UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

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 29 2011

Dear Dr. Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, is pleased to approve *Total Maximum Daily Loads (TMDLs) of Sediment in the Jones Falls Watershed, Baltimore City and Baltimore County, Maryland.* The TMDL report was submitted via the Maryland Department of the Environment's (MDE) letter dated September 25, 2009, and was received by EPA for review and approval on September 28, 2009. The TMDL was established and submitted in accordance with Section 303(d)(1)(c) and (2) of the Clean Water Act to address sediment impairments, as identified in Maryland's 1996 Section 303(d) List.

MDE has identified the waters of the Jones Falls watershed as impaired by metals (copper, zinc and lead) (1996), nutrients – phosphorus (1996), sediments (1996), bacteria (2002), polychlorinated biphenyls (PCBs) – Lake Roland (2002), chlordane – Lake Roland (1996), and impacts to biological communities (2006) on Maryland's 2008 Integrated Report. This TMDL will address the 1996 sediment listing only. A Water Quality Analysis (WQA) for copper and lead was approved by EPA in 2004, and a WQA for zinc was approved by EPA in 2003. A TMDL for fecal bacteria was approved by EPA in 2008, and a TMDL for chlordane was approved by EPA in 2001. A WQA for nutrients to address the phosphorus listing was approved by EPA in 2010.

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, the TMDL considered reasonable assurance that the TMDL allocations assigned to the nonpoint sources can be reasonably met. The enclosure to this letter describes how the sediment TMDL for the Jones Falls watershed satisfies 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 Currey, MDE-TARSA
Melissa Chatham, MDE-TARSA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Decision Rationale
Total Maximum Daily Loads of
Sediment in the Jones Falls Watershed
Baltimore City and Baltimore County, Maryland

Signed

Jon M. Capacasa, Director
Water Protection Division

Date: 9/29/2011

Decision Rationale
Total Maximum Daily Load of
Sediment in the Jones Falls Watershed
Baltimore City and Baltimore County, 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 water quality limited waterbody.

This document sets forth the U.S. Environmental Protection Agency's (EPA) rationale for approving the TMDL for sediment in the Jones Falls watershed. The TMDL was established to address impairments of water quality, caused by sediment, as identified in Maryland's 1996 Section 303(d) List for water quality limited segments. The Maryland Department of the Environment (MDE) submitted the report, *Total Maximum Daily Load of Sediment in the Jones Falls Watershed, Baltimore City and Baltimore County, Maryland,* dated September 2009, to EPA for final review on September 25, 2009. The TMDL in this report addresses the sediment impairment in the Jones Falls watershed as identified on Maryland's Section 303(d) List. The basin identification for the Jones Falls watershed is MD02130904.

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 sediment loadings to the Jones Falls watershed. There are 23 active permitted point sources of sediment 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 sediment TMDL is presented as an average annual load in tons per year because it was developed to meet TMDL endpoints under a range of conditions observed throughout the year. The long term daily sediment TMDL is presented in tons per day. The calculation of the long term maximum daily TMDL is explained in Appendix C of the TMDL report. The average annual and long term maximum daily TMDLs are presented in Tables 1 and 2, respectively. Individual annual and daily WLAs for permitted point sources are provided in Tables 3 and 4.

Table 1. Jones Falls Average Annual TMDL of Sediment/TSS (tons/year)

TMDL (tons/year)	=	LA	+	WLA			MOS
7,109.3	=	1,022.0	+	NPDES Stormwater WLA		Process Water WLA	Implicit
				6,084.9	+	2.4	
				= 6,087.3			

Table 2. Jones Falls Maximum Daily Load of Sediment/TSS (tons/day)

TMDL (tons/day)	=	LA	+	WLA			MOS
284.3	=	40.9	+	NPDES Stormwater WLA		Process Water WLA	Implicit
				243.4	+	0.02	
				= 243.42			

Table 3. Wasteload Allocations for Minor Process Water Point Sources in the Jones Falls Watershed

Facility	NPDES ID Number	WLA (tons/year)	WLA (tons/day)
Stevenson University WWTP	MD0066001	2.4	0.02
Arundel Corporation – Greenspring Quarry	MDG490976		

* Minor process water point sources are facilities that have a design flow of less than 1.0 MGD.

