year, EPA will evaluate whether any adjustment to the allocation should be made, taking into consideration such factors as annual rainfall, temperature, the level of discharges from Outfall 002 and other appropriate factors.

After commenting on the proposed TN/WW Plan and following several discussions with WASA and WASA’s public presentation of its plan, EPA advised WASA that the proposed technology and process improvements for achievement of the nitrogen limit contained in the plan are acceptable. EPA also accepted WASA’s schedule to place the nutrient removal facilities in operation by July 1, 2014 and to commence compliance with the total nitrogen limit beginning January 1, 2015. (See Section 9.D. for the total nitrogen compliance schedule). However, the TN/WW Plan includes regulatory and legal interpretations with which EPA does not agree. Therefore, EPA has not approved the TN/WW Plan in its entirety.

(2) Part I.C. Effluent Limitations and Monitoring Requirements Outfall 001

a. Polychlorinated biphenyls (PCBs) - a new condition requiring monitoring for PCBs is being added. See Section 8. B. (1).a above for additional information regarding this requirement.

b. Flows - flow discharged from Outfall 001 shall receive treatment as follows:

- i. Excess Flow Treatment (EFT) until the ECF is placed in operation.
- ii. After the ECF is placed in operation, flow shall receive treatment in the ECF followed by disinfection.

The following conditions and limitations for influent flow discharged from Outfall 001 shall apply:

FLOW CONDITION AND PERIOD	TIMES	MEASURED FLOW RATES FOR OUTFALL 001
A. DWF	All times	No discharge approved
B. CSSF		

<p>1. From effective date of permit and lasting until ECF is placed in operation.</p>	<p>All times</p>	<p>Up to and including 336 mgd above rates to receive complete treatment under Part I.B for Outfall 002</p>
<p>2, Following ECF being placed in operation, for emptying the BPT under an operating routine that provides for:</p> <p>a. Conveying flow from the BPT through the ECF or transfer to complete treatment;</p> <p>b. Regulating the discharge of ECF effluent to maintain a rate of 511 mgd through complete treatment while optimizing conditions for maintaining the availability of the storage volume in the BPT such as that the occurrence of CSOs is minimized;</p> <p>c. No discharge of flow from the BPT from Outfall 001 when DWF conditions exist; and</p> <p>d. Limiting discharge of ECF effluent from Outfall001 to a maximum rate of 225 mgd; provided that any discharge of ECF effluent from Outfall 001 shall not occur except for the purpose of maintaining the availability of storage volume in the BPT to the extent that the occurrence of CSOs is minimized.</p>	<p>All times</p>	<p>Up to a maximum of 225 mgd</p>

c. Total Nitrogen – footnote 4, which provides for the collection and calculation of total nitrogen load, has been added. The daily mass load discharged shall be determined using the daily concentration and the average flow rate recorded for that calendar day. The sum of the daily mass loads obtained each calendar year shall be used to calculate the total mass load discharged for the calendar year.

**C. General Permit Conditions**

(1) Part II. General Conditions for NPDES Permits

a. Section A.2. Water Quality Standards Compliance – In its April 5, 2007 modification to the Permit, EPA removed the general narrative WQS compliance provision that had been in the permit, replacing it with specific WQBELS - the performance standards for the LTCP. In its rationale, EPA stated that, in accordance with the CSO Policy, Section IV.B. 2. b., 59 F.R. 18696, these specific WQBELS were the appropriate WQBELS for the CSO discharges. Friends of the Earth and the Sierra Club (FOE/SC) challenged the decision to remove the general provision on the procedural ground of failure to provide adequate notice and comment and on the substantive grounds of anti-backsliding and failure to ensure compliance with WQS. FOE/SC argued that since the performance standards would not be met until the LTCP is fully

implemented in 2025, the permit does not contain any provision to ensure compliance with the WQS in the interim. The EAB agreed with the FOE/SC procedural challenge and found that there had not been adequate notice and comment and did not reach the substantive issues. The EAB remanded the permit to EPA to either include a general narrative provision ensuring compliance with District WQS during the interim period while the LTCP is being implemented or reopen the comment period and provide opportunity for comment on the removal of the narrative provision and provide an adequate response to any comments received. *In re District of Columbia Water and Sewer Authority*, 13 EAD 714 (March 19, 2008).

