Water Quality Analysis of Low pH for the Lower North Branch Potomac River in Allegany County, Maryland

FINAL

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List of Abbreviations

AMD	Acid Mine Drainage
Cd	Cadmium
COMAR	Code of Maryland Regulations
CSO	Combined Sewer Overflow
CWA	Clean Water Act
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
MBSS	Maryland Biological Stream Survey
MDE	Maryland Department of the Environment
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
pH	Negative logarithm of Hydrogen Ion Molar Concentration
SSURGO	Soil Survey Geographic
TMDL	Total Maximum Daily Load
WQA	Water Quality Analysis
WQLS	Water Quality Limited Segment

EXECUTIVE SUMMARY

Section 303(d) of the federal Clean Water Act (CWA) and the U.S. Environmental Protection Agency's (EPA) implementing regulations direct each state to identify and list waters, known as water quality limited segments (WQLSs), in which current required controls of a specified substance are inadequate to achieve water quality standards. For each WQLS, the State is to either establish a Total Maximum Daily Load (TMDL) of the specified substance that the waterbody can receive without violating water quality standards, or demonstrate that water quality standards are being met.

The Lower North Branch Potomac River (basin code 02-14-10-01), located in Allegany County, Maryland, was identified on the State's list of WQLSs as impaired by low pH (1996 listing), nutrients (1996 listing), sediments (1996 listing, cadmium (Cd) (1996 listing) and impacts to biological communities (2002 listing). This report provides an analysis of recent monitoring data to address whether the low pH impairment still remains. A data solicitation for pH was conducted by MDE and all readily available data from the past five years was considered.

The study demonstrates that the applicable aquatic life criterion for pH and the designated uses supported by this criterion are being met in the Lower North Branch Potomac River. Barring the receipt of any contradictory data, this report will be used to support the removal of the 8-digit basin from Maryland's list of WQLSs for low pH when the Maryland Department of the Environment (MDE) proposes the revision of Maryland's 303(d) list for public review in the future. The listings for nutrients, sediments, Cd and impacts to biological communities will be addressed at a future date.

Although the non-tidal waters of the Lower North Branch Potomac River do not display signs of impairment due to low pH, the State reserves the right to require additional pollution controls in the Lower North Branch Potomac River watershed if evidence suggests that acidity resulting in low pH from the basin is contributing to downstream water quality problems.

1.0 INTRODUCTION

Section 303(d) of the federal Clean Water Act (CWA) and U.S. Environmental Protection Agency (EPA)'s implementing regulations direct each State to identify and list waters, known as water quality limited segments (WQLSs), in which current required controls of a specified substance are inadequate to achieve water quality standards. This list of impaired waters is commonly referred to as the "303(d) list". For each WQLS, the State is to either establish a Total Maximum Daily Load (TMDL) of the specified substance that the waterbody can receive without violating water quality standards, or demonstrate that water quality standards are being met.

A segment identified as a WQLS may not require the development and implementation of a TMDL if current information contradicts the previous finding of an impairment. The most common factual scenarios obviating the need for a TMDL are as follows: 1) more recent data indicating that the impairment no longer exists (i.e., water quality criteria are being met); 2) more recent and updated water quality modeling demonstrates that the segment is now attaining criteria; 3) refinements to water quality criteria, or the interpretation of those standards, which result in standards being met; or 4) correction to errors made in the initial listing.

The Lower North Branch Potomac River (basin code 02-14-10-01) was first identified on the 1996 303(d) list submitted to EPA by the Maryland Department of the Environment (MDE) as impaired by low pH, nutrients, cadmium (Cd) and sediments. In 2002, this basin was also identified as impaired due to impacts to biological communities. The information used for listing the 8-digit basin for low pH was found in the 1996 303(b) report. A water quality analysis (WQA) was conducted using recent monitoring data to address whether the low pH impairments in Lower North Branch Potomac River still remain. A data solicitation for pH was conducted by Maryland Department of the Environment (MDE), and all readily available data from the past five years was considered.

This report provides recent information that supports the removal of the Lower North Branch Potomac River 8-digit basin from Maryland's list of WQLSs for low pH when the 303(d) list is revised: therefore, the aforementioned first and second scenarios most closely apply. The nutrients and sediments impairments will be addressed at a future date.

The remainder of this report lays out the general setting of the waterbody within the Lower North Branch Potomac River watershed, presents a discussion of the water quality characteristics of the waterbody, the water quality characterization process, and provides conclusions with regard to the characterization.

2.0 GENERAL SETTING

The Lower North Branch Potomac River watershed is located in the North Branch Potomac River Sub-basin within Maryland (see Figure 1). The watershed area covers 35,514 acres in Allegany County, Maryland, forming a portion of the border between Maryland and West Virginia. The Lower North Branch Potomac River watershed drains north to southwest and north to southeast.

