

From nwf.org|WAYNE Tue Sep 17 07:08:09 1996
Return-Path: <WAYNE@nwf.org>
Received: from nwfnet.nwf.org (really [204.252.191.33]) by web.net
via sendmail with smtp (ident firewall-user using rfc1413)
id <m0v2y0e-000AMFC@web.net>
for <cela@web.net>; Tue, 17 Sep 96 07:08:08 -0400 (EDT)
(/###^ Smail3.1.30.12.0 #30.1 built 5-jul-95)
Received: by nwfnet.nwf.org; id HAA01468; Tue, 17 Sep 1996 07:05:52 -0400
Received: from unknown(172.16.8.6) by nwfnet.nwf.org via smap (V3.1)
id xma001463; Tue, 17 Sep 96 07:05:52 -0400
Received: from NWF#u#VIENNA-Message_Server by nwf.org
with Novell_GroupWise; Tue, 17 Sep 1996 07:03:42 -0400
Message-Id: <s23e4d4e.059@nwf.org>
X-Mailer: Novell GroupWise 4.1
Date: Mon, 16 Sep 1996 20:45:30 -0400
From: Wayne Schmidt <WAYNE@nwf.org>
To: cela@web.net
Cc: DAY#u#L@nwf.org, EDER@nwf.org
Subject: For Sarah Miller - confidential
Status: R

Sarah:

I reviewed your WRDA/Crandon Mine analysis. My compliments on your work. I have not had a chance to talk with Tim about this; I'm traveling but wanted to get you my response.

You asked my opinion regarding WRDA intent. I was at MUCC and was involved in this legislation's passage. I have to tell you, however, that I do not believe the issue of groundwater withdrawals ever arose. That probably doesn't make a lot of sense, in light of your very appropriate analysis about ecosystem impacts, but that's my recollection. The Wisconsin legal analysis appears about right, based on that history.

My memory may be incomplete. I recommend you contact Tom Martin, who I believe was heading Michigan's Office of the Great Lakes, during that history. He is at:

Tom Martin
Earth Force
1501 Wilson Blvd., 12th Floor
Arlington, VA 22209
MARTIN - 703/807-2827
fax 7073/243-7066
2121680@mcimail.com

None of this is to suggest you should not continue to push the envelope on this issue.

Regards--Wayne

GREAT LAKES UNITED

An international coalition to conserve and protect the
Great Lakes/St. Lawrence River ecosystem

September 12, 1996

G. Tracey Mehan III
Director of the Office of the Great Lakes
Hollister Building
106 W. Allegan Street, 6th Floor
Lansing, Michigan 48933

Dear G. Tracey Mehan III,

Re: Crandon Mine Project Diversion

Enclosed is a package of materials I received yesterday from Daniel Cozza, Regional Team Manager, US EPA Region 5. I also spoke with Mr Cozza yesterday.

The EPA has asked the army corps of Engineers for an opinion on the applicability of the Water Resources Development Act (WRDA) to this project. The ruling could set a precedent for other out of basin transfers. US EPA is seeking information as soon as possible on the intent and provisions of the WRDA and its application to this project and also has their lawyers looking at it. Do you have anything which could be of assistance to them. It will be important to contact them immediately.

It appears there is a small window of opportunity here to see the strongest interpretation of the Act applies. Unfortunately we do not have the legal resources to carry out this research on the U.S. laws from Canada. I hope you will be able to assist. Thank you for your package of materials on the Office of the Great Lakes activities.

Yours truly,



Sarah Miller
for Great Lakes United's Sustainable Water Resources Taskforce
CANADIAN ENVIRONMENTAL LAW ASSOCIATION
517 College Street, Suite 401
Toronto, Ontario M6G 4A2
Canada

RECEIVED SEP 9 - 1996

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V**

DATE: August 30, 1996

SUBJECT: Interbasin Transfer

FROM: Dan Cozza, Crandon Mine Team Project Manager *DC*

TO: Tom Crane, Great Lakes Commission
Jeff Edstrom, Council of Great Lakes Governors
Dan Injerd, IL DNR
Jan Miller & Carroll Kleinhans, COE-Chicago
Don Garner-Gerhardt, Congressman Obie's Office
Sarah Miller, Great Lakes United

Attached are some supporting documents to the requests made to each of you by me over the last several months regarding the applicability of the Water Resources Development Act of 1986, Section 1109, to the proposed interbasin transfer of up to 1.5 million gallons per day of treated waste water from the proposed Crandon Mine site, via a 38-mile pipeline, to the Wisconsin River, (Lake Michigan Basin to the Upper Mississippi Basin).

