NATURAL RESOURCES
COMMISSION
JERRY C. BARTNIK
LARRY DEVUYST
PAUL EISELE
JAMES HILL
DAVID HOLLI
JOEY M. SPANO
JORDAN B. TATTER

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES
John Hannah Building, P.O. Box 30241, Lansing, MI 48909

ROLAND HARMES, Director

July 21, 1993

CERTIFIED MAIL

Mr. Gary Fuller, Director
Wexford County Department of Public Works
3161 South Lake Mitchell Drive
Cadillac, Michigan 49601

Dear Mr. Fuller:

This is to acknowledge receipt of the Exemption Notification Form for a Water Resources Commission (WRC) Exemption dated March 26, 1993 for Wexford County Landfill. The exemption is for the discharge resulting from Groundwater Remediation Activities. You have supplied the information and certified that the discharge meets the exemption conditions approved by the WRC, under R 323.2209 of the administrative rules of 1929, P.A. 245, as amended, at its August 20, 1992, meeting.

You must submit a new Exemption Notification Form at five year intervals, for any future changes to the information submitted on the form. In addition, if the discharge will no longer meet the exemption conditions established by the WRC, you must submit an application and obtain a groundwater discharge permit or obtain a site specific exemption approved by the WRC.

Your groundwater discharge permit application dated March 13, 1992 has been formally withdrawn.

This exemption does not authorize the discharge of any substance that is, or may become, injurious to the public health, safety, or welfare, or to the domestic, commercial, industrial, agricultural, recreational, or other uses which are being or may be made of the groundwaters.

Nothing in this exemption shall be construed as allowing a discharge prohibited under state or federal law, or as license to impair the natural resources of the State. The State reserves the right to bring appropriate action against the discharger for violation of state or federal law, for recovery of costs, penalties, fines, environmental damages, or impairment of resources resulting from past or present discharges, including,

but not limited to, surface water, soils, or groundwater contamination on, or emanating from, the discharger's facility.

If deemed necessary to protect the groundwater, the WRC may require a facility discharging under the conditions of this exemption to apply for and obtain a state groundwater discharge permit or facility specific exemption under Act 245.

If you have any questions regarding your exemption or the criteria that must be met, please contact Ms. Kathleen Sibo of the Groundwater Section, Waste Management Division at 517-373-7144.

Sincerely,

Joan H. Peck

Joan H. Peck
Assistant Executive Secretary
Water Resources Commission
517-373-8147

cc: Wexford County Health Department
Cedar Creek Township Supervisor
Catherine Cline, Cadillac District, WMD
Scott Ross, WMD
Susan Anderson, WMD
Kathleen Sibo, Reviewer
Ann Marie Kowalk, WMD
Jeanette Bailey, WMD
Janice Heuer, Cadillac District, WMD

Wexford County Landfill KS

3-16-92 Rec'd App.

4-3-92 Acknow/Reviews out, Sibo is assigned geologist

2/23/93 Sent generic application package for revised treatment plan

3/31/93 Received incomplete copies of generic application

7/12/93 Received complete copy of generic application.

7/21/93 Acknowledgement letter from J. Peck stating exemption is in effect.

Hydrogeologic Summary for Wexford County Landfill

I. Facility Description

A. Where is site located?
The site is located on the east side of US 131 about 6 miles north of Cadillac, in the W 1/2 of the NW 1/4 of Section 34, T23N R9W, Cedar Creek Twsp., Wexford County.

1. What borders the site?
There is publicly owned land east and south, and privately owned land west and north. ***What is on these? Particularly, what is this land owned by the school district? Is there a school nearby?***

B. What is going to be built or What is present?
The site is an existing landfill with a contamination problem. A 200 by 200 foot holding lagoon will be built on the north end of the landfill, near the end of the plume. A proposed discharge area is located in the south part of the property.

1. How will the treatment method operate?
Pump test proposed flow rate of 500 gpm will generate 1,440,000 gallons of water during 48 hour test. If equilibrium not reached in 48 hours, the test will continue until no expansion of the drawdown cone is observed. The holding lagoon is designed to accomodate a 72 hour test (3 million gallons max.). Pump test water will be discharged to the lagoon with a 20 mil PVC liner. From the lagoon, water will be treated and discharged to a location at the south end of the landfill. Storage will allow for sampling and for design of treatment system. This should allow for better treatment since the treatment flow rate can be much lower than that of the pump test. The discharge area is 250 feet upgradient of solid waste landfill areas, and 350 feet upgradient of nearest mon. well, #3. Well is located in a filled area and has shown low organics, but consultant claims discharge will not adversely affect plume. This is because mounding should occur upgradient of any contam. source.

For the groundwater cleanup, the lagoons have been lined and are to be used for aerating the purge water. Discharge will be upgradient in the same location as before. There is an interception line of 5 wells on the north boundary of the landfill, with a total capture zone 750 feet wide (plume is 600 feet wide). The wells will pump at 235 - 240 gpm/well, for a total of about 1,692,000 gpd.

C. Proposed Monitoring Program
1. What monitoring wells are there and where are they?
There are at least 16 monitoring wells around the site.

2. What is the proposed monitoring program?
Quarterly sampling for organics and inorganics, approved by Cadillac District.

II. Background History

1. What history is pertinent?
The landfill is operating under a consent agreement and an Act 641 license. They have documented groundwater contamination. We received the exemption request Dec. 18, 1990 for a pump test water discharge for remediation of an organic and inorganic plume. We received a complete application for the purge water exemption July 12, 1993.

III. Aquifers

A. Depth to groundwater?
Note: report mentions that substantial perched water was encountered. Depth? Perched on what? There is about 180 feet to groundwater.

B. How many aquifers?

C. Upper Aquifer
1. Is upper aquifer usable?
Upper aquifer appears to be usable.

2. What is the unsaturated thickness (depth to water table)?
There is about 180 feet of unsaturated soil.

3. What is the saturated thickness?

4. What is the flow direction?
North.

5. Where does aquifer discharge?

6. Is unusable upper aquifer connected to a usable aquifer?
N/A

D. Usable aquifers
1. Where are the usable aquifers?
Surficial aquifer.

a. Are they interconnected?

2. Is aquifer large or continuous?

3. Where is usable aquifer recharged?

4. Where does usable aquifer discharge?

IV. Neighboring Wells

A. What aquifer are local wells using?
***Monitor well #1 is the landfill office supply well in th

hydro report.***

B. Where are the nearest downgradient wells?
Exemption appl. says no wells or residences are within 1/2 mile of the site.

1. What aquifer do they use?

C. Are any wells artesian?

V. Water Quality

A. What is the background water quality? Well and date?

B. What is the downgradient water quality? Well and date?

C. Where will the plume discharge?

VI. Soils

A. Surface Soils

1. What are the surface soils?
The soils are mostly fine to medium sand, with occasional gravel. There are occasional thin clayey layers.

2. What methods were used to obtain soil info (drilling, backhoe, etc.)?

B. Soil Cross-Sections

1. What do the general logs or cross-sections look like?

2. Where are the protective layers?
N/A

3. Are the protective layers continuous?

a. Slope of the protective layers?

4. How permeable are the protective layers?

C. Soil Chemistry

1. What are the permeability ranges of surface soils?

2. What is phosphorus adsorption ability of surface soils?

3. What is cation exchange capability of surface soils?

D. Soil Contamination

1. Where and how is the soil contaminated?
Organics and metals have leached from landfill cells.

VII. Geology

A. What is the general description of the deposits?
The deposits are outwash sand and gravels with occasional clay or sandy clay lenses. These lenses are very thin and discontinuous. The sands are usually fine to medium, with some coarser layers interbedded, and occasionally containing gravel.

B. What is the origin of the deposits on the site?
Glacial outwash.

C. Depth of unsaturated zones?
There is reported to be about 180 feet of unsaturated soil.

D. Physical qualities
1. What is the permeability of the soil?
The hydraulic conductivity ranges from 100 to 1000 gpd/sq.ft.

2. What is the flow velocity?
Velocity is reported as .8 ft/day (using k = 100 and ~40% porosity. Max. velocity should be about 1.1 ft/day with 30% porosity). If k = 1000, and n = .3, velocity would be 1.65 ft/day or 603.6 ft/year.

E. What will be the expected impact on groundwater?

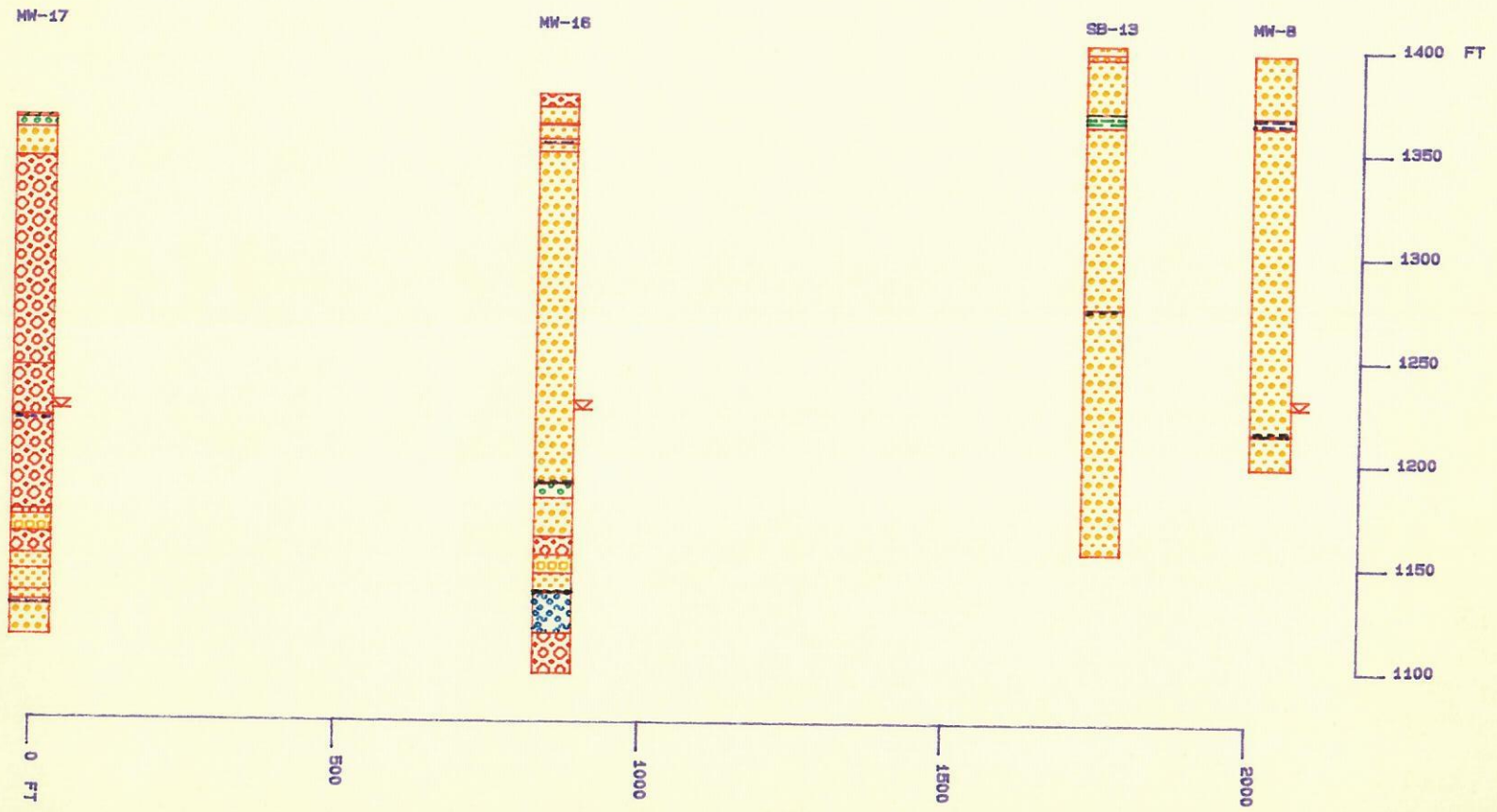
1. Problems with the site?
According to the report, 6 monitoring wells showed organics contamination.

a. What mounding problems are there?
With 180 feet to groundwater, there shouldn't be any.