EPA is retaining the requirement that the permittee may not discharge in excess of any limitation necessary to meet applicable WQS. However, in retaining this requirement, it is changed in two respects. First, this provision was previously in Part III, Combined Sewer System, but EPA has relocated it to the General Conditions, specifically Part II.A.2. Consequently, the requirement, applies to all discharges from the facilities covered by the permit, not just CSO-related discharges. Second, EPA has added a second paragraph to this requirement, which states that the specific water quality-based effluent limitations (WQBELs) for CSO-related discharges from the collection system and the facility, contained in Part III. Section C. of the Permit are limitations necessary to meet applicable WQS. These limitations include the water quality-based performance standards derived from the LTCP, and are consistent with the requirements of the 1994 CSO Policy, specifically the requirements for Phase II CSO permits and implementation of the LTCP and WQBELs where a permittee has used the “demonstration” approach in developing its LTCP.

The narrative provision and the specific WQBELs for the LTCP controls are immediately effective, requiring immediate compliance. However, because the LTCP will not be fully implemented until 2025, and because WASA cannot comply with the specific WQBELs in Part III.C. of the permit until the LTCP is implemented, the permittee will not be in compliance with either the narrative provision or the specific WQBELs during the interim period when the LTCP is being implemented. A Consent Decree between EPA and the permittee addresses these violations, establishing a compliance schedule for the LTCP and specific enforceable milestones during the interim period when the LTCP is being implemented. As discussed above in Section 6, at footnote 2, a Consent Decree between EPA and the permittee addresses these violations, establishing a compliance schedule for the LTCP and specific enforceable milestones during the interim period. See also Section D. Therefore, provided that the permittee meets those milestones and implements the LTCP, as set forth in the permit and the Consent Decree, there will be no basis upon which to enforce either the specific WQBELs in Part III. C. or the narrative provisions in Part II.A. 2. during implementation of the LTCP, as to any violation of WQS being addressed in the LTCP. In addition, if it is determined that the selected CSO controls fail to meet WQS following implementation, WASA would not be in violation of the requirements at Part II. A. 2., so long as WASA was in compliance with the WQBELs in Part III. C. of the permit. Pursuant to the 1994 CSO Policy, the permit includes a reopener provision so that the permit may be reopened and modified to include additional controls, based on a plan developed by the permittee, upon determination that the

CSO controls fail to meet WQS or protect designated uses.

EPA believes that the narrative provision would “ensure compliance with the applicable water quality requirements of all affected states,” as required by 40 CFR §122.4(d). Although the predicted performance is based, at least in part, on modeling, and no one can be certain of the actual performance, EPA believes that the predicted performance is sufficient to show that the LTCP controls would ensure compliance with WQS.

b. Section A. 3., previously Section A. 2 has been modified to reflect increases in statutory maximum penalties under the CWA, in accordance with the EPA Civil Monetary Inflation Adjustment Rule, 73 FR 75340 (December 11, 2008), as follows:

- i. the maximum civil penalty per day per violation is increased from \$32,500 to \$37,500, Class I administrative penalties are increased from a maximum penalty per violation of \$11,000 to \$16,000 and the maximum penalty is increased from \$32,500 to \$37,500 and Class II administrative penalties are increased from a maximum penalty per violation of \$11,000 to \$16,000 and a total maximum penalty from \$157,500 to \$177,500.

c. Part II.A.15., previously Part II.A.14, Endangered Species - Mention of the Bald Eagle as a threatened species has been removed, as the Bald Eagle has been delisted in the area affected by this permit.

d. Part II.E. Public Accountability - The Director of the Water Protection Division, US EPA Region III, has been added as a contact for the submission of quarterly reports.

#### **D. Combined Sewer System Permit Conditions.**

##### **(1) Part III - Sewer System**

a. The table of CSO outfalls has been updated to remove Outfall 059 at Luzon Valley, which has been converted to a storm water only outfall and which is covered under the District of Columbia Municipal Separate Storm Sewer System permit.

b. Minor revisions to the Nine Minimum Controls (NMC) Program section found at Section B. Technology-Based CSS Requirements, have been made as follows:

- i. Section (vi) under Control Solid and Floatable Materials in CSOs

has been revised to read, “Advise the DC Department of Public Works (DPW) and the National Park Service (NPS) in writing at least once per year on methods and systems to maximize litter control in the CSS, targeting neighborhoods that contribute disproportionate efforts in quarterly CSO reports.”