I have attached the following:

- * Letter dated July 26, 1996 to Sarah Miller from Paulette J. Harder regarding WDNR's position on WRDA'86 (w/attachment WDNR memo dated July 9, 1996)
- * Letter, dated May 17, 1996 from Sarah Miller (Great Lakes United) to Bill Tans, WDNR
- * WRDA'86, Section 1109
- * Crandon Mine Proposed Discharge summary as prepared by WDNR for a public meeting held in Tomahawk, WI explaining the discharge and state statutes
- * Hard copy of EPA's Crandon Mine Project Homepage
- * Letter dated August 19, 1996, from Ben Wopat, COE, to Don Moe, CMC, regarding COE to research and give determination on issue
- * Letter dated August 27, 1996 from Dan Cozza, EPA, to Ben Wopat, COE, supporting decision and offering assistance on issue.



U.S. Environmental Protection Agency
Region 5


DANIEL J. COZZA
Regional Team Manager

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More

Crandon Mine Project

U.S. Environmental Protection Agency Region 5

Crandon Mine is a proposed mining site outside Crandon, WI ([map of area](#)). The ore body, consisting primarily of copper and zinc sulfides with lesser amounts of lead, silver, and gold, was discovered in the mid-1970s. In 1978, Exxon Minerals Co. first submitted to the Wisconsin Department of Natural Resources (WDNR) a Notification of Intent to collect data to support the mining permits. Exxon submitted the permit applications in mid-1980s, but withdrew them because of depressed metal prices.

In 1993, Exxon subsidiaries formed a general partnership with subsidiaries of Rio Algom Limited, creating the Crandon Mining Co. which updated and, in 1994, resubmitted a Notification of Intent to apply for permits. To date, Crandon Mining Co. has submitted several major documents to the WDNR (with copies to the federal agencies and tribes) including the Environmental Impact Report (EIR), Mine Permit Application, and the Tailings Management Area Feasibility Report/Plan of Operation. These documents and several smaller submittals are being reviewed by appropriate state, federal and tribal agencies. These documents, among other data to be generated, will be used by WDNR and the U.S. Army Corps of Engineers (USACE) to develop separate state and federal Environmental Impact Statements. USACE has the federal lead on the project for the Environmental Impact Statement (EIS) and wetland issues, while the U.S. Environmental Protection Agency (EPA) has a review role. The EIS, state and federal, may take up to 3 years for the entire process.

Project Description:

(The following project description is based on Crandon Mining Co.'s EIR executive summary dated October 4, 1995, and may be changed based upon comments and revisions to the EIR arising from federal, state, and tribal reviews.)

Site description:

The Crandon deposit is of volcanic origin and consists of sulfide minerals. The ore body is approximately 4,900 feet long east/west and averages 100 feet wide north/south. After an initial three-year site preparation, it will be mined using underground methods for about 28 years. Annual ore production is projected at 2 million tons, totaling about 55 million tons.

The total area disturbed by the mine would be approximately 550 acres with the Tailings Management Area alone directly affecting about 355 acres.

The surface facilities would consist of the plant site, tailings management area, tailings and return water pipeline corridor, access road, railroad spur and wastewater treatment and discharge system. The proposed plant site consists of all mining, processing, concentrating, wastewater treatment, administrative and storage facilities.

After mining, the ore would be hoisted to the surface and processed, resulting in zinc, lead, and copper concentrates and a waste product called tailings. The concentrates would be shipped by rail to smelting

Surface water:

In addition to the concerns regarding a drop in river and lake levels due to groundwater pumping, there is also concern over the effects of the mine on surface-water quality, particularly if the Tailings Management Area leaks or if there are any spills related to mine activities. Changes in surface-water quality and quantity can be detrimental to the spawning of local game fish, a subsistence food of the tribes as well as affect the wild rice crops, also a subsistence food of the tribes.