F. Is there any chance of the plume affecting the neighboring downgradient wells?

VIII. Rule Requirements

A. Does the study meet the requirements of Rule 2207 of the Part 22 Rules of the Water Resources Commission?
The information provided meets the criteria for a generic exemption.



LEGEND

Static Water Level

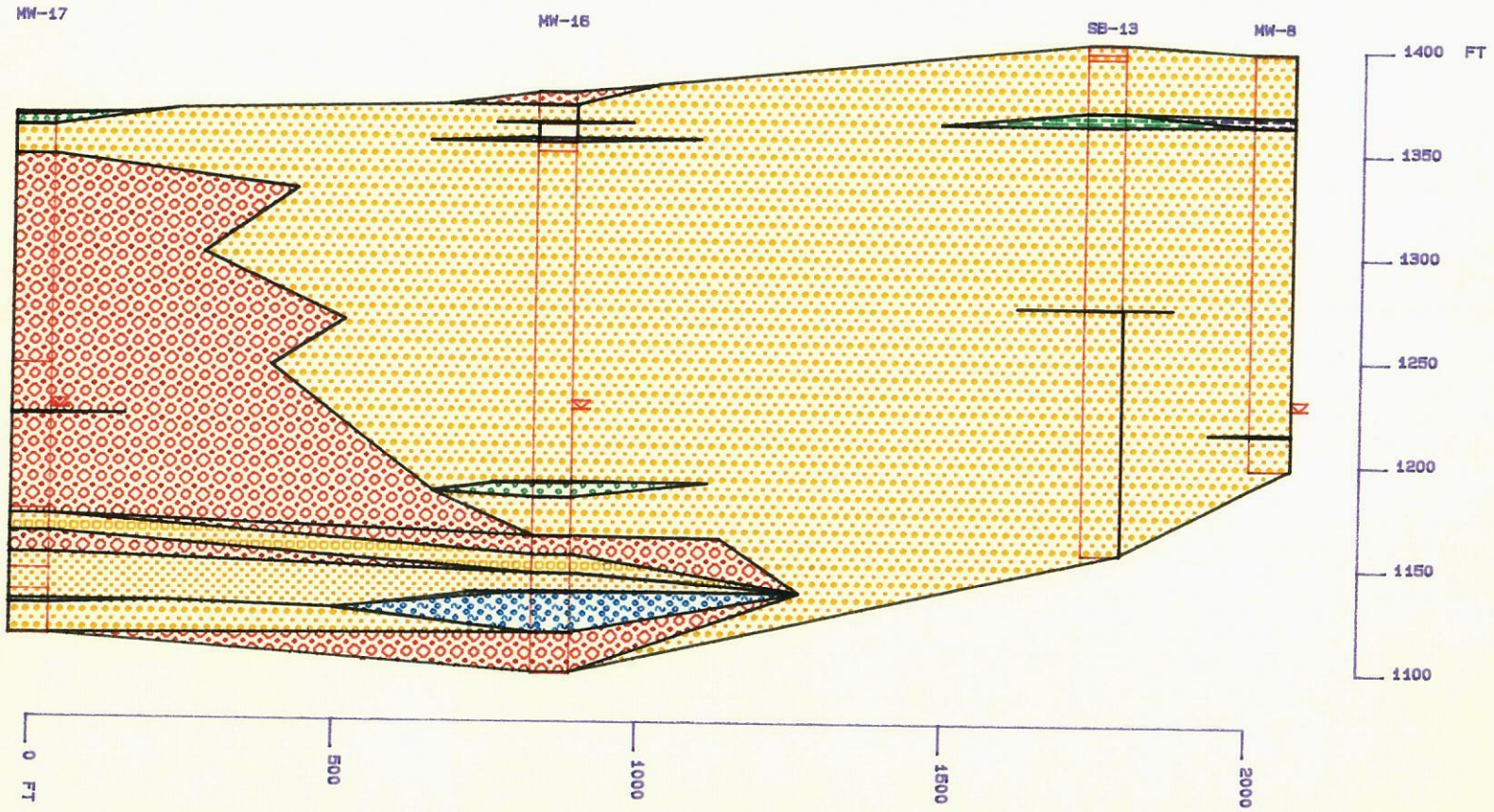
TOPSOIL
CLAY
CLAY/SAND
CLAY/GRAVEL/SAND
SAND
FINE SAND
MEDIUM SAND
COARSE SAND
SAND & GRAVEL
SAND/CLAY
SILTY SAND

Wexford Landfill
North to South through

Front of Plume

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 1



LEGEND

Static Water Level

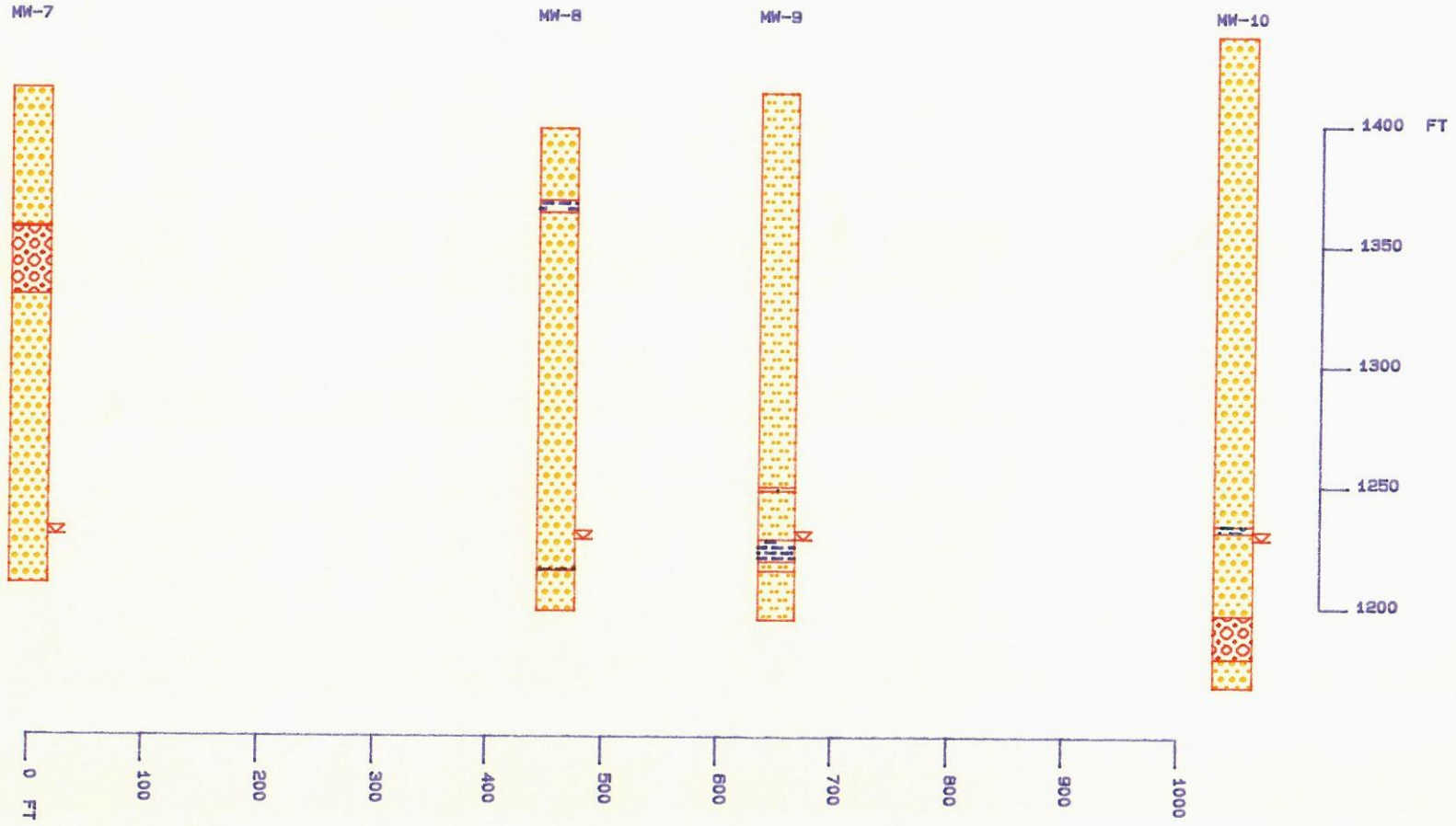
TOPSOIL
CLAY
CLAY/SAND
CLAY/GRAVEL/SAND
FINE SAND
MEDIUM SAND
COARSE SAND
SAND & GRAVEL
SAND/CLAY
SILTY SAND

