



James N. Saul
Attorney at Law LLC

November 16, 2010

BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED

President / Chief Executive Officer
Flambeau Mining Company
N4100 Highway 27
Ladysmith, WI 54848

Registered Agent
Flambeau Mining Company
c/o CSC-Lawyers Incorporating Service Co.
8040 Excelsior Drive, Suite 400
Madison, WI 53717

President / Chief Executive Officer
Kennecott Minerals Company
224 North 2200 West
Salt Lake City, UT 84116

Registered Agent
Kennecott Minerals Company
c/o Corporation Service Company
2180 South 1300 East, Suite 650
Salt Lake City, UT 84106

RE: Notice of Intent to Sue Flambeau Mining Company and Kennecott Minerals Company for violations of the federal Clean Water Act, 33 U.S.C. 1251 *et seq.*

To Whom It May Concern:

On behalf of the Wisconsin Resources Protection Council, the Center for Biological Diversity, and Ms. Laura Gauger (collectively, "WRPC"), we hereby notify you of WRPC's intent to file a civil action against Flambeau Mining Company and Kennecott Minerals Company (collectively, "FMC") in the U.S. District Court for the Western District of Wisconsin on or about the sixtieth day following the date of this Notice to abate FMC's ongoing violations of the Clean Water Act ("CWA" or "the Act"). This action is authorized by the CWA's "citizen suit" provision, 33 U.S.C. § 1365, and will address FMC's ongoing violations of the CWA's prohibition on the discharge of pollutants without compliance with the substantive requirements of the Act, including the requirement to obtain an NPDES permit prior to discharge. *See id.* §§ 1311(a); 1342. This Notice identifies the specific claims to be raised and the parties giving notice, thereby fulfilling the notice requirements of 33 U.S.C. § 1365(b) and 40 C.F.R. § 135.3.

A. Legal Background: The Clean Water Act

The Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, was enacted by Congress to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." *Id.* § 1251(a). The Act unequivocally prohibits the discharge of pollutants without explicit authorization. *Id.* § 1311(a). One form of authorization is a permit issued under section 402 of the Act, which creates the National Pollutant Discharge Elimination System ("NPDES"). *Id.* § 1342(a). Section 402 authorizes the U.S. Environmental Protection Agency ("EPA") or a state with an approved NPDES permit program to issue permits for the discharge of pollutants only where such

discharge will, *inter alia*, ensure compliance with applicable effluent limitations, water quality standards, and other substantive requirements and limitations established by the CWA. *Id.* Wisconsin has an EPA-approved NPDES permitting program, and the Wisconsin Department of Natural Resources (“DNR”) is the agency that issues NPDES permits to point-source dischargers within this State.

The CWA authorizes citizens to commence a civil action against any person, including any corporation, alleged to be in violation of the substantive requirements or prohibitions of the Act. 33 U.S.C. § 1365(a)(1). Citizens may file suit in the appropriate federal district court to abate those violations and are authorized to seek injunctive relief, civil penalties, and an award of costs of litigation, including reasonable attorney’s fees. *Id.* §§ 1365(a), (d). Before filing suit, citizens must provide an alleged violator with sixty days’ notice of their intent to sue. *Id.* § 1365(b)(1)(A).

B. Factual Background: The Flambeau Mine and Related Facilities

Flambeau Mining Company is a wholly-owned subsidiary of Kennecott Minerals Company. FMC owns property located at N4100 Highway 27, Ladysmith, WI 54848. This property contains an abandoned and partially reclaimed metallic mine and several related industrial facilities and structures. From 1993-1997, FMC actively mined this site and extracted gold, silver, and copper from an open pit mine. To treat polluted runoff from the site, FMC built and operated a wastewater treatment facility that received wastewater from various sources, including the mine pit itself; acid mine drainage from the high-sulfur waste rock stockpile; and other sources. While the mine was in operation FMC was authorized to discharge pollutants from the wastewater treatment facility directly to the Flambeau River according to the limitations and conditions contained in Wisconsin Pollutant Discharge Elimination System (“WPDES”) Permit No. WI-0047376-2. That Permit was terminated by DNR on or about August 13, 1998, and since that date FMC has not held an NPDES permit¹ for the Flambeau mine site.

As part of its ongoing reclamation and industrial activities at an approximately 30-acre section of the site, known by FMC and DNR as the “Industrial Outlot,” FMC maintains and operates a 0.9-acre man-made stormwater containment and treatment structure² or “Biofilter” located at the southeast corner of FMC’s property. This Biofilter contains an outlet by which polluted stormwater is routinely discharged to a receiving water known as Stream C. FMC has acknowledged this discharge, explaining its 2007 Biofilter Management Plan that “[t]he purpose of the biofilter is to capture particulates in the surface water from the site prior to discharge to Intermittent Stream C,”³ and FMC routinely monitors the water quality at the Biofilter outlet to Stream C (at a sampling point identified in FMC’s own as BFSW-C2) and reports water quality data to the DNR at least twice a year.⁴

¹ For purposes of this Notice Letter, we use the phrase “NPDES permit” to mean a permit issued pursuant to section 402 of the Clean Water Act, either by EPA under the federal NPDES program or by DNR under Wisconsin’s EPA-approved NPDES program, the Wisconsin Pollutant Discharge Elimination System (“WPDES”).

² The stormwater retention and treatment structure from which pollutants are discharged is known to and identified by FMC alternately as either a “Surge Pond,” a “Biofilter,” or a “Detention Basin,” but will be identified in this Notice Letter as the “Biofilter.” An aerial photograph of the Flambeau mine site, prepared by FMC’s consultants in October 2008 and identifying the exact location of the Biofilter and its point of discharge to Stream C, is included here as Attachment A.