The Lower North Branch Potomac River watershed lies within the Ridge and Valley Province of Western Maryland, between South Mountain in Washington County and Dans Mountain in western Allegany County. Two distinct topographic and geologic zones separate the Province: The Great Valley (Hagerstown Valley) is a wide, flat, and open valley formed on Cambrian and Ordovician limestone, dolomite and Alluvial fan deposits alongside the bordering mountains; and the Allegheny Ridge is described as having erosion-resistant sandstone in the northeast-southwest direction. The Province is characterized by folded and faulted sedimentary rocks, layered limestone and shale, and mountainous soils composed of clay, clay loams, and sandy and stony loams (Maryland Department of Environment, 2000; Maryland Geological Survey, 2004; The Maryland Department of Natural Resources, 2005). The soils in the watershed are in the Elliber-Dekalb-Opequon Association. The Elliber soils on the top and sides of the ridges, are deep over cherty limestone, and contain large quantities of chert fragments. The Dekalb soils are moderately deep over sandstone and are mostly very stony. The Opequon soils are generally on the sides of the limestone ridges (Natural Resources Conservation Service (NRCS), Soil Survey of Allegany County, 1977).

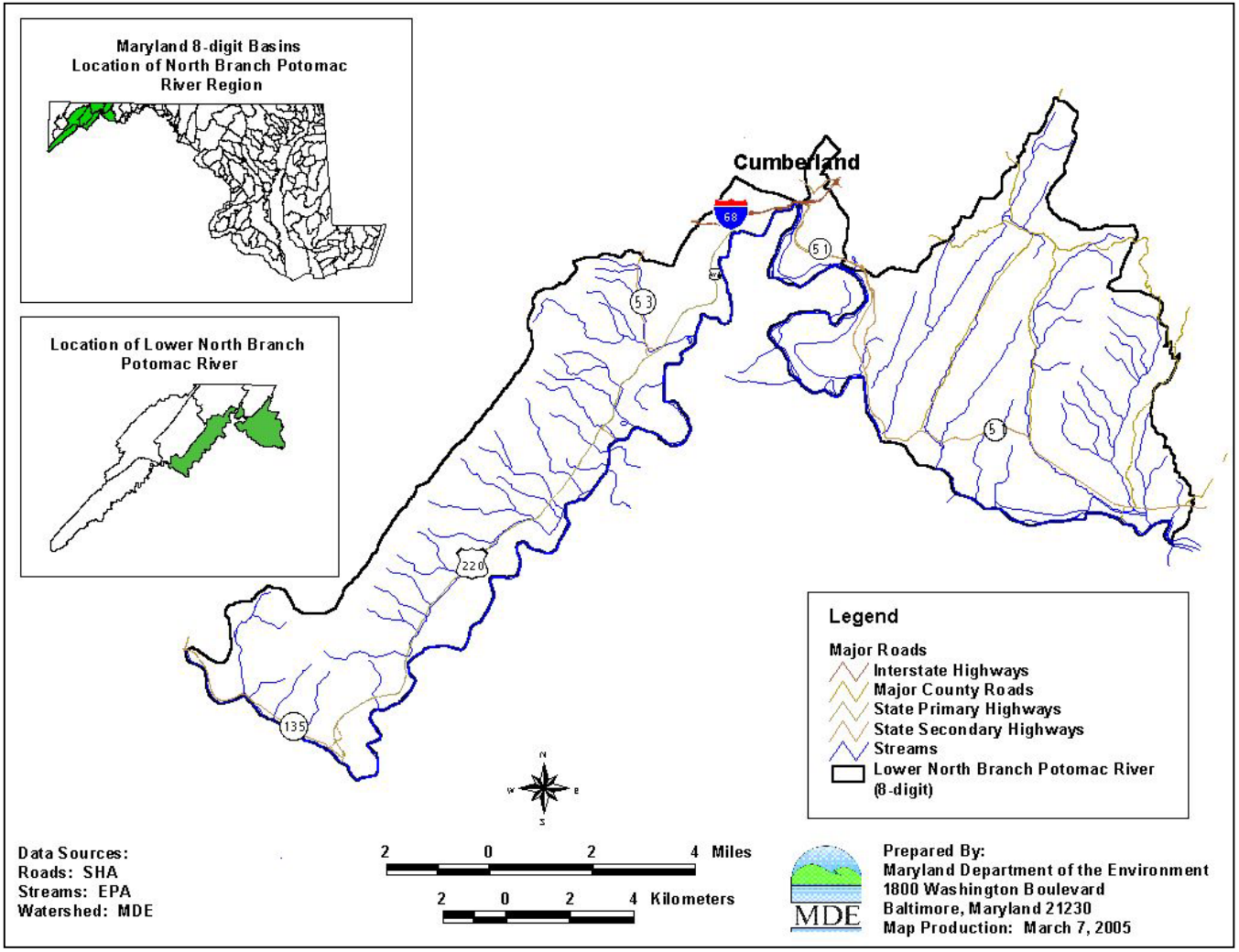

Figure 1: Location Map of Lower North Branch Potomac River Watershed

The primary land use in the Lower North Branch Potomac River watershed is forest/herbaceous (see Figure 2). The landuse distribution in the watershed is approximately 89.56% forest/herbaceous, 4.99% urban, 4.35% agricultural and 1.11% water (Maryland Department of Planning, 2002).