Wexford Landfill
North to South through Front of Plume

Including North Portion of Landfill

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 1A



LEGEND

Static Water Level

CLAY

SAND

MEDIUM SAND

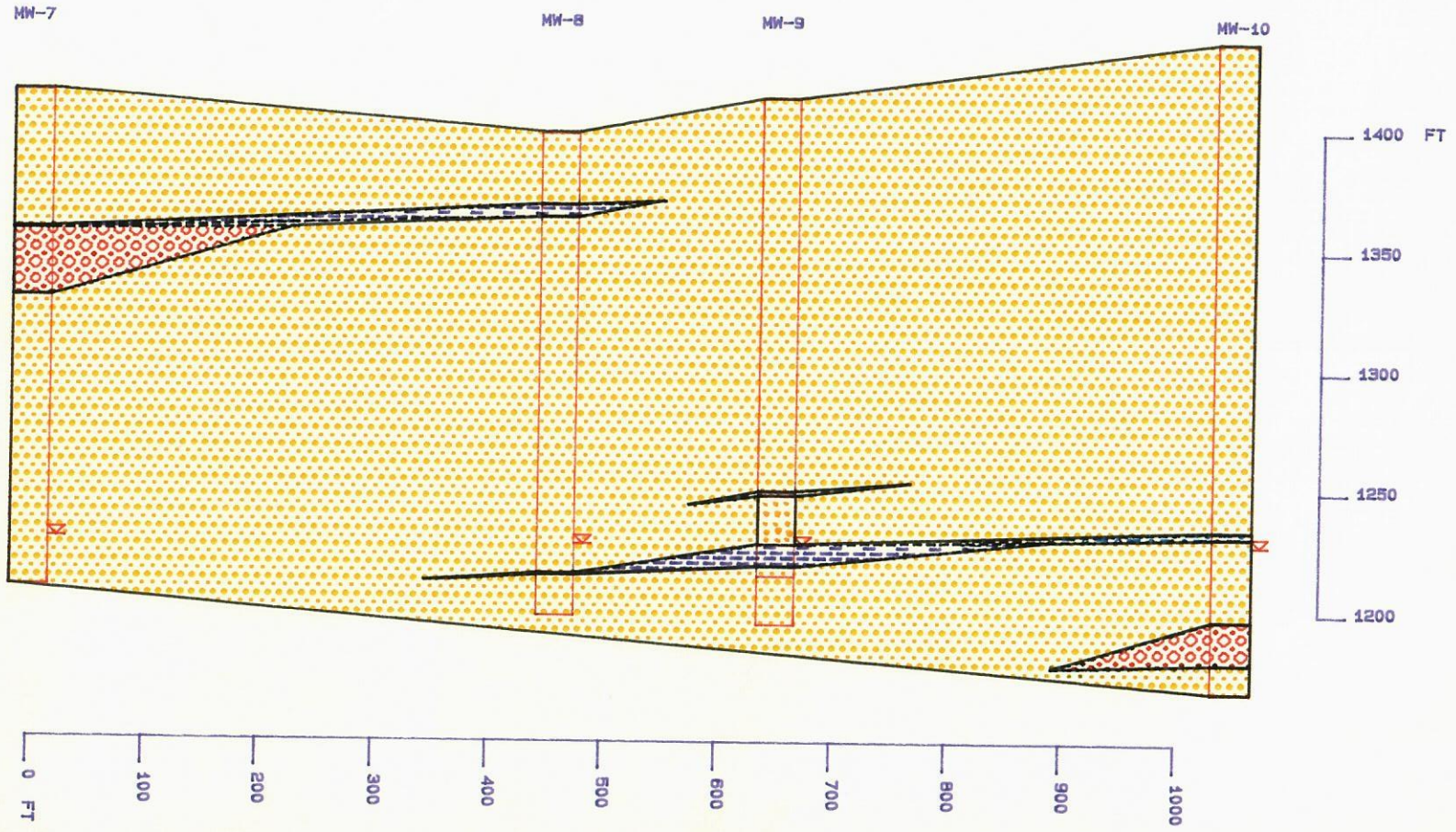
SAND & GRAVEL

SAND & CLAY

Wexford Landfill West to East
through North Part of Landfill

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 2



LEGEND

Static Water Level

CLAY

MEDIUM SAND

SAND & GRAVEL

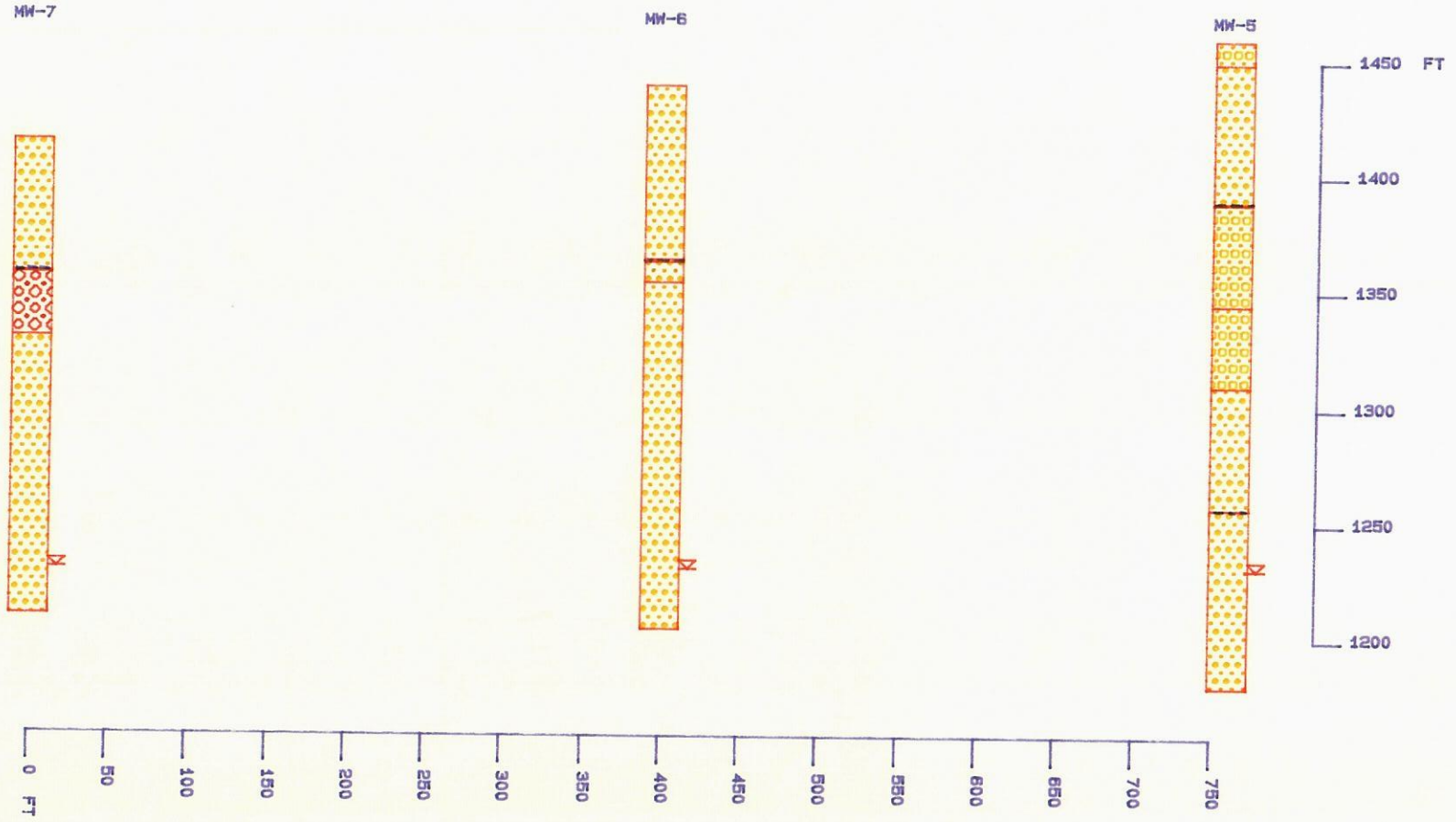
SAND & CLAY

Wexford Landfill

West to East through North Part of Landfill

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 2A



LEGEND

Static Water Level

CLAY

MEDIUM SAND

COARSE SAND

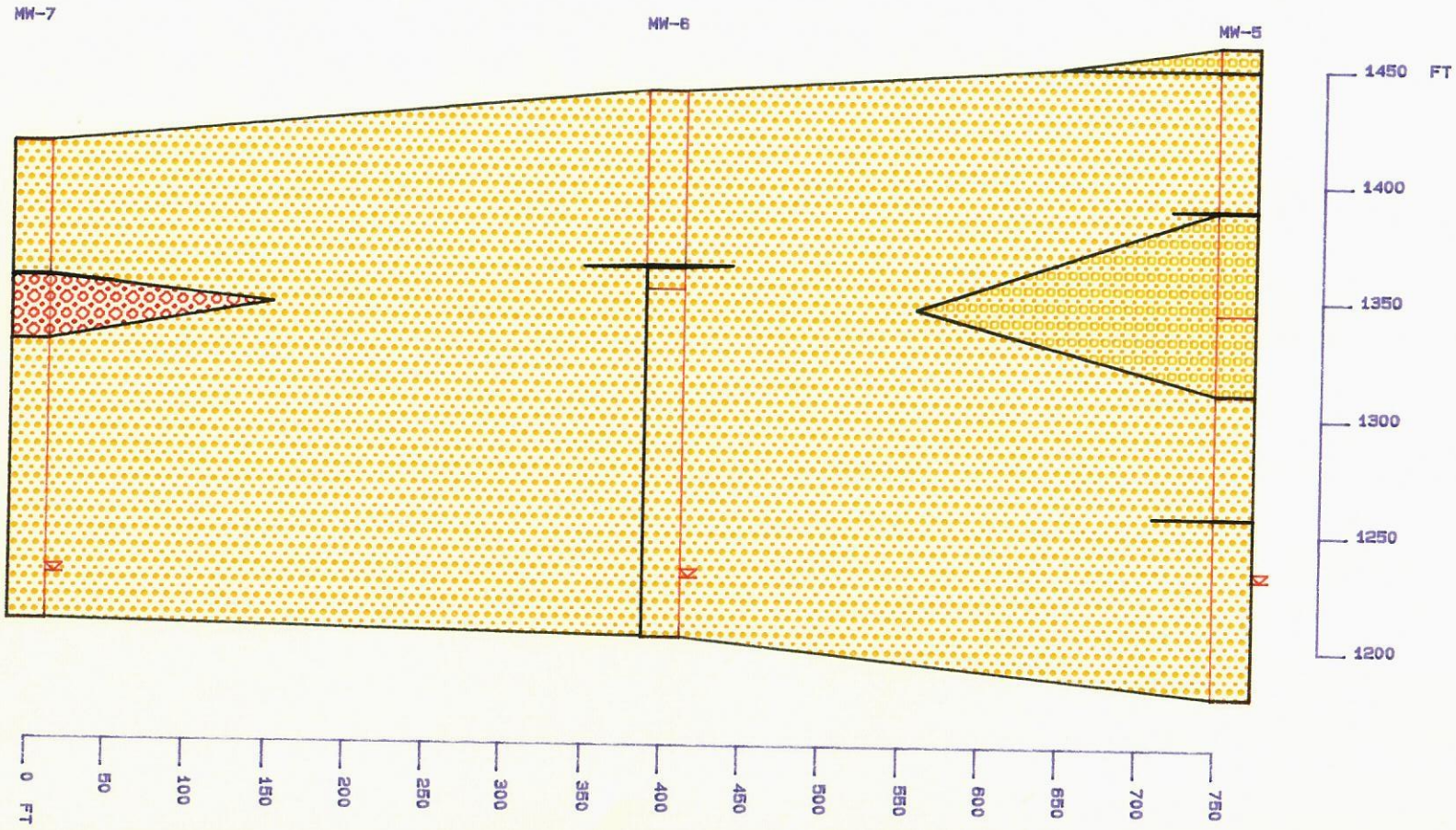
SAND & GRAVEL

Wexford Landfill

North to South by Part of West Property Line

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 3



LEGEND

Static Water Level

CLAY

MEDIUM SAND

COARSE SAND

SAND & GRAVEL

Wexford Landfill
North to South Along Western Boundary

Center Portion of Landfill

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Figure : 3A

NATURAL RESOURCES
COMMISSION
LARRY DEVUYST
PAUL EISELE
JAMES P. HILL
DAVID HOLLI
O. STEWART MYERS
JOEY M. SPANO
JORDAN B. TATTER

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

ROLAND HARMES, Director

February 23, 1993

Mr. Gary R. Fuller
Wexford County Department of Public Works
3161 South Lake Mitchell Drive
Cadillac, Michigan 49601

Dear Mr. Fuller:

SUBJECT: Generic Exemptions for Certain Discharges

This is a follow-up to our February 23, 1993 discussion. The Michigan Water Resources Commission (WRC) at it's August 20, 1992 meeting, adopted generic exemptions for certain discharges under R 323.2209 of the Administrative rules of 1929, P.A. 245, as amended (Act 245). The generic exemptions (copy attached) are for: discharges of non-contact cooling water without additives, discharges of washwater without additives and certain groundwater remediation activities.

It is the intent of the WRC that any facility discharging wastewaters in accordance with these conditions, will not need to obtain a formal facility specific permit or exemption. Now or at any time in the future, if you have a facility which may qualify for one of these generic exemptions, please read carefully the conditions which must be met to qualify for the exemption. If the discharge from the facility meets these conditions, the enclosed Exemption Notification Form should be completed and submitted to this office. Upon receipt and review of the information contained in the form, we would consider the discharge to be in accordance with the conditions of the exemption. Please note there are significant penalties under Section 10 of Act 245, including a maximum $25,000 per day of violation, for submitting false information or failure to comply with the exemption.

If you have any questions concerning the attached exemptions, responsibilities under the exemptions, or completion of the Exemption Notification Form, please call me.

Sincerely,

Kathleen H. Sibo

Kathleen H. Sibo, Geologist
Groundwater Section
Waste Management Division
517-373-7144

Enclosure

cc: Casey Cline, Cadillac District, WMD
Jeanette Bailey, Groundwater Section, WMD

NATURAL RESOURCES COMMISSION
LARRY DEVUYST
PAUL EISELE
GORDON E. GUYER
JAMES P. HILL
DAVID HOLLI
O. STEWART MYERS
JOEY M. SPANO

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

Stevens T. Mason Building, P.O. Box 30028, Lansing, MI 48909

ROLAND HARMES, Director

September 17, 1992

Mr. Gary R. Fuller
Wexford County Department of Public Works
3161 South Lake Mitchell Drive
Cadillac, Michigan 49601

Dear Mr. Fuller:

SUBJECT: Groundwater Discharge Permit Application

Wexford County Landfill currently has filed with our agency an application dated March 13, 1992 for a groundwater discharge permit as required under 1929, P.A. 245, as amended (Act 245), the Water Resources Commission Act. The application is for the discharge of groundwaters from aquifer remediation activities.