- ii. Section (viii) has been revised to read, “Prepare lesson plan materials to educate school children on the ways and means for citizens to assist in reducing the amount of solid and floatable materials in CSOs. Make the materials available to DC Public elementary schools for their use. Offer to make presentations to schools on the lesson plan and the CSO program at up to six (6) occasions per year.
  - iii. Section (ii) under g. Pollution Prevention has been modified to specify that tours of the Blue Plains facility will be made available.
  - iv. Section (ii) under i. Monitoring has been modified to read, “Monitor and record the condition of the bar racks at the Main and O street Pumping Stations storm/CSO pumps to assess their ability to trap floatables.
- c. Section C. Long Term Control Plan (LTCP) has been redesignated as Water Quality Based Requirements for Combined Sewer System. Additional modifications to this section from the 2007 permit modification are as follows:
- i. The language referencing the LTCP has been expanded to include any supplements to the LTCP.
  - ii. Section A.1 has been modified to include overflow structures as LTCP facilities for controlling discharges to the waters of the District.
  - iii. The language from the previous subsection 3.a which read: “Combined Sewer System Flow (CSSF) conditions exist at Blue Plains, then discharges may occur at Outfall 001. CSSF conditions are those described at Part I.B(1)(1a)(b) of this permit”, has been deleted; the previous subsection 3.b is now subsection 5.a and has been modified to describe prohibitions during wet weather: “ When Combined Sewer System Flow (CSSF) conditions exist at Blue Plains, then discharges may occur at Outfalls 001 and 019. CSSF conditions are those defined at

Part I. Section A. of this permit.”

The language in section 5.b. has been modified to read, “The associated storage tunnels serving individual CSO outfalls are filled to their design capacities.”

- iv. Section 7 (formerly Section 5) has been modified to read, “All combined sewer flow stored in the Anacostia River, Northeast Boundary, Piney Branch and the Potomac River storage tunnels shall be emptied in such a manner as to maximize complete treatment at Blue Plains and to optimize conditions for maintaining the availability of storage volume in the tunnels system.”
  - v. Section 8 (formerly Section c. 6) which describes tunnels storage capacity has been modified as follows: Anacostia River and Northeast Boundary Tunnels – 157 million gallons; Piney Branch Tunnel – 9.5 million gallons; and Potomac River Tunnel – 58 million gallons.
  - vi. Section 9.a has been updated to reflect new Tunnel or Diversion Sewer capacities. Generally the Minimum Diversion Capacities for CSO control for many of the Anacostia River CSO outfalls have been reduced. The original diversion numbers were representative of those in the LTCP which were based on early modeling assumptions. Since that time, the permittee has placed two meters on each of the CSOs which provide an accurate diversion flow capacity number. The flow measurements reflect that the actual flow from many of the CSO outfalls is less than projected.
- d. Section D. Post Construction Monitoring section 4 has been modified to read, “Results from the monitoring phases shall be used to assess the performance of CSO controls against predictions established as part of LTCP development and its supplements. Performance assessments shall be prepared by the permittee and submitted to EPA within 180 days of completion of a monitoring phase. In general the assessments shall include.....
- A new subsection 4c. has been added which reads, “Comparison of performance to TMDLs established for CSOs and approved bypasses is in the receiving waters.”
- e. Compliance Schedule – EPA has determined that it is not appropriate to

include a compliance schedule for LTCP implementation in this permit.

i. The EAB Decision

(a) The March 19, 2008 EAB decision, among other things, remanded the permit to EPA to include in the permit, as appropriate, a compliance schedule for implementation of the selected controls in the LTCP. As noted above, a compliance schedule for LTCP implementation is already contained in a court-approved Consent Decree. See, U.S. v District of Columbia Water and Sewer Authority, et al., Civil Action No. 1:002 CV 02511 (Dist Ct. D.C.) In its decision, the EAB agreed with the Region that its decision to include a compliance schedule in Consent Decree was consistent with the 1994 CSO Policy. The EAB then based its remand on the District of Columbia Water Quality Standard regulation regarding compliance schedules, which provides:

“When the Director requires a new water quality standard-based effluent limitation in a discharge permit, the permittee shall have no more than three years to achieve compliance with the limitation, unless the permittee can demonstrate that a longer compliance period is warranted. A compliance schedule shall be included in the permit.”