According to the National Pollutant Discharge Elimination System (NPDES) data, there are presently fourteen point sources within the Lower North Branch Potomac River watershed (see Table 1). The NPDES facilities are municipal or industrial dischargers and are required to regulate pH in their discharge. There are three active coal mining facilities (station: ps-4, ps-13, ps-14)

Table 1: Lower North Branch Potomac River Point Source Facilities

Station	NPDES	Facility	Latitude	Longitude
ps-1	MD0066079	AES WARRIOR RUN	39.594	-78.746
ps-2	MD0061204	MEXICO FARMS LLC	39.652	-78.757
ps-3	MD0021687	UPPER POTOMAC RIVER COMMISSION	39.480	-79.042
ps-4	MDG852427	BARTON BUSINESS PARK WWTP BARTON MINING COMPANY	39.557	-78.852
ps-5	MD0065749	BIERS LANE WWTP	39.537	-78.871
ps-6	MD0022748	MARYLAND WATER SERVICE INC WWTP	39.568	-78.842
ps-7	MD0024759	OLDTOWN WWTP	39.540	-78.605
ps-8	MD0024937	Q-CITY COURTS INC	39.467	-79.019
ps-9	MD0023213	RAWLINGS WWTP	39.534	-78.874
ps-10	MD0060739	TRI-TOWNS INDUSTRIAL PARK WWTP	39.459	-79.004
ps-11	MD0063878	CELANESE WWTP	39.606	-78.810
ps-12	MDG912375	CUMBERLAND WWTP	39.623	-78.754
ps-13	MDG852157	BRASHEAR COAL MINES HAMPSHIRE	39.493	-79.017
ps-14	MDG850938	BRASHEAR COAL MINES WESTERNPORT	39.493	-79.017