Wetlands:

Crandon Mining Co. reports that the proposed mining activities would directly affect about 30 acres of wetlands. A concern that is being assessed is that the acreage that Crandon Mining Co. reported that would be affected by mining activities is understated and that indirect effects to wetlands may increase the overall amount of wetlands damaged to over more than the 30 acres estimated by the company.

Air:

Releases to the air due to activities at and associated with the mine project are being reviewed. An air model projecting the effects of the mine on the local air quality in the EIR is being reviewed. One of the primary air-quality concerns being studied is the potential for the deposition of contaminants on local lakes and other sensitive areas from mining activities, increased vehicle traffic, etc.

Regulatory involvement:

Several federal, state, and tribal entities are reviewing the proposed mine project.

U.S. Environmental Protection Agency:

U.S. Environmental Protection Agency has statutory and trust responsibilities to the tribes. EPA must assure that the concerns and interests of the tribes are heard and addressed. In addition, EPA will review and comment on permits submitted to the WDNR, and will review and comment on the state and federal EIS's and will review and comment on the U.S. ACE wetland permits/evaluations. Contact: Dan Cozza (cozza.daniel@epamail.epa.gov), 312/886-7252

Wisconsin Department of Natural Resources:

WDNR has authorization for most permitting issues and has the lead with this aspect of the project. WDNR will prepare its own Environmental Impact Statement. Federal agencies and the tribes may provide comments.

Contact: Bill Tang, 608/266-3524

State Dedicated Phone Line: 608/267-7534

U.S. Army Corps Of Engineers

U.S. Army Corps of Engineers has the responsibility over the wetlands and the lead with the federal Environmental Impact Statement. WDNR, federal agencies, and tribes will provide comments for the Corps to consider in making a recommendation. USACE has statutory and trust responsibilities to the tribes.

Contact: Dave Ballman, 612/290-5373

U.S. Fish and Wildlife Service

company's Environmental Impact Report can be viewed at any of the above agencies or at local libraries or repositories around the Crandon, WI, area.
Contact: Don Moe, 715/365-1453

For more information on any aspect of the project, please feel free to contact the appropriate representative listed above.

Current EPA activities in conjunction with the Crandon Mining Co.:

The Crandon Mine Project is a priority issue within EPA Region 5. EPA has formed an internal Crandon Mine Project Team with Dan Cozza as the Team Manager (Phone: 312/886-7252, Email: cozza.daniel@epamail.epa.gov) and with representatives from EPA's Divisions and Offices as team members. The Team is tasked with upholding the federal trust responsibility to the tribes and with reviewing all aspects of the project, including participation in the following:

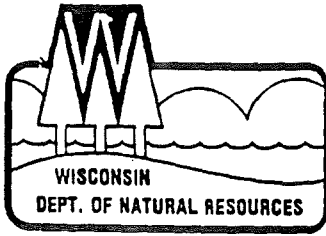
- Monthly governmental conference calls: Participation by EPA, WDNR., U.S. Bureau of Indian Affairs, U.S. Fish and Wildlife, U.S. ACE , U.S. Geologic Survey, Sokaogon Chippewa Community, Menominee Indian Tribe of Wisconsin, Forest County Potawatomi Community, Stockbridge-Munsee Community.
- WDNR meetings: Attend and participate several times a month in WDNR meetings regarding the Groundwater Model and Tailings Management Area.
- Document reviews: Continual review of Crandon Mining Co. documents, including EIR.
- USACE assistance: Review and comment for U.S. ACE on the development of the federal Environmental Impact Statement and other documents.
- Partnership building: Building partnerships with tribes, state, and other federal agencies as well as with special interest groups in the Crandon area.

