



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
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Richard Eskin, Ph.D., Director
Technical and Regulatory Service Administration
Maryland Department of the Environment
1800 Washington Blvd., Suite 540
Baltimore, Maryland 21230-1718

SEP 30 2011

Dear Dr. ^{Rich}Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, is pleased to approve the Total Maximum Daily Load (TMDL) report, *Total Maximum Daily Loads of Polychlorinated Biphenyls in the Northeast and Northwest Branches of the Nontidal Anacostia River, Montgomery and Prince George's Counties, Maryland*. The TMDL report was submitted by the Maryland Department of the Environment to EPA for final review on September 30, 2010. The TMDL was established and submitted in accordance with Section 303(d)(1)(c) and (2) of the Clean Water Act to address impairments of water quality as identified in Maryland's Section 303(d) List. The Anacostia River watershed (MD-02140205) was included on Maryland's 2008 §303(d) List as impaired by the following: nutrients (1996), sediments (1996), fecal bacteria (2002), trash/debris (2006), impacts to biological communities (2002), PCBs (2002), and heptachlor epoxide (2002). The 2002 PCB listing for the Nontidal Anacostia River watershed refers solely to the Northeast and Northwest Branches, where the water column samples were collected. Similarly, the 2002 heptachlor epoxide listing refers to the Northwest Branch. Fecal bacteria TMDLs for the nontidal and tidal waters of the Anacostia River watershed were submitted to EPA and subsequently approved in 2006. Inter-jurisdictional TMDLs addressing sediment and nutrient listings in the nontidal and tidal waters of both the Maryland and District of Columbia portions of the watershed were submitted to, and approved by, EPA in 2007 and 2008, respectively. Also, an inter-jurisdictional TMDL addressing a tidal Anacostia PCB listing along with tidal Potomac PCB listings was submitted to, and approved by, EPA in 2007. This TMDL addresses only the PCB impairment in the Northeast and Northwest Branches of the nontidal Anacostia River.

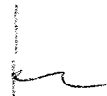
In accordance with Federal regulations at 40 CFR §130.7, a TMDL must comply with the following requirements: (1) be designed to attain and maintain the applicable water quality standards; (2) include a total allowable loading and as appropriate, wasteload allocations for point sources and load allocations for nonpoint sources; (3) consider the impacts of background pollutant contributions; (4) take critical stream conditions into account (the conditions when water quality is most likely to be violated); (5) consider seasonal variations; (6) include a margin of safety (which accounts for uncertainties in the relationship between pollutant loads and instream water quality); and (7) be subject to public participation. In addition, these TMDLs considered reasonable assurance that the TMDL allocations assigned to the nonpoint sources can be reasonably met. The enclosure to this letter describes how the PCB TMDLs for the Northeast and Northwest Branches of the Nontidal Anacostia River watershed satisfy each of these requirements.

As you know, all new or revised National Pollutant Discharge Elimination System permits must be consistent with the TMDL wasteload allocation pursuant to 40 CFR §122.44 (d)(1)(vii)(B). Please submit all such permits to EPA for review as per EPA's letter dated October 1, 1998.

If you have any questions or comments concerning this letter, please do not hesitate to contact María García, at 215-814-3199.

Sincerely,

Signed


Jon M. Capacasa, Director
Water Protection Division

Enclosure

cc: Lee Curry, MDE-TARSA
Melissa Chatham, MDE-TARSA

Decision Rationale
Total Maximum Daily Loads of
Polychlorinated Biphenyls in the Northeast and
Northwest Branches of the Nontidal Anacostia River
Montgomery and Prince George's Counties, Maryland

I. Introduction

The Clean Water Act (CWA) requires a Total Maximum Daily Load (TMDL) be developed for those waterbodies identified as impaired by the State where technology based and other controls will not provide for attainment of water quality standards. A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources, including a Margin of Safety (MOS), that may be discharged to a waterbody without exceeding water quality standards.

This document sets forth the U.S. Environmental Protection Agency's (EPA) rationale for approving the TMDL for Polychlorinated Biphenyls (PCB) in the Northeast and Northwest Branches (NEB and NWB) of the Nontidal Anacostia River Basin. The TMDL was established to address impairments of water quality, caused by PCBs, as identified in Maryland's 2002 Section 303(d) List for water quality limited segments. The Maryland Department of the Environment (MDE) submitted the report, *Total Maximum Daily Loads of Polychlorinated Biphenyls in the Northeast and Northwest Branches of the Nontidal Anacostia River, Montgomery and Prince George's Counties, Maryland*, dated September 2010, to EPA for final review on September 30, 2010. The basin identification for the Nontidal Anacostia River Watershed is MD-02140205.

EPA's rationale is based on the TMDL report and information contained in the computer files provided to EPA by MDE. EPA's review determined that the TMDLs meet the following seven regulatory requirements pursuant to 40 CFR Part 130.

1. The TMDL is designed to implement applicable water quality standards.
2. The TMDL includes a total allowable load as well as individual wasteload allocations (WLAs) and load allocations (LAs).
3. The TMDL considers the impacts of background pollutant contributions.
4. The TMDL considers critical environmental conditions.
5. The TMDL considers seasonal environmental variations.
6. The TMDL includes a MOS.
7. The TMDL has been subject to public participation.