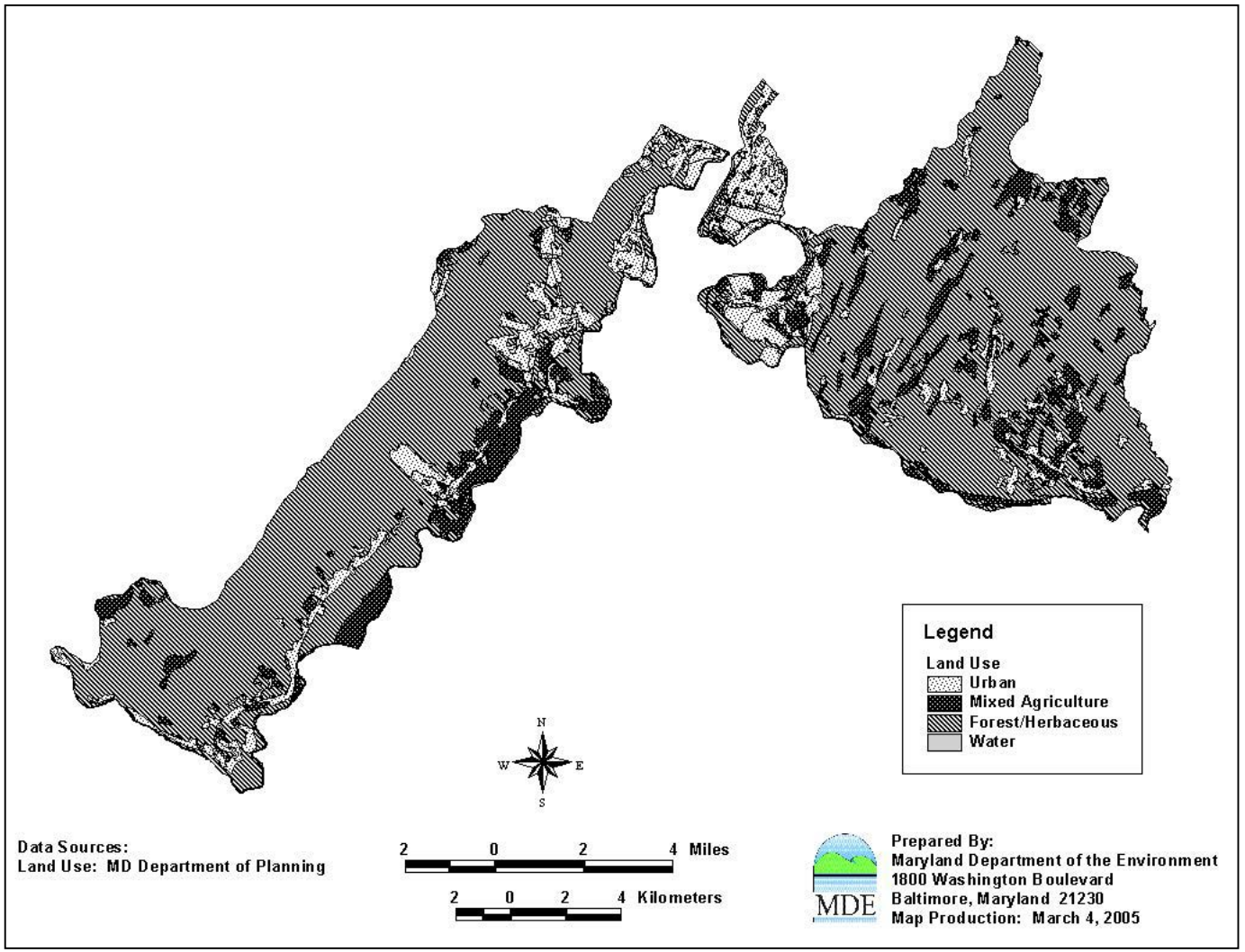

Figure 2: Land Use Map of Lower North Branch Potomac River Watershed

3.0 WATER QUALITY CHARACTERIZATION

A water quality standard is the combination of a designated use for a particular body of water and the water quality criteria designed to protect that use. Designated uses include support of aquatic life, primary or secondary contact recreation, drinking water supply, and shellfish propagation and harvest. Water quality criteria consist of narrative statements and numeric values designed to protect the designated uses. The criteria developed to protect the designated use may differ and are dependent on the specific designated use(s) of a waterbody. Maryland's water quality standards presently include numeric criteria for low pH based on the need to protect aquatic life, wildlife and human health.

The Maryland Stream Segment Use Designation (Code of Maryland Regulations (COMAR) 26.08.02.08Q) for the Lower North Branch Potomac River for the mainstem is Use I-P (water contact recreation, fishing and protection of aquatic life and wildlife). The applicable numeric criteria for normal pH values may not be less than 6.5 or greater than 8.5 in standard units (COMAR 26.08.02.03-3A(8)).

A data solicitation for low pH was conducted by MDE and all readily available data from the past 5 years was considered in the WQA. The pH data collected was analyzed for compliance with water quality standards for the water use designations of the Lower North Branch Potomac River. Based on the 303(d) listing methodologies for pH and mine impacted waters, a waterbody is impaired when greater than 10% of the samples (with a sufficient number of samples to adequately characterize potential diurnal and seasonal variations) exceed the pH numeric criteria (MDE, 2004)

Field surveys conducted at thirty-six monitoring stations in the Lower North Branch Potomac River from 1996 to 2004 were used to support this Water Quality Analysis (WQA). Four data sources were considered in this analysis: the Department of Natural Resources (DNR) Acidity Stream Survey, the Maryland Biological Stream Survey (MBSS), Maryland Department of the Environment (MDE) Field Survey, and MDE Combined Sewer Overflow (CSO) Survey. Table 2 displays the list of stations with their regional geographical coordinates, and descriptive location. Refer to Figure 3 for station locations.

Table 2: Lower North Branch Potomac River Monitoring Stations

Organization	Data Source	Station I.D.	GPS Coordinates	Station Description	Samples (#)	Date Range (years)
DNR	Acidity Stream Survey	80	39.56 78.69	UNTR Brice Hollow Run at Brice Hollow Run	1	1999
DNR	Acidity Stream Survey	81	39.56 78.70	Brice Hollow Run at Rt. 51	1	1999
DNR	Acidity Stream Survey	82	39.61 78.65	Mill Run at Trib at Cresap Mill Rd.	1	1999
DNR	Acidity Stream Survey	83	39.61 78.65	UNTR Mill Run at Cresap Mill Rd.	1	1999
DNR	Acidity Stream Survey	84	39.56 78.72	Collier Run at Rt. 51	1	1999
DNR	Acidity Stream Survey	85	39.59 78.73	UNTR Potomac River at Rt. 51 (northmost near Collier Run)	1	1999
DNR	Acidity Stream Survey	86	39.58 78.73	UNTR Potomac River at Rt. 51 (near 085)	1	1999
DNR	Acidity Stream Survey	87	39.62 78.73	Collier Run at Wildcat Hollow Road	1	1999
DNR	Acidity Stream Survey	88	39.64 78.66	Collier Run at Hinkle Road	1	1999
DNR	Acidity Stream Survey	89	39.64 78.66	UNTR Collier Run at Hinkle Road	1	1999
DNR	Acidity Stream Survey	90	39.61 78.68	Upper Brice Hollow Run	1	1999
DNR	Acidity Stream Survey	94	39.61 78.59	UNTR Trading Run at Ruby Rd. (North trib)	1	1999
DNR	Acidity Stream Survey	95	39.60 78.60	UNTR Trading Run at Ruby Rd. (near 094)	1	1999
DNR	Acidity Stream Survey	184	39.60 78.65	UNTR Mill Run from East before Walnut Ridge Road	1	1999
DNR	MBSS Data	1	39.56 78.62	Seven Springs Run	1	1996
DNR	MBSS Data	2	39.48 78.96	Potomac River Tributary	1	1996
DNR	MBSS Data	3	39.59 78.85	Warrior Run	1	1996
DNR	MBSS Data	4	39.56 78.63	Seven Springs Run	1	1996
DNR	MBSS Data	5	39.45 78.98	Dry Run	1	1996
DNR	MBSS Data	6	39.55 78.61	Trading Run	1	1996
DNR	MBSS Data	7	39.56 78.63	Seven Springs Run Tributary	1	1996