³ Flambeau Industrial Outlot Biofilter Management Plan at 1 (January 2007), included here as Attachment B.

⁴ *Id.* at 5.

C. FMC's Specific Clean Water Act Violations

Since at least August 13, 1998, FMC has violated, and continues to violate, sections 301(a) and 402(a) of the CWA by discharging pollutants from the Biofilter to Stream C without a valid NPDES permit. The pollutants discharged include copper, zinc, iron, and other pollutants known to FMC and reported routinely to DNR by FMC's consultants or authorized representatives. These pollutants are discharged via an outlet from the Biofilter, and FMC's own water quality monitoring results from the outlet connecting the Biofilter to Stream C indicates that several of the pollutants identified above –most notably, copper – have been and continue to be discharged at levels that far exceed applicable water quality standards.

(1) FMC's violations of the discharge prohibition of 33 U.S.C. § 1311(a)

Section 301(a) of the CWA states that "[e]xcept as in compliance with this section and [other substantive provisions of the Act], the discharge of any pollutant by any person shall be unlawful." 33 U.S.C. § 1311(a). The substantive provisions referenced in section 301(a) include, *inter alia*, the requirement to achieve compliance with applicable effluent limitations and water quality standards, *id.* § 1311(b) and (e), as well as the requirement to obtain and comply with an NPDES permit issued under section 402 (or, where appropriate, a permit issued under section 404). *Id.* § 1342. Because FMC has discharged and continues to discharge pollutants from the Biofilter to Stream C without complying with those referenced substantive provisions (and in particular without obtaining an NPDES permit) FMC has violated and continues to violate section 301(a) of the CWA.

(2) FMC's violations of the NPDES permit requirements of 33 U.S.C. § 1342

FMC does not presently hold, nor has it ever held, an NPDES permit issued under authority of section 402 of the CWA, 33 U.S.C. § 1342, authorizing the pollutant discharges from the Biofilter to Stream C. Therefore FMC is in violation of that section's requirement to obtain an NPDES permit prior to the discharge of pollutants. Section 402 of the CWA, and the federal regulations and Wisconsin statutes promulgated or enacted to effectuate the NPDES program established by that section, include requirements for the permit application and issuance process; requirements to ensure that all discharges comply with applicable effluent limitations and water quality standards; and requirements to ensure meaningful public and EPA participation in the development and enforcement of NPDES permit terms. By failing to apply for, obtain, and comply with a valid NPDES permit, FMC has violated and continues to violate section 402 of the CWA.

(3) Specific Dates of FMC's CWA Violations

WRPC will allege that FMC's CWA violations have occurred every day since August 13, 1998, because that is the date that FMC closed its wastewater treatment facility and diverted the discharge from the Biofilter directly to Stream C. These unpermitted discharges occurred at least on the specific dates identified in the table provided in Attachment C because on those specific dates the mine site received precipitation of at least 0.5" which thereby caused the Biofilter to overflow through its outlet to Stream C. FMC is in the best position to know precisely what additional dates the Biofilter discharged to Stream C.

Discharges from the Biofilter to Stream C (and, therefore, violations of the CWA) are known by FMC to have occurred at least on 28 separate occasions between November 1999 and April 2010. On

those 28 occasions either FMC or DNR collected and sampled the discharge and subsequently analyzed and reported water quality data for a number of pollutants. A table showing the exact dates of those 28 discharges from the Biofilter to Stream C and the levels of various pollutants in the discharge as identified by laboratory analysis conducted by FMC or DNR is included here as Attachment D. Since 1999, FMC has routinely sampled the discharge from the Biofilter to Stream C; FMC's Biofilter Management Plan explains that monitoring of the Biofilter outlet will take place twice a year in April and September or at other times if no precipitation event occurs.⁵ These and other documents in the possession of FMC identify the sampling results of the Biofilter outfall and identify when additional violations occurred.

WRPC expects to identify additional discharges from the Biofilter to Stream C, including discharges that occurred or occur from April 2010 through the end of the 60-day notice period, and after any complaint is filed in this matter. WRPC will therefore allege that additional CWA violations occurred on those dates. WRPC will also allege CWA violations for all other unlawful discharges for which this Notice Letter provides you with sufficient notice.

D. Parties Giving Notice

The Parties giving notice are:

Wisconsin Resources Protection Council
c/o Al Gedicks, Executive Secretary
210 Avon St. #4
La Crosse, WI 54603

Ms. Laura Gauger
1321 E. 1st St. #210
Duluth, MN 55805

Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702

However, these parties request that they be contacted through their attorneys as follows:

James N. Saul
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209 East 7th St.
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(218) 525-3884
mfink@biologicaldiversity.org

⁵ FMC Biofilter Management Plan, Attachment B, at 5.

E. Conclusion

Should WRPC file suit, it will seek those remedies authorized by the CWA's citizen suit provision, including the imposition of civil penalties totaling at least \$ 3,500,000 (to be calculated as \$32,500 to \$37,500 multiplied by the number of days of violation of the CWA); injunctive relief sufficient to bring FMC into full and complete compliance with the CWA; an award of litigation costs, including reasonable attorneys fees; and any other relief as a court may find reasonable and appropriate under the circumstances.