In addition, these TMDLs considered reasonable assurance that the TMDL allocations assigned to nonpoint sources can be reasonably met.

II. Summary

The TMDL specifically allocates the allowable Anacostia loading to the NEB and NWB of the Nontidal Anacostia River Watershed. There are 60 permitted point sources of PCB which are included in the WLA. The fact that the TMDL does not assign WLAs to any other sources in the watershed should not be construed as a determination by either EPA or MDE that there are no additional sources in the watershed that are subject to the National Pollutant Discharge Elimination System (NPDES) program. In addition, the fact that EPA is approving this TMDL does not mean that EPA has determined whether some of the sources discussed in the TMDL, under appropriate conditions, might be subject to the NPDES program. The annual average TMDLs and maximum daily load (MDL) for PCBs for the NEB & NWB of the Anacostia River watershed are presented in Tables 1 and 2, respectively. Individual annual and daily WLAs for permitted point sources are provided in Table 3. The TMDLs for the NWB include an upstream load generated in the District of Columbia (DC).

Table 1. Northeast and Northwest Branches of the Nontidal Anacostia River PCB Annual Average TMDL

Northeast Branch of the Nontidal Anacostia River PCB TMDL (g/yr)											
TMDL	=	LA			+	WLA _{NE}			+	MOS	
		LA _{WR} ¹	+	LA _{CS} ²		Stormwater WLA		+			WWTPs WLA
						Stormwater WLA _{MO Co.} ³	Stormwater WLA _{PG Co.} ⁴				
						1.53	3.77				
8.57	=	2.11			+	6.03			+	0.43	
Northwest Branch of the Nontidal Anacostia River PCB TMDL (g/yr)											
TMDL	=	LA			+	WLA _{NW}			+	MOS	
		LA _{WR} ¹	+	LA _{DC} ⁵		Stormwater WLA		+			
						Stormwater WLA _{MO Co.} ³	Stormwater WLA _{PG Co.} ⁴				
						2.56	1.77				
5.96	=	1.34			+	4.32			+	0.30	

¹ MD Unregulated Watershed Runoff.

² MD Contaminated Site Runoff.

³ Montgomery County NPDES Regulated Stormwater- refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin.

⁴ Prince George's County NPDES Regulated Stormwater- refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin.

⁵ DC Upstream Watershed--point sources in the Washington, DC, portion of the watershed have not been characterized.

**Table 2. Northeast and Northwest Branches of the Nontidal Anacostia River
PCB Maximum Daily Load**

Northeast Branch of the Nontidal Anacostia River PCB MDL (mg/day)											
TMDL	=	LA			+	WLA _{NE}			+	MOS	
		LA _{WR} ¹	+	LA _{CS} ²		Stormwater WLA		+			WWTPs WLA
						Stormwater WLA _{MO Co.} ³	Stormwater WLA _{PG Co.} ⁴				
		6.66	+	21.34		20.30	49.98		6.19		
109.96	=	27.99			+	76.46			+	5.50	
Northwest Branch of the Nontidal Anacostia River PCB MDL (mg/day)											
TMDL	=	LA			+	WLA _{NW}			+	MOS	
		LA _{WR} ¹	+	LA _{DC} ⁵		Stormwater WLA					
						Stormwater WLA _{MO Co.} ³	Stormwater WLA _{PG Co.} ⁴				
		4.97	+	12.11		32.62	22.57				
76.07	=	17.08			+	55.19			+	3.80	

¹ MD Unregulated Watershed Runoff.

² MD Contaminated Site Runoff.

³ Montgomery County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

⁴ Prince George's County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

⁵ DC Upstream Watershed--point sources in the Washington, DC, portion of the watershed have not been characterized.

**Table 3. Wasteload Allocations of PCB for Permitted Point Sources in the Northeast
Branch of the Nontidal Anacostia River Watershed**

Facility	NPDES ID Number	MD Permit Number	TMDL Long Term Annual Average Load (g/year)	Maximum Daily Load (mg/day)
USDA East – Side WWTP	MD0020842	05DP2525	0.548	4.68
USDA West – Side WWTP	MD0020851	05DP2787	0.177	1.51
Montgomery County NPDES Regulated Stormwater ¹	N/A	--	1.53	20.30
Prince Georges NPDES Regulated Stormwater ²	N/A	--	3.77	49.98

¹ Montgomery County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

² Prince George's County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

Table 4. Wasteload Allocations of PCB for Permitted Point Sources in the Northwest

Branch of the Nontidal Anacostia River Watershed

Facility	NPDES ID Number	MD Permit Number	TMDL Long Term Annual Average Load (g/year)	Maximum Daily Load (mg/day)
Montgomery County NPDES Regulated Stormwater ¹	--	--	2.56	32.62
Prince Georges NPDES Regulated Stormwater ²	--	--	1.77	22.57

¹ Montgomery County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

² Prince George's County NPDES Regulated Stormwater - refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin. See Table 5 below.

