Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0221902**
Facility Type	**Industrial**	APS ID	**1076642**
Major / Minor	**Minor**	Authorization ID	**1419261**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Matson Lumber Co.**	Facility Name	**Matson Lumber Corsica Plant**
Applicant Address	132 Main Street	Facility Address	Sr 332
	Brookville, PA 15825-1213		Brookville, PA 15825
Applicant Contact	Burt Craig	Facility Contact	Bill Pierce
Applicant Phone	(814) 849-5334	Facility Phone	(814) 379-3738
Client ID	6605	Site ID	538646
SIC Code	0831,2499	Municipality	Union Township
SIC Description	Agriculture - Forest Products,Manufacturing - Wood Products, Nec	County	Jefferson
Date Application Received	November 21, 2022	EPA Waived?	No
Date Application Accepted	March 19, 2025	If No, Reason	, DEP Discretion
Purpose of Application	NPDES Renewal.		

Summary of Review

Matson Lumber Co. (Matson) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on November 16, 2017 and became effective on December 1, 2017. The permit expired on November 30, 2022.

Based on the review, it is recommended that the permit be drafted.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	March 28, 2025
		Adam Olesnanik, P.E. / Environmental Engineer Manager	Okay to Draft JCD 4/4/2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0001
Latitude	41º 10' 56"	Longitude	79º 11' 16"
Quad Name	Corsica	Quad Code	0912
Wastewater Description:	Boiler Blowdown and Stormwater		
Receiving Waters	UNT of Little Mill Creek	Stream Code	49774
NHD Com ID	102670305	RMI	--
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	17-B	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Abandoned Mine Drainage		
TMDL Status	Final, Final	Name	Mill Creek (Clarion)
Nearest Downstream Public Water Supply Intake	PA American Water Company – Clarion		
PWS Waters	Clarion River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	12

Outfall No.	003	Design Flow (MGD)	0
Latitude	41º 10' 46"	Longitude	79º 11' 10"
Quad Name	Corsica	Quad Code	0912
Wastewater Description:	Stormwater		
Receiving Waters	Coder Run	Stream Code	96292
NHD Com ID	123855761	RMI	5.2
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	17-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Abandoned Mine Drainage, Abandoned Mine Drainage		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Hawthorne Area Water Authority		
PWS Waters	Redbank Creek	Flow at Intake (cfs)	
PWS RMI	27.9	Distance from Outfall (mi)	24.8

Treatment Facility Summary				
Treatment Facility Name: Matson Lumber Corsica Plant				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Primary	Sedimentation Tanks	No Disinfection	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**

Matson is a wood product manufacturing company (SIC code: 2421: lumber and wood products) where sawn lumber from various sources is trucked to the site prior to being kiln dried to a moisture content of 6 to 8 percent. Once dried, the lumber is graded and sorted into packages for final products. Drying occurs in kiln is done via a wood waste boiler and two (2) gas fired boilers. Boiler blow-down is generated and collected in one of three (3) settling basins in which stormwater drained from this site is also collected in these basins. Flow from Settling Basin no. 1 (boiler blow-down and stormwater) discharges into an unnamed tributary of Little Mill Run and flow from Settling Basin no. 3 (stormwater) discharges into Coder Run (Basin No. 2 discharges into Basin no. 3). Very small amount of boiler blow-down is generated; according to the application, about 0.0001 MGD of boiler blow-down is generated (2 discharge cycles per day and 0.08 hrs per each discharge cycle with 7 days operation).

Compliance History

Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	7/19/2022: DEP conducted a routine inspection and determined that the facility failed to submit an annual stormwater monitoring report which was considered a permit violation.
Other Comments:	Since the last permit reissuance, there were a number of permit violations identified. These violations are shown below.

Outfall	Date	Description	Parameter	Results	Limits	Units	SBC
	1/30/2018	Late DMR Submission					
001	1/30/2018	Violation of permit condition	Total Suspended Solids	94	30	mg/L	Average Monthly
003	1/30/2018	Sample collection less frequent than required	Flow				
	7/31/2018	Late DMR Submission					
001	7/15/2019	Violation of permit condition	pH	9.22	9	S.U.	Instantaneous Maximum
001	12/26/2019	Violation of permit condition	Total Suspended Solids	54	30	mg/L	Semi-Annual Average
	8/10/2020	Late DMR Submission					
	2/4/2021	Late DMR Submission					
001	7/27/2021	Violation of permit condition	pH	9.3	9	S.U.	Instantaneous Maximum
	2/1/2022	Late DMR Submission					
001	2/1/2022	Violation of permit condition	Total Suspended Solids	31	30	mg/L	Semi-Annual Average
	8/8/2022	Late DMR Submission					
	2/9/2023	Late DMR Submission					
	7/31/2023	Late DMR Submission					
	2/27/2024	Late DMR Submission					
	1/31/2025	Late DMR Submission					

DEP's database shows there are a number of pending violations identified by DEP NWRO Air Quality Program. A draft permit cover letter will indicate that the permit may not be finalized until all pending violations are resolved and closed.