If you have any information concerning the violations alleged in this Notice Letter, please forward it to WRPC. WRPC is willing to discuss the violations alleged herein with representatives of FMC during the sixty-day notice period so that this matter may be resolved without resort to litigation. If, however, those discussions do not take place or if the matter is not resolved to the satisfaction of WRPC, it will file suit on or about January 17, 2011.

Sincerely,



James N. Saul
James N. Saul, Attorney at Law LLC

Marc O. Fink
Center for Biological Diversity

Daniel Mensher
Pacific Environmental Advocacy Center

*Attorneys for Wisconsin Resources Protection Council;
Center for Biological Diversity; and Ms. Laura Gauger*

Encl. (4)

Copies sent by Certified Mail to:

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Madison, WI 53707

Ms. Lisa Jackson
Administrator, USEPA
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Ms. Susan Hedman
Regional Administrator
USEPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604







Poeth Infrastructure & Environment, LLC					
REVISED	DATE	BY	DESCRIPTION		
CHECKED BY:		SVF		DATE	OCT, '08
APPROVED BY:		JOB II		DATE	OCT, '08
APPROVED BY:				DATE	



Foth
Forth Infrastructure & Environment, LLC

Compliance Category
 Stipulated Monitoring
 Supplemental Sampling
 Bioreactor Management Plan Monitoring
 Stipulated Program and
 Bioreactor Management Monitoring

LEGEND

SW-C	Matrix-Sample Point ID
28	Dissolved Copper in Surface Water (ug/L)
23	Total Copper in Surface Water (ug/L)
	Biofilter Boundary
	Industrial Outlet Boundary
	Flambeau Project Area
	Intermittent Stream

NOTES

1. Digital orthophoto imagery provided by AeroMetric, Inc., Sheboygan, WI.
Date of Acquisition: May 17, 2008
2. Horizontal datum based on NAD 1983.
Horizontal coordinates based on Wisconsin State Plane North (Foot);
SW-C3, BESW-C3, BSI-W-C2,
SW-C5, and SW-C8 were resampled
in June, 2008 to confirm results
from April, 2008 and correlate to
samples from CP-01, CP-02, and
CP-03 sampled at the same time.

RECEIVED

JAN 16 2007

WASTE & MATERIALS
MANAGEMENT PROGRAM

Report

Biofilter Management Plan

**Copper Park Business & Recreation Area
Formerly the Flambeau Industrial Outlot**

Project I.D.: 06F007

**Flambeau Mining Company
Ladysmith, Wisconsin**

January 2007





January 12, 2007

Ms. Joanie Burns
Wisconsin Department of Natural Resources
PO Box 7921
Madison WI 53707-7921

Dear Ms. Burns:

RE: Flambeau Industrial Outlot Biofilter Management Plan

On behalf of Flambeau Mining Company (Flambeau), Foth Infrastructure & Environment (Foth) has prepared this draft Biofilter Management Plan for the Copper Park Business & Recreation area, formerly called the Flambeau Industrial Outlot. This plan has been prepared in follow-up to the Construction Documentation Report (September, 2006) submitted to the Wisconsin Department of Natural Resources. This management plan is based on the 2006 construction activity results and the recent surface water quality results obtained from sampling points located upstream and downstream of the biofilter, and within Intermittent Stream C. A final report will be forthcoming.

If you have any questions regarding the information presented here, please contact me at (920) 496-6813.

Sincerely,

Foth Infrastructure & Environment, LLC

James B. Hutchison, P.E.
Project Engineer

Construction Documentation Report

Flambeau Copper Park Business & Recreation Area

Distribution

<u>No. of Copies</u>	<u>Sent To</u>
1	Joanie Burns Wisconsin Department of Natural Resources PO Box 7921 Madison WI 53707-7921
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1	Fred Fox Kennecott Minerals Company 224 N 2200 West Salt Lake City UT 84116
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Biofilter Management Plan

Flambeau Copper Park Business & Recreation Area

Contents

	Page
1 Summary.....	1
2 Pre-2006 Construction Activities Conditions.....	2
3 2006 Construction Activities.....	3
4 Post-2006 Construction Conditions.....	4
5 Biofilter Management Plan.....	5
5.1 Biofilter Management Plan.....	5

Figures

Figure 1 Biofilter Drainage Area

Appendices

Appendix A SLAMM Program Calculations

1 Summary

The Copper Park Business & Recreation Area biofilter is located at the southeast corner of the former Flambeau Mining Company (Flambeau) mine site as shown on Figure 1. The plan area of the biofilter is approximately 200 ft x 200 ft (40,000 square feet) including a finger peninsula from the north bank. The biofilter is a best management practice that is being employed to manage stormwater runoff from a 20 acre drainage area comprised of the Copper Park Business & Recreation Area (also referred to as the industrial outlot) in the southeast corner of the former mine site as shown in Figure 1.

The purpose of the biofilter is to capture particulates in the surface water from the site prior to discharge to Intermittent Stream C. Surface water quality entering and leaving the biofilter prior to 2006 construction activities is documented in the Industrial Outlot work plan submitted to the Department on May 2, 2006. The construction activities during 2006 were described in the Construction Documentation Report submitted to the Department in September 2006. The 2006 construction activities included excavation and offsite landfilling of select soils and ditch material, placement of limestone gravel and large limestone cobbles (in surface water ditch swales) and paving asphalt over the parking lot areas. The purpose of the construction activities was to reduce particulate and dissolved solids loading to the biofilter.

This report presents recent surface water data (post 2006 construction) which documents a dramatic reduction of copper loading to the biofilter. This report will also present a biofilter management plan including monitoring of the biofilter.