Table 5. NPDES Regulated Stormwater Point Sources

NPDES Permit Number	MD Permit Number	Facility	County
MD0003425	02SW0621	Laurel Sand and Gravel, Inc.	Prince George's
	02SW1234	Coca-Cola Bottling Co., Silver Spring	Montgomery
	02SW1052	Federal Express -- Beltsville	Prince George's
	02SW1242	WMata -- Greenbelt Metrorail Yard	Prince George's
	02SW1241	WMata -- Glenmont Metrorail Yard	Montgomery
	02SW0522	Montgomery County Public Schools	Montgomery
	02SW1258	Montgomery County Schools -- West Farm	Montgomery
	02SW1621	Earl Center Lumber Company	Prince George's
	02SW0344	M-NCPPC -- Layhill/Bonifant Rubble Fill	Montgomery
	02SW1103	United Postal Service -- Riverdale VMF	Prince George's
	02SW1276	Nazario Construction Company, Inc.	Prince George's
	02SW0466	Sherwin-Williams Company -- Beltsville	Prince George's
	02SW1745	D.C. Materials	Prince George's
	02SW1926	Rockwood Pigments, N.A., Inc.	Prince George's
	02SW1754	The Recycling Center	Prince George's
	02SW1320	SHA -- Fairland Shop	Montgomery
	02SW1931	Pepsi Bottling Group	Montgomery
	02SW0316	Eaton Corporation -- Fluid Conveyance	Prince George's
	02SW0338	M-NCPPC- Martin Luther King, Jr. Park	Montgomery
	02SW0341	M-NCPPC -- Olney Manor Park	Montgomery

		Maintenance	
	02SW0343	M-NCPPC -- Wheaton Regional Park	Montgomery
	02SW0389	M-NCPPC -- Brookside Gardens Maintenance	Montgomery
	02SW0648	Prince George's Scrap, Inc.	Prince George's
	02SW0007	Stone Industrial Precision Products	Prince George's
	02SW0267	Montgomery County -- Colesville Depot	Montgomery
	02SW1077	Interstate brands Corp. -- Beltsville	Prince George's
	02SW0289	Montgomery College -- Takoma Park	Montgomery
	02SW1763	Strittmatter Land, LLC	Prince George's
	02SW1662	Bardon, Inc. -- Laurel Vehicle Maintenance	Prince George's
	02SW1661	Baxter Maryland Vaccines -- Bldg. 5	Prince George's
	02SW1659	Baxter Healthcare Corporation -- Bldg. 1	Prince George's
	02SW1721	Beltsville Auto Recyclers, Inc.	Prince George's
	02SW1724	East-West Motors, Inc.	Prince George's
	02SW1741	Atlantic Transportation Equipment, LTD	Prince George's
	02SW1136	Allstar Used Auto Parts, Inc.	Prince George's
	02SW1779	Atman Corporation	Prince George's
	02SW1829	Halle Enterprises, Inc.	Prince George's
	02SW1856	Bates Trucking Company	Prince George's
	02SW1860	Turbo Haul, Inc.	Prince George's
	02SW1864	Rolling Frito-Lay Sales -- Beltsville	Prince George's
MDR055501	03-IM-5500-002	Town of Brentwood MS4	Prince George's
	03-IM-5500-004	Town of Riverdale Park MS4	Prince George's
	03-IM-5500-005	Town of Berwyn Heights	Prince George's
	03-IM-5500-028	City of Takoma Park MS4	Montgomery
	03-IM-5500-030	City of College Park MS4	Prince George's
	03-IM-5500-032	City of Greenbelt MS4	Prince George's
	03-IM-5500-033	City of Hyattsville MS4	Prince George's
	03-IM-5500-034	City of Laurel MS4	Prince George's
	03-IM-5500-035	City of New Carrollton MS4	Prince George's
	03-IM-5500-037	Town of Bladensburg MS4	Prince George's
	03-IM-5500-038	Town of Cheverly MS4	Prince George's
	03-IM-5500-040	Town of Cottage City MS4	Prince George's
	03-IM-5500-041	Town of Landover Hills MS4	Prince George's
	03-IM-5500-043	Town of University Park MS4	Prince George's
99DP3313	MDR0068276	State Highway Administration MS4	All Phase I (Montgomery &

			Prince George's)
01DP3320	MD0068349	Montgomery County MS4	Montgomery
99DP3314	MD68284	Prince George's County MS4	Prince George's
--	MDR100000	MDE General Permit to Construct	All

The TMDL is a written plan and analysis established to ensure that a waterbody will attain and maintain water quality standards. The TMDL is a scientifically based strategy that considers current and foreseeable conditions, the best available data, and accounts for uncertainty with the inclusion of a MOS value. The option is always available to refine the TMDL for resubmittal to EPA for approval if environmental conditions, new data, or the understanding of the natural processes change more than what was anticipated by the MOS.