Effluent Data

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Daily Average								0.005				
pH (S.U.) Minimum								7.60				
pH (S.U.) Instantaneous Maximum								7.60				
COD (mg/L) Daily Maximum								< 50				
TSS (mg/L) Semi-Annual Average								12.0				
TSS (mg/L) Daily Maximum								12.0				
Oil and Grease (mg/L) Semi-Annual Average								< 5.4				
Oil and Grease (mg/L) Daily Maximum								< 5.4				

DMR Data for Outfall 003 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Daily Average								0.005				
pH (S.U.) Daily Maximum								8.03				
COD (mg/L) Daily Maximum								< 50				
TSS (mg/L) Daily Maximum								9				

Existing Effluent Limits and Monitoring Requirements

A table below summarizes effluent limits and monitoring requirements identified in the existing NPDES permit.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
Outfall 001	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report Daily Avg	XXX	XXX	XXX	XXX	XXX	1/6 months	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	30	100	100	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	1/6 months	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
Outfall 003	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report Daily Avg	XXX	XXX	XXX	XXX	XXX	1/6 months	Estimate
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0001
Latitude 41º 10' 56.00" **Longitude** -79º 11' 16.00"
Wastewater Description: Noncontact Cooling Water (NCCW), Stormwater

Outfall No. 003 **Design Flow (MGD)** 0
Latitude 41º 10' 46.00" **Longitude** 79º 11' 10.00"
Wastewater Description: Stormwater

Technology-Based Limitations

Any industrial wastewater facilities are generally regulated by effluent standards found in 25 Pa. Code §§ 92a.48 and 95.2. These standards are as follows:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
ELGs			40 CFR § 430.00	25 Pa. Code § 92a.48(a)(1)
pH	6.0 – 9.0 (S.U.)	Minimum – Maximum	-	25 Pa. Code § 95.2 (1)
Oil and Grease	15	Average Monthly	-	25 Pa. Code § 95.2 (2)(ii)
	30	Daily Maximum		25 Pa. Code § 95.2 (2)(ii)
Total Residual Chlorine	0.5	Average Monthly	-	25 Pa. Code § 92a.48(b)(2)

According to the EPA's most recent Effluent Guidelines Plan, facilities under the SIC Code 24 are subject to the federal ELGs for timber products processing (i.e., 40 CFR § 429.00). However, no Effluent Limitation Guidelines (ELGs) are applicable since the facility does not discharge process wastewater as defined in 40 CFR § 429.11(c) and there are no ELGs for the stormwater. Also, since the facility does not use chlorine, total residual chlorine (TRC) effluent limitation is not applicable. Effluent may contain Oil and Grease potentially given industrial activities conducted at the site; therefore, effluent limits for Oil and Grease will continue to be included in the permit.

In general, temperature requirements are imposed in the NPDES permit for heated wastewater (cooling water) discharges from industrial facilities. However, considering the quantity and frequency of cooling water discharges, temperature is not a parameter of concern. A significant cooling is also expected in the existing settling basin.

Water Quality-Based Limitations

During the last permit renewal, DEP has determined not to conduct a reasonable potential analysis due to the minimal amount of boiler blowdown generated and low probability of the ponds (basins) discharging in low flow conditions/dry weather. Based on a review of past DMRs since 2020, the facility has been reporting 5,000 GPD as the effluent volume estimated to be discharged from Basin No. 1 and the pending renewal application reported 0.0001 MGD (100 GPD) as the average flow rate for boiler blowdown discharge. Given that the very low volume of blowdown is generated and very low volume of effluent from Basin no. 1 is discharged, it is reasonable to continue to not conducting a reasonable potential analysis.

Best Professional Judgment (BPJ) Limitations

Total Suspended Solids effluent limits were previously developed on a case by case basis using BPJ. DEP has determined that these effluent limits are still adequate for water quality protection. The facility has previously had a number of effluent violations associated with the average monthly TSS effluent limit. These limits will still remain unchanged in the permit to ensure that existing water quality of the receiving stream is maintained.

Additional Considerations

The volume of the effluent discharged from Outfall 001 must be monitored per 40 CFR § 122.44(i)(1)(ii).

The receiving stream, Little Mill Creek, is impaired for metals as a result of acid mine drainage. DEP developed the TMDL to address this impairment for Little Mill Creek watershed and finalized on October 25, 2005. Also, DEP developed the TMDL to address this impairment for the entire Mill Creek watershed (which includes Coder Run) and finalized on March 10, 2009. These TMDLs however do not list a wasteload allocation for this facility. Previously, DEP determined that no monitoring is needed for metals as previous sample showing concentrations of metals present at levels less than DEP's water quality criteria. This is a reasonable approach as there is no source of metals appeared to be identified for this facility and very low volume of blowdown is generated that is collected in a settling basin in which later a low volume of effluent is discharged from the basin, if any. Therefore, the TMDL has not been taken into consideration at this time.

There are five (5) chemical additives know to be present in the effluent according to the pending renewal application. It appears these chemical additives have already been reviewed by DEP during past renewals and determined that there are no issues utilizing these chemical additives and no change in quantity is identified. These chemical additives are:

1. SLT-400: Steam line Treatment Chemical
2. OS-10: Oxygen Scavenger
3. BWT-60: Water Treatment Chemical
4. DSP-80: Corrosion inhibitor
5. AF-110: Anti-foaming agent

DEP has determined that it is acceptable to utilize these chemical additives at the approved rate. Part C condition will be included in the permit to require the permittee to notify DEP in case new chemical additive or increased rate of the approved chemical additive is proposed.

For stormwater, the appendix of the NPDES PAG-03 General Permit is generally considered for individual industrial stormwater permits. Accordingly, the requirements of Appendix D of the current NPDES PAG-03 General Permit will be included in the permit based on BPJ, except for Pentachlorophenol, Total Arsenic, Total Chromium, and Total Copper since there is no chemical formulation for treating timber is not used at this facility. TN and TP will be newly included in Outfall 001 and Outfall 003 which is the requirement of Appendix D of the current NPDES PAG-03 General Permit. The Part C condition of the existing permit contains benchmark values for TSS and COD which is also the requirement of Appendix D of the General Permit. These Benchmark values will continue to be included in the permit. The requirement to estimate the flow for stormwater outfall (Outfall 003) will be removed from the permit as the effluent volume highly varies depending on precipitation rate.

All monitoring frequencies and sample types will remain unchanged in the permit.

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/6 months	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	30.0	100.0	100	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	15.0	20.0	30	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Table 2 Applicable Water Quality Criteria

Parameter	*Criterion Value (mg/l)*	*Total Recoverable/Dissolved*
Aluminum (Al)	0.75	Total Recoverable
Iron (Fe)	1.50 0.3	Total Recoverable Dissolved
Manganese (Mn)	1.00	Total Recoverable
pH *	6.0-9.0	N/A

*The pH values shown will be used when applicable. In the case of freestone streams with little or no buffering capacity, the TMDL endpoint for pH will be the natural background water quality. These values are typically as low as 5.4 (Pennsylvania Fish and Boat Commission).