2 Pre-2006 Construction Activities Conditions

The surface soils within the outlot area were not reclaimed by excavation and placement into the limestone amended mine pit backfill as originally planned due to the community's desire to save the mine buildings for reuse by the community and utilize the area as an industrial park.

Flambeau Mining Company leased the facilities and surrounding area to the Ladysmith Community Industrial Development Corporation (LCIDC). Subsequently, the LCIDC subleased the Copper Park Business & Recreation Area to the Wisconsin Department of Administration (WDNR Ladysmith Service Center), Xcel Energy (electric line maintenance shop/storage), and City of Ladysmith (Copper Park Equestrian Trailhead). Based on monitoring that was completed by Flambeau Mining Company it was noted that the soils in the industrial outlot contributed to raising the copper and zinc concentrations of stormwater runoff delivered to the biofilter. Flambeau addressed this issue by monitoring surface water, identifying potential sources of copper and zinc and excavated and landfilled these soils during 2003 (rail spur reclamation) and again during the 2006 construction activities. Storm water was collected and monitored during 2004 and 2005 at internal site locations used to identify areas which acted as the source of copper and zinc in stormwater runoff delivered to the biofilter.

The stormwater quality data prior to 2006 construction activities along with the regulatory submittals were included in the Outlot Work Plan submitted to the Department in a document dated May 2, 2006. The inflow at the biofilter ranged from 0.53 to 2.0 mg/l copper with an average concentration of approximately 1.20 mg/l from September 2004 through September 2005 (9 separate sampling events). The approximate average of zinc over the same time period was 0.38 mg/l.

The biofilter effectively lowered the copper and zinc levels leaving the biofilter during this time period (September 2004 through September 2005). The average concentration of copper flowing out of the biofilter (6 sampling events) was 0.045 mg/l (96% reduction in copper). The average zinc levels flowing from the biofilter over the same time period (September 2004 through September 2005) was 0.0076 mg/l (a 98% reduction in zinc).

3 2006 Construction Activities

The construction activities were documented in the Construction Documentation Report dated September 2006 which was submitted to the Department.

The gravel parking lot was excavated to a minimum of 4 inches. Five locations where higher levels of copper were identified by sampling and testing were excavated deeper, until lower levels of copper were encountered. The average copper concentration in the soil prior to removal was approximately 1,140 mg/kg (ppm). The average concentration of the exposed subgrade after removal was approximately 38 mg/kg (ppm). The exposed subgrade after removal was then overlain with filter fabric and limestone gravel to asphalt subgrade or topsoil subgrade.

4 Post-2006 Construction Conditions

The 2006 construction activities were completed at the end of June. Since then four rounds of sampling of stormwater around and within the biofilter have been performed. The results indicate a dramatic drop of copper (and zinc) in the stormwater runoff entering the biofilter (inflow).

Post 2006 Construction Surface Water Test Results

Sampling Date	BFSW-C1 (inflow) ug/l	BFSW-C2 (outflow) ug/l
7/26/2006	60	not sampled (Stream C not flowing)
8/3/2006	140	33
10/4/2006	95	16
11/28/2006	80	34
Average	94	28

Comparing the pre and post construction copper concentrations at the biofilter inflow shows a significant drop of 92% in the post construction samples (1.20 ppm pre vs. 0.094 ppm post).

Comparing the pre and post construction copper concentrations at the biofilter outflow shows a significant decrease of nearly 40% (0.045 ppm pre, vs. 0.028 ppm post).

All of the surface water data obtained during July, August, October and November of 2006 is shown in ug/l or ppb in the attached Table 1.

An estimate of the volume of sediment being deposited annually within the biofilter due to erosion is approximately 0.1 inch per year. The drainage area and associated calculations are attached.

5 Biofilter Management Plan

Monitoring of the biofilter will consist of two monitoring events a year. The events will target high flow and low flow regimes. Therefore, the target monitoring dates will be as follows:

Event	Target Dates
1	April
2	September

In the event that there is a no precipitation event during the target dates, the target date will be expanded until a precipitation event occurs.

Parameters to be monitored will be:

