

INFORMATION SHEET

Proposed Total Maximum Daily Load (TMDL) for Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek Luzerne County, Pennsylvania

What is being proposed?

A TMDL plan to improve the quality of water in the Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek Watersheds.

Who is proposing the plan? To whom and why?

The Pennsylvania Department of Environmental Protection (DEP) is proposing to submit the plan to the U.S. Environmental Protection Agency (EPA) for review and approval as required by federal regulation.

In 1995, EPA was sued for not developing TMDLs when Pennsylvania failed to do so. DEP has entered into an agreement with EPA to develop TMDLs for certain specified waters over the next several years. This TMDL has been developed in compliance with the state/EPA agreement.

What is a TMDL?

A Total Maximum Daily Load (TMDL) sets a ceiling on the pollutant loads that can enter a water body so the water body will meet water quality standards. The Clean Water Act requires states to list all waters that do not meet their water quality standards even after pollution controls required by law are in place. For these waters, the state must calculate how much of a substance can be put in the water without violating the standard and distribute that quantity to all the sources of the pollutant on that water body. A TMDL plan includes waste load allocations for point sources, load allocations for nonpoint sources, and a margin of safety.

The Clean Water Act requires states to submit their TMDLs to EPA for approval. If a state does not develop the TMDL, the Clean Water Act states that EPA must do so.

What is a water quality standard?

The Clean Water Act sets a national minimum goal that all waters be “fishable” and “swimmable.” To support this goal, states must adopt water quality standards.

Water quality standards are state regulations that have two components. The first component is a designated use, such as “warm water fishes” or “recreation.” States must assign a use, or several uses, to each of their waters. The second component relates to the in-stream conditions necessary to protect the designated use(s). These conditions or “criteria” are numeric or narrative physical, chemical, or biological requirements, such as minimum levels of dissolved oxygen and maximum concentrations of toxic pollutants.

It is the combination of the “designated use” and the “criteria” to support that use that make up a water quality standard. If any criteria are being exceeded, then the use is not being met and the water is said to be in violation of water quality standards or impaired.

What is the purpose of the plan?

The Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek are impaired by metals specifically total iron, total manganese, and total aluminum, other inorganics and in some areas depressed pH. The plan includes a calculation for the loading of total iron, total manganese, total aluminum, and acid, a surrogate for pH, which will meet Pennsylvania water quality objectives.

Why did we choose the Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek Watershed?

In 1996 and 1998, DEP listed Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek under Section 303(d) of the Clean Water Act as having metals, pH and other inorganic impairments due to acid mine drainage.

What pollutants does this TMDL address?

The proposed plan provides calculations of Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek total capacity to accept acidity and metals to meet Pennsylvania water quality objectives.

Where do the pollutants come from?

As with all the anthracite fields in Pennsylvania, deep or underground mining was the primary means of mining the coal. These coal seams have been extensively mined since the early 1880s. Along with unregulated surface mining, the natural surface and surface drainage has been destroyed and replaced with flooded deep mine workings.

How was the TMDL developed?

Monte Carlo simulation techniques were used to determine the long-term average daily loads that a stream segment could accept and still meet water quality criteria 99% of the time. Monte Carlo simulation allows for the expansion of a data set based on its statistical makeup. Since there was no one critical flow condition where criteria were exceeded, the 50th percentile flow value was used to weight the pollutant concentrations. All analyses were started at the headwaters of each stream segment.

How much pollution is too much?

The allowable amount of pollution in a stream varies depending on several conditions. TMDLs are set to meet water quality standards at the defined critical flow condition. If there is more than one critical flow condition, the TMDL must be constructed to meet water quality criteria at all flow conditions. This is the case in the Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek. For this reason, the long-term average daily load values that will meet water quality criteria 99% of the time were used as the basis for the TMDL.

The applicable water quality criteria for pH are dependent on the alkalinity present in-stream. A balance between the in-stream acidity and alkalinity is necessary so that a minimum net alkalinity of zero is maintained in-stream 99% of the time. For a given stream segment, the in-stream alkalinity was used as a surrogate for pH. Because different segments had different amounts of in-stream alkalinity, the water quality standard for pH varied from segment to segment.

The applicable water quality criteria for metals are a daily average of 1.5 mg/l total iron, a one hour maximum of 0.75 mg/l total aluminum, and a maximum of 1.0 mg/l total manganese.

What is the TMDL for Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek?

A TMDL consists of a load allocation (LA) for non-point sources, a wasteload allocation (WLA) for point sources, and a Margin of Safety. LAs are calculated for a stream segment at the most downstream station of the segment. In terms of the TMDL, a segment is defined as a section of the stream measured from a downstream station to the next upstream station(s). WLAs are assigned to the NPDES permitted discharges within the stream segment. For these TMDLs the Margin of Safety is included in the results calculated from the modeling through conservative assumptions. Following is a table containing the calculated TMDLs. Refer to the maps in Attachment A of the report for station locations.