Organization	Data Source	Station I.D.	GPS Coordinates	Station Description	Samples (#)	Date Range (years)
DNR	MBSS Data	8	39.59 78.65	Mill Run	1	1996
DNR	MBSS Data	9	39.58 78.71	Collier Run	1	1996
DNR	MBSS Data	10	39.60 78.70	Collier Run	1	1996
DNR	MBSS Data	11	39.63 78.64	Mill Run	1	1996
DNR	MBSS Data	12	39.58 78.85	Potomac River Tributary	1	1996
DNR	MBSS Data	13	39.58 78.84	Potomac River Tributary	1	1996
DNR	MBSS Data	14	39.57 78.68	Brice Hollow Run Tributary	1	1996
DNR	MBSS Data	15	39.53 78.91	Mill Run	1	1996
DNR	MBSS Data	16	39.58 78.83	Potomac River Tributary	1	1996
DNR	MBSS Data	17	39.54 78.90	Mill Run	1	1996
DNR	MBSS Data	18	39.66 78.65	Collier Run	1	1996
DNR	MBSS Data	19	39.54 78.90	Mill Run	3	2000-2002
MDE	CSO Data	NBP0023	39 32.26 78 36.80	North Branch Potomac River	14	2002-2004
MDE	CSO Data	NBP0326	39 34.00 78 50.53	North Branch Potomac River	12	2002-2004
MDE	CSO Data	NBP0461	39 26.70 78 58.36	North Branch Potomac River	12	2002-2004
MDE	Upper Potomac Field Data	NBP0023	39 32.26 78 36.80	North Branch Potomac River	24	2000-2002
MDE	Upper Potomac Field Data	NBP0326	39 34.00 78 50.53	North Branch Potomac River	24	2000-2002
MDE	Upper Potomac Field Data	NBP0461	39 26.70 78 58.36	North Branch Potomac River	24	2000-2002