Table 4. Wasteload Allocations for NPDES Regulated Stormwater Permitted Point Sources in the Jones Falls Watershed

Facility	NPDES ID Number	WLA (tons/year)	WLA (tons/day)
Baltimore County Phase I MS4	MD0068314	1,532.3	61.3
Baltimore City Phase I MS4	MD0068292	3,489.2	139.6
SHA Phase I MS4	MD0068276	163.7	6.5
Other NPDES Regulated Stormwater[1]	N/A	899.7	36.0

[1] A complete list of these permitted point sources can be found in Table 4 below.

Table 5. Other MDE NPDES Regulated Stormwater Permitted Point Sources in the Jones Falls Watershed

Permit Number	Facility	NPDES Group
02SW0105	Hedwin Corporation – Roland Heights	Phase I
02SW0255	Woodberry Quarry Landfill	Phase I
02SW0599	Pepsi Bottling Group, LLC	Phase I
02SW0702	Baltimore City DPW – Northeastern Substation	Phase I
02SW0704	Baltimore City DPW – Middletown Fueling Station	Phase I
02SW0707	Baltimore City DPW – Fallsway Substation	Phase I
02SW0747	U.S. Postal Service – Oliver Street VMF	Phase I
02SW0861	Hollins Organic Products, Inc.	Phase I
02SW1056	Veolia Transportation – Baltimore	Phase I
02SW1156	Norfolk Railway Corporation – Flexi-flo Terminal	Phase I
02SW1211	Cold Spring Landfill	Phase I
02SW1296	Cockey's Enterprises, Inc.	Phase I
02SW1675	MTA – North Avenue Lightrail Facility	Phase I
02SW1676	MTA – Kirk Avenue Bus Division	Phase I
02SW1751	SHA – Brooklandville Shop	Phase I
02SW1810	Potts & Callahan, Inc. – Repair Shop	Phase I
02SW3029	Pall Filtration & Separation Group – Greenspring	Phase I
N/A	MDE General Permit to Construct	Phase I/II

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

Jones Falls is a free flowing stream that originates in Baltimore County, Maryland, and flows 18 miles in a southeastern direction until it empties into the tidal Patapsco River. The watershed is located in the Patapsco River sub-basin of the Chesapeake Bay watershed within Baltimore County and Baltimore City, and covers approximately 58 square miles. Several tributaries drain to the Jones Falls mainstem, including Moores Branch, Roland Run, Towson

Run, Western Run and Stoney Run. There is also an impoundment in the Jones Falls watershed located at Lake Roland, just north of the Baltimore County/City boundary. The Jones Falls watershed consists primarily of urban land uses (73.9%) and forest (22.5%), with lesser amounts of crop (2.7%), and pasture (0.9%) land uses. The total population of the Jones Falls watershed is approximately 309,000 (US Census Bureau 2000).

The Surface Water Designation Use for the Jones Falls mainstem and its tributaries above Lake Roland is Use III *Nontidal Cold Water*. The designated use of the Jones Falls mainstem and its tributaries below Lake Roland is Use I *Water Contact Recreation and Protection of Warm Water Nontidal Aquatic Life*, except for Stoney Run and its tributaries and the portion of the Jones Falls mainstem between North Avenue and Lake Roland, which is designated as Use IV *Recreational Trout Waters* (COMAR 2008 a,b,c,d). MDE has identified the waters of the Jones Falls watershed as impaired by metals (copper, zinc, and lead) (1996), nutrients – phosphorus (1996), sediments (1996), bacteria (2002), polychlorinated biphenyls (PCBs) – Lake Roland (2002), chlordane – Lake Roland (1996), and impacts to biological communities (2006) on Maryland's 2008 Integrated Report.

