

Aluminum TMDL Addendum for Selected Streams in the North Branch/Potomac River Watershed, West Virginia

Draft

August 2006

DISSOLVED ALUMINUM TMDL ADDENDUM FOR SELECTED STREAMS IN THE NORTH BRANCH/POTOMAC RIVER WATERSHED

TMDLs Based Upon the Revised Warmwater Aquatic Life Criterion

On January 9, 2006, EPA approved a revision to West Virginia's water quality standard regulations relative to numeric water quality criteria for aluminum. The approved revision temporarily modifies the chronic, aquatic life protection, dissolved aluminum criterion for warmwater fisheries. During an interim period from the date of approval until July 4, 2007, the criterion value that is effective for Clean Water Act purposes is 750 micrograms per liter ($\mu\text{g/L}$). The previously effective value was 87 $\mu\text{g/L}$. If no further legislative action is taken, the 87 $\mu\text{g/L}$ criterion will again become applicable. It is important to note that the approved revision does not change dissolved aluminum water quality criteria for troutwaters.

TMDLs must be based upon the effective water quality standards at the time of development. Throughout this TMDL development process, which began in January 2002, the impairment status of waters and the calculation of aluminum TMDLs and allocations were based upon the previously effective, 87 $\mu\text{g/L}$ criterion. When the TMDLs were nearing completion, DEP learned of EPA's impending approval of the water quality standard revision and suspended development activities. DEP has now reevaluated the impairment status of warmwater fisheries pursuant to the 750 $\mu\text{g/L}$ criterion and recalculated TMDLs and allocations for impaired waters. The recalculated TMDLs and allocations for the entire watershed are contained in this addendum.

Because of the temporary nature of the criterion value, the draft aluminum TMDLs for warmwater fisheries that were based upon the 87 $\mu\text{g/L}$ criterion remain a component of the North Branch/Potomac River watershed TMDL, to be implemented only if the criterion becomes effective in the future. All displays of aluminum impairments contained in the previously advertised documents (North Branch/Potomac Watershed TMDL Report, North Branch/Potomac River Watershed Appendix reports and allocation spreadsheets) relate to the 87 $\mu\text{g/L}$ criterion. The ArcExplorer Project has been supplemented with new information for TMDLs based upon the 750 $\mu\text{g/L}$ criterion.

Table 1 lists the impaired streams based on the previous and current dissolved aluminum criteria.

Table 1. Aluminum Impaired Streams in the North Branch/Potomac River watershed

Subwatershed	Stream Code	Stream	Impaired Per Previously Effective Chronic Warmwater Dissolved Aluminum Criterion = 87 µg/L	Impaired Per Currently Effective Chronic Warmwater Dissolved Aluminum Criterion = 750 µg/L
Abram Creek	WVPNB-16	Abram Creek	X	X
	WVPNB-16-A	Emory Creek	X	X
	WVPNB-16-A-1	UNT/Emory Creek RM 0.8	X	X
	WVPNB-16-B.5	Glade Run	X	X
	WVPNB-16-B.5-1	UNT/Glade Run RM 0.3	X	X
	WVPNB-16-C	Laurel Run	X	X
	WVPNB-16-C.4	UNT/Abram Creek RM 13.6	X	X
	WVPNB-16-C.8	UNT/Abram Creek RM 15.9	X	X
	WVPNB-16-D	Little Creek	X	X
Little Buffalo Creek	WVPNB-19-A	Little Buffalo Creek	X	X
Slaughterhouse Run	WVPNB-10	Slaughterhouse Run	X	X
Montgomery Run	WVPNB-11	Montgomery Run	X	X
	WVPNB-11-A	UNT/Montgomery Run RM 1.4	X	X
Piney Swamp Run	WVPNB-12	Piney Swamp Run	X	X
	WVPNB-12-B	UNT/Piney Swamp Run RM 0.7	X	X
	WVPNB-12-E	UNT/Piney Swamp Run RM 1.8	X	X
	WVPNB-12-F	UNT/Piney Swamp Run RM 2.2	X	X

Table 1 demonstrates that all waters that were identified as dissolved aluminum-impaired pursuant to the 87 µg/L chronic criterion are also impaired pursuant to the 750 µg/L criterion. The same waters for which dissolved aluminum TMDLs were originally presented have TMDLs presented in this addendum, but the calculated values for load allocations, wasteload allocations and TMDLs have been revised as necessary to achieve the currently applicable criterion.

