UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
9/20/2006

Ms. Cathy Curran Myers
Deputy Secretary for Water Management
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105

Dear Ms. Myers:

The U.S. Environmental Protection Agency (EPA) is pleased to approve the Total Maximum Daily Load (TMDL) Report for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds, Luzerne County, submitted by the Pennsylvania Department of Environmental Protection (PADEP) and received by EPA for review and approval on May 3, 2006. The TMDLs were established and submitted in accordance with Sections 303(d)(1)(c) and 303(d)(2) of the Clean Water Act. The TMDLs were established to address impairment of water quality as identified in Pennsylvania's 1996 through 2004 Section 303(d) lists of impaired waters requiring TMDLs for metals and pH associated with abandoned mine drainage. Other causes of impairments identified are suspended solids, other inorganics (*i.e.*, sulfates), and flow alterations which will be addressed by PADEP at a later date. A rationale of our approval is enclosed.

As you know, any new or revised National Pollutant Discharge Elimination System permits with applicable effluent limits must be consistent with the TMDL's wasteload allocation pursuant to 40 CFR § 122.44(d)(1)(VII)(B).

Any such permit should be submitted to EPA for review consistent with our letter dated October 1, 1998. If you have further questions, please call me or have your staff contact Ms. Mary F. Beck at (215) 814-3429.

Sincerely,

Signed

Jon M. Capacasa, Director
Water Protection Division

Enclosure

cc: Glenn Rider, DEP
Bill Brown, DEP
Michael Bedrin, DEP NERO
Robert Hornberger, Pottsville DMO

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

Decision Rationale
Total Maximum Daily Loads
Black Creek, Little Nescopeck Creek, and Unnamed Tributary (UNT) to Little Nescopeck Creek Watersheds
For Acid Mine Drainage Affected Segments
Luzerne County, Pennsylvania

Signed

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Jon M. Capacasa, Director
Water Protection Division

Date: *9/20/2006*

Decision Rationale
Total Maximum Daily Loads
Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds
For Acid Mine Drainage Affected Segments

I. Introduction

The Clean Water Act (CWA) requires that Total Maximum Daily Loads (TMDLs) 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.

The Pennsylvania Department of Environmental Protection (PADEP) Bureau of Watershed Management submitted the *Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watershed TMDL* (TMDL Report) dated February 10, 2006, to the U. S. Environmental Protection Agency (EPA) for final Agency review which was received on May 3, 2006. The waterbodies were listed for combinations of the three primary metals associated with acid mine drainage (AMD) (*i.e.*, iron, manganese, and aluminum), other inorganics, and pH with suspended solids and flow alternations being added in subsequent years. This report addresses the three primary metals and pH and addresses two segments on Pennsylvania's 1996 Section 303(d) list of impaired waters as well as additional segments on Pennsylvania's 1998 through 2002 Section 303(d) lists of impaired waters. The "other inorganics" (sulfates), suspended solids, and flow alterations will be addressed at a future date.

EPA's rationale is based on the TMDL Report and information contained in the attachments to the report. EPA's review determined that the TMDLs meet the following eight regulatory requirements pursuant to 40 CFR Part 130:

1. The TMDLs are designed to implement the applicable water quality standards.
2. The TMDLs include a total allowable load as well as individual wasteload allocations (WLAs) and load allocations (LAs).
3. The TMDLs consider the impacts of background pollutant contributions.
4. The TMDLs consider critical environmental conditions.
5. The TMDLs consider seasonal environmental variations.
6. The TMDLs include a MOS.
7. There is reasonable assurance that the proposed TMDLs can be met.
8. The TMDLs have been subject to public participation.

II. Summary

Table 1 presents the 1996, 1998, 2002, and 2004 Section 303(d) listing information for the impaired segments first listed in 1996.[1]

Table 1. 303(d) Sublist for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds, Luzerne County, Pennsylvania

Table 1. 303(d) Sub-List								
State Water Plan (SWP) Subbasin: 05-D Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek								
Year	**Miles**	**Segment ID Assessment ID**	**DEP Stream Code**	**Stream Name**	**Designated Use**	**Data Source**	**Source**	**EPA 305(b) Cause Code**
1996	4.3	6179	28109	Black Creek	CWF	305(b) Report	RE	Metals
1996	9.1	4213	28140	Little Nescopeck Creek	CWF	305(b) Report	RE	pH
1996	0.2	4216	28205	UNT Little Nescopeck Creek	CWF	305(b) Report	RE	Metals Other Inorganics
1998	18.58	6179	28109	Black Creek	CWF	SWMP	AMD	Metals Suspended Solids
1998	6.41	4213	28194	Little Nescopeck Creek	CWF	SWMP	AMD	pH
1998	0.33	4216	28194	Little Nescopeck Creek	CWF	SWMP	AMD	Metals Other Inorganics
2002	24.1	990923-1510-TTS	28109	Black Creek	CWF	SWMP	AMD	Metals, pH
2002	6.2	980923-1500-TTS	28140	Little Nescopeck Creek	CWF	SWMP	AMD	Metals, pH