The TMDL established herein by MDE will address the 1996 sediment listing, for which a data solicitation was conducted and all readily available data from the past five years has been considered. A Water Quality Analysis (WQA) for copper and lead was approved by EPA in 2004, and a WQA for zinc was approved by EPA in 2003. A TMDL for fecal bacteria was approved by EPA in 2008, and a TMDL for chlordane was approved by EPA in 2001. A WQA for nutrients to address the phosphorus listing was approved by EPA in 2010.

MDE uses the *Biological Stressor Identification* (BSID) methodology to identify the most probable cause(s) of observed biological impairments in Maryland's 8-digit watersheds. The BSID ranks the likely stressors affecting a watershed using a suite of available physical, chemical, and land use data. In the Jones Falls watershed, the primary dataset for the BSID analysis was round two data collected by the Maryland Department of Natural Resource's Maryland Biological Stream Survey (MBSS) (data was collected between 2000-2004). The results of the BSID analysis concluded that sediment related stressors (channelization, channel alteration, poor ephifaunal substrate, poor bank stability and high embeddedness) are currently contributing to the biological impairments within the Jones Falls watershed.

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 the attainment of water quality standards. In the impaired segments of the Jones Falls watershed, a TMDL was developed through computer modeling based on data collected throughout the watershed. The purpose for developing the TMDL is to reduce sediment loadings under existing conditions so that water quality standards can be met. Refer to Tables 1 and 2 for a summary of allowable loads.

The computational framework utilized for the Jones Falls sediment TMDL was the Chesapeake Bay Program Phase 5 (CBP P5) watershed model. The CBP P5 watershed model generated edge of stream (EOS) loading rates which were used to develop baseline sediment loads for the watershed. The EOS loads were calculated for the Jones Falls watershed as the

product of the land use area, land use target loading rate, and loss from the edge-of-field (EOF) to the main channel. The land use target loading rate was quantified through the use of flow duration curves and a type of statistical analysis known as quantile regression. The loss from the EOF to the main channel was determined through the sediment delivery ratio which is defined as the ratio of the sediment load reaching a basin outlet to the total erosion within the basin. A sediment delivery ratio was estimated for each land use type based on the proximity of the land use to the main channel.

In order to quantify the impact of sediment on the aquatic health of the Jones Falls watershed, a reference watershed approach was used. Nine reference watersheds were selected from the Highland/Piedmont region based on similarities in physical and hydrological characteristics. A sediment-loading threshold was developed from the reference watersheds and was normalized by a constant background condition, the all-forested watershed condition of the Jones Falls watershed. The resulting load, defined as the *forest normalized sediment load* represents how many times greater the current watershed sediment load is than the *all forested sediment load* of the Jones Falls watershed. The median and 75th percentile of the reference watershed *forest normalized sediment load* were then calculated and found to be 3.3 and 4.2, respectively. The values are in close agreement with more complex methods used to determine sediment loading thresholds.

The TMDL for the Jones Falls watershed was calculated based on the product of the median forest normalized sediment load and the Jones Falls all forested sediment load. The resulting load is considered the maximum allowable load the watershed can sustain without causing any sediment related impacts to aquatic health. The formula for calculating the TMDL is as follows:

$$TMDL = Yn_{ref} \times y_{forest}$$

where

TMDL = allowable load for impaired watershed (ton/year)
Yn_{ref} = forest normalized reference sediment load (3.3)
y_{forest} = all forested sediment load

To attain the TMDL loading cap, the reductions allocated in the TMDL were applied through the CBP P5 watershed model to the predominant and controllable sediment sources. If these predominant sources are controlled, water quality standards can be achieved in the most effective, efficient, and equitable manner. In the Jones Falls watershed, urban land was identified as the most extensive predominant controllable source. Therefore, the required sediment reductions were allocated entirely to urban (developed) land uses.