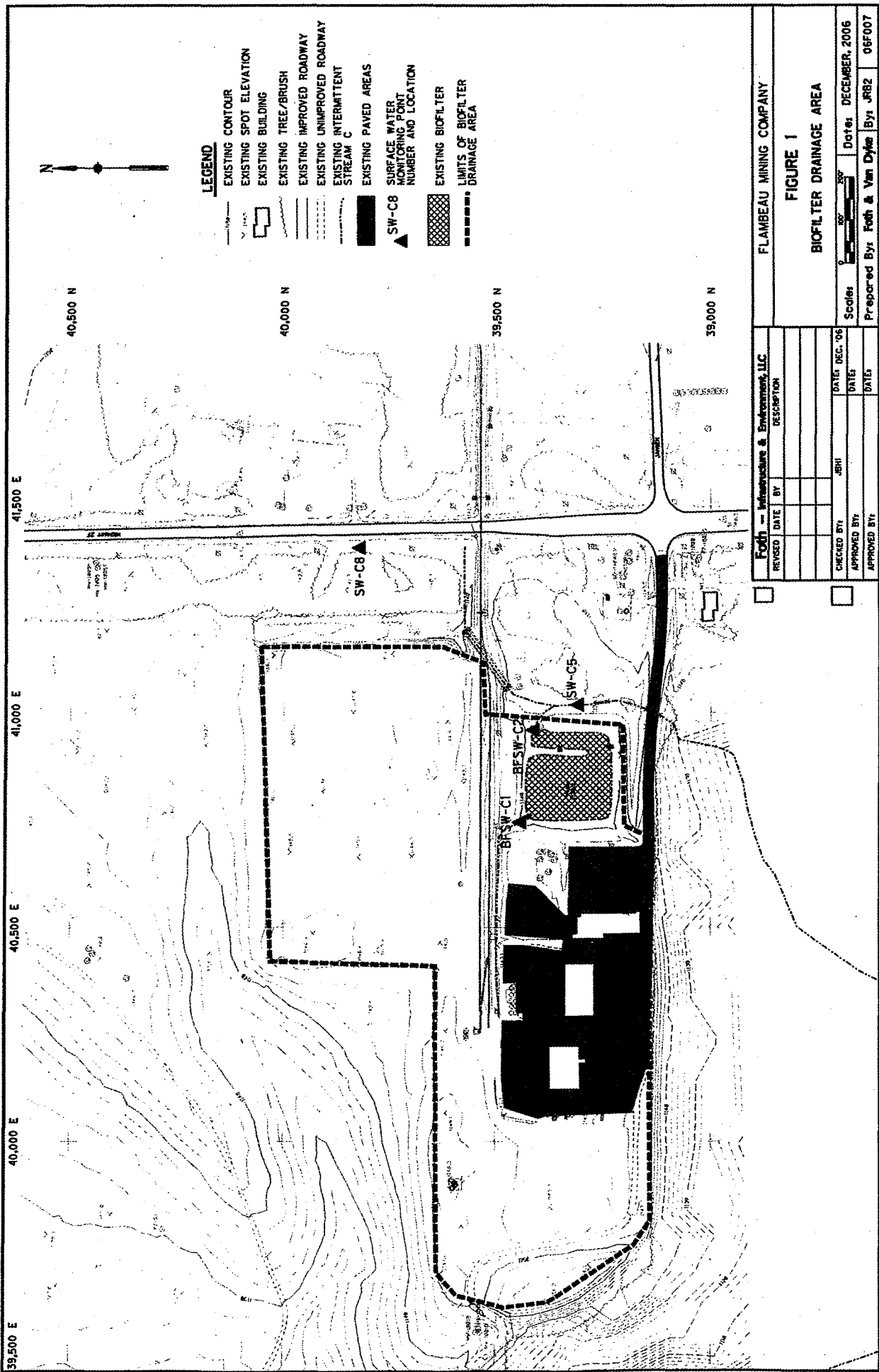
- ♦ copper
- ♦ zinc
- ♦ conductivity
- ♦ hardness
- ♦ pH

The locations of monitoring the biofilter will be the inflow and outflow locations, upstream and downstream locations (BFSW-C1, BFSW-C2, SW-C8 and SW-C5 respectively).

This monitoring will occur for 3 years or until stabilization has occurred.

5.1 Biofilter Management Plan

Monitoring of the biofilter will consist of a once per annum measurement of the water depth and available freeboard of the biofilter. The monitoring will be done during February of each year. When the sum of the water depth and freeboard becomes less than 3 feet then the sediment within the biofilter will be excavated, characterized and managed consistent with the NR 500 code.



LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING BUILDING
- EXISTING TREE/BRUSH
- EXISTING IMPROVED ROADWAY
- EXISTING UNIMPROVED ROADWAY
- EXISTING INTERMITTENT STREAM
- EXISTING PAVED AREAS
- SW-C8 SURFACE WATER MONITORING POINT NUMBER AND LOCATION
- EXISTING BIOFILTER
- LIMITS OF BIOFILTER DRAINAGE AREA

Focht - Infrastructure & Environment LLC		FLAMBEAU MINING COMPANY	
REVISED DATE	BY	DESCRIPTION	
CHECKED BY: JSH	DATE: DEC. '06	FIGURE 1	
APPROVED BY:	DATE:	BIOFILTER DRAINAGE AREA	
		Scale: 0 30' 60'	
		Date: DECEMBER, 2006	
		Prepared By: Focht & Van Dyle By: JRB2 06F007	

Table 1
Post 2006 Construction Surface Water Test Results
 Copper Park Business & Recreation Area
 Stormwater Sampling

Date	BFSW-C1 (Biofilter Inflow)					BFSW-C2 (Biofilter Outflow)					SW-C5 (Downstream Stream C)					SW-C8 (Stream C Watershed - Upstream West Hwy 27)				
	Cond u/mo/cm	Copper ug/l	Hardness mg/l	pH, Lab su	Zinc ug/l	Cond u/mo/cm	Copper ug/l	Hardness mg/l	pH, Lab su	Zinc ug/l	Cond u/mo/cm	Copper ug/l	Hardness mg/l	pH, Lab su	Zinc ug/l	Cond u/mo/cm	Copper ug/l	Hardness mg/l	pH, Lab su	Zinc ug/l
7/26/2006	89	60	52	7.64	31															
8/3/2006	477	140	27	6.24	20	127	33	25	6.70	9.7	158	74	23	6.99	83	212	160	13	6.08	60
10/4/2006	196	95	37	5.86	30	218	16	21	6.55	6.9	99	23	18	6.85	48	283	390	19	6.95	96
11/28/2006	68	80	26	6.30	19	109	34	23	6.23	8.2	141	46	31	5.94	92	No surface water. Sample location dry.				

Prepared by: JM
 Checked by: JBH1

Appendix A

SLAMM Program Calculations

Flambeau Mine, Bio-filter Annual Run-Off Mass Deposition Calculations

11-Dec-06

Sediment loading of the biofilter calculation summary.