[1]Pennsylvania's 1996, 1998, 2002, and 2004 Section 303(d) lists were approved by the Environmental Protection Agency (EPA). The 1996 Section 303(d) list provides the basis for measuring progress under the 1997 lawsuit settlement of *American Littoral Society and Public Interest Group of Pennsylvania v. EPA.*

2002	17.9	980927-1030-TTS		Nescopeck Creek	CWF	SWMP	AMD	Metals, pH
2002	3	990923-1426-TTS		Cranberry Creek	CWF	SWMP	AMD	Flow Alterations
2002	5.7	990923-1520-TTS		Cranberry Creek, Stony Creek	CWF	SWMP	AMD	Metals, pH
2004	22	990923-1510-TTS	28109	Black Creek	Aquatic Life		AMD	Metals, pH Suspended Solids
2004	2.1	990923-1511-TTS	28109	Black Creek	Aquatic Life		AMD	Metals, pH Suspended Solids
2004	0.5	990923-1520-TTS	28118	Cranberry Creek	Aquatic Life		AMD	Metals, pH
2004	5.7	980923-1500-TTS	28140	Little Nescopeck Creek	Aquatic Life		AMD	Metals, pH Other Inorganics
2004	0.5	980923-1501-TTS	28147	UNT Little Nescopeck Creek	Aquatic Life		AMD	Metals, pH
2004	17.9	980927-1030-TTS	28102	Nescopeck Creek	Aquatic Life		AMD	Metals, pH
2004	5.2	990923-1520-TTS	28119	Stony Creek	Aquatic Life		AMD	Metals, pH

Resource Extraction = RE
Cold Water Fishery = CWF
Surface Water Monitoring Program = SWMP
Abandoned Mine Drainage = AMD

The UNT 28205 Little Nescopeck Creek was listed in 1996 and Little Nescopeck Creek stream code 28194 was listed in 1998 and both were delisted prior to the 2004 Section 303(d) list of impaired waters. See also Attachment D of the TMDL Report, *Excerpts Justifying Changes Between the 1996, 1998, 2002, and 2004 Section 303(d) Lists*. The use designations for the stream segments in this TMDL can be found in PA Title 25 Chapter 93.9k. Section IV, Table 3 shows the TMDLs for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds.

In 1997, PADEP began utilizing the Statewide Surface Waters Assessment Protocol to assess Pennsylvania's waters. This protocol is a modification of EPA's 1989 Rapid Bioassessment Protocol II and provides for a more consistent approach to conducting biological assessments than previously used methods. The biological assessments are used to determine which waters are impaired and should be included on the State's Section 303(d) list.

The TMDLs in this report were developed using a statistical procedure to ensure that water quality criteria are met 99% of the time as required by Pennsylvania's water quality standards at Pennsylvania Code Title 25, Chapter 96.3c. Table 4 of the TMDL Report lists the TMDLs for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds, addressing metals and pH in the stream segments listed as PADEP stream codes 28102, 28205, 28109, 28118, 28119, 28140, 28147, and 28194.

TMDLs are defined as the summation of the point source WLAs plus the summation of the nonpoint source LAs plus a MOS and are often shown as follows:

$$TMDL = \sum WLAs + \sum LAs + MOS$$

The TMDL is a written plan and analysis established to ensure that a waterbody will attain and maintain applicable water quality standards. The TMDL is a scientifically-based strategy which considers current and foreseeable conditions, utilizes the best available data, and accounts for uncertainty with the inclusion of a MOS value. Since conditions, available data, and the understanding of natural processes can change more than anticipated by the MOS, there exists the option of refining the TMDL for resubmittal to EPA.

III. Background

Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek are located within the Nescopeck Creek Watershed. In fact, Little Nescopeck occurs in two locations within the watershed, in the lower watershed shown on the maps in the TMDL Report, Attachment A, and Attachment A to this document, and also is the upstream headwaters[2] not shown on the maps. The entire Nescopeck Creek Watershed is 143 square miles in area and is located in Northeastern Pennsylvania, encompassing the City of Hazleton and many other communities. The headwaters of Black Creek are located north of Hazleton and are assessable from SR 309. Little Nescopeck Creek is also assessable via SR 309 near its headwaters and flows westward toward the borough of Conyngham where it meets Nescopeck Creek near SR 93. Nescopeck Creek is assessable from Interstate 80 and flows westward from its headwaters in Dennison Township to its confluence with the Susquehanna River at the communities of Berwick and Nescopeck. Land uses include forestland throughout the entire Nescopeck Creek Watershed, croplands throughout the Little Nescopeck Creek and lower Nescopeck Creek Watersheds, and coal mine lands within the Black Creek, Cranberry Creek, and Stony Creek Watersheds.

Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek have been degraded by AMD. Much of the Black Creek Watershed lies within the Eastern Middle Anthracite Field, which consists of small discontinuous coal basins that have been extensively deep mined since the early 1880s. The deep mining combined with some unregulated surface

[2] *Pennsylvania Atlas & Gazetteer*,DeLorme, 1999.

mining has destroyed the natural surface and surface drainage of the watershed. The Little Nescopeck Creek Watershed lies to the north of the Eastern Middle Anthracite Field and has been impacted by drainage from the Jeddo Tunnel system. The Jeddo Tunnel is a system of drainage tunnels designed to dewater deep mine workings. The system is nearly nine miles long and branches out to drain over thirty-two square miles from four major coal basins. Today the deep mines are abandoned and have collapsed in some areas, destroying the natural surface water and ground water systems within the coal basins. Additionally, portions of Cranberry Creek and Black Creek have been eliminated or relocated due to previous mining operations.

There are currently fourteen active mining operations in the Nescopeck Creek Watershed, and these are Pagnotti Enterprises, Inc., Highland 5 Mine (SMP 40663029), Pagnotti Enterprises Inc., Jeddo Basin East Mine (SMP 40663028), Jeddo Highland Coal Co., Jeddo No. 7 Mine (SMP 40663013), Mammoth Anthracite LLC, Lattimer Basin Mine (SMP 40930102), JMW Enterprises, Inc., Milnesville No. 7 Mine (SMP 40980104), Pacton Corp., Jeddo No. 2 Mine (SMP 40663026), Coal Contractors 1991, Inc., Derringer No. 2 Mine (SMP 40850101), Pacton Corp., Jeddo Area No. 1 Mine (SMP 40663025), Jeddo Highland Coal Co., Jeddo Basin West Mine (SMP 40663027), Coal Contractors 1991, Inc., Gowen Mine (SMP 54793009), Joe Kuperavage Coal Co., Midport Mine (SMP 54000103), Rossi Excavating Co., Penneys Mine (SMP 40840203), Lonzetta Trucking & Excavating Co., Milnesville Mine (SMP 40930201), and Jeddo Highland Coal Co., Cranberry Colliery Bank (SMP 40793211). There are no associated NPDES permits for these SMP permits.

There are no active National Pollutant Discharge Elimination System (NPDES) permits in the watershed. Since PADEP defined point sources as permitted discharges and nonpoint sources as sources that are not point sources, the mine lands are treated as nonpoint sources and are assigned LAs.

PADEP treats each segment on the Section 303(d) list as a separate TMDL and expresses each TMDL as a long-term average loading. (See the *Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watershed TMDL* Report, Attachment C, for the TMDL calculations.)

The Surface Mining Control and Reclamation Act of 1977 (SMCRA, Public Law 95-87) and its subsequent revisions were enacted to establish a nationwide program to, among other things, protect the beneficial uses of land or water resources, protect public health and safety from the adverse effects of current surface coal mining operations, and promote the reclamation of mined areas left without adequate reclamation prior to August 3, 1977. SMCRA requires a surface mining permit for the development of new, previously mined, or abandoned sites for the purpose of surface mining. Permittees are required to post a performance bond that will be sufficient to ensure the completion of reclamation requirements by the regulatory authority in the event that the applicant forfeits. Mines that ceased operating by the effective data of SMCRA (often called “pre-law” mines) are not subject to the requirements of SMCRA.

Black Creek and Little Nescopeck Creek were on the 1996 Section 303(d) list of impaired waters and count toward the tenth year (2007) TMDL milestone commitment under the requirements of the 1997 TMDL lawsuit settlement agreement. UNT 28205 Little Nescopeck Creek was also on the 1996 Section 303(d) list but was delisted for the 2004 Section 303(d) list. Tenth year milestones include the development of TMDLs for 20% of the waters listed on Pennsylvania's 1996 Section 303(d) list of impaired waters by the effects of AMD (80 waters since 2005) and the remaining waters listed as impaired by non-AMD impacts. Delisted waters may count for 20% of the requirement.

Computational Procedure

The TMDLs were developed using a statistical procedure to ensure that water quality criteria are met 99% of the time as required by Pennsylvania's water quality standards. A two-step approach was used for the TMDL analysis of impaired stream segments.

The first step used a statistical method for determining the allowable instream concentration at the point of interest necessary to meet water quality standards. An allowable long-term average instream concentration was determined at each sample point for metals and acidity. The analysis was performed using Monte Carlo simulation to determine the necessary long-term average concentration needed to attain water quality criteria 99% of the time, and the simulation was run assuming the data set was log normally distributed. Using @Risk[3], each pollutant source was evaluated separately by performing 5000 iterations of the model where each iteration was independent of all other iterations. This procedure was used to determine the required percent reduction that would allow the water quality criteria to be met instream at least 99% of the time. A second simulation that multiplied the percent reduction by the sampled value was run to ensure that criteria were met 99% of the time. The mean value from this data set represents the long-term average concentration that needs to be met to achieve water quality standards.

The second step was a mass balance of the loads as they passed through the watershed. Loads at these points were computed based on average annual flow. Once the allowable concentration and load for each pollutant was determined, mass balance accounting was performed starting at the top of the watershed and working downstream in sequence. This mass balance or load tracking through the watershed utilized the change in measured loads from sample location to sample location as a guide for expected changes in the allowable loads.