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$

	Parameter	WLA	LA	MOS	TMDL
		lbs/day	lbs/day		lbs/day
BLCK26					
	Al	0.0	3.13	*	3.13
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	1.31	*	1.31
BLCK25					
	Al	0.0	0.90	*	0.90
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	2.48	*	2.48
BLCK24					
	Al	0.0	5.34	*	5.34
	Fe	0.0	16.54	*	16.54
	Mn	0.0	ND	*	ND
	Acidity	0.0	24.91	*	24.91
BLCK23					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND

	Mn	0.0	ND	*	ND
	Acidity	0.0	16.41	*	16.41
BLCK22					
	Al	0.0	9.68	*	9.68
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	69.84	*	69.84
BLCK21					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	12.77	*	12.77
BLCK20					
	Al	0.0	1.47	*	1.47
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	0.90	*	0.90
BLCK18					
	Al	0.0	1.96	*	1.96
	Fe	0.0	3.41	*	3.41
	Mn	0.0	ND	*	ND
	Acidity	0.0	19.25	*	19.25
BLCK19					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	13.37	*	13.37
BLCK17					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND
BLCK16					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND
BLCK15					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND

BLCK14					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND
BLCK13					
	Al	0.0	20.67	*	20.67
	Fe	0.0	ND	*	ND
	Mn	0.0	26.77	*	26.77
	Acidity	0.0	0.00	*	0.00
BLCK12					
	Al	0.0	173.06	*	173.06
	Fe	0.0	ND	*	ND
	Mn	0.0	241.81	*	241.81
	Acidity	0.0	389.98	*	389.98
BLCK11					
	Al	0.0	324.68	*	324.68
	Fe	0.0	ND	*	ND
	Mn	0.0	448.23	*	448.23
	Acidity	0.0	607.81	*	607.81
BLCK10					
	Al	0.0	366.86	*	366.86
	Fe	0.0	ND	*	ND
	Mn	0.0	450.35	*	450.35
	Acidity	0.0	555.82	*	555.82
LNESC9					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND
JEDDO8					
	Al	0.0	244.44	*	244.44
	Fe	0.0	475.74	*	475.74
	Mn	0.0	317.69	*	317.69
	Acidity	0.0	0.00	*	0.00
LNESC7					
	Al	0.0	252.91	*	252.91
	Fe	0.0	515.56	*	515.56
	Mn	0.0	349.84	*	349.84
	Acidity	0.0	0.00	*	0.00
LNESC6					
	Al	0.0	262.38	*	262.38

	Fe	0.0	546.60	*	546.60
	Mn	0.0	339.01	*	339.01
	Acidity	0.0	27.59	*	27.59
LNESC5					
	Al	0.0	275.76	*	275.76
	Fe	0.0	530.72	*	530.72
	Mn	0.0	348.82	*	348.82
	Acidity	0.0	58.61	*	58.61
NESCO4					
	Al	0.0	ND	*	ND
	Fe	0.0	ND	*	ND
	Mn	0.0	ND	*	ND
	Acidity	0.0	ND	*	ND
NESCO2					
	Al	0.0	572.99	*	572.99
	Fe	0.0	ND	*	ND
	Mn	0.0	705.96	*	705.96
	Acidity	0.0	744.03	*	744.03
NESCO1					
	Al	0.0	914.93	*	914.93
	Fe	0.0	ND	*	ND
	Mn	0.0	1127.30	*	1127.30
	Acidity	0.0	1564.24	*	1564.24

* Implicit MOS

ND = non detection

How will these limits be met?

A remediation plan will need to be developed for the Black Creek, Little Nescopeck Creek and UNT Little Nescopeck Creek in order to meet the water quality objectives outlined in this report.

How can I get more information on the TMDL?

The TMDL can be accessed through the DEP Website (<http://www.dep.state.pa.us>) by typing "TMDL" in the DEP Keyword field, and clicking GO. The data and all supporting information used to develop the proposed TMDL are available from the Department. To request a copy of the proposed TMDL contact;

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Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users) and request that the call be relayed.

How can I comment on the proposal?

A public comment period on this TMDL will be open from February 21 until April 21, 2005. A public meeting will be held March 9, 2005 at Freeland Borough Building in Freeland to discuss the draft TMDL. The Department will respond to questions at the meeting. Written comments will also be accepted and must be received no later than the closing date of the comment period to the above address. Directions to the meeting location can also be obtained by contacting this address. Comments will not be accepted by facsimile or voice mail.