Existing Case

Annual Loading from SLAMM Program:	3.5 Cubic Yards
	94.5 Cubic Feet ¹
Assumed unit weight of sediment:	115 pounds per cubic foot
Annual tons per year:	5.4 TONS ²
Existing area of bottom of bio-filter:	21700 Square Feet ³
Annual sediment thickness added to bio-filter:	0.05 inches ⁴

Using a safety factor of 2, the annual sediment thickness added to bio-filter: $2 \times 0.05 \text{ inches} = 0.1 \text{ inch/year}$.

- NOTE:
1. Cubic Feet = $3.5 \text{ CY} \times 27 \text{ CF/CY} = 94.5 \text{ CF}$
 2. Tons = $3.5 \text{ CY} \times 27 \text{ CF/CY} \times 115 \text{ LBS/CF} \times 1 \text{ ton}/2000 \text{ LBS} = 5.4 \text{ tons}$
 3. Area = $(160' \times 110') + (30' \times 50') + (130' \times 20') = 21,700 \text{ SF}$
 4. Annual sediment thickness = $\text{Annual Loading (CF)} / \text{Existing bottom area (SF)} = 94.5 \text{ CF} / 21700 \text{ SF} = 0.0044 \text{ ft} = 0.05 \text{ inches}$.

Developed by: JBH1
Checked by: SRB

flambeau1.INP
 Data file name: C:\Program Files\winSLAMM\flambeau1.dat
 SLAMM Version V9.1
 Rain file name: C:\Program Files\winSLAMM\GB1982.RAN
 Particulate Solids Concentration file name: C:\PROGRAM
 FILES\WINSLAMM\PART.PSC
 Runoff Coefficient file name: C:\PROGRAM FILES\WINSLAMM\RUNOFF.RSV
 Particulate Residue Delivery file name: C:\PROGRAM
 FILES\WINSLAMM\DELIVERY.PRR
 Residential Street Delivery file name: C:\PROGRAM FILES\WINSLAMM\WI_STR04.STD
 Institutional Street Delivery file name: C:\Program
 Files\winSLAMM\WI_STR04.std
 Commercial Street Delivery file name: C:\Program Files\winSLAMM\WI_STR04.std
 Industrial Street Delivery file name: C:\Program Files\winSLAMM\WI_STR04.std
 Other Urban Street Delivery file name: C:\Program Files\winSLAMM\WI_STR04.std
 Freeway Street Delivery file name: C:\Program Files\winSLAMM\WI_STR04.std
 Pollutant Relative Concentration file name: C:\PROGRAM
 FILES\WINSLAMM\POLL.PPD
 Seed for random number generator: 42
 Study period starting date: 01/02/82 Study period ending date:
 12/28/82

Date: 12-08-2006 Time: 08:42:26

Fraction of each type of Drainage System serving study area:

1. Grass Swales 0
2. Undeveloped roadside 0
- Curb and Gutters, 'valleys', or sealed swales in:
3. Poor condition (or very flat) 1
4. Fair condition 0
5. Good condition (or very steep) 0

Site information: Flambeau Bio-filter

Source Area	<==== Areas for each Source (acres) =====>				
	Resi- dential Areas	Institu- tional Areas	Commercial Areas	Industrial Areas	Other Urban Areas
Roofs 1	0.00	0.00	0.00	1.00	0.00
Roofs 2	0.00	0.00	0.00	0.00	0.00
Roofs 3	0.00	0.00	0.00	0.00	0.00
Roofs 4	0.00	0.00	0.00	0.00	0.00
Roofs 5	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 1	0.00	0.00	0.00	3.50	0.00
Paved Parking/Storage 2	0.00	0.00	0.00	0.00	0.00
Paved Parking/Storage 3	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 1	0.00	0.00	0.00	0.00	0.00
Unpaved Prkng/Storage 2	0.00	0.00	0.00	0.00	0.00
Playground 1	0.00	0.00	0.00	0.00	0.00
Playground 2	0.00	0.00	0.00	0.00	0.00
Driveways 1	0.00	0.00	0.00	0.00	0.00
Driveways 2	0.00	0.00	0.00	0.00	0.00
Driveways 3	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 1	0.00	0.00	0.00	0.00	0.00
Sidewalks/Walks 2	0.00	0.00	0.00	0.00	0.00
Street Area 1	0.00	0.00	0.00	0.00	0.00
Street Area 2	0.00	0.00	0.00	0.00	0.00
Street Area 3	0.00	0.00	0.00	0.00	0.00
Large Landscaped Area 1	0.00	0.00	0.00	15.50	0.00
Large Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Undeveloped Area	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 1	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 2	0.00	0.00	0.00	0.00	0.00
Small Landscaped Area 3	0.00	0.00	0.00	0.00	0.00
Isolated/Water Body Area	0.00	0.00	0.00	0.00	0.00
Other Pervious Area	0.00	0.00	0.00	0.00	0.00
Other Dir Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Other Part Cnctd Imp Area	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	20.00	0.00

Freeway Source Area	Area (acres)
Roofs 1	0.00
Roofs 2	0.00
Roofs 3	0.00
Roofs 4	0.00
Roofs 5	0.00
Paved Parking/Storage 1	0.00
Paved Parking/Storage 2	0.00
Paved Parking/Storage 3	0.00
Unpaved Prkng/Storage 1	0.00
Unpaved Prkng/Storage 2	0.00
Total	0.00
Total of All Source Areas	20.00
Total of All Source Areas less All Isolated Areas	20.00