The Water Resources Commission (WRC), at it's August 20, 1992 meeting, adopted the attached Exemption for Groundwater Remediation Activities (hereinafter Exemption) under R 323.2209 of the administrative rules of Act 245. Based on the application information submitted, it appears this Exemption potentially applies to your facility. It is the intent of the WRC that any discharge, conducted in accordance with these conditions, will not need to obtain a formal facility specific permit or exemption.

Please read carefully the conditions which must be met to qualify for this Exemption. If the discharge from your facility meets these conditions, you should complete and submit the enclosed Exemption Notification Form by November 2, 1992. Upon receipt and review of the information contained in the form, we will withdraw your current application and consider you to be discharging in accordance with the conditions of the Exemption. Please note there are significant penalties under Section 10 of Act 245, including a maximum $25,000 per day of violation, for submitting false information or failure to comply with the Exemption.

If you have any questions concerning the attached Exemption, your responsibilities under this Exemption, or completion of the Exemption Notification Form, please contact Ms. Kathleen Sibo of my staff at 517-373-7144.

Sincerely,

Joan H Peck

Joan H. Peck
Assistant Executive Secretary
Water Resources Commission
517-335-3383

Enclosures:
1) Signed Exemption
2) Exemption Notification Form

cc: Cadillac WMD District
District Health Department #1 (Bruce Reynolds)

MEMORANDUM

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

RECEIVED
MAY 07 1992
WASTE MGMT PERM

DATE: April 30, 1992

TO: Jeanette Bailey
Groundwater Permits Section
Waste Management Division
Department of Natural Resources

FROM: Patrick L. Cook P. Cook
Area Engineer
Division of Water Supply
Department of Public Health

SUBJECT: Groundwater Discharge Permit Application for Wexford County Landfill, Cedar Creek Township, Wexford County

The community, groundwater, and non-community sections of the Division of Water Supply along with the Division of Environmental Health have reviewed the above referenced permit application. Comments from Jessica Ratliff, of the Ground Water Quality Control Section, are enclosed regarding private wells near the landfill.

PLC:lw
cc: Richard S. Sacks, Division of Water Supply, MDPH
cc: Thomas Hoogerhyde, Division of Environmental Health, MDPH
cc: District Health Department No. 1 (Wexford)

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

MEMORANDUM

To: ~~McEwan, Ratliff~~, Gohlke

Date: 4-8-92

From: Pat Cook
~~District~~ Engineer

Subject: Permit Application - Wexford County DPW - Landfill
Wexford County

The attached permit application needs to be reviewed to determine if there is any potential impact on adjacent drinking water wells. Please review this application with regard to wells under your jurisdiction. After your review, check the appropriate response below, initial this memo, and pass it along. Let's try to complete all the reviews by 4-27-92. The last person should return this form to me.

Municipal Water Supply Wells Cook PC

/X/ No concerns or comments

/_/ Not enough information provided to comment

/_/ Comments to be forwarded directly to DNR

/_/ Comments attached*

Type II Public Water Supply Wells McEwan 4-17-92 JGM

/X/ No concerns or comments

/_/ Not enough information to comment

/_/ Comments to be forwarded directly to DNR

/_/ Comments attached*

RECEIVED
MICH. DEPT. OF PUBLIC HEALTH
APR 10 1992
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

Private Drinking Water Supply Wells Ratliff

/_/ No concerns or comments

/_/ Not enough information to comment

/_/ Comments to be forwarded directly to DNR

/X/ Comments attached* JR

Mobile Home Park and Campground Wells Gohlke

/X/ No concerns or comments JH

/_/ Not enough information to comment

/_/ Comments to be forwarded directly to DNR

/_/ Comments attached*

*Comments attached to be in finished form that can be forwarded to the Michigan Department of Natural Resources

MEMORANDUM

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

DATE: April 27, 1992

TO: Pat Cook

FROM: Jessica Ratliff

SUBJECT: Wexford County Landfill Discharge Permit

There are several private wells down gradient of the landfill. These have been sampled by the local health department several times in the past. No contamination has been detected as yet. If the purge system does not capture the entire plume, which has already migrated under adjacent private property, and a portion of it continues to migrate, MDPH would still have a concern about the potential contamination of these wells. A requirement for Wexford county to monitor these wells should a stipulation in the permit.

JAR

RECEIVED
MAY 07 1992
Waste Management
Division

69965

KALKASKA
CRAWFORD
WEXFORD
MISSAUKEE
FOUR COUNTIES TO SERVE YOU

DISTRICT HEALTH DEPARTMENT NO. 1

Gordon Rady, M.D., MPH
Medical Director/Health Officer

April 28, 1991

RECEIVED
APR 30 1992
STE MGMT-PERM

Ms. Jeanette M. Bailey
Groundwater Section
Waste Management Division
Michigan Department of natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Re: Permit Application for
Wexford County DPW, Landfill Clean-Up
Cedar Creek Township, Wexford County

Dear Ms. Bailey:

Thank you for giving us the opportunity to review and comment on this proposed clean-up project.

Our primary concern lies with the protection of the drinking water which serves the private property down gradient (North) of the Wexford County Landfill. The plume of contamination has migrated off site and judging from the scaled drawings may already have reached lot one of the plat of Cadillac Hills where a residence with a private water well is located. We were surprised to find that the plan does not address capture of the contaminants which have left the site nor even monitoring of those existing wells downstream which may be impacted.

We noted with interest, the abnormally high levels of benzene, ethylbenzene, toluene and xylene in the October '91 sampling of the background monitoring well number 12. These same contaminants also appear to be high in the same round of samples in monitoring wells number 6, 15, 17 and 18. Neither the cause nor the significance of this is addressed in the text.

If we can be of any further assistance in your review of this project, please call.

Sincerely,

Alan C. Frier, R.S., M.S.
Environmental Health Division

pc: Gary Fuller, Wexford County DPW

401 Lake Street
Cadillac 49601
(616) 775-9942

202 Meadows Dr.
Grayling 49738
(517) 348-7800

P.O. Box 783
Kalkaska 49646
(616) 258-8669

6180 W. Sanborn Road
Lake City, 49651
(616) 839-7167

5938

RECEIVED

APR 29 1992

Waste Management
Division

DEPARTMENT OF NATURAL RESOURCES
WASTE MANAGEMENT DIVISION

STAFF REPORT

DAY	S	M	T	W	TH	F	S
		X					

- [ ] Complaint Inspection
- [ ] Compliance Inspection
- [ ] Construction/Closure Inspection
- [ ] Permitting Inspection
- [ ] PEAS Investigation
- [ ] PCB Report/Complaint
- [ ] Sampling Inspection
- [ ] Telephone Call
- [ ] Meeting Notes
- [X] Other Consent Order

WEATHER	Brite Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50 X	50-70	70-85	85 up
WIND	Still X	Moder.	High	Report No.	
HUMIDITY	Dry X	Moder.	Humid.		

- [ ] Act 64
- [ ] Act 136
- [X] Act 641
- [ ] HSWA
- [X] Act 245
- [ ] RCRA

DATE	TIME
4-27-92	9:00

COMPANY/FACILITY: Wexford County Landfill

FACILITY NO.:

ADDRESS/LOCATION: Gary Fuller, DPW

STAFF: C. Cline

PARTICIPANTS: C. Cline

I have reviewed the remedial action plan for the Wexford County Landfill and approve all the proposed work.

I have reviewed the monitoring wells, leak detection, and leachate sampling proposal dated March 26, 1992. This plan is approved.

The statistics will be analyzed and if non-parametric conditions are delineated, alternate analysis of the statistical data will be proposed.

The remedial action plan is expected to be implemented as soon as possible, including the placement of the remaining purge wells by fall 1992.

The O & M Manual, as stated in the March 26, 1992, letter, will be updated as work on site generates information required in the manual.

Jeanette Bailey has received the groundwater permit application and is processing it as of the April 3, 1992, memo to Jim Cleland.

cc: Pearson Drilling & Engineering

Jeanette Bailey, GW Permits, WMD

Phil Roycraft & Janice Heuer, WMD

SIGNED Casey Cline

Distribution: Original - District/Lansing _____File.
1st copy - Lansing _____File/District
2nd copy - Inspector

R-5114
Rev 12/87

RECEIVED

MAY 01 1992

Waste Management
Division

April 3, 1992

Mr. Gary Fuller
Wexford County Department of Public Works
3161 S. Lake Mitchell Drive
Cadillac, Michigan 49601

Dear Mr. Fuller:

Your state exemption request for the landfill clean-up dated March 13, 1992 has been received by this office.

The application has been assigned to me for processing. I am currently evaluating it to determine if all required information is present. I will contact you soon regarding the status of my review and to request additional information if necessary.

As the permit coordinator for your application review, please contact me if you have questions.

Sincerely,

JMB

Jeanette M. Bailey
Groundwater Section
Waste Management Division
517-373-7263

cc: Bruce Reynolds, District Health Department #1
Phil Roycraft, Cadillac District Office

April 3, 1992

TO: Phil Roycraft, Cadillac District
Waste Management Division

FROM: Jeanette M. Bailey, Groundwater Section
Waste Management Division

SUBJECT: Permit Exemption Request For
Wexford County DPW, Landfill Clean-up
Cedar Creek Township, Wexford County

We have received a permit exemption request from Wexford County D.P.W. Enclosed is a copy of their request.

Will you please conduct a site visit and provide us with the following by May 1, 1992:

1. Any recommendation for special conditions that should be used in development of a exemption.

2. Information on location and unique features of the proposed activity or site which would affect permit conditions.

3. Any other comments/concerns.

Thank you.

Enclosures

April 3, 1992

TO: James Cleland, Chief
Water Supply Division
Michigan Department of Public Health

FROM: Jeanette M. Bailey
Groundwater Permits Section
Waste Management Division
Department of Natural Resources

SUBJECT: Potential Impact on Water Supply Wells
Wexford County DPW - Landfill Clean-up
Cedar Creek Township, Wexford County

Would you please have your staff review the attached exemption request to determine if there is any potential impact on adjacent drinking water wells. If you have any concerns, please let us know and provide the name of the contact person we may work with on this matter. Any comments which might affect staff's recommendations or the Commission's decision to issue or deny the exemption would be appreciated.

Thank you for your consideration.

Attachment: Copy of Groundwater Discharge Exemption Request

cc: Casey Cline, Cadillac District Office, WMD

April 3, 1992

Mr. Bruce Reynolds
District Health Department #1
401 Lake Street
Cadillac, Michigan 49601

Dear Mr. Reynolds:

SUBJECT: Permit Application for
Wexford County DPW, Landfill Clean-Up
Cedar Creek Township, Wexford County

We have received a groundwater discharge permit application from Wexford County. Enclosed is a copy of their groundwater discharge permit application.

Will you please provide us with the following by April 30, 1992:

1. Any recommendation for special conditions that should be used in development of a groundwater discharge permit application.

2. Information on location and unique features of the proposed activity or site which would affect permit conditions.

3. Any other comments/concerns.

Thank you.

Sincerely,

Jeanette M. Bailey
Groundwater Permits Unit
Waste Management Division
517-373-7263

Enclosures

Wexford County Department of Public Works
3161 South Lake Mitchell Drive
Cadillac, Michigan 49601 Telephone Area 616-775-0155

RECEIVED
MAR 16 1992
STF MGMT_PERM

March 13, 1992

Groundwater Quality Division
Permits Section
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear Sirs:

Please find enclosed the Groundwater Discharge Permit Application for the Wexford County Landfill. Attached to the permit are laboratory data sheets and a copy of the "Groundwater Remedial Action Plan" for this site.

If you have any questions please contact me.