21 DCMR.1105.9

In support of its decision, the EAB relied on CWA Section 510 and 40 C.F.R. §123.25(a), which provides that “states are not precluded from omitting or modifying any provisions to impose more stringent requirements” than those contained in the federal National Pollutant Discharge Elimination System.” The EAB concluded that the District regulation, which the Board found mandates a schedule delaying compliance be included in a permit even where delayed compliance is authorized in an enforcement settlement, is more stringent than the EPA regulation regarding compliance schedules, which states that “the permit **may**, where appropriate, specify a schedule of compliance leading to compliance with CWA and regulations.” 40 C.F.R. §122.47(a) (emphasis added).

In remanding to EPA, the EAB was clear that a compliance schedule could only be included in WASA’s permit if to do so is consistent with the CWA. As the EAB said, “in the instance in which the permitting authority believes a compliance schedule is appropriate, it must be in the permit.” 13 EAD 714, at 734 (emphasis added). Addressing DCMR 1105.9’s requirement to include compliance schedules in permits, the EAB was careful to say that “it mandates that the Region do so whenever a compliance schedule is appropriate.” Id. at 736 (emphasis added). The EAB noted that “schedules for compliance with water quality standards that were promulgated prior to July 1, 1977, are not

appropriate,” and stated, “[t]o the extent that any of the relevant water quality standards were promulgated prior to July 1, 1977, the Region should not include in the compliance schedule in the Final Permit the related LTCP requirements.” Id., at 738, FN 42. The EAB instructed the Region to “clearly document” its decision-making regarding whether compliance schedules are not included in the final permit because they are based on pre-1977 water quality standards. Id. That documentation is provided below and elsewhere in the administrative record for this permit decision.

(b) The LTCP Controls and WQS

Like many older cities in the United States, the District’s sewer system is comprised of both combined sewers and separate sanitary sewers. The combined sewers carry both sewage and runoff from storms. In the combined sewer system, during dry weather, sewage from homes and businesses is conveyed to the Blue Plains wastewater treatment plant (WWTP) for treatment before being discharged to the Potomac River via the plant’s main discharge outfall, Outfall 002. During wet weather, when the flows to the WWTP exceed a certain volume, in order to preserve the integrity of the WWTP processes, flows may be diverted from the secondary treatment processes to be discharged through Outfall 001 after receiving primary treatment, chlorination and dechlorination. When the capacity of a combined sewer is exceeded during storms, the excess flow, which is a mixture of sewage and storm water runoff, is discharged to the Anacostia and Potomac Rivers, Rock Creek and tributary waters - as combined sewer overflow.

Sewage contains many pollutants, including, but not limited to, pathogens (e.g., bacteria, viruses, and protozoa), oil and grease, floatables (e.g. feces, tampons, condoms, toilet paper, and plastic), nitrogen, phosphorous, organic materials and metals. Storm water runoff also contains the same pollutants, generally to a lesser degree, with more trash, and typically the pathogens in storm water are from animal, rather than human, excrement. Both sewage and storm water runoff contain suspended solids.

In order to address the pollutant loads from CSOs and to achieve District WQS, the LTCP consists of an integrated system of controls designed to: 1) reduce the amount of combined stormwater runoff and sewage discharged into the affected water bodies; and 2) maximize the amount of combined sewer flow transported to the Blue Plans WWTP for treatment. The controls required by the LTCP include: low-impact development (LID), pump station rehabilitation, storage tunnels, interceptors, sewer separation, CSO outfall consolidation, and



improvements to the excess flow treatment process at Blue Plains.<sup>17</sup>

LID is designed to decrease storm water runoff, thereby reducing the amount of pollution that flows into the combined sewer system and potentially directly into a District water body. Examples of LID include: rain gardens, tree planting, sand filters, porous pavement, storm water detention and biofilters. Pump station rehabilitation will ensure that the stations work properly and have adequate capacity to convey combined flows through the collection system to the WWTP, rather than discharge combined flows to a water body. The storage tunnels are designed to capture and hold combined flows so that they may ultimately be conveyed to the Blue Plains WWTP for treatment. Interceptors are large sewer lines that, in a combined system, control the flow of sewage to the treatment plant. In a storm, they allow some of the sewage to flow directly into a receiving stream, thus keeping it from overflowing onto the streets. Separation of segments of the combined stormwater and sewer system will reduce the amount of pollutants potentially discharging to the water bodies; when separated, sewage will go to the Blue Plains WWTP and storm water will be discharged to a water body.<sup>18</sup> This will also reduce the load of pollutants sent to the Blue Plains WWTP for treatment. Consolidation of certain CSO outfalls on the Anacostia and Potomac rivers will connect those outfalls to the storage tunnels so that the flows will be conveyed to the Blue Plains WWTP. In addition, consolidation will remove CSO outfalls that discharge into the Anacostia marina area and the Potomac waterfront in the District. Improvements to the excess flow treatment train at the plant are designed to improve the reliability and