IV. Discussion of Regulatory Conditions

EPA finds that MDE has provided sufficient information to meet all seven of the basic requirements for establishing a sediment TMDL for the Jones Falls watershed. EPA, therefore, approves this sediment TMDL for the Jones Falls 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 two components: designated and existing uses; and the narrative and/or numerical water quality criteria necessary to support those uses. The Surface Water Designation Use for the Jones Falls mainstem and its tributaries above Lake Roland is Use III *Nontidal Cold Water*. The designated use of the Jones Falls mainstem and its tributaries below Lake Roland is Use I *Water Contact Recreation and Protection of Warm Water Nontidal Aquatic Life*, except for Stoney Run and its tributaries and the portion of the Jones Falls mainstem between North Avenue and Lake Roland, which is designated as Use IV *Recreational Trout Waters* (COMAR 2008 a,b,c,d).

Maryland does not currently have numeric criteria for sediments. Therefore, the allowable load for the Jones Falls watershed was calculated as the product of the normalized reference load (determined from watersheds with a healthy benthic community) and the Jones Falls watershed sediment load expected from an all-forested condition. This load is considered the maximum allowable load the watershed can assimilate and still attain water quality standards. The sediment TMDL was developed for the Jones Falls watershed based on this endpoint.

Reductions in sediment loads are expected to result in the Jones Falls watershed from decreased watershed and streambed erosion, which will then lead to improved benthic and fish habitat conditions. Specifically, sediment load reductions are expected to result in an increase in the number of benthic sensitive species present, an increase in the available and suitable habitat for a benthic community, a possible decrease in fine sediment (fines), and improved stream habitat diversity, all of which will result in improved water quality.

The sediment TMDL, however, will not completely resolve the impairment to biological communities within the watershed. Since the BSID watershed analysis identifies other possible stressors (i.e., chlorides, sulfates, and conductivity) as impacting the biological conditions, this impairment remains to be fully addressed through the Integrated Report listing process and the TMDL development process, such that all impairing substances identified as impacting biological communities in the watershed are reduced to levels that will meet water quality standards, as established in future TMDLs for those substances.

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 sediment for the Jones Falls 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. The average annual and long term maximum daily sediment TMDLs are presented in Tables 1 and 2, respectively.

Load Allocations

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.

The LAs for the Jones Falls watershed were computed using the Chesapeake Bay Program Phase 5 (CBP P5) watershed model. Table 6 presents the load allocations developed for the Jones Falls watershed by nonpoint source category. As indicated in Section III of this Decision Rationale, urban sediment sources were identified as the most extensive predominant controllable sediment source in the watershed (8,082.9 ton/year). Therefore, reductions were applied only to the urban (developed) land uses since the TMDL will be achieved when the current maximum feasible reductions are applied to the urban stormwater sources in the watershed. Thus, nonpoint source reductions were not required to achieve this TMDL.

Table 6. Jones Falls TMDL Allocation by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/year)	LA (ton/year)	Reduction (%)
Crop	575.5	575.5	0
Extractive	15.1	15.1	0
Forest	396.4	396.4	0
Pasture	35.0	35.0	0
Total	1,022.0	1,022.0	0

Wasteload Allocations

As indicated in the TMDL Report, there are 23 active permitted point sources that contribute to the sediment load in the Jones Falls watershed. The types of permits include individual municipal, individual municipal separate storm sewer systems (MS4s), general mineral mining, general industrial stormwater, and general MS4s. These permits can further be grouped into two categories, process water and stormwater. The process water category includes loads generated by continuous discharge sources whose permits have Total Suspended Solids (TSS) limits. The stormwater category includes all NPDES regulated stormwater discharges.