The existing and allowable long-term average loads were computed using the mean concentration from @RISK multiplied by the average flow. The loads were computed based on

[3]@Risk – Risk Analysis and Simulation Add-in for Microsoft Excel, Palisade Corporation, Newfield, NY, 1990-1997.

average annual flow and should not be taken out of the context for which they are intended. They are intended to depict how the pollutants affect the watershed and where the sources and sinks are located spatially in the watershed. A critical flow was not identified, and the reductions specified in this TMDL apply at all flow conditions.

IV. Discussions of Regulatory Requirements

EPA has determined that these TMDLs are consistent with statutory and regulatory requirements and EPA policy and guidance.

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

Water quality standards are state regulations that define the water quality goals of a waterbody. Standards are comprised of three components: (1) designated uses, (2) criteria necessary to protect those uses, and (3) antidegradation provisions that prevent the degradation of water quality. Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek have been designated by Pennsylvania as cold water fisheries with criteria to protect the aquatic life use, and the designations can be found at Pennsylvania Title 25 § 93.9k. To protect the designated use as well as the existing use, the water quality criteria shown in Table 2 apply to all evaluated segments. The table includes the instream numeric criterion for each parameter and any associated specifications.

Table 2. Applicable Water Quality Criteria

Parameter	Criterion Value (mg/l)	Duration	Total Recoverable/ Dissolved
Aluminum (Al)	0.75	Maximum	Total Recoverable
Iron (Fe)	1.50 0.30	30-day Average Maximum	Total Recoverable Dissolved
Manganese (Mn)	1.00	Maximum	Total Recoverable
pH	6.0 - 9.0	Inclusive	N/A

Pennsylvania Title 25 § 96.3(c) requires that water quality criteria be achieved at least 99% of the time, and TMDLs expressed as long-term average concentrations are expected to meet these requirements. That is, the statistical Monte Carlo simulation used to develop TMDL WLAs and LAs for each parameter resulted in a determination that any required percent pollutant reduction would assure that the water quality criteria would be met instream at least 99% of the time. The Monte Carlo analysis performed 5000 iterations of the model where each iteration was independent of all other iterations and the data set was assumed to be log normally distributed.

EPA finds that these TMDLs will attain and maintain the applicable narrative and numeric water quality standards.

The pH values shown in Table 2 were used as the endpoints for these TMDLs. In the case of freestone streams with little or no buffering capacity, the allowable TMDL endpoint for pH may be the natural background water quality, and these values can be as low as 5.4 (Pennsylvania Fish and Boat Commission). However, PADEP chose to set the pH standard between 6.0 to 9.0, inclusive, which is presumed to be met when the net alkalinity is maintained above zero. This presumption is based on the relationship between net alkalinity and pH, on which PADEP based its methodology to addressing pH in the watershed (see the *Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watershed TMDL* Report, Attachment B). A summary of the methodology is presented as follows:

The parameter of pH, a measurement of hydrogen ion acidity presented as a negative logarithm of effective hydrogen ion concentration, is not conducive to standard statistics. Additionally, pH does not measure latent acidity that can be produced from the hydrolysis of metals. PADEP has been using an alternate approach to address the stream impairments noted on the Section 303(d) list due to pH. Because the concentration of acidity in a stream is partially dependent upon metals, it is extremely difficult to predict the exact pH values which would result from treatment of AMD. Therefore, net alkalinity will be used to evaluate pH in these TMDL calculations. This methodology assures that the standard for pH will be met because net alkalinity is able to measure the reduction of acidity. When acidity in a stream is neutralized or is restored to natural levels, pH will be acceptable ($\geq$6.0). Therefore, the measured instream alkalinity at the point of evaluation in the stream will serve as the goal for reducing total acidity at that point. The methodology that is used to calculate the required alkalinity (and therefore pH) is the same as that used for other parameters such as iron, aluminum, and manganese that have numeric water quality criteria. EPA finds this approach to addressing pH to be reasonable.

PADEP also has an alkalinity standard. Alkalinity (of a minimum 20 mg/l calcium carbonate except where natural conditions are less) is related to, but not identical with, pH. Alkalinity is a measure of the buffering capacity of the water. Adequate buffering prevents large swings in pH with additions of small amounts of acid. Although many of the AMD-impacted streams are naturally low in alkalinity, available monitoring data do not always include upstream waters not impacted by AMD. As PADEP does not list waters for inadequate alkalinity, TMDLs are not being developed for alkalinity but PADEP should monitor the waters for alkalinity and if, after these TMDLs are implemented, alkalinity is less than 20 mg/l or natural conditions, PADEP should list the waters for alkalinity and develop TMDLs.

2. The TMDLs include a total allowable load as well as individual WLAs and LAs.

For purposes of these TMDLs only, point sources are identified as permitted discharge points, and nonpoint sources are identified as any pollution sources that are not point sources. Abandoned mine lands were treated in the allocations as nonpoint sources. As such, the discharges associated with these land uses were assigned LAs (as opposed to WLAs). The decision to assign LAs to abandoned mine lands does not reflect any determination by EPA as to whether there are unpermitted point source discharges within these land uses. In addition, by

approving these TMDLs with mine drainage discharges treated as LAs, EPA is not determining that these discharges are exempt from NPDES permitting requirements.