TMDL Elements (WLA, LA, MOS)

A TMDL equation consists of a wasteload allocation, load allocation and a margin of safety. The wasteload allocation is the portion of the load assigned to point sources. The load allocation is the portion of the load assigned to nonpoint sources. The margin of safety is applied to account for uncertainties in the computational process. The margin of safety may be expressed implicitly (documenting conservative processes in the computations) or explicitly (setting aside a portion of the allowable load).

TMDL Allocations Summary

Analyses of data for metals for points LMC02 and UNT07 indicate that there is no single critical flow condition for pollutant sources, and further, that there was no significant correlation between source flows and pollutant concentrations (Table 3). The other points in this TMDL and aluminum at LMC02 and UNT07 did not have enough paired flow/parameter data to calculate correlations (fewer than 15 paired observations).

Table 3 Correlation Between Metals and Flow for Selected Points

Point Identification	*Flow vs.*			*Number of Samples*
	Iron	*Manganese*	*Aluminum*	
LMC02	0.049	0.046	*	13
UNT07	0.016	0.001	*	Fe = 67 Mn = 56

*Not enough paired data available.

Allocation Summary

This TMDL will focus remediation efforts on the identified numerical reduction targets for each watershed. As changes occur in the watershed, the TMDL may be re-evaluated to reflect current conditions. Table 5 presents the estimated reductions identified for all points in the watershed. Attachment F gives detailed TMDLs by segment analysis for each allocation point.

Table 4. Summary Table–Little Mill Creek Watershed

Station	Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction %
UNT01	UNT01 (49727) Headwaters of Little Mill Creek						
	Al	ND	NA	-	-	0.0	0
	Fe	0.2	0.2	0.0	0.0	0.0	0
	Mn	ND	NA	-	-	0.0	0
	Acidity	5.0	1.6	0.0	1.6	3.4	68
HWLMC	HWLMC Unnamed Tributary (49749) of Little Mill Creek						
	Al	ND	NA	-	-	0.0	0
	Fe	ND	NA	-	-	0.0	0
	Mn	0.7	0.2	0.0	0.2	0.51	63
	Acidity	9.9	3.8	0.0	3.8	6.1	62
UNT01A	UNT01A Low Flow Unnamed Tributary (49750) to Little Mill Creek Downstream of UNT01						
	Al	ND	NA	-	-	0.0	0
	Fe	ND	NA	-	-	0.0	0
	Mn	0.01	0.01	0.0	0.01	0.0	0
	Acidity	1.6	0.4	0.0	0.4	0.1	25
LMC01AE	LMC01AE (49727)Little Mill Creek						
	Al	ND	NA	-	-	0.0	0
	Fe	ND	NA	-	-	0.0	0
	Mn	0.4	0.4	0.0	0.4	0.0	0
	Acidity	31.3	13.1	0.0	13.1	17.0	56
LMC01ASA2	LMC01ASA2 Eastern Unnamed Tributary (49745) Upstream of LMC01ASA						
	Al	6.2	0.9	0.0	0.9	5.3	85
	Fe	ND	NA	-	-	0.0	0
	Mn	70.8	2.8	0.0	2.8	68.0	96
	Acidity	251.0	17.6	0.0	17.6	233.4	93
LMC01ASA1	LMC01ASA1 Southern Unnamed Tributary (49746) Upstream of LMC01ASA						
	Al	ND	NA	-	-	0.0	0
	Fe	ND	NA	-	-	0.0	0
	Mn	15.2	0.9	0.0	0.9	14.3	94
	Acidity	44.1	5.7	0.0	5.7	38.4	87
LMC01ASA	LMC01ASA Unnamed Tributary (49745) to Unnamed Tributary (49744) to Little Mill Creek						
	Al	9.0	1.3	0.0	1.3	1.6	57
	Fe	ND	NA	-	-	0.0	0
	Mn	110.2	5.5	0.0	5.5	22.4	80
	Acidity	327.8	29.5	0.0	29.5	26.4	47
UNT02A	UNT02A Unnamed Tributary (49743) to Little Mill Creek Upstream of LMC01						
	Al	ND	NA	*0.03	-	0.0	0
	Fe	ND	NA	*0.05	-	0.0	0
	Mn	13.2	3.6	*0.03	3.57	9.6	73
	Acidity	ND	NA	-	-	0.0	0
UNT03	UNT03 Unnamed Tributary (49743) to Little Mill Creek Upstream of LMC01						
	Al	0.1	0.02	0.0	0.02	0.08	83
	Fe	2.5	0.02	0.0	0.02	2.48	99
	Mn	2.3	0.05	0.0	0.05	2.25	98
	Acidity	7.8	1.8	0.0	1.8	6.0	77
LMC01	Little Mill Creek						
	Al	8.6	3.2	*0.03	3.17	0.0	0
	Fe	47.7	9.5	*0.05	9.45	38.2	79