Written Comments:

As the lead federal agency, USACE will prepare the federal Environmental Impact Statement for this project. Written comments or concerns regarding the project, with the code "RE: 94-01298-IP-DLB" at the top, should be sent to:

District Engineer
U.S. Army Corps of Engineers
190 Fifth St. East
St. Paul, MN 55101-1638





State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary

PO Box 7921
101 South Webster Street
Madison, Wisconsin 53707-7921
TELEPHONE 608-266-2621
FAX 608-267-3579
TDD 608-267-6897

*Rec
9/21/96*

July 26, 1996

SARAH MILLER
GREAT LAKES UNITED
SUSTAINABLE WATER RESOURCES TASK FORCE CHAIR
C/O CANADIAN ENVIRONMENTAL LAW ASSOCIATION
517 COLLEGE STREET 401
TORONTO ONTARIO CANADA M6G 4A2

SUBJECT: Crandon Mine Interbasin Diversion

Dear Ms. Miller:

You requested that the Wisconsin Department of Natural Resources notify and seek concurrence from the Council of Great Lakes Governors, Canadian Premiers, and the Water Resources Management Committee on the proposed Crandon Mine discharge of treated groundwater into the Wisconsin River. It's our legal opinion this isn't required by The Water Resources Development Act of 1986, or s. 144.026, Wis. Stats. and ch. NR 142, Wis. Adm. Code. We believe such a notification and project review by the groups you identified are unnecessary and could create confusion. The copy of your letter and this response will serve to inform these groups of the proposed diversion and the Department's position on the applicability of the Act.

Enclosed is a copy of the legal opinion on this issue conducted by the Department's legal staff. I also would like to emphasize that our 10 year experience with the other Great Lakes states is that The Water Resources Development Act of 1986 is viewed as applying only to proposed withdrawals from the Great Lakes proper or one of their tributaries.

The total water loss from the Crandon Mine is estimated at 886,000 gallons per day, with 664,000 gallons per day representing the average discharge volume to the Wisconsin River. The remainder of the water loss is mainly due to evaporation and water in the ore concentrate leaving the mill. This total water loss is substantially less the 5,000,000 gallon per day threshold where an approval process applies under Wisconsin Law.

Thank you for sharing your concern. I believe this information confirms that Wisconsin is in compliance with The Water Resources Development Act of 1986. We also want to assure you that any wastewater discharge must be in compliance with our water quality standards to protect the receiving water.

Sincerely,

Paulette Harder

Paulette J. Harder, Director
Bureau of Watershed Management

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

Department of Natural Resources
Bureau of Legal Services

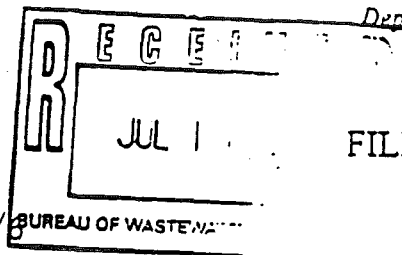
DATE: July 9, 1996

TO: William Tans - E.A./

FROM: Charles Hammer - LSZ

(608) 266-0911

SUBJECT: Inter-basin Transfers of Groundwater



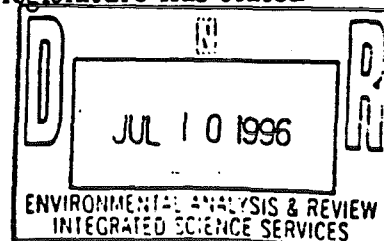
FILE REF: 8300

Crandon Mining Company's proposed mine would require pumping of groundwater that would seep into the underground mining operation. The company's present proposal calls for the pumped groundwater to be piped and discharged to the Wisconsin river. The mine is located within the Lake Michigan watershed, consequently the groundwater at the mine site would be expected to be within the hydraulic cycle of the Great Lakes, rather than that of the Mississippi river.

You have asked me whether this type of rerouting of groundwater from the Great Lakes basin to the Mississippi river basin is subject to the requirements of the federal Water Resources Development Act of 1986. Based on a review of the law and the practice of the affected states for the past decade, I conclude it would not apply to this situation.

Concerns over diversions from the Great Lakes has existed for some time. However, because of increased needs for water by the plains and southwestern states, the states and Canadian provinces adjacent to the Great Lakes formed a compact in the early 1980's called the Great Lakes Charter. One purpose of the compact was to create a mechanism by which the states and provinces could uniformly react to projected diversions from the Great Lakes.