Once PADEP determined the allowable concentration and load for each pollutant, a mass balance accounting was performed starting at the top of the watershed and working downstream in sequence. Load tracking through the watershed utilizes the change in measured loads from sample location to sample location as a guide for expected changes in the allowable loads.

PADEP used two basic rules for the load tracking between two ends of a stream segment: (1) if the measured upstream loads are less than the downstream loads, it is indicative that there is an increase in load between the points being evaluated, and no instream processes are assumed, (2) if the sum of the measured loads from the upstream points is greater than the measured load at the downstream point, is indicative that there is a loss of instream load between the points, and the ratio of the decrease shall be applied to the allowable load being tracked from the upstream point.

Tracking loads through the watershed provides a picture of how the pollutants are affecting the watershed based on the available information. The analysis is performed to insure that water quality standards will be met at all points in the stream. EPA finds this approach reasonable.

Table 3 presents a summary of the allowable loads, LAs, and WLAs for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds.

Table 3. TMDL Component Summary for the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds

Station	Parameter (lbs/day)	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Identified* (%)
BLCK26	Aluminum	19.19	3.13	0	3.13	16.06	84
	Iron	5.28	5.28	0	NA	NA	NA
	Manganese	4.42	4.42	0	NA	NA	NA
	Acidity	170.37	1.31	0	1.31	169.06	99
BLCK25	Aluminum	1.04	0.90	0	0.90	0.14	13
	Iron	0.81	0.81	0	NA	NA	NA
	Manganese	1.07	1.07	0	NA	NA	NA
	Acidity	4.99	2.48	0	2.48	2.51	50
BLCK24	Aluminum	12.88	5.34	0	5.34	0	0**
	Iron	31.88	16.54	0	16.54	15.34	48
	Manganese	7.74	7.74	0	NA	NA	NA
	Acidity	90.94	24.91	0	24.91	0	0**
BLCK23	Aluminum	1.73	1.73	0	NA	NA	NA

Station	Parameter (lbs/day)	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Identified* (%)
	Iron	4.56	4.56	0	NA	NA	NA
	Manganese	1.96	1.96	0	NA	NA	NA
	Acidity	28.07	16.41	0	16.41	11.66	42
BLCK22	Aluminum	12.68	9.68	0	9.68	0	0**
	Iron	41.11	41.11	0	NA	NA	NA
	Manganese	20.25	20.25	0	NA	NA	NA
	Acidity	107.58	69.84	0	69.84	0	0**
BLCK21	Aluminum	8.87	8.87	0	NA	NA	NA
	Iron	6.26	6.26	0	NA	NA	NA
	Manganese	2.02	2.02	0	NA	NA	NA
	Acidity	271.07	12.77	0	12.77	258.30	95
BLCK20	Aluminum	1.64	1.47	0	1.47	0.17	10
	Iron	0.68	0.68	0	NA	NA	NA
	Manganese	0.76	0.76	0	NA	NA	NA
	Acidity	26.59	0.90	0	0.90	25.69	97
BLCK18	Aluminum	17.32	1.96	0	1.96	15.36	89
	Iron	33.02	3.41	0	3.41	29.61	90
	Manganese	4.24	4.24	0	NA	NA	NA
	Acidity	125.93	19.25	0	19.25	106.68	85
BLCK19	Aluminum	22.55	22.55	0	NA	NA	NA
	Iron	16.06	16.06	0	NA	NA	NA
	Manganese	5.67	5.67	0	NA	NA	NA
	Acidity	499.32	13.37	0	13.37	95.28	88
BLCK17	Aluminum	53.82	53.82	0	NA	NA	NA
	Iron	120.87	120.87	0	NA	NA	NA
	Manganese	58.38	58.38	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
BLCK16	Aluminum	76.26	76.26	0	NA	NA	NA
	Iron	185.64	185.64	0	NA	NA	NA
	Manganese	88.13	88.13	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
BLCK15	Aluminum	66.88	66.88	0	NA	NA	NA
	Iron	149.69	149.69	0	NA	NA	NA
	Manganese	78.35	78.35	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
BLCK14	Aluminum	70.60	70.60	0	NA	NA	NA
	Iron	146.43	146.43	0	NA	NA	NA