III. Background

The NEB and NWB are tributaries of the Anacostia, which in turn flows into the Potomac River, a tributary of the Chesapeake Bay. Approximately 70 percent of the Anacostia River watershed is drained by the NWB and the NEB. The Anacostia River watershed is located in two physiographic provinces, the Piedmont Plateau and the Atlantic Coastal Plain, and drains about 176 square miles of land from Washington, DC (30.2 miles, 17.2%), Montgomery County, MD (60.8 miles, 34.4%), and Prince George's County, MD (85.2 miles, 48.4%). The NEB and NWB watersheds combined are approximately 127 square miles, and are home to approximately 519,000 residents.

The main channel of the Anacostia River is 8.4 miles (13.5 kilometers) in length, extending from the confluence of the NWB and the NEB, in Bladensburg, Maryland, to its confluence with the Potomac River. The main channel of the Anacostia River is an estuary with a variation in water level of approximately three feet over a tidal cycle.

According to the 2006 land cover data (USGS 2009), land use in the NEB and NWB watersheds can be classified as predominantly urban. Urban land occupies approximately 62.3% of these watersheds, while 24.4% is forested and 6.6% is agricultural. The remaining 6.7% is classified as barren, unconsolidated shore, grassland, herbaceous, scrub, shrub, water, or wetland.

The Surface Water Use Designations for waters of the nontidal Anacostia River have been designated as Use I -- *Water Contact Recreation, and Protection of Nontidal Warmwater Aquatic Life*. Additionally, Paint Branch and its tributaries upstream of the Capital Beltway have been designated as Use III -- *Nontidal Cold Water*, and the Northwest Branch and its tributaries upstream of Route 410 as Use IV -- *Recreational Trout Waters*.

Additionally, two stream reaches of the Upper Beaverdam Creek, in the NEB watershed, are designated as "high quality," or Tier II, stream segments (i.e., Benthic Index of Biotic Integrity and Fish Index of Biotic Integrity aquatic life assessment scores > 4 (scale 1 to 5)) requiring the implementation of Maryland's antidegradation policy.

MDE has identified various portions of the Nontidal Anacostia River watershed on the

State's 2008 Integrated Report as impaired by the following: nutrients (1996), sediments (1996), fecal bacteria (2002), trash/debris (2006), impacts to biological communities (2002), PCBs (2002), and heptachlor epoxide (2002). The 2002 PCB listing for the Nontidal Anacostia River watershed refers solely to the NEB and NWB, where the water column samples were collected. Similarly, the 2002 heptachlor epoxide listing refers to the NWB. Fecal bacteria TMDLs for the nontidal and tidal waters of the Anacostia River watershed were submitted to EPA and, subsequently, approved in 2006. Inter-jurisdictional TMDLs addressing sediment and nutrient listings in the nontidal and tidal waters of both the Maryland and DC portions of the watershed were submitted to and approved by EPA in 2007 and 2008, respectively. Also, an inter-jurisdictional TMDL addressing a tidal Anacostia PCB listing along with tidal Potomac PCB listings was submitted to and approved by EPA in 2007.

CWA Section 303(d) and its implementing regulations require that TMDLs be developed for waterbodies identified as impaired by the State where technology based and other required controls do not provide for attainment of water quality standards. The PCB TMDLs submitted by MDE are designed to allow for the attainment of the NEB and NWB of the Nontidal Anacostia River watershed's designated uses, and to ensure that there will be no PCB impacts affecting the attainment of these uses. Refer to Tables 1 and 2 above for a summary of allowable loads.

The Tidal Potomac and Anacostia PCB TMDL report (2007) characterizes and provides allocations for point and nonpoint sources from the direct drainage portion of the watershed, while the nontidal NEB and NWB PCB loads are represented as upstream tributary loads without any further characterization of these loads with respect to point and nonpoint sources. The objective of this TMDL is to establish NEB and NWB PCB TMDLs supportive of the "fishing" designated use, which is protective of human health related to consumption of fish caught in these tributaries. The NEB and NWB tributary TMDL allocations provided in the Tidal PCB TMDL were reevaluated from the point of view of water quality standards in the NEB and NWB and were deemed protective of the "fishing" designated use in these tributaries. These allocations serve as the basis for the NEB and NWB PCB TMDLs.

The NEB and NWB Tributary PCB baseline loads (429 and 298 g/yr, respectively) were estimated as part of the Tidal Potomac and Anacostia PCB TMDL process. In order to maintain consistency with the Tidal PCB TMDLs, these tributary loads were used to characterize baseline conditions in the NEB and NWB tributaries. Specific sources were identified throughout the NEB and NWB tributary drainage basins, and then the NEB and NWB tributary PCB baseline loads were subdivided among these sources. Point sources in the NEB and NWB drainage basins include two wastewater treatment plants (WWTP) located in the NEB drainage basin and Maryland's stormwater discharges that are regulated under Phase I or Phase II of the NPDES stormwater program (See list of permits in Tables 3-5 above). Nonpoint sources include runoff from identified contaminated sites (state or federal Superfund sites) and Maryland unregulated watershed runoff, as well as DC upstream load.