Source Area Control Practice Information

Land Use: Industrial

Roofs 1 Source area number: 91

The roof is pitched

The Source Area is directly connected or draining to a directly connected area

Paved Parking/Storage 1 Source area number: 96

The Source Area is directly connected or draining to a directly connected area

Large Landscaped Area 1 Source area number: 111

The SCS Hydrologic Soil Type is Clayey

The building density is low

Drainage System

Outfall

Control Practice 1 : Wet Detention Ponds

1. Area served by detention ponds (acres)= 20

2. Particle Size Distribution file name: C:\PROGRAM

FILES\WINSLMM\MIDWEST.CPZ

3. Initial stage elevation (ft): 0

4. Peak to Average Flow Ratio: 3.8

5. Outlet Characteristics:

Outlet number 1

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 5

2. Weir crest width (ft): 5

3. Discharge Coefficient (ft): 0

4. Height of weir opening (cfs): 1

5. Height of datum to bottom of weir opening: 5

6. Pond stage and surface area

Outflow	Entry	Stage	Pond Area	Natural Seepage	Other
	Number	(ft)	(acres)	(in/hr)	(cfs)
	0	0.00	0.0000	0.00	0.00
	1	0.01	0.8500	0.00	0.00
	2	1.00	0.8500	0.00	0.00
	3	2.00	0.8500	0.00	0.00
	4	3.00	0.8500	0.00	0.00

flambeau1.INP

5

6.00

0.8500

0.00

0.00

Pollutants to be Analyzed and Printed:

Pollutant Name

Pollutant Type

Solids

Particulate

Solids

Total

flambeau1 - Output Summary.txt

SLAMM for Windows Version 9.1.2

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Data file name: C:\Program Files\winslamm\flambeau1.dat
 Data file description: Flambeau Bio-filter
 Rain file name: C:\Program Files\winslamm\GB1982.RAN
 Particulate Solids Concentration file name: C:\PROGRAM FILES\WINSLAMM\PART.PSC
 Runoff Coefficient file name: C:\PROGRAM FILES\WINSLAMM\RUNOFF.RSV
 Particulate Residue Delivery file name: C:\PROGRAM FILES\WINSLAMM\DELIVERY.PRR
 Residential Street Delivery file name: C:\PROGRAM FILES\WINSLAMM\WI_STR04.STD
 Institutional Street Delivery file name: C:\Program Files\winslamm\WI_STR04.std
 Commercial Street Delivery file name: C:\Program Files\winslamm\WI_STR04.std
 Industrial Street Delivery file name: C:\Program Files\winslamm\WI_STR04.std
 Other Urban Street Delivery file name: C:\Program Files\winslamm\WI_STR04.std
 Freeway Street Delivery file name: C:\Program Files\winslamm\WI_STR04.std
 Pollutant Relative Concentration file name: C:\PROGRAM FILES\WINSLAMM\POLL.PPD
 Model Run Start Date: 01/02/82 Model Run End Date: 12/28/82
 Date of run: 12-08-2006 Time of run: 08:42:13
 Total Area Modeled (acres): 20

Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
728081	0 %	349.2	15860	0 %
728081	0.00%	349.2	15860	0.00%
728081	0.00%	214.9	9762	38.45%
552654	24.09%	13.55	467.0	97.06%

Source Area Total without Controls:
 Total Before Drainage System:
 Total After Drainage System:
 Total After Outfall Controls:

Flambeau Mine / Industrial Outlot Rainfall Data 2006 – 2010

The following table identifies the dates upon which the Flambeau mine site, Industrial Outlot, and Biofilter received precipitation of 0.5 inches or more within a 24-hour period, thereby causing a precipitation-induced discharge from the Biofilter to Stream C.

These dates were obtained from the U.S. Department of Commerce's National Climatic Data Center, for the Ladysmith 3w monitoring station, in Rusk County, Wisconsin (45°28'N / 91°07'W), which is part of the National Weather Service's Cooperative Station Network (Coop ID No. 474391) (for further station information, see <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwDI~StnSrch~StnID~20021221>)

Date	24 Hour Amount of Precipitation (inches)
06-24-06	0.50
06-26-06	0.50
07-26-06	0.70
07-31-06	0.87
08-01-06	1.00
08-02-06	2.70
08-18-06	0.59
09-16-06	0.70
09-23-06	0.50
10-04-06	0.58
10-17-06	0.65
11-29-06	0.67
01-01-07	0.78
03-02-07	0.53
03-31-07	0.56
04-01-07	0.63
05-24-07	0.86
06-08-07	0.60
06-18-07	0.58
06-19-07	0.70
07-04-07	0.80
07-08-07	2.00
07-27-07	1.08
08-20-07	0.70
08-21-07	0.60
08-22-07	0.79
08-28-07	1.50
09-19-07	1.16
09-21-07	2.60
09-25-07	0.53
09-30-07	0.57
10-01-07	1.40
10-03-07	1.01
10-06-07	1.38
10-09-07	0.63
10-17-07	0.54
10-19-07	0.81
12-02-07	0.60
12-23-07	1.00
04-01-08	0.55

