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

SUBJECT: EPA Justification not to require a TMDL for Biological Oxygen Demand (BOD) for the Fort Davis tributary to the Anacostia River

FROM: Bernice Pasquini, Geologist
DC/MD/VA Branch (3WP13)

TO: Fort Davis TMDL file **DATE:** October 31, 2003

Thru: Patricia Gleason, Chief
Watershed Restoration Branch (3WP12)

BACKGROUND INFORMATION

Fort Davis is a remnant first order tributary of the Anacostia River whose lower three quarter reach has been directed by storm drains as a result of early development of Washington, DC. Its watershed is roughly 0.11 mi^2 or 70 acres and resides entirely within the boundaries of the District of Columbia. This stream has a reported 1% gradient with flow estimated at 0.1 cubic feet per second (cfs). Half of the watershed is forested National Parkland and the remainder is urban residential. The only known point source within its watershed consists of four storm sewer outfalls covered by the District Municipal Separate Sewer System (MS4) NPDES Permit No. DC000221. Non-point source load likely consists of other storm water runoff (e.g. sheet runoff) and groundwater discharge**.**

Fort Davis is classified as a tributary to the Anacostia River with the following current and designated beneficial uses as defined in the District of Columbia Water Quality Standards (WQS), Title 21 of the District of Columbia Municipal Regulations (DCMR), Chapter 11:

Water Body	Current Use	Designated Use

Anacostia River Tributaries (except Hickey Run, Watts Branch, And Wetlands)	**Class B**-secondary contact recreation. **Class C**-protection and propagation of fish, shellfish, and wildlife. **Class D**-protection of human health related to consumption of fish and shellfish.	**Class A**-primary contact recreation. **Class B** -secondary contact recreation **Class C**-protection and propagation of fish, shellfish, and wildlife. **Class D**-protection of human health related to consumption of fish and shellfish.

Fort Davis, as a Class C designated water, must achieve the Water Quality Standard (WQS) for Dissolved Oxygen (DO) of 5.0 milligrams per liter (mg/l) as a minimum daily average and must meet a one hour minimum of 5 mg/l for the fish spawning period (March through June) and a one hour minimum of 4.0 mg/l for the remainder of the year. Fort Davis tributary was originally placed on the EPA approved 303(d) list in October, 1994 due to concerns with fecal coliforms and metals pollutants (1996 305(b) Report). The sole purpose of this memo is to present the justification for not requiring a TMDL for the Fort Davis tributary for Biological Oxygen Demand or DO only.

The basis for adding DO as a pollutant of concern to the 303 (d) listing of the Fort Davis tributary was presented in the 1998 Water Quality Assessment report (305(b) report) as a result of an 11.1% violation rate from data collected between 1993 to 1997 of Dissolved Oxygen. This is slightly above the violation rate used to list a stream on the 303(d) list of impaired water bodies of 10% or greater exceedance in DO limits. The following table summarizes the 1998 303 (d) listing for Fort Davis tributary:

Waterbody	Pollutants of concern	Priority
Fort Davis Tributary	BOD, metals and bacteria	Medium

RECENT DO ANALYSIS

DO is the endpoint used to evaluate the Biological Oxygen Demand (BOD) since low DO is a good indicator of high BOD. A DO data summary table for the Fort Davis Tributary was provided by the District of Columbia Department of Health (DC DOH) per EPA's request on 22 October 2003 to support their conclusion that a TMDL for BOD was unnecessary for the Fort Davis Tributary (data attached). Data was provided for five years representing seasonal variation with three samples collected in 1997, 1998, 2000 and 2001and four samples collected in 1999. Below is a summary table for the DO table provided by DC DOH during this time period for the Fort Davis Tributary.

Date	Dissolved Oxygen (mg/l)	Date	Dissolved Oxygen (mg/l)	Date	Dissolved Oxygen (mg/l)
1/6/97	6.8	1/4/99	11.3	11/2/00	9.3
4/15/97	9.3	4/5/99	8.7	4/9/01	9.1
10/20/97	8.0	7/13/99	4.4	7/16/01	5.8
1/20/98	10.6	10/12/99	7.1	10/22/01	5.3
4/13/98	9.4	4/3/00	8.3		
10/6/98	5.4	7/17/00	6.9		

This five year data set indicates that the Fort Davis Tributary DO concentrations was within daily average limits throughout the five years. There was only one data point , the July 13, 1999 DO concentration of 4.4 mg/l, that was slightly below the WQS minimum daily average of 5.0 mg/l that may be an indication of a potential violation. However, this concentration would be within the WQS hourly minimum limit of 4.0 mg/l. These data, which were collected over five years and during different seasons, indicate that the Fort Davis Tributary is no longer impaired by low DO concentrations (i.e. caused by high BOD and/or other factors).

CONCLUSION

Based on EPA's review of the most recent DO data collected from 1997 through 2001 and submitted by the District demonstrating that there was only one indication of a potential daily average violation but not the hourly minimum for the DO WQS, EPA has determined, consistent with 33 U.S.C. § 1313(d) and its implementing regulations, that Fort Davis tributary no longer requires a TMDL for BOD.

REFERENCE

Department of Health, Environmental Health Administration, Bureau of Environmental Quality, Water Quality Division, District of Columbia Draft Total Maximum Daily Load for Biochemical Oxygen Demand in Fort Davis Tributary. March 2003.

Attachment