Following creation of the Great Lakes Charter, the State of Wisconsin's legislature passed § 144.026, Wis. Stats. This legislation created the process by which the State of Wisconsin would react to diversions of waters from the Great Lakes basin. It provided for different levels of state involvement, depending on the amount of water to be diverted. We have interpreted that legislation to apply to groundwater diversions. As we have discussed before, it appears as though the proposed Crandon withdrawal is less, by a significant amount, than the threshold amount our legislature has stated calls for notification of other states.



without qualification or elaboration, must be presumed to address those bodies of water only. Not contributing sources for those waters. More importantly, Congress has specifically identified as subject to the legislation, one kind of water that it considers not to be included within the phrase "any portion of the Great lakes." That extension of jurisdiction applies to "any tributary within the United States of any of the Great Lakes."

Tributaries are terms applied, when discussing surface waters, to other streams discharging into the surface waters, not to groundwater migration. From the specificity of the language--references to the Great Lakes and to its tributaries--there is little question that the best interpretation of the law is that it applies only to these types of surface waters. Had Congress intended the Act to apply to groundwater it would have so stated, as it has for tributaries. In fact, if the legislation were intended to apply to the whole Great Lakes system, there would have been no need for Congress to specifically include references to "portions" of and "any tributary within" the Great Lakes.

WATER RESOURCES DEVELOPMENT ACT OF 1986

OCTOBER 17, 1986.—Ordered to be printed

Mr. HOWARD, from the committee of conference,
submitted the following

CONFERENCE REPORT

[To accompany H.R. 6]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 6) to provide for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its disagreement to the amendment of the Senate and agree to the same with an amendment as follows:

In lieu of the matter proposed to be inserted by the Senate amendment insert the following:

SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

(a) *SHORT TITLE.*—This Act may be cited as the "Water Resources Development Act of 1986".

(b) *TABLE OF CONTENTS.*—

Title I—Coast Shoring
Title II—Harbor Development
Title III—Inland Waterway Transportation System
Title IV—Flood Control
Title V—Shoreline Protection
Title VI—Water Resources Conservation and Development
Title VII—Water Resources Studies
Title VIII—Project Modifications
Title IX—General Provisions
Title X—Project Deauthorizations
Title XI—Miscellaneous Programs and Projects
Title XII—Dam Safety
Title XIII—Nominations
Title XIV—Revenue Provisions



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

T-17J

August 27, 1996

Mr. Ben Wopat, Chief, Regulatory Branch
Department of the Army
St. Paul District, Corps of Engineers
Army Corps of Engineers Centre
190 Fifth Street East
St. Paul, MN 55101-1638

RE: Crandon Mine 94-01298-IP-DLB

Dear Mr. Wopat:

The U.S. EPA has received your letter dated August 19, 1996 addressed to Mr. Don Moe, Technical Permitting Manager for Crandon Mining Company regarding the Corps of Engineers (COE) commitment to following up on the interbasin transfer issue. EPA supports this decision as the intent of the Water Resources Development Act of 1986 (WRDA '86), Section 1109, needs to be determined prior to the granting of any federal permit for this project. As you know, I have been working with Dave Ballman on this issue and will continue to do so until a decision is made as to the applicability to and the possible implications of WRDA '86 to the project.

I am aware of the position taken by the Wisconsin Department of Natural Resource (outlined in a WDNR correspondence memo from Charles Hammer to William Tans dated July 9, 1996), but since COE is the lead federal agency, it is important to have an official federal policy decision on this matter from your agency.

I would be glad to assist you and Mr. Ballman in anyway that I can on this matter. Please give me a call at 312-886-7252.

Sincerely,


Daniel J. Cozza
Crandon Mine Team Project Manager
United States Environmental Protection Agency

See 1/21/96
2/2/96

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
ARMY CORPS OF ENGINEERS CENTRE
190 FIFTH STREET EAST
ST. PAUL, MN 55101-1638

AUG 19 1996

Construction-Operations
Regulatory (94-01298-IP-DLB)

Mr. Don Moe
Technical Permitting Manager
Crandon Mining Company
7 North Brown Street
P.O. Box 856
Rhineland, Wisconsin 54501-0856

Dear Mr. Moe:

This is in follow-up to the recent telephone conversations you and Mr. Charles Curtis have had with Mr. Dave Ballman and Mr. Steve Adamski, of our staff, regarding the Water Resources Development Act of 1986 (WRDA). We have been asked by Native American tribes and the Sierra Club whether Section 1189 of WRDA, which addresses prohibitions on diversions of water from the Great Lakes basin, applies to your proposed project. Specifically, in question is the proposed discharge of treated wastewater from the mine/mill site into the Wisconsin River via a 38-mile pipeline.