Loads from the WWTPs have been estimated in the Tidal Potomac and Anacostia PCB TMDL based on data collected from other facilities in the direct drainage area of the Potomac River basin. In order to refine these load estimates, MDE collected two 24-hour composite samples from these facilities on February 25, 2010 and March 30, 2010. After adjusting the data based on levels detected in the blank samples and by excluding values for congeners with possible interferences (i.e., cong. 1, 3, and on one occasion cong. 40), MDE used these results along with the 2005 average monitored flow to calculate WWTP PCB baseline loads (See Table 6 below).

Table 6. WWTP PCB Baseline Loads in the Northeast Branch Tributary Drainage Basins

WWTP	NPDES	tPCB ¹ Avg. Conc. (ng/L)	2005 Avg. Monitored Flow (MGD) ²	Baseline PCB Load (g/r) ³
USDA East	MD0020842	2.402	0.20	0.664
USDA West	MD0020851	1.059	0.09	0.132
Total WWTP PCB Baseline Load				0.795

¹ tPCB concentrations are estimated based on 24-hour composite samples collected by MDE on 2/25/2010 and 3/30/2010.

² MGD = Millions of Gallons per Day.

³ WWTP Baseline Load = tPCB Conc. X 2005 Average Monitored Flow.

Three contaminated sites located in the NEB drainage basin were identified as part of the Tidal Potomac and Anacostia PCB TMDL effort, and the edge-of-field (EOF) PCB baseline loads for these sites were estimated. As part of the NEB and NWB Tributary PCB TMDL effort, the 2007 contaminated site list and the associated loadings have been refined. A total of 15 sites have been identified, all located in the NEB watershed. PCB EOF loads from these sites have been calculated and subsequently converted to edge-of-stream loads. The contaminated site PCB baseline load from the identified sites in the NEB and NWB is estimated to be 1.61 g/yr. This load is the sum of individual PCB loads from 15 contaminated sites within the NEB drainage basin, a number of which have undergone remediation. The average PCB concentrations at the non-remediated sites are below levels detected at the already remediated sites. No contaminated sites have been identified in the NWB drainage basin (See Appendix D of TMDL report).

A caged clam study in the Anacostia River nontidal watershed was conducted by MDE to further characterize the NEB and NWB tributary PCB baseline loads defined as part of the Tidal Potomac and Anacostia PCB TMDL. Clam concentrations were initially intended to be used to quantify PCB baseline loads in the specific subwatersheds via a simple mass-balance approach. However, this was not feasible in certain areas of the watershed, where downstream concentrations were lower than upstream concentrations. This loss of mass could not be accounted for in the calculation. Consequently, after accounting for WWTP and contaminated site PCB baseline loads, a weighted approach was used (using clam study concentrations) to distribute the remaining NEB and NWB tributary PCB baseline loads between Maryland NPDES regulated stormwater, Maryland unregulated watershed runoff, and DC upstream watershed source categories. This approach incorporates the best available information pertaining to associated land cover categories and runoff coefficients, attributing the highest loads to areas with the highest clam tPCB concentrations and the highest runoff coefficients. See Section 2.3.3

of the TMDL report provides a detailed discussion regarding calculation of these PCB baseline loads. Table 7 below includes the NEB and NWB baseline loads for all identified sources.

Table 7. Summary of the Northeast Branch and Northwest Branch PCB Baseline Loads

Northeast Branch		
Source	Baseline Load	Baseline Contribution
MD Unregulated Watershed Runoff	36.90	8.60
MD Contaminated Site Runoff	1.61	0.38
Nonpoint source Baseline Loads	38.51	8.98
MD WWTPs	0.795	0.19
MO Co. NPDES Regulated Stormwater ¹	112.57	26.24
PG Co. NPDES Regulated Stormwater ²	277.12	64.60
Point Source Baseline Loads	390.49	91.02
Total	429	--
Northwest Branch		
Source	Baseline Load	Baseline Contribution
MD Unregulated Watershed Runoff	20.5	6.88
DC Upstream Watershed ³	49.9	16.76
Nonpoint source Baseline Loads	70.4	23.64
MO Co. NPDES Regulated Stormwater ¹	134.5	45.14
PG Co. NPDES Regulated Stormwater ²	93.0	31.22
Point Source Baseline Loads	227.6	76.36
Total	298	--

¹ Montgomery County (MO Co.) NPDES Regulated Stormwater- refers to all known NPDES stormwater dischargers within Montgomery County NEB and NWB drainage basin.

² Prince George’s County (PG Co.) NPDES Regulated Stormwater- refers to all known NPDES stormwater dischargers within Prince George’s County NEB and NWB drainage basin.

³ Point sources in the Washington, DC, portion of the watershed have not been characterized.