Station	Parameter (lbs/day)	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Identified* (%)
	Manganese	72.56	72.56	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
BLCK13	Aluminum	297.18	20.67	0	20.67	276.51	93
	Iron	22.94	22.94	0	NA	NA	NA
	Manganese	170.67	26.77	0	26.77	143.90	84
	Acidity	8182.05	0.00	0	0.00	8182.05	100
BLCK12	Aluminum	846.58	173.06	0	173.06	397.01	70
	Iron	260.77	260.77	0	NA	NA	NA
	Manganese	530.86	241.81	0	241.81	145.15	38
	Acidity	5816.18	389.98	0	389.98	0	0**
BLCK11	Aluminum	809.18	324.68	0	324.68	0	0**
	Iron	281.99	281.99	0	NA	NA	NA
	Manganese	520.51	448.23	0	448.23	0	0**
	Acidity	5823.65	607.81	0	607.81	0	0**
BLCK10	Aluminum	636.98	366.86	0	366.86	0	0**
	Iron	269.19	269.19	0	NA	NA	NA
	Manganese	457.05	450.35	0	450.35	0	0**
	Acidity	4332.93	555.82	0	555.82	0	0**
LNESC9	Aluminum	2.79	2.79	0	NA	NA	NA
	Iron	11.33	11.33	0	NA	NA	NA
	Manganese	2.55	2.55	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
JEDDO8	Aluminum	2968.02	244.44	0	244.44	2723.58	92
	Iron	1004.94	475.74	0	475.74	529.20	53
	Manganese	1355.30	317.69	0	317.69	1037.61	77
	Acidity	17941.87	0.00	0	0.00	17941.87	100
LNESC7	Aluminum	3175.09	252.91	0	252.91	198.60	44
	Iron	1126.10	515.56	0	515.56	81.34	14
	Manganese	1431.68	349.84	0	349.84	44.23	11
	Acidity	19114.42	0.00	0	0.00	1172.55	100
LNESC6	Aluminum	2871.17	262.38	0	262.38	0	0**
	Iron	858.97	546.60	0	546.60	0	0**
	Manganese	1349.93	339.01	0	339.01	0	0**
	Acidity	16671.02	27.59	0	27.59	0	0**
LNESC5	Aluminum	2974.03	275.76	0	275.76	89.48	24
	Iron	985.40	530.72	0	530.72	142.31	21
	Manganese	1417.52	348.82	0	348.82	57.78	14

Station	Parameter (lbs/day)	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Identified* (%)
	Acidity	16501.51	58.61	0	58.61	0	0**
NESCO4	Aluminum	33.83	33.83	0	NA	NA	NA
	Iron	169.13	169.13	0	NA	NA	NA
	Manganese	18.04	18.04	0	NA	NA	NA
	Acidity	0.00	0.00	0	NA	NA	NA
NESCO2	Aluminum	2982.16	572.99	0	572.99	0	0**
	Iron	1085.64	1085.64	0	NA	NA	NA
	Manganese	1534.64	705.96	0	705.96	0	0**
	Acidity	15786.45	744.03	0	744.03	0	0**
NESCO1	Aluminum	3357.51	914.93	0	914.93	0	0**
	Iron	1285.01	1285.01	0	NA	NA	NA
	Manganese	1894.57	1127.30	0	1127.30	0	0**
	Acidity	18619.52	1564.24	0	1564.24	0	0**

* Percent reduction after upstream reductions are made
** Total of loads affecting this segment is less than the allowable load calculated at this point; therefore, no reduction is necessary.
ND = not detected
NA = not applicable, meets water quality standards, no TMDL necessary

There are active mining operations in the watershed; however, there are no active NPDES permits for these operations. Therefore, PADEP treated all mine lands as nonpoint sources and assigned LAs as opposed to WLAs. Where there are active mining operations, Federal regulations require that point source permitted effluent limitations be water quality-based subsequent to TMDL development and approval.[4] In addition, PA Title 25, Chapter 96, Section 96.4d requires that WLAs serve as the basis for determination of permit limits for point source discharges regulated under Chapter 92 (relating to NPDES permitting, monitoring, and compliance). Therefore, no new mining may be permitted within the watershed without reallocation of the TMDL.

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

The TMDLs were developed using instream data, which account for existing background conditions.

[4]It should be noted that technology-based permit limits may be converted to water quality-based limits according to EPA's *Technical Support Document For Water Quality-based Toxics Control,* March 1991, recommendations.

4. The TMDLs consider critical environmental conditions.

The reductions specified in these TMDLs apply at all flow conditions. A critical flow condition was not identified from the available data.

5. The TMDLs consider seasonal environmental variations.

The data set included data points from all seasons, thereby accounting for seasonal variation implicitly.

6. The TMDLs include a MOS.

The CWA and Federal regulations require TMDLs to include a MOS to take into account any lack of knowledge concerning the relationship between effluent limitations and water quality. EPA guidance suggests two approaches to satisfy the MOS requirement. First, it can be met implicitly by using conservative model assumptions to develop the allocations. Alternately, it can be met explicitly by allocating a portion of the allowable load to the MOS.

PADEP used an implicit MOS in these TMDLs by assuming that the treated instream concentration variability was the same as the untreated stream's concentration variability. This is a more conservative assumption than the general assumption that a treated discharge has less variability than an untreated discharge. By retaining variability in the treated discharge, a lower average concentration is required to meet water quality criteria 99% of the time than if the variability of the treated discharge is reduced.

Additionally, calculations were performed using a daily average for iron rather than the 30-day average, thereby, incorporating a MOS.