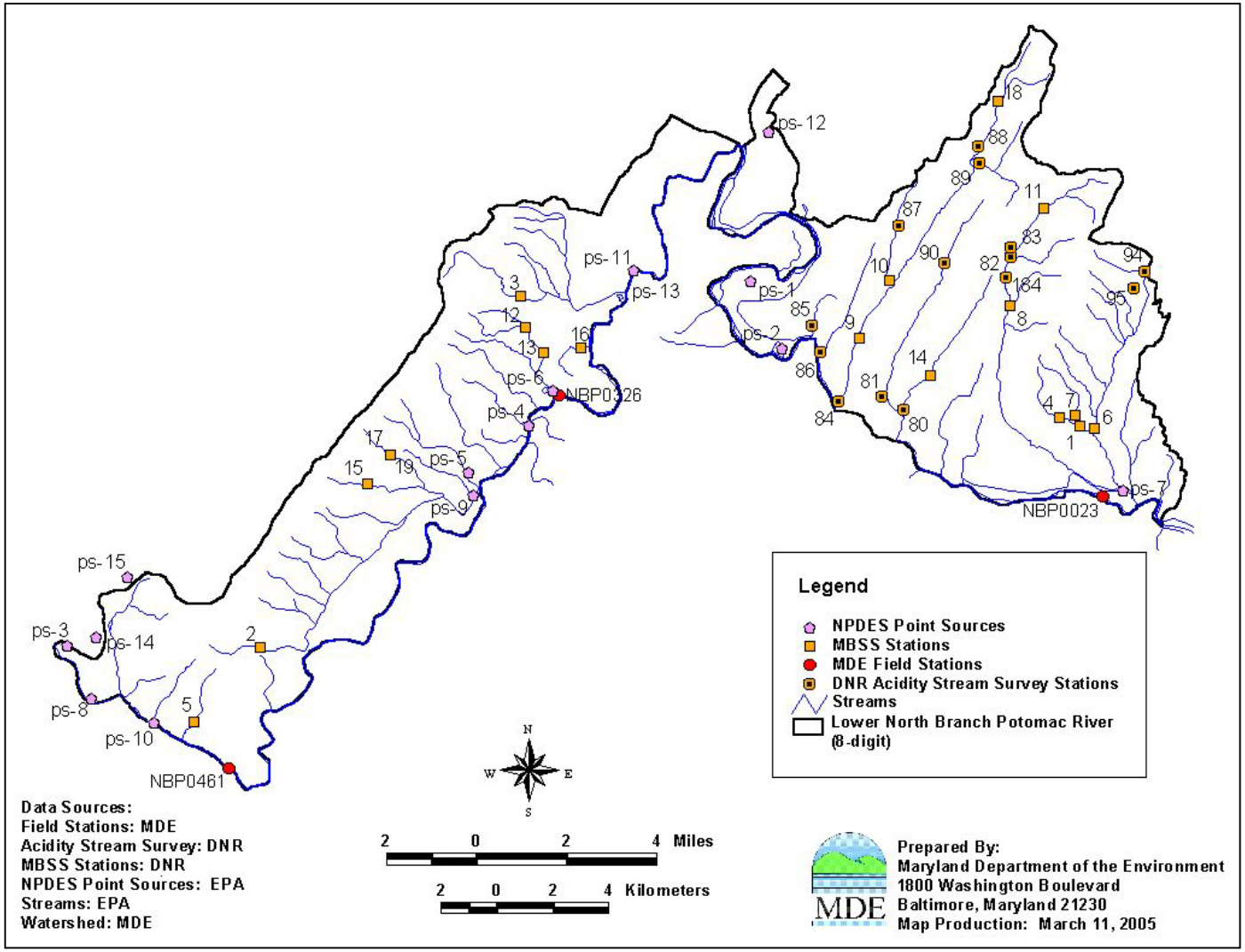

Figure 3: Monitoring Station Location Map of Lower North Branch Potomac River Watershed

Table 3 summarizes the pH data for the Lower North Branch Potomac River watershed. The pH data ranges from 6.47 to 9.0. For the 8-digit basin of Lower North Branch Potomac River, the data show that 0.7% of the samples exceed the lower limit and 1.38% exceed the upper limit of the pH criterion range of 6.5 - 8.5. Please refer to Appendix A for pH values for each sample station.

Table 3: Lower North Branch Potomac River Low pH Analysis

		Low pH		High pH	
8-digit Watershed	**Samples (#)**	**Exceedances (#)**	**Exceedances (%)**	**Exceedances (#)**	**Exceedances (%)**
Lower North Branch Potomac River	145	1	0.7%	2	1.38%

4.0 CONCLUSION

This WQA establishes that the water quality standard for pH is being achieved in the Lower North Branch Potomac River watershed. For the 8-digit basin of the Lower North Branch Potomac River, only 0.7% of the samples exceed the lower limit while 1.38% exceed the upper limit of the pH criterion range. Both the frequency and the magnitude of criterion exceedences are so minor that MDE has determined that the aquatic life use is met with respect to pH. Based on 303(d) impairment listing methodologies applied by MDE, a waterbody is impaired when greater than 10% of the samples exceed the criterion, or in the case of pH, are outside the range of the criterion (MDE, 2004). The Lower North Branch Potomac River is therefore not impaired for low pH and a TMDL is not required. Barring the receipt of any contradictory data, this information provides sufficient justification to revise Maryland's 303(d) list to remove low pH as an impairment for the 8-digit basin of the Lower North Branch Potomac River.

5.0 REFERENCES

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Water Quality Analysis of Low pH for the Lower North Branch Potomac River in Allegany County, Maryland