Water quality data collected between 2004 and 2005, were used to determine average tPCB concentrations for the NEB and NWB tributaries: 3.35 and 4.30 ng/L, respectively. In order to meet water quality standards (WQS) that are protective of the “fishing” designated use in the NEB and NWB tributaries (0.64 ng/L, ppt), the tPCB baseline concentrations (i.e., 2004-2005) would have to be reduced by 81 percent and 85 percent, respectively. Given that the downstream tidal waters are also impaired for PCBs in fish tissue and an already approved Tidal Potomac and Anacostia PCB TMDL report calls for 98 percent reductions of the NEB and NWB tributary baseline loads in order to meet downstream TMDL targets, the PCB TMDLs developed for the NEB and NWB need to be at least as protective as the tributary allocations proposed in the Tidal PCB TMDL. Since the Tidal Potomac and Anacostia PCB TMDL tributary allocations require higher PCB load reductions than would be necessary to meet WQS in the NEB and NWB tributaries, the Tidal PCB TMDL allocations were adopted as the NEB and NWB PCB TMDLs. The NEB and NWB PCB TMDLs are 8.57 and 5.96 g/yr, respectively, with an overall reduction of 98 percent from the baseline loads.

IV. Discussion of Regulatory Conditions

EPA finds that MDE has provided sufficient information to meet all seven of the basic requirements for establishing a PCB TMDL for the NEB and NWB of the Nontidal Anacostia River watershed. EPA, therefore, approves this PCB TMDL for the NEB and NWB of the nontidal Anacostia River watershed. This approval is outlined below according to the seven regulatory requirements.

1) The TMDLs are designed to implement applicable water quality standards.

Water Quality Standards consist of three components: designated and existing uses; narrative and/or numerical water quality criteria necessary to support those uses; and an anti-degradation statement. The Surface Water Use Designations for waters of the nontidal Anacostia River have been designated as Use I--*Water Contact Recreation, and Protection of Nontidal Warmwater Aquatic Life*. Additionally, Paint Branch and its tributaries upstream of the Capital Beltway have been designated as Use III--*Nontidal Cold Water*, and the Northwest Branch and its tributaries upstream of Route 410 as Use IV--*Recreational Trout Waters*. Additionally, two stream reaches of the Upper Beaverdam Creek, in the NEB watershed, are designated as "high quality," or Tier II, stream segments (i.e., Benthic Index of Biotic Integrity and Fish Index of Biotic Integrity aquatic life assessment scores > 4 (scale 1 to 5)) requiring the implementation of Maryland's antidegradation policy.

The State of Maryland adopted three separate water column tPCB criteria: criterion for protection of human health associated with consumption of PCB contaminated fish, as well as fresh and salt water chronic tPCB criteria for the protection of aquatic life. The Maryland human health tPCB criterion is set at 0.64 ng/L, ppt. The Maryland fresh and salt water chronic aquatic life tPCB criteria are set at 14 ng/L and 30 ng/L, respectively. In addition to the water column criteria, fish tissue monitoring data can serve as an indicator of PCB water quality conditions. The Maryland fish tissue monitoring data is used to issue fish consumption advisories/recommendations and determine whether Maryland waterbodies are meeting the "fishing" designated use. Currently, Maryland applies 39 ng/g as the tPCB fish tissue listing threshold.

Water quality data collected between 2004 and 2005 in the NEB and NWB indicate that while the average particulate plus dissolved tPCB concentrations do not exceed the 14 ng/L Maryland fresh water chronic aquatic life tPCB criterion, the 0.64 ng/L Maryland water column human health tPCB criterion is exceeded. For the purpose of addressing the NEB and NWB PCB listings, the 0.64 ng/L water column criteria is used as the TMDL endpoint. EPA believes this is a reasonable and appropriate water quality goal.

- 2) *The TMDLs include a total allowable load as well as individual wasteload allocations and load allocations.*

Total Allowable Load

EPA regulations at 40 CFR §130.2(i) state *that the total allowable load shall be the sum of individual WLAs for point sources, LAs for nonpoint sources, and natural background concentrations.* The TMDL for PCBs for the NEB and NWB of the Nontidal Anacostia River watershed is consistent with 40 CFR §130.2(i) because the total loads provided by MDE equal the sum of the individual WLAs for point sources and the land based LAs for nonpoint sources.

To calculate the TMDLs, average tPCB baseline concentrations in the NEB and NWB tributaries (3.35 and 4.30 ng/L, respectively) were used from water quality data collected between 2004 and 2005. In order to meet WQS that are protective of the “fishing” designated use in the NEB and NWB tributaries (0.64 ng/L, ppt), the tPCB baseline concentrations would have to be reduced by 81 percent and 85 percent, respectively. Given that the downstream tidal waters are also impaired for PCBs in fish tissue and an already approved Tidal Potomac and Anacostia PCB TMDL report calls for 98 percent reductions of the NEB and NWB tributary baseline loads in order to meet downstream TMDL targets, the PCB TMDLs developed for the NEB and NWB need to be at least as protective as the tributary allocations proposed in the Tidal PCB TMDL. Since the Tidal Potomac and Anacostia PCB TMDL tributary allocations require higher PCB load reductions than would be necessary to meet WQS in the NEB and NWB tributaries, the Tidal PCB TMDL allocations were adopted as the NEB and NWB PCB TMDLs. The NEB and NWB PCB TMDLs are 8.57 and 5.96 g/yr, respectively, with an overall reduction of 98 percent from the baseline loads.