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<sup>17</sup> The following is a more detailed list of the LTCP controls system-wide, for each water body and at the WWTP. The controls are discussed in greater detail in the LTCP, which is part of the administrative record for this permitting action:

- a. System-wide – Low Impact Development
- b. Anacostia River – Rehabilitate pumping stations: Main and O Streets; Eastside and O Streets; Interim improvements to Poplar Point PS; Construct Poplar Point CSO Storage Tunnel; Outfall consolidation; Separate CSO 006; Construct Ft. Stanton Interceptor to convey CSO flows to storage tunnel.
- c. Rock Creek – Separate 4 CSOs; Monitor certain CSOs to confirm overflow predictions (if there are overflows, improve regulators and connect to Potomac Storage Tunnel); Construct Piney Branch CSO Storage Tunnel.
- d. Potomac River – (all to increase CSO flows to treatment plant): Potomac Pump Station rehab; Outfall consolidation; Construct Potomac CSO Storage Tunnel.
- e. Blue Plains Wastewater Treatment Plant (improvements to excess flow treatment train): Construct 4 additional primary clarifiers and improve other miscellaneous controls.
- f. Solids and Floatables Controls – for CSOs remaining after LTCP implementation: new CSO structures designed to capture solids and floatables; continued operation of the Anacostia River Floatable Debris Removal program; storm water pumps at the Main and O Street pumping stations which incorporate trash racks to remove floatables prior to discharge.

<sup>18</sup> Discharges from separate storm sewers are regulated through the NPDES municipal separate storm sewer (MS4) permit issued to the District of Columbia.

performance of that treatment train, which, in turn, will reduce the pollutant load discharged from Outfall 001, the discharge point for that treatment train.<sup>19</sup> Each of these LTCP components is designed to reduce or eliminate the discharge of combined sewage and stormwater - except for the LID, which is directed at reduction of stormwater runoff.

The WQS that the LTCP was designed to achieve include: 1) the designated uses for the Potomac River, the Anacostia River and Rock Creek and its tributaries, 21 DCMR 1101.1 and 1101.2<sup>20</sup>; 2) the narrative standards in 21

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<sup>19</sup> The LTCP enhancements to the WWTP components presently require, among other things, the installation of four additional primary clarifiers. As part of its total nitrogen reduction plan, WASA has proposed to substitute enhanced clarification units for the four clarifiers. EPA has accepted this LTCP revision, in principle. It will need to be incorporated into a modification of the LTCP Consent Decree, which will be subject to public comment. Use of enhanced clarification will result in better pollutant reductions for the flows discharged through Outfall 001.

<sup>20</sup> The designated uses for all the relevant water bodies are found in 21 DCMR 1101.2: A - primary contact recreation; B - secondary contact recreation and aquatic enjoyment, C - protection and propagation of fish, shellfish and wildlife; D - protection of human health related to consumption of fish and shellfish; and E - navigation. 21 DCMR 1101.2. Rock Creek is also designated under 21 DCMR 1102.4 as a "Special Water of the District of Columbia" for which there are additional requirements, not relevant to this permitting action.

DCMR 1104.1<sup>21</sup>; and, 3) the numeric standards for bacteria and dissolved oxygen in DCMR 1104.8.<sup>22</sup>

Each of the controls in the LTCP is designed to achieve the narrative WQS at 21 DCMR 1104.1 by assuring that the waters of the District are free from substances in amounts or combinations that do any of the following:

- (a) settle to form objectionable deposits;
- (b) float as debris, scum, oil or other matter to form nuisances;
- (c) produce objectionable odor, color, taste or turbidity;
- (d) cause injury to, are toxic to, or produce adverse physiological or behavioral changes in humans, plants or animals;
- (e) produce undesirable or nuisance aquatic life or result in the dominance of nuisance species; or

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<sup>21</sup> The current narrative standards for the relevant water bodies are found in:

21 DCMR § 1104.1 - The surface waters of the District shall be free from substances in amounts or combinations that do any one of the following:

- (a) settle to form objectionable deposits;
- (b) float as debris, scum, oil or other matter to form nuisances;
- (c) produce objectionable odor, color, taste or turbidity;
- (d) cause injury to, are toxic to, or produce adverse physiological or behavioral changes in humans, plants or animals;
- (e) produce undesirable or nuisance aquatic life or result in the dominance of nuisance species; or
- (f) impair the biological community that naturally occurs in the waters or depends on the waters for its survival and propagation.