Station	Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction %
	Mn	143.9	8.6	*0.03	8.57	18.7	68
	Acidity	525.4	68.3	0.0	68.3	134.7	66
UNT05	UNT05 Unnamed Tributary (49742) to Little Mill Creek Upstream of LMC02						
	Al	1.7	0.3	0.0	0.27	1.4	84
	Fe	29.5	0.3	0.0	0.25	29.2	99
	Mn	30.8	0.6	0.0	0.57	30.2	98
	Acidity	176.6	0.5	0.0	0.5	176.1	99.7
LMC02	Little Mill Creek						
	Al	8.3	2.1	0.0	2.1	0.7	26
	Fe	42.9	7.3	0.0	7.3	0.0	0
	Mn	138.9	6.9	0.0	6.9	0.4	6
	Acidity	702.9	21.1	0.0	21.1	48.8	70
UNT06	UNT06 Unnamed Tributary (49741) to Little Mill Creek Downstream of LMC02						
	Al	ND	NA	*0.03	-	0.0	0
	Fe	3.0	1.0	*0.05	0.95	2.0	67
	Mn	4.0	0.4	*0.03	0.37	3.6	89
	Acidity	18.8	4.7	0.0	4.7	14.1	75
UNT07	UNT07 Unnamed Tributary (49740) to Little Mill Creek Upstream of LMC03						
	Al	8.8	0.9	0.22	0.68	7.9	90
	Fe	25.3	0.8	0.33	0.47	24.5	97
	Mn	25.9	0.8	0.22	0.58	25.1	97
	Acidity	197.5	3.9	0.0	3.9	193.6	98
LMC03	Little Mill Creek						
	Al	12.9	4.5	0.0	4.5	0.0	0
	Fe	47.2	19.4	0.0	19.4	0.0	0
	Mn	218.0	10.9	0.0	10.9	46.5	81
	Acidity	1077.0	86.2	0.0	86.2	101.3	54
UNT08C	UNT08C Southern Unnamed Tributary (49737) to Little Mill Creek						
	Al	2.6	1.1	0.001	1.099	1.5	56
	Fe	3.0	3.0	0.06	2.94	0.0	0
	Mn	74.9	4.5	0.04	4.46	70.4	94
	Acidity	334.6	33.5	0.0	33.5	301.1	86
UNT08B	UNT08B Eastern Unnamed Tributary (49739) to Unnamed Tributary (49737) Upstream of UNT08						
	Al	ND	NA	-	-	0.0	0
	Fe	ND	NA	-	-	0.0	0
	Mn	0.4	0.2	0.0	0.2	0.2	58
	Acidity	9.1	1.5	0.0	1.5	7.6	84
UNT08	UNT08 Unnamed Tributary (49737) to Little Mill Creek, Downstream from LMC03						
	Al	3.8	1.2	0.0	1.2	1.1	48
	Fe	3.1	3.1	0.0	3.1	0.0	0
	Mn	62.1	3.1	0.0	3.1	3.1	19
	Acidity	279.1	25.14	0.0	25.1	3.2	11
UNT09	UNT09 Unnamed Tributary (49736) to Little Mill Creek, Downstream of UNT08						
	Al	2.7	0.1	0.0	0.1	2.6	95
	Fe	0.05	0.05	0.0	0.05	0.0	0
	Mn	4.2	0.1	0.0	0.1	4.1	97
	Acidity	35.6	1.4	0.0	1.4	34.2	96
LMC04	Little Mill Creek						
	Al	36.0	13.3	0.0	13.3	9.2	41

Station	Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction %
	Fe	44.4	29.3	0.0	29.3	0.0	0
	Mn	406.4	20.3	0.0	20.3	115.8	85
	Acidity	1794.7	107.7	0.0	107.7	408.1	79
UNT10	UNT10 Unnamed Tributary (49734) to Little Mill Creek Downstream of LMC04						
	Al	36.9	1.5	0.14	1.36	34.4	96
	Fe	39.6	1.2	0.21	0.99	38.4	97
	Mn	53.6	2.1	0.14	1.96	51.5	96
	Acidity	488.5	4.9	0.0	4.9	483.6	99
LMC05	Little Mill Creek						
	Al	78.3	14.1	0.0	14.1	6.1	30
	Fe	188.4	17.0	0.0	17.0	118.0	87
	Mn	425.5	21.3	0.0	21.3	0.0	0
	Acidity	2227.1	111.4	0.0	111.4	0.0	0
UNT12	UNT12 Unnamed Tributary (49733) to Little Mill Creek Downstream of LMC05						
	Al	3.7	0.1	0.0	0.1	3.6	96
	Fe	0.4	0.1	0.0	0.1	0.3	60
	Mn	2.0	0.2	0.0	0.2	1.8	90
	Acidity	33.9	0.0	0.0	0.0	33.9	100
UNT12B	UNT12B Unnamed Tributary to Little Mill Creek Downstream of UNT12						
	Al	2.8	0.08	0.0	0.08	2.72	97
	Fe	0.2	0.1	0.0	0.1	0.1	56
	Mn	1.7	0.14	0.0	0.14	1.56	92
	Acidity	29.6	0.0	0.0	0.0	29.6	100
UNT13	UNT13 Unnamed Tributary (49732) to Little Mill Creek Downstream of UNT12B						
	Al	ND	NA	-	-	0.0	0
	Fe	4.8	0.2	0.0	0.2	4.6	95
	Mn	3.6	0.17	0.0	0.17	3.43	95
	Acidity	36.2	0.0	0.0	0.0	36.2	100
LMC06	Little Mill Creek at Confluence with Mill Creek						
	Al	79.1	14.2	0.0	14.2	0.0	0
	Fe	202.8	26.4	0.0	26.4	0.1	0.004
	Mn	471.4	23.6	0.0	23.6	36.8	61
	Acidity	3041.7	60.8	0.0	60.8	765.4	93

*The MSM Mining Co. treatment systems MSMT1, MSMT2 and MSMT3 are not all in operation at the same time. As mining proceeds treatment system are built, used and removed. By fall of 2005 treatment system MSMT1 is no longer used and has been removed. The MSMT2 is now built and ready for use. MSMT3 will be used in the future. As these treatment systems are built and used the WLA moves from one treatment system to another and one of three sample points are affected by the WLA in turn. MSMT1 affected a UNT that is not on our GIS system but is upstream of UNT06. The MSMT2 treatment system also discharges to a UNT that is not on our GIS system but is upstream of sample point LMC01. Treatment system MSMT3 will discharge upstream of sample point UNT02A. See Table on page 20 for the sample point affected by the WLAs.