This load is considered the maximum allowable load the watershed can assimilate and still attain water quality standards. The allowable load was reported in units of grams/year for the average annual load and in mg/day for the maximum daily load. Expressing TMDLs using these units is consistent with Federal regulations at 40 CFR §130.2(i), which states that *TMDLs can be expressed in terms of either mass per time, or other appropriate measure.* The average annual and maximum daily PCBs TMDLs are presented in Tables 1 and 2, respectively.

Load Allocations

The TMDL summary in Table 1 contains the LA for the NEB & NWB of the Nontidal Anacostia River Watershed. According to Federal regulations at 40 CFR §130.2(g), LAs are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loadings should be distinguished.

Load Allocations for nonpoint sources were assigned to contaminated sites within the Maryland portion of the watershed, unregulated watershed runoff within the Maryland portion of the watershed, and DC upstream watershed. Since a number of contaminated sites have undergone remediation and their baseline loads constitute a relatively small percentage of the

total baseline load, no reductions were applied to the baseline load from this source. The LAs for the Unregulated Watershed Runoff within the Maryland portion of the watershed were established by reducing the baseline loads from each source category by 98.64 percent and 98.10 percent in the NEB and NWB, respectively. The DC Upstream Watershed baseline was reduced by 98.0 percent.

Wasteload Allocations

There are 60 permitted point sources of PCBs with NPDES permits regulating the discharge of PCBs in the Northeast and Northwest Branches of the Nontidal Anacostia River watershed, which are included in the WLA. Point sources in the NEB and NWB drainage basins include two WWTPs located in the NEB drainage basin and Maryland’s stormwater discharges that are regulated under Phase I or Phase II of the NPDES stormwater program. WWTP WLAs were calculated as the facilities’ design flow times the Maryland water column human health tPCB criterion. The estimated WWTP PCB WLA is 0.725 g/yr, which constitutes an overall reduction of 8.83 percent from the estimated baseline load (see Table 8 below).

Table 8. Wastewater Treatment Plants PCB Wasteload Allocations

WWTP	NPDES	MD tPCB Water Column Criterion (ng/L)	Design Flow (MGD)	PCB WLA¹ (g/yr)	Load Reduction or Allowable Increase (%)
USDA East	MD0020842	0.64	0.620	0.548	17.4↓
USDA West	MD0020851	0.64	0.200	0.177	34.3↑
Total WWTP PCB WLA				0.725	8.83↓

¹ WWTP WLA = MD tPCB water column criterion x facility design flow.

The NPDES regulated stormwater WLAs were established by reducing NPDES regulated stormwater baseline loads by 98.64 percent and 98.10 percent in NEB and NWB, respectively. NPDES regulated stormwater allocations to the NEB and NWB of the Nontidal Anacostia River watershed are expressed as a single WLA for each County.

Federal regulations at 40 CFR §122.44(d)(1)(vii)(B) require that, for an NPDES permit for an individual point source, the effluent limitations must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA. There is no express or implied statutory requirement that effluent limitations in NPDES permits necessarily be expressed in daily terms. The CWA definition of “effluent limitation” is quite broad (effluent limitation is “any restriction on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources ...”). See CWA 502(11). Unlike the CWA’s definition of a TMDL, the CWA definition of “effluent limitation” does not contain a “daily” temporal restriction. NPDES permit regulations do not require that effluent limits in permits be expressed as maximum daily limits or even as numeric limitations in all circumstances, and such discretion exists regardless of the time increment chosen to express the TMDL. For further guidance, refer to Benjamin H. Grumbles memo (November 15, 2006) titled *Establishing TMDL Daily Loads in Light of the Decision by*

the U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v. EPA, et al., No. 05-5015 (April 25, 2006) and implications for NPDES Permits.

EPA has authority to object to the issuance of an NPDES permit that is inconsistent with WLAs established for that point source. It is also expected that MDE will require periodic monitoring of the point source(s) for PCBs through the NPDES permit process, in order to monitor and determine compliance with the TMDL's WLAs. Based on the foregoing, EPA has determined that the TMDLs are consistent with the regulations and requirements of 40 CFR Part 130.

3. *The TMDLs consider the impacts of background pollutant contributions.*

The TMDLs consider the impact of background pollutants by considering land uses.

4. *The TMDLs consider critical environmental conditions.*

EPA regulations at 40 CFR §130.7(c)(1) require TMDLs to account for critical conditions for stream flow, loading, and water quality parameters. The intent of the regulations is to ensure that: (1) the TMDLs are protective of human health, and (2) the water quality of the waterbodies is protected during the times when they are most vulnerable.

Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards¹. Critical conditions are a combination of environmental factors (e.g., flow, temperature, etc.), which have an acceptably low frequency of occurrence. In specifying critical conditions in the waterbody, an attempt is made to use a reasonable worst-case scenario condition. For this TMDL, the critical condition was determined to be associated with the long-term exposure of fish to ambient environmental conditions. Total PCB levels in fish become elevated due to long-term exposure, rather than temporary spikes in water column tPCB concentration. The selection of the average tPCB concentrations as representing the baseline conditions adequately considers the impact of seasonal variations and critical conditions on the "fishing" designated use in the NEB and NWB of the nontidal branches of the Anacostia River.