Appendix A

Appendix A - pH Monitoring Station Data

Station I.D	Date	pH	Organization	Data source
80	Spring 1999	6.83	DNR	Acidity Stream Survey
81	Spring 1999	6.84	DNR	Acidity Stream Survey
82	Spring 1999	6.8	DNR	Acidity Stream Survey
83	Spring 1999	6.73	DNR	Acidity Stream Survey
84	Spring 1999	7.1	DNR	Acidity Stream Survey
85	Spring 1999	7.11	DNR	Acidity Stream Survey
86	Spring 1999	6.6	DNR	Acidity Stream Survey
87	Spring 1999	6.72	DNR	Acidity Stream Survey
88	Spring 1999	6.59	DNR	Acidity Stream Survey
89	Spring 1999	6.47	DNR	Acidity Stream Survey
90	Spring 1999	6.5	DNR	Acidity Stream Survey
94	Spring 1999	7.03	DNR	Acidity Stream Survey
95	Spring 1999	6.65	DNR	Acidity Stream Survey
184	Spring 1999	6.74	DNR	Acidity Stream Survey
1	1996	7.85	DNR	MBSS Data
2	1996	**6.43**	DNR	MBSS Data
3	1996	7.39	DNR	MBSS Data
4	1996	6.9	DNR	MBSS Data
5	1996	6.88	DNR	MBSS Data
6	1996	6.8	DNR	MBSS Data
7	1996	7.96	DNR	MBSS Data
8	1996	7.13	DNR	MBSS Data
9	1996	7.21	DNR	MBSS Data
10	1996	6.96	DNR	MBSS Data
11	1996	6.75	DNR	MBSS Data
12	1996	7.56	DNR	MBSS Data
13	1996	7.62	DNR	MBSS Data
14	1996	7.32	DNR	MBSS Data
15	1996	6.55	DNR	MBSS Data
16	1996	8.19	DNR	MBSS Data
17	1996	7.72	DNR	MBSS Data
18	1996	6.79	DNR	MBSS Data
19	2002	7.85	DNR	MBSS Data
19	2001	7.72	DNR	MBSS Data
19	2000	7.41	DNR	MBSS Data
NBP0023	10/15/2002	7.9	MDE	CSO Data
NBP0023	10/17/2002	8.0	MDE	CSO Data
NBP0023	10/21/2002	8.1	MDE	CSO Data
NBP0023	10/23/2002	8.1	MDE	CSO Data
NBP0023	11/12/2002	7.9	MDE	CSO Data
NBP0023	11/13/2002	8.1	MDE	CSO Data
NBP0023	11/15/2002	8	MDE	CSO Data
NBP0023	11/18/2002	7.6	MDE	CSO Data
NBP0023	12/9/2002	7.5	MDE	CSO Data

Station I.D	Date	pH	Organization	Data source
NBP0023	12/8/2003	7.6	MDE	CSO Data
NBP0023	2/9/2004	7.1	MDE	CSO Data
NBP0023	2/10/2004	6.9	MDE	CSO Data
NBP0023	2/12/2004	7.1	MDE	CSO Data
NBP0023	3/29/2004	7.5	MDE	CSO Data
NBP0326	10/16/2002	8.1	MDE	CSO Data
NBP0326	10/21/2002	7.6	MDE	CSO Data
NBP0326	10/23/2002	7.5	MDE	CSO Data
NBP0326	11/13/2002	7.5	MDE	CSO Data
NBP0326	11/15/2002	7.2	MDE	CSO Data
NBP0326	11/18/2002	8.0	MDE	CSO Data
NBP0326	12/10/2002	7.6	MDE	CSO Data
NBP0326	12/9/2003	7.7	MDE	CSO Data
NBP0326	2/9/2004	7.5	MDE	CSO Data
NBP0326	2/10/2004	7.5	MDE	CSO Data
NBP0326	2/12/2004	7.4	MDE	CSO Data
NBP0326	3/29/2004	7.7	MDE	CSO Data
NBP0461	10/16/2002	7.9	MDE	CSO Data
NBP0461	10/21/2002	7.5	MDE	CSO Data
NBP0461	10/23/2002	7.5	MDE	CSO Data
NBP0461	11/13/2002	7.5	MDE	CSO Data
NBP0461	11/15/2002	7.5	MDE	CSO Data
NBP0461	11/18/2002	7.9	MDE	CSO Data
NBP0461	12/10/2002	7.3	MDE	CSO Data
NBP0461	12/9/2003	7.7	MDE	CSO Data
NBP0461	2/9/2004	7.5	MDE	CSO Data
NBP0461	2/10/2004	7.5	MDE	CSO Data
NBP0461	2/12/2004	7.4	MDE	CSO Data
NBP0461	3/29/2004	7.7	MDE	CSO Data
NBP0023	5/9/2001	7.0	MDE	Upper Potomac Field Data
NBP0023	1/18/2001	7.4	MDE	Upper Potomac Field Data
NBP0023	11/15/2001	7.5	MDE	Upper Potomac Field Data
NBP0023	12/12/2001	8.0	MDE	Upper Potomac Field Data
NBP0023	7/17/2002	7.5	MDE	Upper Potomac Field Data
NBP0023	9/12/2001	7.6	MDE	Upper Potomac Field Data
NBP0023	8/14/2002	7.5	MDE	Upper Potomac Field Data
NBP0023	4/9/2001	7.8	MDE	Upper Potomac Field Data
NBP0023	6/13/2001	7.5	MDE	Upper Potomac Field Data
NBP0023	10/12/2000	7.5	MDE	Upper Potomac Field Data
NBP0023	11/13/2000	7.6	MDE	Upper Potomac Field Data
NBP0023	12/12/2000	7.3	MDE	Upper Potomac Field Data
NBP0023	2/14/2001	7.1	MDE	Upper Potomac Field Data
NBP0023	3/15/2001	7.4	MDE	Upper Potomac Field Data
NBP0023	7/18/2001	7.8	MDE	Upper Potomac Field Data