All waste load allocations were calculated using the methodology explained previously in the Method to Quantify Treatment Pond Pollutant Load section of the report.

Waste allocations for the existing mining operation were incorporated into the calculations at UNT02A, LMC01, LMC02, UNT07, UNT08C, and UNT10. These are the first downstream monitoring points that receive all the potential flow of treated water from the five treatment sites MSMT3, MSMT2, MSMT1, C&KD7, SHC006 and SHC005. No required reductions of these permits are necessary at this time because there are upstream non-point sources that when reduced will met the TMDL or there is available assimilation capacity. All necessary reductions are assigned to non-point sources.

Although a TMDL for aluminum is not necessary at LMC01 because the water quality standard is met, WLAs are assigned to the MSMT2 discharge of the MSM Coal Co. permit. Because the standard is met for aluminum at LMC01, the actual allowed load is the water quality standard times the flow and a conversion factor at the points. For LMC01 this equals 32.69 lbs/day for aluminum. The aluminum WLAs of 0.03 lbs/day for the above segment is acceptable and will not have a negative impact on water quality within the segments.

The MSM Coal Co., Inc Songer Monks Mine (SMP#33040102, NPDES No. PA 0242519) has a non-standard pit size of 100 feet in length and a width of 200 feet. This pit size was used in the Method to Quantify Treatment Pond Pollutant Load calculation as shown below:

40 in. precip./yr x 1 ft/12/in. x 100'x 200'/pit x 7.48 gal/ft3 x 1yr/365days x 1day/24hr. x 1hr/60mins. = 0.95 gal/min average discharge from direct precipitation into the open mining pit area.

40 in. precip./yr x 3 pit areas x 1 ft/12/in. x 100'x 200'/pit x 7.48 gal/ft3 x 1yr/365days x 1day/24hr. x 1hr/60mins. x 15 in. runoff/100 in. precipitation = 0.43 gal/min average discharge from spoil runoff into the pit area.

The total average flow to the pit is represented by the sum of the direct pit precipitation and the water flowing to the pit from the spoil area as follows:

Total Average Flow = Direct Pit Precipitation + Spoil Runoff

Total Average Flow = 0.95 gal./min. + 0.43 gal./min. = 1.38 gal./min.

The resulting average load from a permitted treatment pond area as follows.

Allowable Iron Waste Load Allocation:
1.38 gal./min. x 3 mg/l x 0.01202 = 0.05 lbs./day

Allowable Manganese Waste Load Allocation:
1.38 gal./min. x 2 mg/l x 0.01202 = 0.03 lbs./day

Allowable Aluminum Waste Load Allocation:
1.38 gal./min. x 2 mg/l x 0.01202 = 0.03 lbs./day

The C&K Coal Co. is treating a post mining discharge that is noted as D7, (C&KD7 on the map) flow data from 1996 to 2005 was available (average flow at D7 is 9.28 gpm). This flow data is available at the end of Attachment F. This flow data was used to calculate the WLAs for iron, manganese and aluminum. See table 5 below.

The Sky Haven Co., Inc Corsica Mine (a Subchapter F remining permit SMP#16990105, NPDES No. PA 0241661) has two non-standard pit sizes Pit 1 is 250 feet in length and a width of 100 feet and Pit 2 is 835 feet in length with a width of 100 feet. Treatment plant SHC006 is associated with Pit 1 and treatment plant SHC005 is associated with Pit 2. These pit sizes were used in the Method to Quantify Treatment Pond Pollutant Load calculation and the results are shown in Table 5. For aluminum the instream concentration was 0.55 mg/l exceeded the instream criteria, so in order to protect this unnamed tributary from aluminum degradation, treatment facility SHC1 had been assigned an effluent limit of 0.6 mg/l. This treatment facility still exists, however, mining has been completed on this part of the site. Mining on the part of the site that discharges to SHC2 is expected to be completed by fall of 2005.

Table 5. Waste Load Allocation of Permitted Discharges

Parameter	Allowable Average Monthly Conc. (mg/l)	Calculated Average Flow (MGD)	WLA (lbs/day)
MSMT1	UNT not on GIS, upstream of UNT06		
Al	2.0	0.0019	0.03
Fe	3.0	0.0019	0.05
Mn	2.0	0.0019	0.03
MSMT2	UNT not on GIS, upstream of LMC01		
Al	2.0	0.0019	0.03
Fe	3.0	0.0019	0.05
Mn	2.0	0.0019	0.03
MSMT3	UNT02A		
Al	2.0	0.0019	0.03
Fe	3.0	0.0019	0.05
Mn	2.0	0.0019	0.03
C&KD7	UNT07		
Al	2.0	0.013	0.22
Fe	3.0	0.013	0.33
Mn	2.0	0.013	0.22
SHC006	UNT08C		
Al	0.6	0.0024	0.001
Fe	3.0	0.0024	0.06
Mn	2.0	0.0024	0.04
SHC005	UNT10		
Al	2.0	0.0083	0.14
Fe	3.0	0.0083	0.21
Mn	2.0	0.0083	0.14

The MSM Mining Co. treatment systems MSMT1, MSMT2 and MSMT3 are not all in operation at the same time. As mining proceeds treatment system are built, used and removed. By fall of 2005 treatment system MSMT1 is no longer used and has been removed. The MSMT2 is now built and ready for use. MSMT3 will be used in the future. As these treatment systems are built and used the WLA moves from one treatment system to another and one of three sample points are affected by the WLA in turn. MSMT1 affected a UNT that is not on our GIS system but is upstream of UNT06. The MSMT2 treatment system also discharges to a UNT that is not on our GIS system but is upstream of sample point LMC01. Treatment system MSMT3 will discharge upstream of sample point UNT02A

Note for the two treatment plants that are part of the Sky Haven Coal permit number 16990105. The SHC006 treatment plant is still in place but not in operation because mining has been completed on this part of the site. Mining is expected to be completed on the remaining part of the site that is treated by SHC 005 by fall of 2005.