5) *The TMDLs consider seasonal environmental variations.*

Seasonality was considered by using the average tPCB concentrations as representing the baseline conditions.

6) *The TMDLs include a Margin of Safety.*

The requirement for a MOS is intended to add a level of conservatism to the modeling process in order to account for uncertainty. Based on EPA guidance, the MOS can be achieved

¹ EPA memorandum regarding EPA Actions to Support High Quality TMDLs from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds to the Regional Management Division Directors, August 9, 1999.

through two approaches. One approach is to reserve a portion of the loading capacity as a separate term, and the other approach is to incorporate the MOS as part of the design conditions. In the methods used to establish the NEB and NWB tributary PCB TMDLs, which are the basis for the TMDLs in this TMDL, in addition to an implicit MOS incorporated through the use of conservative assumptions, an explicit MOS equal to 5 percent of the TMDL was reserved for loadings from tributary sources.

7) *The TMDLs have been subject to public participation.*

MDE provided an opportunity for public review and comment on the PCB TMDL for the NEB and NWB of the Nontidal Anacostia River watershed. The public review and comment period was open from July 7, 2010 through August 5, 2010. All the comments were satisfactorily addressed by MDE.

A letter was sent to the U.S. Fish and Wildlife Service pursuant to Section 7(c) of the Endangered Species Act, requesting the Service's concurrence with EPA's findings that approval of this TMDL does not adversely affect any listed endangered and threatened species, and their critical habitats.

V. Discussion of Reasonable Assurance

EPA requires that there be a reasonable assurance that the TMDLs can be implemented. WLAs will be implemented through the NPDES permit process. According to 40 CFR §122.44(d)(1)(vii)(B), the effluent limitations for an NPDES permit must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA. Furthermore, EPA has the authority to object to issuance of an NPDES permit that is inconsistent with WLAs established for that point source.

MDE states that "given that PCBs are no longer manufactured and their use has been substantially restricted, it is reasonable to expect that with time PCB concentration in the aquatic environment will decline due to natural attenuation, such as burial of contaminated sediments with newer, less contaminated material, flushing of sediments during periods of high stream flow, and biodegradation." However, PCBs are still being released to the environment in different ways such as leaks, spills from older PCB-containing equipment, illegal dumping, etc. Therefore, natural attenuation alone is not expected to completely eliminate the PCB impairment in the NEB and NWB of the Nontidal Anacostia River Basin.

Due to the potential existence of unidentified sources of PCB contamination throughout the watershed and the significant load reductions required to meet the PCB water column criteria, achievement of the NEB and NWB PCB TMDLs may not be feasible by solely enforcing effluent limitations on known point sources and implementing Best Management Practices (BMPs) on nonpoint sources. Therefore, an adaptive approach of implementation is anticipated, with subsequent monitoring, to assess the effectiveness of the ongoing implementation efforts to manage potential risks to both recreational and subsistence fish consumers.

The success of the implementation process will depend in large part on the feasibility of locating and evaluating opportunities to control on-land PCB sources, such as unidentified contaminated sites, leaky equipment, and contaminated soil or sediment. A collaborative approach involving MDE and the identified NPDES permit holders as well as those responsible for nonpoint PCB runoff throughout the watershed will be used to work toward attaining the WLAs and LAs. The reductions will be implemented in an adaptive and iterative process, focusing first on sources with the largest impact on water quality while giving consideration to the relative cost and ease of implementation. The implementation efforts will be periodically evaluated; and, if necessary, improved, in order to further progress toward achieving the water quality goals. The implementation actions will focus first on the subwatersheds with the highest clam tPCB concentrations.

Since PCBs are known to adsorb to sediments and their concentrations correlate with TSS concentrations, the significant restoration requirements in the MS4 permits, which will lead to a reduction in sediment loads entering the NEB and NWB stream network, also contribute toward PCB load reductions and meeting PCB water quality goals. Due to this known relationship between TSS and PCB concentrations, implementation of the existing TMDLs for sediments and nutrients in the Anacostia River watershed will further progress toward achieving the NPDES regulated stormwater WLAs, and additionally the nonpoint source LAs.

Where necessary, the source characterization efforts will be followed with pollution minimization and reduction measures that will include BMPs for reducing runoff from urban areas, identification and termination of ongoing sources, etc. The identified NPDES regulated WWTP and stormwater control agency permits will be expected to be consistent with the WLAs presented in this report. Additionally, the appropriate Washington, DC, agencies will also need to investigate and eliminate possible sources of PCBs in the DC portion of the NWB drainage basin due to their influence on PCB conditions in NWB and tidal Anacostia River.

As part of Maryland's Watershed Cycling Strategy, follow-up monitoring and assessment will be routinely conducted to evaluate the implementation status in the NEB and NWB. MDE also periodically monitors and evaluates concentrations of contaminants in recreationally caught fish, shellfish, and crabs throughout Maryland. MDE will use these monitoring programs to evaluate progress towards meeting the "fishing" designated use in the NEB and NWB.