Respectfully,

Gary R. Fuller

Gary R. Fuller,
Director

GRF/pal

encl (3)
cc: Ms Casey Cline, MDNR, Cadillac

PEARSON DRILLING & ENGINEERING, INC.
3985 S. Lachance Rd.
LAKE CITY, MI 49651

(616) 779-0444

Letter of Transmittal

DATE	JOB NO.
3/23/92	89046

ATTENTION

RE:

RECEIVED
MAR 26 1992
STE MGMT PERM

TO MDNR - Groundwater Quality Div.
Permits Section
P.O.Box 30028
Lansing, MI 48909

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
		3	Groundwater Remedial Action Plan for Wexford Co. Landfill

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Copy to Gary Fuller, Director Wexford Co. Dept. of Public Works

COPY TO _____ SIGNED: David Keller

If enclosures are not as noted, kindly notify us at once.

567

Wexford County Department of Public Works
3101 South Lake Mitchell Drive
Cadillac, Michigan 49601
Telephone Area 616-775-0155

March 29, 1993

Ms. Jeanette Bailey, Geologist
Groundwater Section
Waste Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

REF: Wexford County Landfill
Groundwater Remediation Program

Dear Ms. Bailey:

Enclosed for your review and processing please find enclosed two (2) copies of our Groundwater Discharge Exemption Notification for the above captioned facility and matter.

If you have any questions, comments or concerns please contact me.

Respectfully,

Gary R. Fuller,
Director

GRF/pal

encl (2)

cc: Ms. Catherine Cline, Cadillac District, w/encl
Ms. Janice Lee Heuer, Cadillac District, w/encl

RECEIVED
JUL 12 1993
Waste Management
Division

MICHIGAN DEPARTMENT OF NATURAL RESOURCES -
EXEMPTION NOTIFICATION FORM FOR GROUNDWATER DISCHARGES

NOTE: This form is only to be used for the exemptions adopted by the Water Resources Commission on August 20, 1992, pursuant to 1929 P.A. 245, as amended, for non-contact cooling water without additives, washwater without additives, and wastewaters from certain groundwater remediation activities. The form must be resubmitted at five year intervals or immediately upon a change in the discharge or changes to the information submitted on the form. For groundwater remediation activities, please remember to provide the information required in Attachment A and make certain that all other conditions of the generic exemption are met prior to submitting this notification form. For remediation activities, the following conditions that must be met prior to initiating the discharge. All of the other conditions must be met as well, however, the others deal with operation, maintenance, monitoring, and reporting after the discharge has commenced:

Groundwater Remediation

1. The discharge must be either back into the plume of contaminated groundwater in the aquifer being remediated or treated to levels approved by the Groundwater Section, Waste Management Division if discharged outside the plume within the zone of capture of the groundwater extraction system.

2. Hydraulic controls, in the form of purge wells or other groundwater extraction system, must be provided for an approved portion of the plume of contaminated groundwater.

3 A complete notification form must be submitted according to condition A.12. The most significant elements of the form which verify compliance with the conditions of the generic exemptions are:

   a. Site maps
   b. The technical summary required in Attachment A, especially the memo from the Michigan Department of Natural Resources (MDNR) division responsible for compliance oversight approving the performance monitoring and sampling and analysis plans.

RECEIVED
JUL 13 1993
WASTE MGMT.-PERMITS

Pump Tests

1. The discharge must be into or within 100 feet hydraulically upgradient of the contaminated groundwater plume in the aquifer being remediated.

2. A performance monitoring plan must be approved by the MDNR division responsible for compliance oversight.

3. A complete notification form must be submitted according to condition B.9. The most significant elements of the notification form are:

   a. Site maps
   b. Technical summary required in attachment a, especially both the performance monitoring plan approved by the MDNR division responsible for compliance oversight and the mounding evaluation.

Any discharge to the groundwater from your facility without a valid discharge permit or exemption from the wrc may subject your facility to civil action and the penalties described under Section 323.10 of Act 245. Failure to comply with the conditions of the generic exemption, provide complete notification prior to initiating the discharge, or discharging contrary to the conditions of the generic exemptions are such violations of Act 245, and as such, subjects the discharger to the penalty provisions of Act 245, including the possibility of fine or imprisonment.

Date 3/16/93

[ ] **Initial Notification**
[X] **Revised/Renewal Notification**

Date of Previous Notification 3/13/92 Groundwater Discharge Permit Application

1. **Facility Name:**

   A. **Parent Company** Wexford County Dept. of Public Works

   B. **Division/Bureau** Landfill

   C. **Plant or Facility** Wexford County Landfill

   D. **Address** 990 U.S. 131

   Manton, **MI Zip Code** 49663

   E. **Township** Cedar Creek

   F. **County** Wexford

   G. **Discharge area location if different than above:**

   _____, **MI Zip Code** _____

H. Legal description of discharge area:

SW 1/4 NW 1/4 Section 34 T 23N R 9W

Cedar Creek Township Wexford County

2. Authorized Contact Person:

A. Name Gary Fuller

B. Title Director

C. Address 3161 S. Lake Mitchell Dr.

Cadillac State MI Zip Code 49601

D. Telephone Number (616) 775 - 0155

3. Type of Wastewater Discharge:

A. Non-contact cooling water without additives _____
B. Washwater without additives _____
C. Vegetable/Fruit cooling or soaking water _____
D. Treated groundwater X
   i. Within the plume of contamination X
   ii. Outside the plume of contamination _____
E. Pump test water _____
   i. Within the plume of contamination _____
   ii. Outside the plume of contamination _____
F. Sampling or well development water _____

4. Attach two site maps (8 1/2" x 11") drawn to scale and having a north arrow. Site Map #1 shall indicate property boundaries on a topographic map. The township and county name in which the discharge area(s) is located shall also be included on Map #1. The discharge area(s) shall be indicated on the site map(s). Site Map #2 shall indicate the discharge area(s), distances from property boundaries, and on site or nearby drinking water wells. Major roads and streets shall be included all site maps.

A. For remedial actions, Site Map #2 shall also include:
   (1) Groundwater flow direction.
   (2) Extent of contamination plume.
   (3) Calculated capture zone.
   (4) Location of the groundwater extraction/interception system.
   (5) On-site observation and monitor wells.

B. For pump tests, Site Map #2 shall also include:
(1) Groundwater flow direction.
(2) Extent of contamination plume.
(3) Location of the groundwater pumping well(s).
(4) On-site observation and monitor wells.

5. **Describe briefly the method of disposal for the wastewater (e.g. septic tank/tile field, spray irrigation, seepage lagoon, etc.).**
Holding pond aeration and pump to discharge area for percolation.

6. **Discharge Volume, Schedule and Rate:**

A. Total Yearly Flow 263,000,000 (500 gpm) gallons per year

B. Monthly Average Flow 720,000 (500 gpm) gallons per day

C. Maximum Daily Flow 1,440,000 (1000 gpm) gallons per day

D. Discharge Schedule Hours/Day 24 Days/Year 365

E. List Discharge Schedule, if seasonal

MO/DAY		MO/DAY	[X] not applicable
_____	through	_____	
_____	through	_____	
_____	through	_____	

F. Application Rate during discharge 19 inches/day
133 inches/week

7. **If this discharge is currently authorized by a permit, order or exemption, indicate permit/order/exemption number and/or issuance date below:**

State Permit/Order Number_____

Issuance Date _____

Exemption Number _____

Issuance Date _____

Generic Exemption Date _____

NOTE: We will consider the submittal of this form a request to terminate your existing groundwater discharge permit or exemption if this is not a reissuance notification.

8. **Does your facility discharge wastewater on property that you own?**

[X] YES [ ] NO (if NO, please fill in Items A and B below)

A. Property Owners

Name _____

Address _____

(City, State, Zip) _____, _____, _____

Telephone Number (_____) _____ - _____

B. **Attach copy of property owner's written authorization to discharge. If discharging to state owned land, attach copy of special use permit as required by 1921 P.A. 17, as amended.**

9. **If the discharge consists of treated groundwater or pump test water, provide the additional information requested in Attachment A for a discharge within the contamination plume or Attachment B for a discharge outside the contamination plume.**

10. **Will the discharge impact a groundwater contamination plume other than the plume for which the discharger is responsible?**

YES _____ NO X

11. Required Signature:

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this notification and all attachments and that I believe the information is true, accurate and complete. By submitting this notification, I further certify that the discharge(s) described herein is/are consistent with the limitations imposed by the Water Resources Commission August 20, 1992. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Signature of Facility's Authorized Agent*

Signature: Gary R. Fuller

Date: March 26, 1993

Name: Gary Fuller

Title: Director

*An authorized agent includes one of the following:

A. For a corporation, by a principal executive officer of at least the level of vice president, or his/her designated representative, if the representative is responsible for the over-all operation of the facility from which the discharge described in the permit application or other NPDES form originates.

B. For a partnership, by a general partner.

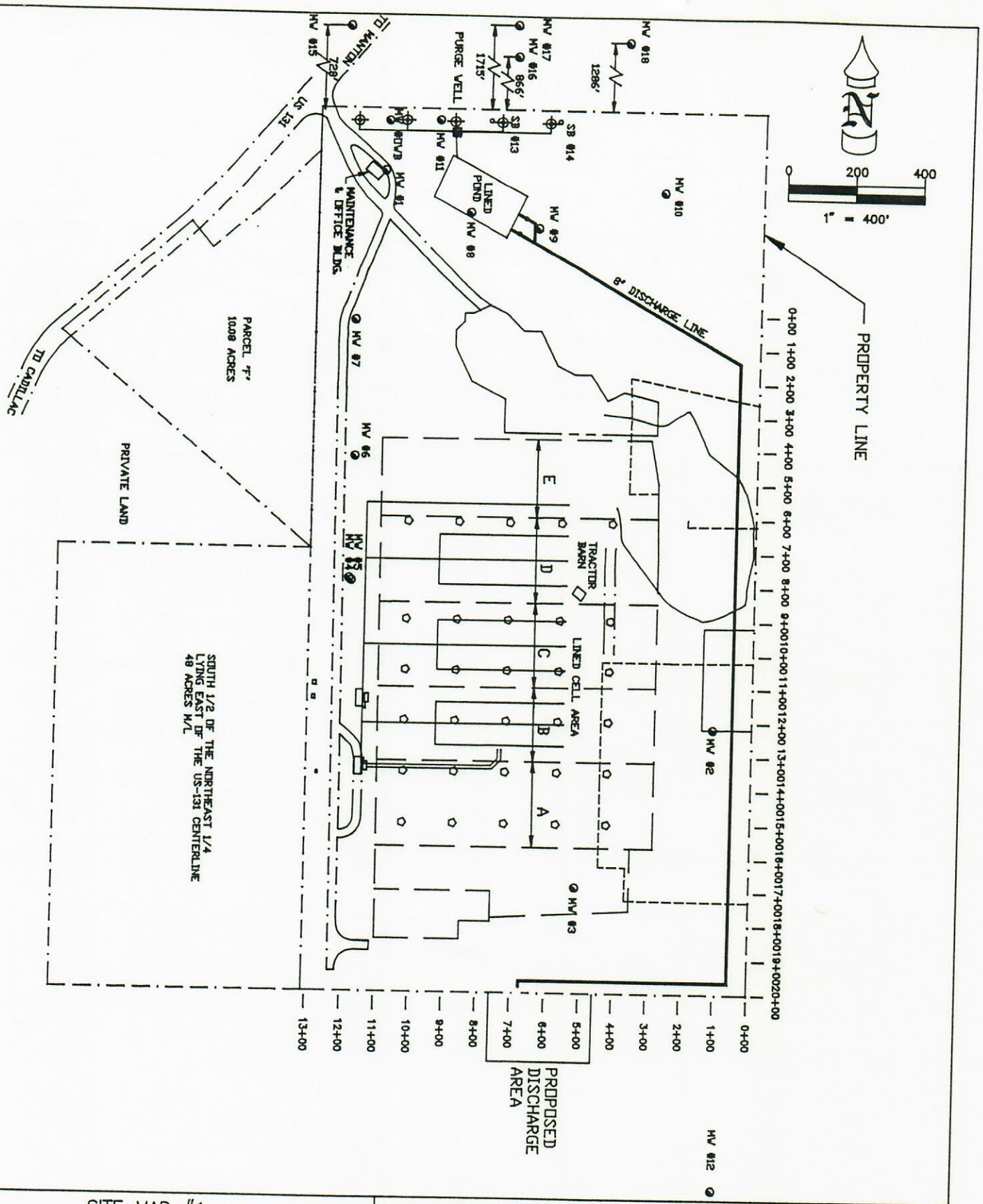
C. For a sole proprietorship by the proprietor.