Recommendations

Two primary programs that provide reasonable assurance for maintenance and improvement of water quality in the watershed are in effect. The PADEP's efforts to reclaim abandoned mine lands, coupled with its duties and responsibilities for issuing NPDES permits, will be the focal points in water quality improvement.

Additional opportunities for water quality improvement are both ongoing and anticipated. Historically, a great deal of research into mine drainage has been conducted by PADEP's Bureau of Abandoned Mine Reclamation, which administers and oversees the Abandoned Mine Reclamation Program in Pennsylvania, the United States Office of Surface Mining, the National Mine Land Reclamation Center, the National Environmental Training Laboratory, and many other agencies and individuals. Funding from EPA's 319 Grant program, and Pennsylvania's Growing Greener program have been used extensively to remedy mine drainage impacts. These many activities are expected to continue and result in water quality improvement.

The PA DEP Bureau of Mining and Reclamation administers an environmental regulatory program for all mining activities, mine subsidence regulation, mine subsidence insurance, and coal refuse disposal; conducts a program to ensure safe underground bituminous mining and protect certain structures form subsidence; administers a mining license and permit program; administers a regulatory program for the use, storage, and handling of explosives; provides for training, examination, and certification of applicants for blaster's licenses; and administers a loan program for bonding anthracite underground mines and for mine subsidence. Administers the EPA Watershed Assessment Grant Program, the Small Operator's Assistance Program (SOAP), and the Remining Operators Assistance Program (ROAP).

Mine reclamation and well plugging refers to the process of cleaning up environmental pollutants and safety hazards associated with a site and returning the land to a productive condition, similar to DEP's Brownfields program. Since the 1960's, Pennsylvania has been a

national leader in establishing laws and regulations to ensure reclamation and plugging occur after active operation is completed.

Pennsylvania is striving for complete reclamation of its abandoned mines and plugging of its orphaned wells. Realizing this task is no small order, DEP has developed concepts to make abandoned mine reclamation easier. These concepts, collectively called Reclaim PA, include legislative, policy land management initiatives designed to enhance mine operator, volunteer land DEP reclamation efforts. Reclaim PA has the following four objectives.

- To encourage private and public participation in abandoned mine reclamation efforts
- To improve reclamation efficiency through better communication between reclamation partners
- To increase reclamation by reducing remining risks
- To maximize reclamation funding by expanding existing sources and exploring new sources.

Since 1990, the Mill Creek Coalition has been active in assessing the water quality and completing AMD remediation projects in the Mill Creek Watershed. Working with local partnerships and local, state and federal agencies, the Mill Creek Coalition has been responsible for the installation of approximately 20 passive treatment systems; 16 of which are located in the Little Mill Creek Watershed. The Coalition is currently working with The EADS Group to create a GIS based Operation, Maintenance and Replacement (OM&R) Plan for all of the treatment systems in the watershed and has also applied for Growing Greener funds to remediate discharges on two AML sites in 2005.

Public Participation

Public notice of the draft TMDL was published in the *Pennsylvania Bulletin* on July 9, 2005 and the Clarion News on July 26, 2005 to foster public comment on the allowable loads calculated. A public meeting was held on August 10, 2005 beginning at 7:00 p.m., at Clarion University in the Peirce Science Center Building, Room 225, in Clarion, Pennsylvania, to discuss the proposed TMDL.

TMDL Elements (WLA, LA, MOS)

A TMDL equation consists of a wasteload allocation, load allocation and a margin of safety. The wasteload allocation is the portion of the load assigned to point sources. The load allocation is the portion of the load assigned to nonpoint sources. The margin of safety is applied to account for uncertainties in the computational process. The margin of safety may be expressed implicitly (documenting conservative processes in the computations) or explicitly (setting aside a portion of the allowable load).

TMDL Allocations Summary

There were not enough samples at any sample point to check for correlation between metals and flow for Mill Creek.

Allocation Summary

This TMDL will focus remediation efforts on the identified numerical reduction targets for each watershed. The reduction schemes in Table 3 for each segment are based on the assumption that all upstream allocations are achieved and take in to account all upstream reductions. Attachment C contains the TMDLs by segment analysis for each allocation point in a detailed discussion. As changes occur in the watershed, the TMDLs may be re-evaluated to reflect current conditions. An implicit MOS based on conservative assumptions in the analysis is included in the TMDL calculations.

The allowable LTA concentration in each segment is calculated using Monte Carlo Simulation as described previously. The allowable load is then determined by multiplying the allowable concentration by the flow and a conversion factor at each sample point. The allowable load is the TMDL.

In some instances, instream processes, such as settling, are taking place within a stream segment. These processes are evidenced by a decrease in measured loading between consecutive sample points. It is appropriate to account for these losses when tracking upstream loading through a segment. The calculated upstream load lost within a segment is proportional to the difference in the measured loading between the sampling points.