As discussed in the TMDL and Technical Reports, dissolved aluminum TMDL scenarios were developed by comparing DESC-R output directly to the TMDL endpoint. If the predicted dissolved aluminum concentrations exceeded the TMDL endpoint, the total aluminum sources represented in MDAS were reduced. To account for the revised warmwater aquatic life criterion, TMDL scenarios were evaluated by selecting the dissolved aluminum TMDL endpoint for the acute criterion for aquatic life (712.5 micrograms per liter (µg/L); based on the 750 µg/L acute criterion for aquatic life minus a 5 percent MOS).

The revised dissolved aluminum TMDLs are shown in Table 2. The TMDLs are based on a dissolved aluminum TMDL endpoint; however, sources are represented in terms of total aluminum and therefore are presented in the form of total aluminum. Detailed source allocations (load and wasteload allocations) associated with these revised aluminum TMDLs can be found in the allocation spreadsheet called “North Branch_Potomac Dissolved Aluminum Addendum TMDL_Allocations_7_07_06.xls”. The TMDLs shown in Table 2 and the source allocations in the subject spreadsheet are to be implemented pursuant to currently effective criteria.

Table 2. Aluminum TMDLs for the North Branch/Potomac River watershed

Subwatershed	Stream Code	Stream Name	Load Allocation (lb/yr)	Wasteload Allocation (lb/yr)	Margin of Safety (lb/yr)	TMDL (lb/yr)
Abram Creek	WVPNB-16	Abram Creek	15,384	7,486	1,204	24,074
Abram Creek	WVPNB-16-A	Emory Creek	1,184	1,087	120	2,391
Abram Creek	WVPNB-16-A-1	UNT/Emory Creek RM 0.8	84	1,087	62	1,233
Abram Creek	WVPNB-16-B.5	Glade Run	2,392	NA	126	2,518
Abram Creek	WVPNB-16-B.5-1	UNT /Glade Run At RM 0.3	486	NA	26	511
Abram Creek	WVPNB-16-C	Laurel Run	325	1,181	79	1,585
Abram Creek	WVPNB-16-C.4	UNT /Abram Creek RM 13.6	138	NA	7	146
Abram Creek	WVPNB-16-C.8	UNT /Abram Creek RM 15.9	205	NA	11	216
Abram Creek	WVPNB-16-D	Little Creek	649	NA	34	683
Little Buffalo Creek	PNB-19-A	Little Buffalo Creek	1,360	649	106	2,115
Montgomery Run	WVPNB-11	Montgomery Run	705	1,658	124	2,488
Montgomery Run	WVPNB-11-A	UNT/Montgomery Run RM 1.4	35	NA	2	37
Piney Swamp Run	WVPNB-12	Piney Swamp Run	1,832	2,562	231	4,625
Piney Swamp Run	WVPNB-12-B	UNT/Piney Swamp Run RM 0.7	35	396	23	454
Piney Swamp Run	WVPNB-12-E	UNT/Piney Swamp Run RM 1.8	70	NA	4	74
Piney Swamp Run	WVPNB-12-F	UNT/Piney Swamp Run RM 2.2	162	789	50	1,001
Slaughterhouse Run	PNB-10	Slaughterhouse Run	198	1,565	93	1,855

NA = not applicable; UNT = unnamed tributary.

pH TMDLs

As discussed in Section 6.4.1 of the TMDL Report, a surrogate approach was used for TMDL development of pH-impaired waters. It was assumed that reducing in-stream metals (iron and aluminum) concentrations to meet water quality criteria (or TMDL endpoints) would result in meeting the water quality standard for pH. The original iron reductions, coupled with the aluminum reductions needed to achieve the revised criterion, maintain acceptable pH quality in affected waters, as depicted on the “pH Results” page of the “North Branch_Potomac Dissolved Aluminum Addendum TMDL_Allocations_7_07_06.xls” spreadsheet.

Public Participation

In addition to the public meetings and public notice associated with the original Draft TMDLs, the Draft Dissolved Aluminum TMDL Addendum was advertised in local newspapers on July 11, 2006 and July 13, 2006. No public comments were received during the public comment period that began on July 13, 2006 and ended on August 11, 2006. Comments suggesting editorial revisions were received from the United States Environmental Protection Agency Region 3, and DEP made the suggested revisions.