D. For a municipal, state or other public facility, by either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

Note: Any change in the discharge or information submitted on the notification form requires the submission of a revised notification form. You shall renotify once every five years. The five year period begins with the date of submittal on the original notification form.

Send the completed form to:

Michigan Department of Natural Resources
Waste Management Division
Groundwater Section
P.O. Box 30241
Lansing, Michigan 48909

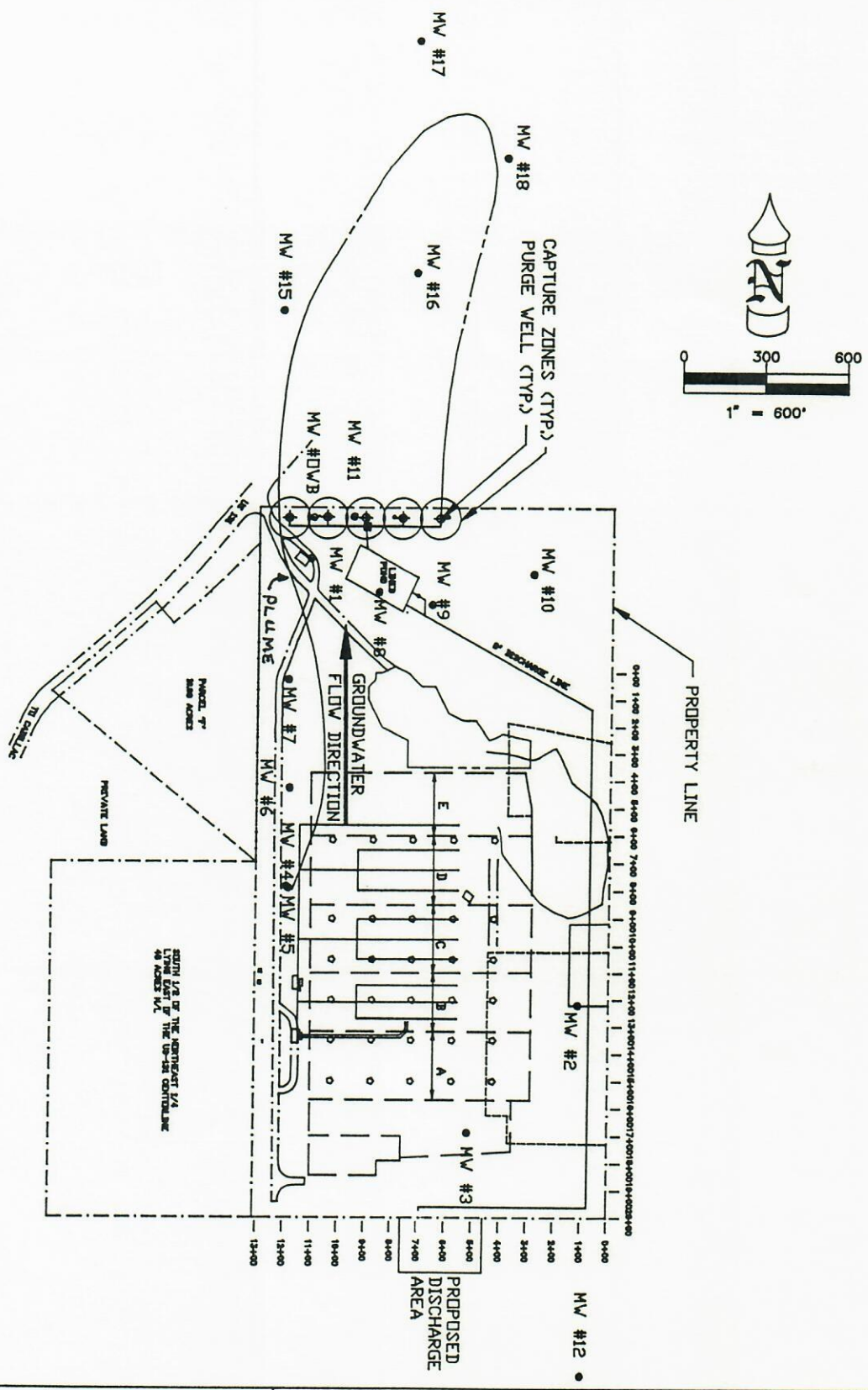


SITE MAP #1
WEXFORD COUNTY LANDFILL
PART OF SECTION 34, T23N, R9W
CEDAR CREEK TOWNSHIP
WEXFORD COUNTY
MICHIGAN

PEARSON DRILLING & ENGINEERING, INC.
6100 WEST BLUE ROAD (M-55)
LAKE CITY, MICHIGAN 49651
(616) 779-0444

DWN. BY DEK	ENG.	CKD. BY	JOB NO. 89012
DATE: 3-16-93	SCALE: 1" = 400'	FILE NO. 89012MP1	SHEET 1 OF 1

CLIENT: WEFORD COUNTY DPW



SITE MAP #2
WEXFORD COUNTY LANDFILL
PART OF SECTION 34, T23N, R9W
CEDAR CREEK TOWNSHIP
WEXFORD COUNTY
MICHIGAN

PEARSON DRILLING & ENGINEERING, INC.
6100 WEST BLUE ROAD (M-55)
LAKE CITY, MICHIGAN 49651
(616) 779-0444

DWN. BY DEK	ENG.	CKD. BY	JOB NO. 89012
DATE: 3-16-93	SCALE: 1" = 400'	FILE NO. 89012MP2	SHEET 1 OF 1

CLIENT: WEFORD COUNTY DPW

RECEIVED MAY 03 1992

89046

Fax to G-1
5/6/92

DEPARTMENT OF NATURAL RESOURCES
WASTE MANAGEMENT DIVISION

89046

STAFF REPORT

DAY	S	M	T	W	TH	F	S
		X					

- ☐ Complaint Inspection
- ☐ Compliance Inspection
- ☐ Construction/Closure Inspection
- ☐ Permitting Inspection
- ☐ PEAS Investigation
- ☐ PCB Report/Complaint
- ☐ Sampling Inspection
- ☐ Telephone Call
- ☐ Meeting Notes
- ☒ Other Consent Order

WEATHER	Brite Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50 X	50-70	70-85	85 up
WIND	Still X	Moder.	High	Report No.	
HUMIDITY	Dry X	Moder.	Humid.		

- ☐ Act 64
- ☐ Act 136
- ☒ Act 641
- ☐ HSWA
- ☒ Act 245
- ☐ RCRA

DATE 4-27-92	TIME 9:00
COMPANY/FACILITY Wexford County Landfill	FACILITY NO.
ADDRESS/LOCATION Gary Fuller, DPW	STAFF C. Cline
PARTICIPANTS C. Cline	

I have reviewed the remedial action plan for the Wexford County Landfill and approve all the proposed work.

I have reviewed the monitoring wells, leak detection, and leachate sampling proposal dated March 26, 1992. This plan is approved.

The statistics will be analyzed and if non-parametric conditions are delineated, alternate analysis of the statistical data will be proposed.

The remedial action plan is expected to be implemented as soon as possible, including the placement of the remaining purge wells by fall 1992.

The O & M Manual, as stated in the March 26, 1992, letter, will be updated as work on site generates information required in the manual.

Jeanette Bailey has received the groundwater permit application and is processing it as of the April 3, 1992, memo to Jim Cleland.

cc: Pearson Drilling & Engineering

Jeanette Bailey, GW Permits, WMD

Phil Roycraft & Janice Heuer, WMD

SIGNED Casey Cline

Distribution: Original - District/Lansing _____ File.
1st copy - Lansing _____ File/District
2nd copy - Inspector

R-5114
Rev. 12/87

NATURAL RESOURCES COMMISSION
MARLENE J. FLUHARTY
GORDON E. GUYER
O. STEWART MYERS
RAYMOND POUPORE

RECEIVED
SEP 19 1991
WEXFORD CO. D.P.W.

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

DELBERT RECTOR, Director

CADILLAC DISTRICT OFFICE
8015 Mackinaw Trail
Cadillac, Michigan 49601
September 10, 1991

Mr. Gary Fuller
Wexford County DPW
3161 South Lake Mitchell Drive
Cadillac, Michigan 49601

Dear Mr. Fuller:

As a result of my telephone conversation with Bill Pearson, Friday, September 6, 1991, I am following up with a letter. I reviewed the work outlined in the report titled "Pump Test Report" dated August 30, 1991.

1. The goal of removing the plume and halting the migration offsite is agreed with (see conclusions).

2. The pump and treat remediation system proposed with airstripping and a holding pond is an acceptable plume clean-up system proposal. Screening for organic scans: 1, 2, 3, 5, & 8 is required to be removed if present. 1 16, 11, 3, 8

3. The final system pump rate and discharge will be adjusted to be flexible to address any periodic releases from the upgradient/active site if/when a release occur.

4. The sampling of wells downgradient of the remediation system will be required to confirm the effectiveness of purge wells.

5. The two additional purge wells are recommended to capture the plume, June, 1991 sampling documented >600 feet wide. All three wells should pull in 450-600 feet. This is assuming sampling supports no offsite purging will be required.

Sincerely,

WASTE MANAGEMENT DIVISION

Catherine Cline

Catherine Cline
Senior Petroleum/Groundwater Geologist
616-775-9727

CC/kjm
cc: Phil Roycraft
Janice Heuer

R 1026 1
5/91

ATTACHMENT A

GROUNDWATER DISCHARGE EXEMPTION APPLICATION

WEXFORD COUNTY LANDFILL

MARCH 16, 1993

A. TREATED PURGED GROUNDWATER DISCHARGE

1. Date of discharge:

Estimated to begin 9/93 and continue up to 5 years from start of purging. Air quality permit application has been completed.

2. Daily flow:

Purge flow will begin at 235 gpm (338,400 gpd). Monitoring will indicate if additional flow is necessary. System has capacity of 1000 gpm or 1,440,000 gpd.

3. Remediation plan approval:

See attached copies of MDNR letter and MDNR Staff report.

4. Remedial plan review:

This brief review is based on data obtained from pump testing at the center of the plume (PW#3). Aquifer data is listed below.

Transmissivity	70,000gpd/ft
Hydraulic Conductivity	100 to 1000 gpd/sq. ft.
Hydraulic Gradient	0.0033
Groundwater Velocity	0.8 ft/day

G. The plume will be captured at the North property line of the landfill. Five purge wells with pumps, have been installed across the plume. Each well has a calculated (pump test report 8/91) capture zone of 150 feet or 750 total width of capture. The plume at this location is 600 feet wide. The five wells provide a safety margin of 150 feet of plume capture. The discharge location is 1/2 mile up gradient from the capture area. The discharge area is immediately up gradient of the first possible source of contamination. All sources of contamination have been eliminated by capping or capping and lining disposal areas. The up gradient location will not spread the plume vertically or laterally. The depth to groundwater (+/-180 ft.) will increase dispersion of the recharge and reduce mounding caused by the discharge of treated groundwater.

H. Parameter list in Att. C, Remedial Action Plan

5.0 Monitoring plan:

A groundwater monitoring plan has been approved and is active at

this site. The approved plan is attached to the landfill license as an operating stipulation. The plan requires quarterly sampling of monitor wells located within the plume, one up gradient well and several wells down gradient of the leading edge of the plume. Sample analysis includes both organic and inorganic parameters. The lined cells at the landfill are also monitored to prevent releases of contaminants to the environment. Statistical analysis of the groundwater data is submitted quarterly with the laboratory data. Statistical analysis compares test results from each well to data from the background well.