Table 4. Summary Table–Mill Creek Watershed

Station	Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction %
MC02	Most Upstream Sample Point on Mill Creek (49708)						
	Al	9.2	1.2	0.0	1.2	8.0	87
	Fe	8.8	0.44	0.0	0.44	8.36	95
	Mn	42.0	3.8	0.0	3.8	38.2	91
	Acidity	384.0	38.4	0.0	38.4	349.4	90
PO1	Mouth of Parks Run (49789)						
	Al	5.8	1.34	0.0	1.34	4.46	77
	Fe	3.8	0.42	0.0	0.42	3.38	89
	Mn	3.14	3.13	0.0	3.13	0.01	0.2
	Acidity	72.6	32.7	0.0	32.7	47.2	55
MC03	Mill Creek (49708) Downstream of Confluence with Parks Run						
	Al	15.8	1.9	0.0	1.9	1.5	44
	Fe	14.6	0.58	0.0	0.58	2.3	79
	Mn	23.0	11.5	0.0	11.5	0.0	0
	Acidity	488.8	58.7	0.0	58.7	44.6	43
MC03C	Mill Creek (49708) Upstream of Confluence with Unt (49782)						
	Al	25.8	2.1	0.0	2.1	9.8	83
	Fe	25.5	1.8	0.0	1.8	9.7	85
	Mn	20.3	20.3	0.0	20.3	0.0	0
	Acidity	540.7	70.3	0.0	70.3	40.3	36
MC05	Mill Creek (49708) Upstream of Confluence with Unt (49777)						
	Al	31.6	8.5	0.0	8.5	0.0	0
	Fe	233.1	2.3	0.0	2.3	207.0	99
	Mn	202.0	18.2	0.0	18.2	183.9	91
	Acidity	1184.2	106.6	0.0	106.6	607.3	85
MC07	Mill Creek (49708) Upstream of Confluence with Unt (49767)						
	Al	37.8	7.9	0.0	7.9	6.8	46
	Fe	115.3	4.6	0.0	4.6	0.0	0
	Mn	168.0	28.6	0.0	28.6	0.0	0
	Acidity	1444.4	173.3	0.0	173.3	193.4	53
MC08	Mill Creek (49708) Downstream of Confluence with Unt (49752)						
	Al	41.0	9.0	0.0	9.0	2.1	19
	Fe	73.4	2.9	0.0	2.9	0.0	0
	Mn	142.4	34.2	0.0	34.2	0.0	0
	Acidity	1902.0	228.2	0.0	228.2	402.7	64
LMC06	Mouth of Little Mill Creek (49727) Upstream of Confluence with Mill Creek						
	Al	79.1	14.2	0.0	11.4	0.0	0
	Fe	202.8	26.4	0.0	15.15	0.1	0.4
	Mn	471.4	23.6	0.0	16.1	36.8	61
	Acidity	3041.7	60.8	0.0	60.8	765.4	93
MC08B	Mill Creek (49708) Downstream of Confluence with Little Mill Creek (49727)						
	Al	107.4	107.4	*2.8*	104.6	0.0	0
	Fe	402.3	68.4	*11.25*	57.15	87.0	56
	Mn	768.5	61.5	*7.5*	54.0	150.9	71
	Acidity	7909.8	711.9	0.0	711.9	2543.3	78
DR2	Mouth of Douglas Run (49720) Upstream of Confluence with Mill Creek						
	Al	542.8	43.4	0.0	40.6	415.7	91
	Fe	1624.0	32.5	0.0	21.25	184.5	85

Station	Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction %
	Mn	1325.9	53.0	0.0	45.5	629.1	92
	Acidity	12889.1	0.0	0.0	0.0	1602.9	100
MC09	Mill Creek (49708) Upstream of Confluence with Unt (49717)						
	Al	280.8	61.8	*2.8*	59.0	3.4	5
	Fe	692.4	138.5	*11.25*	128.25	0.0	0
	Mn	860.8	77.5	*7.5*	70.0	0.0	0
	Acidity	8947.3	536.8	0.0	536.8	0.0	0
UNT31	Unt (49716) Mill Creek Upstream of Confluence with Mill Creek						
	Al	2.1	0.3	0.0	0.3	1.8	88
	Fe	6.0	0.2	0.0	0.2	5.8	97
	Mn	16.6	1.0	0.0	0.05	16.55	94
	Acidity	67.6	6.1	0.0	6.1	61.5	91
UNT30	UNT (49715) Mill Creek Upstream of Confluence with Mill Creek						
	Al	1.9	0.5	0.0	0.5	1.4	74
	Fe	54.8	0.2	0.0	0.2	54.6	99.7
	Mn	20.7	1.0	0.0	1.0	19.7	95
	Acidity	220.3	11.0	0.0	11.0	209.3	95
MC10	Mill Creek (49708) Downstream of Confluence with Unt (49713)						
	Al	325.8	88.0	*2.8*	85.2	15.6	15
	Fe	677.2	182.8	*11.25*	171.55	0.0	0
	Mn	1058.2	95.2	*7.5*	87.7	144.5	60
	Acidity	10471.9	628.3	0.0	628.3	1162.4	65
WR1	Mouth of Whites Run (49707) Upstream of Confluence with Mill Creek						
	Al	23.2	0.8	0.0	0.8	22.4	97
	Fe	165.2	1.0	0.0	1.0	164.2	99
	Mn	96.1	0.7	0.0	0.7	95.4	99
	Acidity	953.4	0.0	0.0	0.0	953.4	100
MC11	Mouth of Mill Creek						
	Al	283.0	79.2	*2.8*	76.4	0.0	0
	Fe	493.2	138.1	*11.25*	126.85	0.0	0
	Mn	791.3	79.1	*7.5*	71.6	0.0	0
	Acidity	8209.3	985.1	0.0	985.1	0.0	0

The italicized values in the WLA column in table four are future mining wlas.

Recommendations

Various methods to eliminate or treat pollutant sources and to provide a reasonable assurance that the proposed TMDLs can be met exist in Pennsylvania. These methods include PADEP's primary efforts to improve water quality through reclamation of abandoned mine lands (for abandoned mining) and through the National Pollution Discharge Elimination System (NPDES) permit program (for active mining). Funding sources available that are currently being used for projects designed to achieve TMDL reductions include the Environmental Protection Agency (EPA) 319 grant program and Pennsylvania's Growing Greener Program. Federal funding is through the Department the Interior, Office of Surface Mining (OSM), for reclamation and mine drainage treatment through the Appalachian Clean Streams Initiative and through Watershed Cooperative Agreements.

OSM reports that nationally, of the $8.5 billion of high priority (defined as priority 1&2 features or those that threaten public health and safety) coal related AML problems in the AML inventory, $6.6 billion (78%) have yet to be reclaimed; $3.6 billion of this total is attributable to Pennsylvania watershed costs. Almost 83 percent of the $2.3 billion of coal related environmental problems (priority 3) in the AML inventory are not reclaimed.