1109

As we advised you, we will be conducting additional research on this topic before making a determination. You stated that Mr. Curtis has also researched this issue and that you would be willing to share that information. The Environmental Protection Agency has also shared information they have gathered. We will similarly evaluate any additional information we receive from other interested parties.

If you have any questions, contact David L. Ballman in our St. Paul office at (612) 290-5373.

Sincerely,

Ben A. Wopat
Chief, Regulatory Branch

cf (see attached list):

CRANDON MINE PROPOSED DISCHARGE

1. Wastewater Sources
2. Mine Drainage Water
3. Discharge Location Map
4. Interbasin Diversion of Water
5. Dilution in the Wisconsin River
6. Effluent Comparison

Volume
Copper
Lead
Zinc
BOD₅

7. Metal Loading Comparison
8. WPDES Permits
9. Effluent Limitations

MINE DRAINAGE WATER

1. Infiltrated Groundwater

This water comes in contact with mining activities and may become contaminated with:

- Metals from the Ore
- Suspended Solids
- Residue from Ammonium Nitrate Explosives
- Oil and Grease from Machinery

2. Potable Water (drinking water quality)

3. Utility Water (drilling and dust control)

4. Backfill Drainage Water

Mine Drainage Water Volumes Estimated to be:

Average = 600 Gallons/Minute

Maximum = 1,150 Gallons/Minute

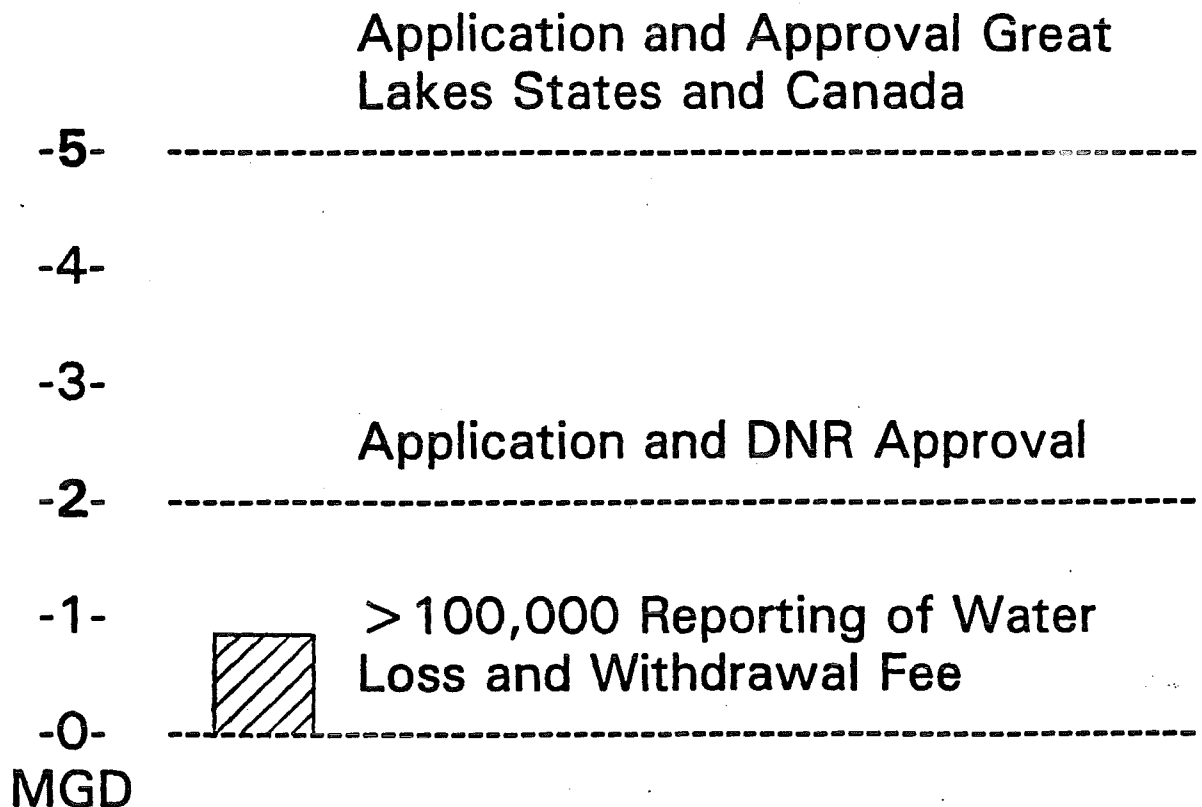
INTERBASIN DIVERSION

From the Wolf River Basin to the Wisconsin River via a 38 Mile Pipeline.