21 DCMR § 1104.2 - For the waters of the district with multiple designated uses, the most stringent standards or criteria shall govern.

21 DCMR § 1104.3 - Class A waters shall be free of discharges of untreated sewage, litter and unmarked, submerged or partially submerged, man-made structures that would constitute a hazard to the users.

21 DCMR § 1104.4 - The aesthetic qualities of Class B waters shall be maintained. Construction, placement or mooring of facilities not primarily and directly water oriented is prohibited in, on or over Class B waters unless:

- (a) the facility is for the general public benefit and service; and
- (b) land based alternatives are not available.

21 DCMR § 1104.5 - Class E waters shall be free of unmarked submerged or partially submerged man-made objects that pose a hazard to users of these waters.

<sup>22</sup> The numeric criterion for bacteria is measured using E. coli, and the criteria apply only to Class A waters: 126 MPN/100 mL measured as a maximum 30 day geometric mean for five samples. 21 DCMR 1104.8. The standard for dissolved oxygen applies only to Class C waters: February 1 - May 31, 7-day mean: 6.0 mg/l, instantaneous minimum - 5.0 mg/l, June 1 - January 31: 30-day mean 5.5 mg/l, 7-day mean 4.0 mg/l, instantaneous minimum 3.2 mg/l. For tidally influenced waters (in this case the Potomac River) at temperatures greater than 29 degrees Celsius, an instantaneous minimum dissolved oxygen concentration of 4.3 mg/L shall apply. See 21 DCMR 1104.8, footnote 4.

- (f) impair the biological community that naturally occurs in the waters or depends on the waters for its survival and propagation.

The LTCP controls are also all directed at achievement of the numeric standards for dissolved oxygen and bacteriological pollutants, measured by *E.coli*. Adequate dissolved oxygen is necessary for good water quality; oxygen is a necessary element to all forms of life. Dissolved oxygen levels that are too low place stress on and jeopardize the health of aquatic life. Oxygen is more easily dissolved into water with low levels of dissolved or suspended solids. Stormwater runoff from roads and other paved surfaces can bring salts and sediments into stream water, increasing the dissolved and suspended solids in the water. Nutrients, such as nitrogen and phosphorous, found in sewage and organic wastes (leaves, grass clippings, dead plants or animals, animal wastes and sewage) also result in lower dissolved oxygen in water. The presence of *E. coli* bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of humans or other animals, and indicates that a potential health risk exists for individuals exposed to the water. The LTCP controls are directed at reducing the level of bacteria to comply with the numeric WQS for bacteria to avoid potential health threats.

c. Pre - and Post - July 1, 1977 WQS

At the time the petitions for review of the prior permitting actions were presented to the EAB, EPA had not determined which of the District of Columbia WQS at issue were promulgated before July 1, 1977. EPA has now done so.

In comparing the narrative WQS in effect prior to July 1, 1977 and those presently in effect, EPA has determined that the currently applicable narrative WQS for all the relevant water bodies codified in 21 DCMR 1104.1 are - for purposes of deciding whether a compliance schedule is "appropriate" - essentially the same as those in effect prior to July 1, 1977.<sup>23</sup> This

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<sup>23</sup> The July 1, 1977 standards provided:

The waters of the District of Columbia shall at all times be free from:

Substances attributable to sewage, industrial waste or other waste that will settle to form sludge deposits that are unsightly, putrescent or odorous to such a degree as to create a nuisance or that interfere directly or indirectly with water uses; Floating debris, oil, grease, scum and other floating materials attribute to sewage, industrial waste or other waste in amounts sufficient to be unsightly to such a degree as to create a nuisance, or that interfere directly or indirectly with water uses; Materials attributable to sewage, industrial waste, or other waste which produce taste, odor or appreciably change the existing color or other physical and chemical conditions in the receiving stream to such a degree as to create a nuisance, or that interfere directly or indirectly with water uses; and high temperature, toxic corrosive or other deleterious substances attributable to sewage, industrial waste, or other waste

correspondence with pre-July 1, 1977 WQS is illustrated in more detail in the administrative record for this permit.