04-11-08	0.60
04-12-08	0.60
04-25-08	1.00
05-02-08	0.59
05-04-08	1.00
05-30-08	1.30
06-06-08	1.10
06-07-08	1.00
06-12-08	1.90
06-28-08	0.85
07-30-08	0.62
08-04-08	1.18
09-12-08	1.30
09-14-08	0.60
09-24-08	0.62
10-06-08	1.00
10-07-08	0.63
10-08-08	0.53
12-15-08	0.64
04-27-09	1.00
05-14-09	0.55
06-09-09	1.07
06-22-09	1.55
06-28-09	0.50
07-10-09	0.77
08-03-09	1.58
08-14-09	0.52
08-16-09	0.75
08-20-09	0.55
08-21-09	0.73
08-26-09	0.53
10-02-09	0.83
10-07-09	1.15
10-22-09	0.82
10-24-09	1.20
12-25-09	0.75
01-25-10	0.70
05-08-10	0.70
05-31-10	0.55
06-09-10	1.20
06-16-10	0.60
06-22-10	1.80
06-24-10	0.73
07-12-10	0.57
07-15-10	2.70
07-18-10	0.51
07-28-10	1.70
Total Number of Alleged Precipitation-induced Discharges	87

Discharges from Biofilter to Stream C and Sampling Results (Sampling location identified by FMC as "BFSW-2")¹

Pollutant / Parameter	Nov. 1999	Nov. 2000	4/17/01	6/21/01	June 2002	5/5/03	6/23/03	4/19/04		9/15/04	10/23/04	4/26/05	6/9/05	July 2005
								FMC	WDNR					WDNR
Alkalinity ² (mg/l)	25	25	24	24	36	24	24		15					28
Barium (Ba) (µg/l)	18	16	210	19	140	25	25		19					22
Conduct (Lab) (µmhos/cm)			130	80	160	190	100	130						
Conduct (Fld) (µmhos/cm)	144	97	116	63	138	176	93	103	122					210
Copper (Cu) (µg/l)	25	91	85	73	27	61	62	53	48	67	28	27	46	14
Hardness (mg/l)	34	32	31	32	31	32		21	21	24	24	29	32	35
Iron (Fe) (mg/l)	0.036	0.076	0.38	0.41	0.1	0.5		0.6	1.9					0.7
Iron, dissolved (mg/l)														
Magnesium (Mg) (mg/l)									1.6					2.5
Manganese (Mn) (µg/l)	1.6	24	380	86	3.3	29	36	110	181					109
Manganese, dissolved (µg/l)														
pH (s.u.) Lab	7.3	6.8	6.7	6.9	7.4	6.5	6.3	6.5	7.2	6.37	6.64	6.82	6.85	7.9
pH (s.u.) Field	7.3	7	6.6	6.6	6.7	7	6.8	6.9						
Sulfate (mg/l)	18	18	12	9.4	11	13		7.7	<4.5	8.5	7.7	6	6.5	<4.5
TDS3 (mg/l)	63	49	84	98	97	120			68					130
Zinc (Zn) (µg/l)	<12	<12	51	<12	41	36		53	<16	[6.9]	5	[6.8]	[5.8]	<16
Zinc, dissolved (µg/l)														

NOTES:

¹Unless where noted, all samples were collected and analyzed by FMC or its contractors or representatives, and the results were submitted to DNR.

²Total alkalinity as CaCO₃.

⁴³Total Dissolved Solids.

[] = Result is greater than or equal to the limit of detection but less than the limit of quantitation and is within a region of "Less-Certain Quantitation."

Shaded Cells = The measured level exceeds either the applicable Wisconsin water quality toxicity criterion or the U.S. EPA's suggested water quality criterion for that pollutant.

Discharges from Biofilter to Stream C and Sampling Results (Sampling location identified by FMC as "BFSW-2")¹

Pollutant / Parameter	8/26/05	9/20/05	April 2006	8/3/06	10/4/06	11/28/06	5/24/07	8/21/07	9/21/07	4/25/08	6/8/08	10/27/08	4/25/09	10/3/09	4/16/10
Alkalinity ² (mg/l)			WDNR												
Barium (Ba) (µg/l)			16.5												
Conduct (Lab) (µmhos/cm)			14												
Conduct (Fld) (µmhos/cm)			193	127	218	109	351	197	66	163	98	84	209	93	288
Copper (Cu) (µg/l)	41	61	35	33	16	34	13	[3.9]	15	22	8.8	16	15	18	11
Hardness (mg/l)	39	32	25.4	25	21	23	28	22	13	27	19	17	29	15	27
Iron (Fe) (mg/l)			2						1	0.82	0.69	0.94	2.4	1.7	0.74
Iron, dissolved (mg/l)											0.41				
Magnesium (Mg) (mg/l)			2												
Manganese (Mn) (µg/l)			109						38	140		120	270	160	120
Manganese, dissolved (µg/l)											21				
pH (s.u.) Lab	6.21	7.69	7.24	6.7	6.55	6.23	6.93	7.25	6.93	7.63	7.31	6.83	6.52	5.74	7.28
pH (s.u.) Field															
Sulfate (mg/l)	6	5	5.2						[3.0]	7	5.7	[4.3]	[4.8]	ND	[4.3]
TDS3 (mg/l)			118												
Zinc (Zn) (µg/l)	[9.1]	12	7	9.7	6.9	8.2	[5.4]	ND	[9.0]	[7.3]	<5	[8.5]	[7.0]	[8.3]	ND
Zinc, dissolved (µg/l)											[6.4]				

NOTES:

¹Unless where noted, all samples were collected and analyzed by FMC or its contractors or representatives, and the results were submitted to DNR.

²Total alkalinity as CaCO₃.

⁴³Total Dissolved Solids.

[] = Result is greater than or equal to the limit of detection but less than the limit of quantitation and is within a region of "Less-Certain Quantitation."

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