Regulated under: s. 144.026, Wis. Stats
ch. NR 142, Wis. Adm. Code

Crandon Mine Estimated Average Water Loss:

664,000	Discharge to Wisconsin River
199,000	Evaporation
<u>23,000</u>	Water in Ore Concentrate
886,000	Gals/Day Lost



EFFLUENT VOLUME

<u>Discharger</u>	<u>Million Gal/Day</u>
Crandon Mine	0.664
Flambeau Mine	0.466
Tenneco Packaging	5.026
Rhineland Paper	9.162
American Tissue	0.096
City of Rhineland	1.333
City of Tomahawk	0.480

The flows represent average values of effluent discharged from the wastewater treatment system. The Crandon Mine flow is estimated based on groundwater modelling and geological site investigations.

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COPPER Effluent Quality

<u>Discharger</u>	<u>$\mu\text{g/L}$</u>	<u>Lbs/Day</u>
Crandon Mine	5.7	0.03
Flambeau Mine	11.5	0.04
Tenneco Packaging	56	2.35
Rhineland Paper	9.7	0.74
American Tissue	2.9	0.0023
City of Rhineland	14.6	0.16
City of Tomahawk	47.4	0.19

Background = 0.33 $\mu\text{g/L}$
Wisconsin River at Hat Rapids Dam

LEAD Effluent Quality

<u>Discharger</u>	<u>$\mu\text{g/L}$</u>	<u>Lbs/Day</u>
Crandon Mine	0.016	0.00009
Flambeau Mine	0.317	0.0012
Tenneco Packaging	9.3	0.39
Rhineland Paper	<4	<0.30
American Tissue	<2	<0.0016
City of Rhineland	6.5	0.072
City of Tomahawk	--	--

Background = 0.162 $\mu\text{g/L}$
Wisconsin River at Hat Rapids Dam

METAL LOADING

Crandon Mining Company:

	<u>Lbs/Day</u>	<u>Lbs Loaded in 30 Years</u>	
Copper	0.03	329	
Lead	0.00009	1	
Zinc	0.016	175	

Tenneco Packaging:

	<u>Lbs/Day</u>	<u>Days *</u>
Copper	2.35	140
Lead	0.39	3
Zinc	17.6	10

* Days it would take Tenneco Packaging to discharge the amount of metal the Crandon Mine would discharge in 30 years.

WPDES PERMITS

Chapter 147, Wis. Stats., contains the requirements for the Wisconsin Pollution Discharge Elimination System. "It is the policy of the state to restore and maintain the chemical, physical, and biological integrity of its waters to protect public health, safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, agricultural, and other uses of water." To achieve this policy:

- DNR issues permits to wastewater dischargers. In 1974 DNR received delegation from EPA to administer the clean water program.
- WPDES permits contain water quality based effluent limits to protect the use of the receiving water, and categorical industrial standards which apply nationwide.
- A wastewater discharge may not contain toxic substances in toxic amounts.
- Antidegradation regulations limit new discharges to one third of the assimilative capacity of the receiving water to prevent the significant lowering of water quality.

4. The most stringent toxicity criterion is used.
5. Assimilative capacity of the substance in the receiving water is decreased by the background concentration of the substance.
6. Toxicity of metals is adjusted for water hardness (harder water = less toxicity).
7. Amount of dilution provided by the receiving water (chronic, animal, and human health criteria).
8. Rate of mixing of the discharge into the receiving water (acute criteria).
9. Whether the receiving water is a public drinking water source.
10. Concentration limits to protect against acute toxicity at the end of the pipe.
11. Mass limits to maintain assimilative capacity of the receiving water and protect against chronic, animal, and human health toxicity.
12. Biomonitoring tests are required to confirm the discharge isn't toxic.