Accordingly, to the extent that the LTCP requirements are designed to achieve compliance with the currently applicable narrative WQS for the affected waters, under the EAB's decision in Star-Kist, no compliance schedule is "appropriate" for those requirements. All of these controls are intended to either reduce the amount of combined sewer flows (e.g. separating sewers and separating CSO outfalls, low impact development to increase the amount of rainfall absorbed into the soil) or to increase the volume of combined sewer flows which go to the treatment plant for treatment (e.g. storage tunnels, pump station improvements, interceptor). As such, all of these controls are designed to meet both the District's pre- and post-1977 narrative WQS.

Having determined that this narrative standard was in effect prior to July 1, 1977, it would not be appropriate to include a schedule for compliance in the permit for those LTCP controls that are designed to achieve the narrative standard. Indeed, as all of the controls in the LTCP are designed to address this pre-July 1, 1977 WQS, inclusion of a compliance schedule in the permit related to these controls would violate CWA § 301 (b)(1)(C).

While there were WQS for dissolved oxygen and bacteriological pollutants in effect prior to July 1, 1977, they have become more stringent since then. To the extent any LTCP controls are designed to achieve these more stringent, post-1977 numeric criteria for dissolved oxygen and bacteriological pollutants, considered in isolation, they might hypothetically be eligible for a compliance schedule in the permit. Indeed, it could be argued that, by reducing the amount of untreated combined sewer overflow into the affected water bodies, all of the LTCP controls are directed at achievement of these more stringent, post-1977 numeric criteria for DO and bacteria. However, since all of the LTCP requirements are also collectively designed to meet the pre-July 1, 1977 designated uses and narrative criteria, and it is not possible for WASA to demonstrate that any elements of the LTCP have been made more stringent solely in order to meet the post-1977 (but not the pre-1977) WQS, no compliance schedule can be included in the permit even for LTCP requirements that also achieve post July 1, 1977 WQS. To do so would impermissibly grant a compliance schedule where none can be allowed to meet effluent limitations designed to achieve WQS adopted by the District prior to July 1, 1977.

In discussing the compliance schedule issue, the EAB noted that "the Region does maintain some discretion in the exact manner in which it establishes compliance

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in concentrations or combinations which interfere directly or indirectly with water uses, or which are harmful to human, animal, plant or aquatic life. D.C. Register, Volume 15, page 140 (January 13, 1969).

schedules. ....the Region has expressed concerns that incorporating compliance schedules into the Blue Plains permit may not give it the flexibility it needs for making future modifications to the LTCP for example. In remanding the Final Permit for inclusion of the compliance schedules, we do not intend to diminish these practical concerns, and encourage the region to bear these concerns in mind as it crafts the specific language of the modified Blue Plains Permit.” Id., at 738.

While the above-stated legal considerations, which the Region believes preclude placing a compliance schedule for the LTCP in the permit, are dispositive of EPA’s decision on this issue, the Region notes that there are practical considerations that would make inclusion of an LTCP schedule in the permit - as well as in the Consent Decree, problematic in this instance.

In particular, the compliance schedule in the Consent Decree addressing WASA’s discharges is a bargained for settlement position in the context of a judicial action handled by the Department of Justice (DOJ). The Consent Decree terms, including the compliance schedule, are subject to modification by motion of one or both parties and the agreement of the District of Columbia District Court. Litigation over any change is possible. Any compliance schedule in a permit is subject to challenge by citizens or the permittee, to appeal to the EAB and thereafter to judicial appeal. Accordingly, the issue of coordination between judicial resolution of a schedule in a Consent Decree, as well as resolution of issues which may be raised on appeal to the EAB, might present significant delays in establishing consistent requirements in the NPDES permit. In addition both Consent Decree modification and NPDES permit modifications carry public notice requirements. Coordination of these processes would be burdensome – and duplicative. Moreover, this could render unclear the legal obligations applicable to WASA’s discharges at different points in time.

## **9. SPECIAL CONDITIONS.**

**A. Pretreatment** – these conditions have generally remained the same with minor modifications described as follows:

1. Part IV.A.5 Headworks Analysis. Clarifying language has been added requiring that local limits be reevaluated to assure compliance with water quality standards for each pollutant for which a limit is not already assigned in the permit.