7. There is reasonable assurance that the proposed TMDLs can be met.

The *Recommendations* section of the TMDL Report highlights what can be done in the Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watersheds to eliminate or treat pollutant sources. Aside from PADEP's primary efforts to improve water quality in these watersheds through reclamation of abandoned mine lands and through the NPDES permit program, additional opportunities for reasonable assurance exist. PADEP expects that activities such as research conducted by its Bureau of Abandoned Mine Reclamation, funding from EPA's § 319 grant program, and Pennsylvania's Growing Greener program will help remedy abandoned mine drainage impacts. PADEP also has in place an initiative that aims to maximize reclamation of Pennsylvania's abandoned mineral extraction lands. Through Reclaim PA, Pennsylvania's goal is to accomplish complete reclamation of abandoned mine lands and plugging of orphaned wells. Pennsylvania strives to achieve this objective through legislative and policy land management efforts and activities described in the TMDL Report.

There is currently a watershed organization focused on the entire Nescopeck Creek Watershed, including Little Nescopeck Creek, UNT Little Nescopeck Creek, Black Creek, Stony Creek, and Cranberry Creek. The Friends of the Nescopeck is devoted to the protection and preservation of the entire Nescopeck Creek Watershed through public education, monitoring and assessment, and improvement projects.

8. The TMDLs have been subject to public participation.

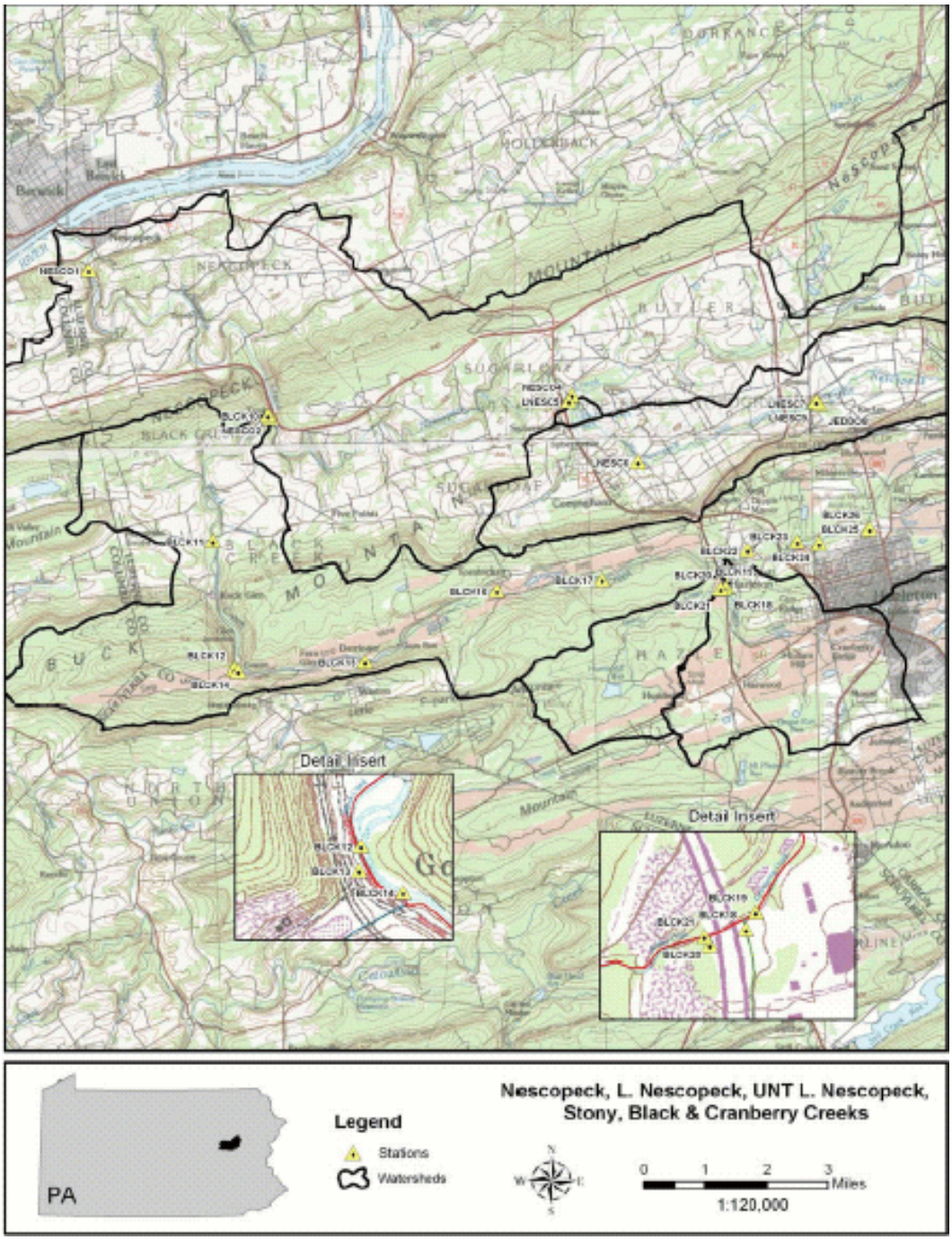
Public notice of the draft TMDL was published in the *Pennsylvania Bulletin* and *The Standard Speaker*, Hazleton, PA, to foster public comment on the calculated allowable loads. A public meeting was held on March 9, 2005, at the Freeland Borough Building to discuss the proposed TMDL.