Station I.D	Date	pH	Organization	Data source
NBP0023	1/16/2002	8.3	MDE	Upper Potomac Field Data
NBP0023	2/13/2002	8.0	MDE	Upper Potomac Field Data
NBP0023	3/13/2002	8.2	MDE	Upper Potomac Field Data
NBP0023	4/10/2002	7.8	MDE	Upper Potomac Field Data
NBP0023	5/8/2002	7.9	MDE	Upper Potomac Field Data
NBP0023	6/19/2002	7.7	MDE	Upper Potomac Field Data
NBP0023	9/18/2002	7.9	MDE	Upper Potomac Field Data
NBP0326	5/8/2001	7.8	MDE	Upper Potomac Field Data
NBP0326	9/11/2001	7.5	MDE	Upper Potomac Field Data
NBP0326	6/12/2001	7.8	MDE	Upper Potomac Field Data
NBP0326	8/13/2002	7.4	MDE	Upper Potomac Field Data
NBP0326	7/16/2002	7.1	MDE	Upper Potomac Field Data
NBP0326	1/15/2002	7.7	MDE	Upper Potomac Field Data
NBP0326	4/11/2001	8.1	MDE	Upper Potomac Field Data
NBP0326	10/11/2000	7.6	MDE	Upper Potomac Field Data
NBP0326	11/2/2000	7.6	MDE	Upper Potomac Field Data
NBP0326	12/11/2000	7.5	MDE	Upper Potomac Field Data
NBP0326	1/17/2001	7.4	MDE	Upper Potomac Field Data
NBP0326	2/13/2001	6.8	MDE	Upper Potomac Field Data
NBP0326	3/13/2001	7.4	MDE	Upper Potomac Field Data
NBP0326	7/17/2001	7.2	MDE	Upper Potomac Field Data
NBP0326	8/14/2001	7.6	MDE	Upper Potomac Field Data
NBP0326	10/10/2001	6.6	MDE	Upper Potomac Field Data
NBP0326	11/14/2001	7.8	MDE	Upper Potomac Field Data
NBP0326	12/11/2001	7.8	MDE	Upper Potomac Field Data
NBP0326	2/12/2002	7.8	MDE	Upper Potomac Field Data
NBP0326	3/12/2002	7.8	MDE	Upper Potomac Field Data
NBP0326	4/9/2002	7.6	MDE	Upper Potomac Field Data
NBP0326	5/7/2002	7.6	MDE	Upper Potomac Field Data
NBP0326	6/18/2002	7.5	MDE	Upper Potomac Field Data
NBP0326	9/17/2002	7.6	MDE	Upper Potomac Field Data
NBP0461	4/10/2001	8.2	MDE	Upper Potomac Field Data
NBP0461	5/7/2001	**8.8**	MDE	Upper Potomac Field Data
NBP0461	9/10/2001	7.7	MDE	Upper Potomac Field Data
NBP0461	6/11/2001	7.5	MDE	Upper Potomac Field Data
NBP0461	5/6/2002	8.0	MDE	Upper Potomac Field Data
NBP0461	10/10/2000	7.9	MDE	Upper Potomac Field Data
NBP0461	11/1/2000	8.3	MDE	Upper Potomac Field Data
NBP0461	7/16/2001	7.9	MDE	Upper Potomac Field Data
NBP0461	8/13/2001	7.7	MDE	Upper Potomac Field Data
NBP0461	10/9/2001	7.6	MDE	Upper Potomac Field Data
NBP0461	11/13/2001	7.9	MDE	Upper Potomac Field Data
NBP0461	12/10/2001	8.1	MDE	Upper Potomac Field Data
NBP0461	1/14/2002	8.3	MDE	Upper Potomac Field Data
NBP0461	2/11/2002	8.3	MDE	Upper Potomac Field Data
NBP0461	3/11/2002	**9.0**	MDE	Upper Potomac Field Data
NBP0461	4/8/2002	7.8	MDE	Upper Potomac Field Data

Station I.D	Date	pH	Organization	Data source
NBP0461	6/17/2002	7.9	MDE	Upper Potomac Field Data
NBP0461	7/15/2002	7.9	MDE	Upper Potomac Field Data
NBP0461	8/12/2002	7.9	MDE	Upper Potomac Field Data
NBP0461	9/16/2002	7.5	MDE	Upper Potomac Field Data