**B. Standard Sludge Conditions** – all conditions have remained the same as in the previous permit.

**C. Chlorination/Dechlorination** – all conditions have remained the same as in the previous permit.

**D. Total Nitrogen**

1. Total Nitrogen

The March 19, 2008 EAB decision in *In re District of Columbia Water and Sewer Authority* denied review of the total nitrogen (TN) limit of 4,689,000 pounds per year EPA included in the April 5, 2007 permit modification. A TN discharge limit of 4,377,580 pounds per year applies to Outfall 002. (See 8.B(1)d. above). In accordance with 21 DCMR § 1105.9, the EAB decision, and WASA's Final Total Nitrogen/Wet Weather Plan, EPA has added a schedule of compliance, with interim requirements as required by 40 C.F.R. §122.47. Improvements to the plant will be accomplished according to the following schedule:

- a. Contract award for construction by December 31, 2011;
- b. Place the new facility in operation by July 1, 2014; and
- c. Begin compliance with the total nitrogen effluent limit by January 1, 2015.

Progress reports shall be submitted beginning 6 months after the effective date of the permit, and shall continue at 6 month intervals thereafter.

**E. Mercury Analysis**

Former Part IV.D. Mercury Analysis for Outfall 002 has been deleted. The results of quarterly Discharge Monitoring Reports (DMRs) for 1997, 1998 and 1999 showed no measurable levels of mercury in Outfall 002 effluent. The 2007 permit application reports mercury levels in effluent from Outfall 002 as consistently below the reportable detection limit. Accordingly, at this time the permit will require only mercury monitoring and reporting, as stated in Part I.B of the permit.

**F. Storm Water Management** – no changes have been made to this part of the permit.

**G. Whole Effluent Toxicity (WET) Testing**

This permit requires WET testing for Outfalls 001 and 002 in accordance with 40 C.F.R. § 122.21(j) (5) which is intended to measure the total toxic effect of the effluent upon its receiving stream - the Potomac River. The permit contains provisions for the test methods to be used, types of samples, test species and frequency of monitoring. This is intended to gather data to determine whether the development of a WET effluent limit is merited for either Outfall 001 or 002. Chronic testing is prescribed for Outfall 002 and acute testing is required for Outfall 001.

Mixing zones may be considered for NPDES discharges provided the receiving stream has sufficient assimilative capacity and if they are allowed by state water quality standards. The underlying assumption for allowing a mixing zone is that a small area of concentration in excess

of acute or chronic criteria, but below acutely toxic releases, can exist without causing an adverse effect to the overall water body. The initial contact with the receiving water body is where the concentration will be the greatest in the water column. Mixing zones are not allowed where they may affect a drinking water source, recreational area, breeding ground or areas with sensitive biota.

No mixing zones are specified for this permit, however, the permittee may make a request for a mixing zone provided that it makes a demonstration that the mixing zone will meet the criteria set forth in the DC Water Quality Standards, at Section 1105.7.

No mixing zone is allowed for Outfall 001. This is an intermittent discharge, for which primary treatment is given. The discharge occurs under rainy conditions when flow to the plant is greatest. At the time of issuance for this permit, there is no test data related to the toxicity of this discharge. The permittee is required to perform acute toxicity testing to simulate worst case conditions. The test results are reported either as "pass" or "fail". The objective of a pass or fail test is to determine if survival in 100% effluent is significantly different from survival in no effluent. If the test results are reported as "fail", additional testing is required. If the test results are "fail" and limits are contemplated for this effluent, the permit provides for the reopening of the permit and the permittee may request that a mixing zone be considered for this discharge.

Standard language requiring Toxicity Identification (TIE) and Toxicity Reduction Evaluation (TRE) tests have been added to the WET requirements.

In addition to the WET testing requirements described above, the permit requires that, in accordance with 40 C.F.R. 122.2(j)(5)(iv)(A), the permittee submit to EPA the results of four quarterly tests for the year preceding the permit application.

#### **H. PCB Monitoring and Reduction**

Proposed PCB monitoring and reduction requirements are described at section 8.B. (1) a above.

#### **10. Other Administrative**

- A. Public Notice Publication Date:** May 7, 2009
- B. DC 401 Certification Received:** July 13, 2009 and August 12, 2010
- C. Commonwealth of Virginia Comments Received:** June 29, 2009
- D. State of Maryland Comments Received:** August 18, 2009
- E. National Marine Fisheries Service Concurrence Received:** July 15, 2010
- F. US FWS:** Continues its practice of not commenting on NPDES permits