RECEIVED
MAR 16 1992
STF MGMT -PERM

SECTION I

EPA I.D. NUMBER

PERMIT NUMBER →

SEE INSTRUCTIONS ON REVERSE SIDE

APPLICATION FOR DISCHARGE PERMIT IS:

MODIFICATION ☐ EXISTING ☐ NEW ☒ INCREASED USE ☐ REISSUANCE ☐

ITEM 1 — PHYSICAL LOCATION ADDRESS AND INFORMATION

A. PARENT COMPANY/DEPT./OWNER: WEXFORD COUNTY

B. DIV./BUREAU: DEPARTMENT OF PUBLIC WORKS

C. PLANT OR FACILITY: LANDFILL

D. TYPE OF FACILITY: LANDFILL

E. STANDARD INDUSTRIAL CLASSIFICATION (REFER TO TABLE III):

F. STREET NUMBER: 990

G. STREET NAME: N. US 131

H. CITY NAME: MANTON

MI

I. ZIP CODE: 49663

J. TOWNSHIP: CEDAR CREEK

K. COUNTY (REFER TO TABLE I) CO. NAME: WEXFORD CO. NUMBER: 83

L. NAME OF AUTHORIZED CONTACT PERSON: GARY R. FULLER

M. TITLE: DIRECTOR

N. TELEPHONE NUMBER: 616 775 0155

O. ADDRESS (IF DIFFERENT FROM ABOVE): 3161 S. LK. MITCHELL

P. CITY NAME: CADILLAC

Q. STATE: MI

R. ZIP CODE: 49601

S. TYPE OF TREATMENT FACILITY (REFER TO TABLE II): 1K 4G

T. PROGRAM FOR EFFECTIVE RESIDUALS MANAGEMENT: ☐ YES ☐ NO ☒ N.A. DATE SUBMITTED ____ DATE IMPLEMENTED ____

U. BACK-UP POWER SOURCE: ☐ YES ☒ NO ☐ N.A.

V. POLLUTION INCIDENT PREVENTION PLAN: ☐ YES ☐ NO ☒ N.A. DATE SUBMITTED ____ DATE IMPLEMENTED ____

W. NUMBER OF EMPLOYEES:

X. TYPE OF DISCHARGE: GROUNDWATER ☒ SURFACE WATER ☐ BOTH ☐

Y. DO YOU HAVE A CERTIFIED OPERATOR? ☐ YES ☒ NO

OPERATOR'S NAME ____ S.S.# ____

FACILITY # ____ CERTIFICATION # LW

ITEM 2 — MAILING ADDRESS OF APPLICANT

A. NAME: GARY R. FULLER

B. NAME: WEXFORD COUNTY DPW

C. STREET ADDRESS OR POST OFFICE BOX: 3161 S. LAKE MITCHELL DRIVE

D. CITY NAME: CADILLAC

E. STATE: MI

F. ZIP CODE: 49601

REQUIRED SIGNATURE

I, the applicant, certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF APPLICANT

SIGNATURE: Gary R. Fuller DATE: 03/13/92

NAME: Gary R. Fuller TITLE: Director

Where the applicant is not a municipality, the following certification of the local governmental representative is required.

"This is to certify that I am aware of and recognize the responsibilities of the municipality as set forth in Section 6(b) of the Michigan Water Resources Commission Act 245 of 1929."

Signature ____ Date ____

Please Print Name ____ Title Representing ____

SECTION I

PERMIT NUMBER

SEE INSTRUCTIONS ON REVERSE SIDE

ITEM 3 SOURCE OF WATER SUPPLY	A. MUNICIPAL	NAME	
		QUANTITY (MAX.)	GALLONS/DAY
	B. SURFACE WATER INTAKE	NAME OF WATERWAY	
		QUANTITY (MAX.)	GALLONS/DAY
	C. PRIVATE WELL	QUANTITY (MAX.)	1,728,000 GALLONS/DAY
	D. OTHER	SPECIFY	
		QUANTITY (MAX.)	GALLONS/DAY
ITEM 4 FACILITY WATER USAGE	A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	1,728,000 GALLONS/DAY
	B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	GALLONS/DAY
	C. SANITARY WATER	QUANTITY (MAX.)	GALLONS/DAY
	D. OTHER	SPECIFY	
		QUANTITY (MAX.)	GALLONS/DAY

ITEM 5 CRITICAL MATERIALS & PRIORITY POLLUTANTS USED ▪ STORED ▪ PRODUCED

REFER TO TABLES IV & V

UNITS CODE
1 POUNDS
2 GALLONS
3 CUBIC YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	Chlorobenzene	
	PARAMETER NUMBER	00108-90-7	
	QUANTITY		UNITS /YEAR
MATERIAL 2	NAME OF SUBSTANCE	Chloroethane	
	PARAMETER NUMBER	00075-00-3	
	QUANTITY		UNITS /YEAR
MATERIAL 3	NAME OF SUBSTANCE	2-Chloroethyl vinyl ether	
	PARAMETER NUMBER	00110-75-8	
	QUANTITY		UNITS /YEAR
MATERIAL 4	NAME OF SUBSTANCE	1,1 Dichloroethylene	
	PARAMETER NUMBER	00075-35-4	
	QUANTITY		UNITS /YEAR
MATERIAL 5	NAME OF SUBSTANCE	1,2 Trans-dichloroethylene	
	PARAMETER NUMBER	00156-60-5	
	QUANTITY		UNITS /YEAR
MATERIAL 6	NAME OF SUBSTANCE	1,2 Dichloropropane	
	PARAMETER NUMBER	00078-87-5	
	QUANTITY		UNITS /YEAR
MATERIAL 7	NAME OF SUBSTANCE	Ethylbenzene	
	PARAMETER NUMBER	00100-41-4	
	QUANTITY		UNITS /YEAR

See Attached Data Sheets

SECTION I

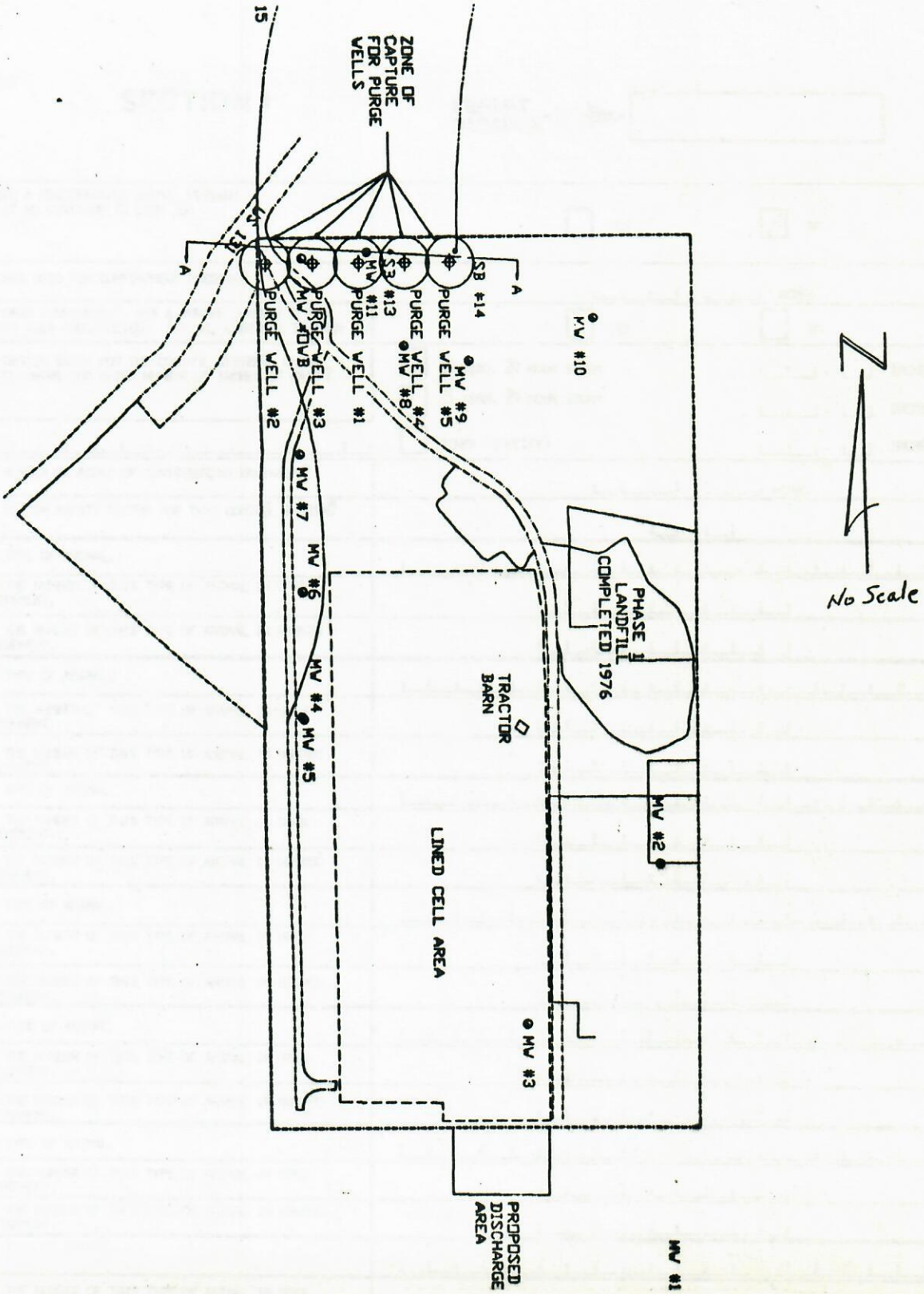
PERMIT NUMBER

SEE INSTRUCTIONS ON REVERSE SIDE

ITEM 7

LOCATION MAP

A. PROVIDE A MAP OF THE TREATMENT FACILITY LOCATION, SHOWING THE LOCATION OF THE DISCHARGE POINT(S) AND OTHER INFORMATION REQUESTED ON REVERSE SIDE OF PAGE.



SECTION I

PERMIT NUMBER

LIST NAME AND MAILING ADDRESS OF ALL PROPERTY OWNERS ADJACENT TO THE TREATMENT FACILITY AND OR DISCHARGE/DISPOSAL AREA.

ITEM 12

MAILING LIST OF ADJACENT PROPERTY OWNERS

Sigmunt H. Cialek
30230 Balewood
Southfield, MI 48076

State of Michigan
MDNR District Six Headquarters
8015 S. Machinaw Trail
Cadillac, MI 49601

Manton Consolidated Schools
105 Fifth Street
Manton, MI 49663

Leisure Land Corporation
17085 Masonic
Fraser, MI 48026

RECEIVED
MAR 1 6 1992

SECTION II

SEE INSTRUCTIONS ON REVERSE SIDE

PERMIT NUMBER →

ITEM 1

DISCHARGE LOCATION ▪ SCHEDULE ▪ FLOW RATE

WASTEWATER TYPE CODE
1 CONTACT COOLING
2 NONCONTACT COOLING
3 PROCESS
4 SANITARY
5 STORMWATER

UNIT CODE
1 MGY
2 MGD
3 GPD

OUTFALL NUMBER	STE MGMT DEPM — 001
A. LOCATION OF DISCHARGE	¼, ¼, SECTION 34, TOWN 23N, RANGE 09W
B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)	GROUNDWATER
C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)	☐ YES ☒ NO
D. IF YES, LIST DISCHARGE PERIODS	MO. / DAY — MO. / DAY THROUGH THROUGH THROUGH
E. LAND APPLICATION RATE	IN./HR. ▪ HR./DAY ▪ IN./WK. ☒
F. TYPE OF WASTEWATER DISCHARGE	WASTEWATER TYPE CODE: 3
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)	HOURS/~~DAY~~: 24 DAY/~~YEAR~~: 365
H. DISCHARGE FLOW RATE	TOTAL YEARLY: 631 — UNIT CODE 1 DAILY MINIMUM: 1 — 2 DAILY MAXIMUM: 2 — 2
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.	AUTHORIZED: 1,728,000 — UNIT CODE 3
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.	DESIGN: 1,728,000 — UNIT CODE 3

ITEM 2

WATER TREATMENT ADDITIVES

UNITS CODE
1 Mg/l
2 Ug/l

A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3)	☐ YES ☒ NO
B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.	NAME — FUNCTION
C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.	