One comment was received. The comment questioned the appropriateness of establishing a "natural net alkalinity level" for upper stream reaches not affected by mining activities. According to the comment, this approach assumes that upper stream reaches not affected by mining activities are pristine and ignores other impacts including atmospheric deposition. PADEP responded by stating that the methodology changed in 2004 and that the approach in question is no longer performed. The language was removed from the TMDL report.

Although not specifically stated in the TMDL Report, PADEP routinely posts the approved TMDL Reports on their web site: www.dep.state.pa.us/watermanagement_apps/tmdl/.

Attachment A

Black Creek, Little Nescopeck Creek, and UNT Little Nescopeck Creek Watershed Maps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Stations
Watersheds
Nescopeck, L. Nescopeck, UNT L. Nescopeck, Stony, Black & Cranberry Creeks
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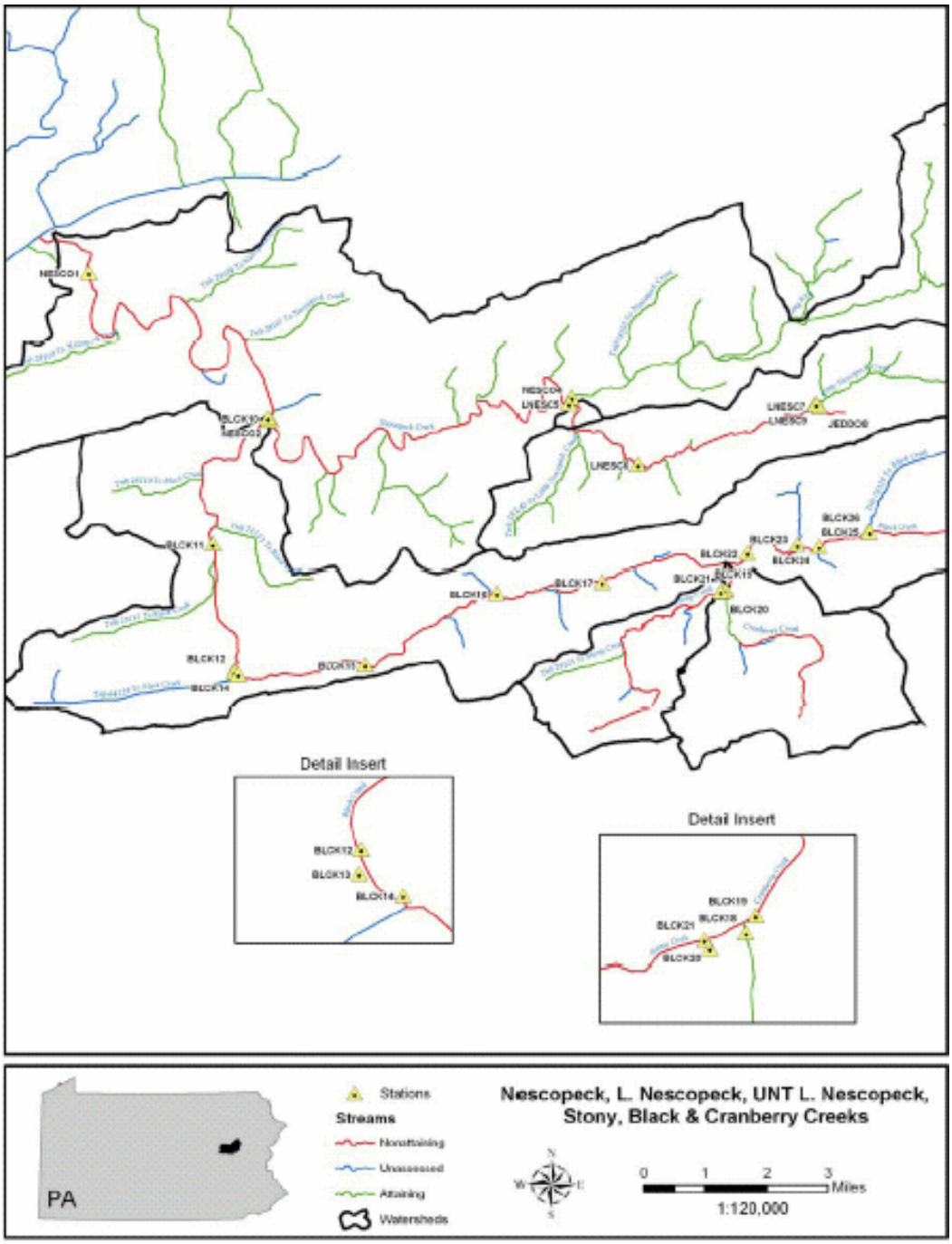
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Watersheds
Nescopeck, L. Nescopeck, UNT L. Nescopeck, Stony, Black & Cranberry Creeks
0 1 2 3 Miles
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