The sediment loads for the two process water permits are calculated based on their TSS limits and corresponding flow information. The 21 NPDES Phase I or Phase II stormwater permits identified throughout the Jones Falls watershed are regulated based on Best Management Practices (BMPs) and do not include TSS limits. In the absence of TSS limits, the NPDES regulated stormwater load is calculated using CBP P5 urban sediment EOF target values. WLAs for the permitted point sources are presented in on an annual and daily load basis in Tables 3 through 5.

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 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 expected that MDE will require periodic monitoring of the point source(s), 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 the sediment load from natural sources such as forested land.

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 standards[1]. 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.

The biological monitoring data (that was used to determine the reference watersheds in the TMDL) was used to account for critical conditions in the Jones Falls watershed. The biological monitoring data reflects the impacts of stressors (i.e., sediment impacts to stream biota) over the course of time and, therefore, depicts an average stream condition (i.e., captures all high and low flow events). Since the TMDL endpoint is based on the median of forest normalized loads from watersheds assessed as having good biological conditions (i.e., passing

[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.

Maryland's biocriteria), by the nature of the biological data described above, it must inherently include the critical conditions of the reference watersheds. Therefore, since the TMDL reduces the watershed sediment load to a level compatible with that of the reference watersheds, critical conditions are inherently addressed.

5) The TMDLs consider seasonal environmental variations.

In the Jones Falls watershed sediment TMDL, seasonality is captured in two components. First, it is implicitly included through the use of the biological monitoring data as biological communities reflect the impact of stressors over time. Second, the MBSS dataset included benthic sampling in the spring (March 1 - April 30), and fish sampling in the summer (June 1 - September 30). Benthic sampling in the spring allows for the most accurate assessment of the benthic population, and therefore provides an excellent means of assessing the anthropogenic effects of sediment impacts on the benthic community. Fish sampling is conducted in the summer when low flow conditions significantly limit the physical habitat of the fish community; and it is, therefore, most reflective of the effects of anthropogenic stressors as well.

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 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.

MDE has adopted an implicit MOS for this TMDL. The estimated variability around the reference watershed group used in the analysis accounts for such uncertainty. Analysis of the reference group forest normalized sediment loads indicates that approximately 75 percent of the reference watersheds have a value of less than 4.2, and that 50 percent of the reference watersheds have a value of less than 3.3. Based on this analysis, the forest normalized reference sediment load was set at the median value of 3.3. This is considered an environmentally conservative estimate, since 50 percent of the reference watersheds have a load above this value, which when compared to the 75 percent value, results in an implicit MOS of approximately 18 percent.

7) The TMDLs have been subject to public participation.

MDE provided an opportunity for public review and comment on the sediment TMDL for the Jones Falls watershed. The public review and comment period was open from July 22, 2009 through August 20, 2009. MDE received two sets of comments. All of these comments were considered and addressed appropriately.

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

To provide the basis for reasonable assurances that the Jones Falls sediment TMDL will be achieved and maintained, Maryland has several well established programs to draw upon including the Water Quality Improvement Act of 1998 (WQIA) and the Federal Nonpoint Source Management Program (§319 of the Clean Water Act).

Potential funding sources available for local governments for implementation include the Buffer Incentive Program, the State Water Quality Revolving Loan Fund, and the Stormwater Pollution Cost Share Program. Details of these programs and additional funding sources can be found at: http://www.dnr.state.md.us/bay/services/summaries.html.

The various BMPs can be used to reduce sediment loads in the Jones Falls watershed: street sweeping, stormwater retrofits, impervious surface reduction, inlet cleaning, increases in urban canopy cover, and stream restoration. Additionally, flow controls can be installed to limit stream bank erosion.

For the implementation of the WLA component, MDE estimates that future stormwater retrofits will have a 65 percent reduction efficiency for TSS, which is subject to change over time. Additionally, any new development in the watershed will be subject to the Stormwater Management Act of 2007, and will be required to use environmental site design to the maximum extent practicable.

In summary, through the use of the aforementioned funding mechanisms and BMPs, there is reasonable assurance that this TMDL can be implemented.