The Bureau of Abandoned Mine Reclamation, Pennsylvania's primary bureau in dealing with abandoned mine reclamation (AMR) issues, has established a comprehensive plan for abandoned mine reclamation throughout the Commonwealth to prioritize and guide reclamation efforts for throughout the state to make the best use of valuable funds (www.dep.state.pa.us/dep/deputate/minres/bamr/complan1.htm). In developing and implementing a comprehensive plan for abandoned mine reclamation, the resources (both human and financial) of the participants must be coordinated to insure cost-effective results. The following set of principles is intended to guide this decision making process:

- Partnerships between the DEP, watershed associations, local governments, environmental groups, other state agencies, federal agencies and other groups organized to reclaim abandoned mine lands are essential to achieving reclamation and abating acid mine drainage in an efficient and effective manner.

- Partnerships between AML interests and active mine operators are important and essential in reclaiming abandoned mine lands.

- Preferential consideration for the development of AML reclamation or AMD abatement projects will be given to watersheds or areas for which there is an approved rehabilitation plan. (guidance is given in Appendix B to the Comprehensive Plan).

- Preferential consideration for the use of designated reclamation moneys will be given to projects that have obtained other sources or means to partially fund the project or to projects that need the funds to match other sources of funds.

- Preferential consideration for the use of available moneys from federal and other sources will be given to projects where there are institutional arrangements for any necessary long-term operation and maintenance costs.

- Preferential consideration for the use of available moneys from federal and other sources will be given to projects that have the greatest worth.

- Preferential consideration for the development of AML projects will be given to AML problems that impact people over those that impact property.

- No plan is an absolute; occasional deviations are to be expected.

A detailed decision framework is included in the plan that outlines the basis for judging projects for funding, giving high priority to those projects whose cost/benefit ratios are most favorable and those in which stakeholder and landowner involvement is high and secure.

In addition to the abandoned mine reclamation program, regulatory programs also are assisting in the reclamation and restoration of Pennsylvania's land and water. PADEP has been effective in implementing the NPDES program for mining operations throughout the Commonwealth. This reclamation was done, through the use of remining permits which have the potential for reclaiming abandoned mine lands, at no cost to the Commonwealth or the federal government. Long-term treatment agreements were initialized for facilities/operators who need to assure treatment of post-mining discharges or discharges they degraded which will provide for long-term treatment of discharges. According to OSM, "PADEP is conducting a program where active mining sites are, with very few exceptions, in compliance with the approved regulatory program".

The Commonwealth is exploring all options to address its abandoned mine problem. During 2000-2006, many new approaches to mine reclamation and mine drainage remediation have been explored and projects funded to address problems in innovative ways. These include:

- Project XL - The Pennsylvania Department of Environmental Protection ("PADEP"), has proposed this XL Project to explore a new approach to encourage the remining and reclamation of abandoned coal mine sites. The approach would be based on compliance with in-stream pollutant concentration limits and implementation of best management practices ("BMPs"), instead of National Pollutant Discharge Elimination System ("NPDES") numeric effluent limitations measured at individual discharge points. This XL project would provide for a test of this approach in up to eight watersheds with significant acid mine drainage ("AMD") pollution. The project will collect data to compare in-stream pollutant concentrations versus the loading from individual discharge points and provide for the evaluation of the performance of BMPs and this alternate strategy in PADEP's efforts to address AMD.
- Awards of grants for 1) proposals with economic development or industrial application as their primary goal and which rely on recycled mine water and/or a site that has been made suitable for the location of a facility through the elimination of existing Priority 1 or 2 hazards, and 2) new and innovative mine drainage treatment technologies that will provide waters of higher purity that may be needed by a particular industry at costs below conventional treatment costs as in common use today or reduce the costs of water treatment below those of conventional lime treatment plants. Eight contracts totaling $4.075 M were awarded in 2006 under this program.
- Projects using water from mine pools in an innovative fashion, such as the Shannopin Deep Mine Pool (in southwestern Pennsylvania), the Barnes & Tucker Deep Mine Pool (the Susquehanna River Basin Commission into the Upper West Branch Susquehanna River), and the Wadesville Deep Mine Pool (Excelon Generation in Schuylkill County).

Since 1990, the Mill Creek Coalition has been active in assessing the water quality and completing AMD remediation projects in the Mill Creek Watershed. Working with local partnerships and local, state and federal agencies, the Mill Creek Coalition has been responsible for the installation of approximately 17 passive treatment systems; 13 of which are located in the Little Mill Creek Watershed. The Coalition is currently working with Headwaters Charitable Trust to redesign and reconstruct the Filson 7 passive treatment system. The Coalition has completed the design for two passive treatment systems in the Little Mill Creek watershed on the

Glenn AMD Sites (17 and 19) and has also applied for funding through the Growing Greener program in order to construct passive treatment systems on the Glenn 17 site. Based on information obtained through the completion of the Operation, Maintenance and Replacement Plan, funded by a Growing Greener grant, the Coalition has also applied for funding through the Growing Greener program in order to perform upgrades to the Bog, Morrow, Filson 4 and Filson 5/6 passive treatment systems.

Candidate or federally-listed threatened and endangered species may occur in or near the watershed. While implementation of the TMDL should result in improvements to water quality, they could inadvertently destroy habitat for candidate or federally-listed species. TMDL implementation projects should be screened through the Pennsylvania Natural Diversity Inventory (PNDI) early in their planning process, in accordance with the Department's policy titled Policy for Pennsylvania Natural Diversity Inventory (PNDI) Coordination During Permit Review and Evaluation (Document ID# 400-0200-001).

Public Participation

Public notice of the draft TMDL was published in the *Pennsylvania Bulletin* on September 27, 2008 to foster public comment on the allowable loads calculated. A public meeting was held on October 2, 2008 beginning at 10:00a.m., at the Knox District Mining Office in Knox, Pennsylvania, to discuss the proposed TMDL.