D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.	MINIMUM	UNITS CODE	AVERAGE	UNITS CODE	MAXIMUM	UNITS CODE
ADDITIVE NAME						
ADDITIVE NAME						
ADDITIVE NAME						

E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?	☐ YES ☐ NO

F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?	% REMOVAL	DISCHARGE FREQUENCY HRS./DAY	DISCHARGE FREQUENCY DAYS/WK.
ADDITIVE NAME			
ADDITIVE NAME			
ADDITIVE NAME			

G. AS AN ATTACHMENT TO THIS APPLICATION PROVIDE SPECIFIC MAMMALIAN OR AQUATIC TOXICOLOGICAL DATA OR REFERENCE WHICH ARE AVAILABLE AND INFORMATION ON THE RATE OF DEGRADATION OF THE PRODUCTS FOR EACH ADDITIVE.

SEE INSTRUCTIONS ON REVERSE SIDE

SECTION II

PERMIT NUMBER →

ITEM 3

PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE

	OUTFALL NUMBER	001
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	REFUSE 4953
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 24 DAYS/YEAR 365
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY 631 UNIT CODE 5 DAILY MINIMUM 1 6 DAILY MAXIMUM 2 6
	D. PROCESS PRODUCTION RATE	UNITS / TIME
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	UNIT CODE TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM
	D. PROCESS PRODUCTION RATE	UNITS / TIME
PROCESS 3	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	UNIT CODE TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM
	D. PROCESS PRODUCTION RATE	UNITS / TIME
PROCESS 4	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	UNIT CODE TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM
	D. PROCESS PRODUCTION RATE	UNITS / TIME
PROCESS 5	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	UNIT CODE TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM
	D. PROCESS PRODUCTION RATE	UNITS / TIME

UNITS CODE

1 POUNDS
2 GALLONS
3 CUBIC YARDS
4 TONS
5 MGY
6 MGD
7 GPD

TIME

1 HOUR
2 DAY
3 WEEK
4 MONTH
5 YEAR

SECTION II

PERMIT NUMBER →

SEE INSTRUCTIONS ON REVERSE SIDE

ITEM 4

GROUNDWATER DISCHARGE INFORMATION

OUTFALL NUMBER	001
A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)	[X] YES [ ] NO
B. HAS A HYDROGEOLOGICAL STUDY OR ITS EQUIVALENT BEEN PERFORMED OR IS THERE SUFFICIENT CURRENT HYDROGEOLOGICAL INFORMATION AVAILABLE AS REQUIRED BY THE WATER RESOURCES COMMISSION PART 22 GROUNDWATER RULES OF AUGUST 14, 1980 R.323.2207 (PAGE 45) FOR THIS EXISTING OR PROPOSED DISCHARGE? IF YES ATTACH A COPY OF THE REPORT.	[X] YES [ ] NO
C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER RULE R.323.2207 (10) (PAGE 46) OR FROM GROUNDWATER MONITORING REQUIREMENTS UNDER RULE R.323.2208 (5) (PAGE 47) OF THE PART 22 RULES. IF "YES" ATTACH DOCUMENTS AND EXPLANATION TO DEMONSTRATE THAT YOUR DISCHARGE WOULD QUALIFY FOR AN EXEMPTION.	[ ] YES [X] NO
D. ARE YOU REQUESTING A VARIANCE FROM RULE 323.2205 (PAGE 45) (NONDEGRADATION) OF THE WATER RESOURCES COMMISSION PART 22 GROUNDWATER RULES? IF YES, ATTACH SUCH DOCUMENTS AS NECESSARY TO DEMONSTRATE THE NEED FOR A VARIANCE IN TERMS OF THE CRITERIA SPECIFIED IN RULE 323.2210 (PAGE 47) OF THE PART 22 RULES.	[ ] YES [X] NO
E. LIST ALL CHEMICAL SUBSTANCES WHICH ARE IN MICHIGAN'S CRITICAL MATERIALS REGISTER TABLE IV (PAGE 6) AND/OR U.S. EPA'S PRIORITY POLLUTANT LIST TABLE V (PAGE 7) OR ANY OTHER SUBSTANCES WHICH ARE OR MAY BECOME INJURIOUS TO THE DESIGNATED USES OF THE GROUNDWATER OR TO THE PUBLIC HEALTH THAT ARE DISCHARGED OR EXPECTED TO BE DISCHARGED TO THE GROUNDWATER BY THIS FACILITY. ESTIMATE THE FINAL EFFLUENT CONCENTRATION AND RECORD ALL DATA IN ITEM 7 OF SECTION II IN THIS BOOKLET. THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.	[X] NOT APPLICABLE/BELIEVED ABSENT [ ] PRESENT, DATA PROVIDED IN ITEM 7

ITEM 5

EXPECTED WASTEWATER CHARACTERISTICS

UNITS CODE
1 Mg/l
2 Ug/l
3 COUNTS/100 ml
4 S.U.
5 °F
6 LBS/DAY

SAMPLE TYPE
1 GRAB
2 24 HOUR COMPOSITE

A. DISCHARGE CHARACTERISTICS

	CONCENTRATION AVE	CONCENTRATION MAX	UNITS CODE	# ANALYSES	SAMPLE COD
*BOD5 (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)			1		
*COD (CHEMICAL OXYGEN DEMAND)	5.7		1		
*TOC (TOTAL ORGANIC CARBON)	2.1		1		
*AMMONIA NITROGEN (AS N)	1.4		1		
*TOTAL SUSPENDED SOLIDS			1		
TOTAL PHOSPHORUS (AS P)			1		
TOTAL RESIDUAL CHLORINE			1		
DISSOLVED OXYGEN			1		
*PH	MIN 7.1		4		
FECAL COLIFORM BACTERIA			3		
*TEMPERATURE (SUMMER)			5		
*TEMPERATURE (WINTER)			5		

B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE					

Data Sheets for Purge Well #1 Attached

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

TRANSMITTAL

TO:

1 Jeanette Bailey ✓

2 Jim Janiczek KHS

3 Scott Ross

4 Jeanette Bailey

FOR ACTION AS INDICATED

- ☐ SIGNATURE
- ☐ APPROVAL
- ☐ ACTION
- ☐ COMMENTS
- ☐ INFORMATION
- ☐ RETURN W/YOUR RECOMMENDATIONS
- ☐ REPLY-MY SIGNATURE
- ☐ REPLY-COPY TO ME
- ☐ PLEASE SUMMARIZE
- ☐ PLEASE INVESTIGATE
- ☐ FORWARDED PER REQUEST
- ☐ NOTE AND FORWARD
- ☐ NOTE AND FILE
- ☐ NOTE AND RETURN
- ☐ PLEASE PHONE ME
- ☐ PLEASE SEE ME

REMARKS:

Wexford County Landfill
(May be an exemption)
I logged it as such. Notify Scott if different

FROM

J.B. BEAUBOEUF

DATE 3/17/92

R 1147 Rev. 2/79

SEE INSTRUCTIONS ON REVERSE SIDE

SECTION II

PERMIT NUMBER

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION FOR SURFACE WATER DISCHARGE ONLY

OUTFALL NUMBER	001
THE FOLLOWING REQUESTED INFORMATION SHALL BE ADDRESSED BY ALL SURFACE WATER DISCHARGERS. NOTE! NEW USE DISCHARGERS SHALL PROVIDE EXPECTED VALUES FOR THE QUANTITATIVE AND QUALITATIVE INFORMATION REQUESTED BELOW.	
A. IS THIS FACILITY A PRIMARY INDUSTRY? (REFER TO TABLE IA PAGE 41) (IF NO, GO TO E) (IF YES, GO TO B)	☐ YES ☒ NO
B. INDICATE TYPE OF PRIMARY INDUSTRY AS LISTED IN TABLE IA PAGE 41. (CONTINUE WITH C.)	
C. DOES THIS OUTFALL DISCHARGE CONTAIN ANY PROCESS WASTEWATER? (IF NO, GO TO E) (IF YES, GO TO D)	☐ YES ☐ NO
D. INDICATE WHICH GC/MS FRACTIONS MUST BE TESTED FOR. (REFER TO TABLE IA PAGE 41) NOTE! FOR EACH GC/MS FRACTION CHECKED, EACH SPECIFIC ORGANIC TOXIC POLLUTANT WITHIN EACH FRACTION MUST BE ANALYZED FOR (SEE TABLE IIA PAGE 42. IN ADDITION, ALL PRIMARY INDUSTRY APPLICANTS WITH A PROCESS WASTEWATER DISCHARGE MUST PROVIDE QUANTITATIVE DATA FOR EACH TOXIC POLLUTANT IN TABLE IIIA PAGE 43). RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET. (CONTINUE WITH E-K BELOW)	☐ VOLATILE ☐ BASE/NEUTRAL ☐ ACID ☐ PESTICIDE
E. IF ANY SURFACE WATER DISCHARGE APPLICANT (PRIMARY OR SECONDARY INDUSTRY), REGARDLESS OF THE TYPE OF DISCHARGE, KNOWS OR HAS REASON TO BELIEVE THAT ANY POLLUTANT LISTED IN TABLE IIA AND IVA PAGES 42-43 IS DISCHARGED FROM ANY OUTFALL, THE QUANTITATIVE DATA MUST BE PROVIDED. RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.	☒ NOT APPLICABLE/BELIEVED ABSENT ☐ PRESENT/DATA IS ATTACHED
F. IF ANY SURFACE WATER DISCHARGE APPLICANT (PRIMARY OR SECONDARY INDUSTRY), REGARDLESS OF TYPE OF DISCHARGE, KNOWS OR HAS REASON TO BELIEVE ANY POLLUTANTS LISTED IN TABLE VA PAGE 43 ARE DISCHARGED FROM ANY OUTFALL THE APPLICANT MUST DESCRIBE REASONS FOR THE POLLUTANT BEING PRESENT AND PROVIDE ANY AVAILABLE QUANTITATIVE DATA. RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.	☒ NOT APPLICABLE/BELIEVED ABSENT ☐ PRESENT/DATA IS ATTACHED
G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO: USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHENOXY ACETIC ACID (2, 4, 5-T); 2-(2, 4, 5-TRICHLOROPHENOXY) PROPANOIC ACID (SILVEX, 2, 4, 5, TP); 2-(2, 4, 5-TRICHLOROPHENOXY) ETHYL 2, 2-DICHLOROPROPIONATE (ERBON); O, O-DIMETHYL O-(2, 4, 5-TRICHLOROPHENYL) PHOSPHOROTHIOATE (RONNEL); 2, 4, 5-TRICHLOROPHENOL (TCP); OR HEXACHLOROPHENE (HCP); (ALL DATA FOR THE ABOVE MUST BE GENERATED USING STANDARD ANALYTICAL CALIBRATION PROCEDURES) OR KNOWS OR HAS REASON TO BELIEVE THAT TCDD IS OR MAY BE PRESENT IN THEIR DISCHARGE. MUST REPORT QUALITATIVE DATA, GENERATED WHICH USED A SCREENING PROCEDURE NOT CALIBRATED WITH ANALYTICAL STANDARDS, FOR 2, 3, 7, 8, - TETRACHLORODIBENZO-P-DIOXIN (TCDD). RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.	☒ NOT APPLICABLE/BELIEVED ABSENT ☐ PRESENT/DATA IS ATTACHED
J. IF THE SURFACE WATER DISCHARGE APPLICANT KNOWS OR HAS REASON TO BELIEVE THAT BIOLOGICAL TOXICITY TESTS WERE MADE IN THE LAST THREE (3) YEARS ON ANY OF THE APPLICANT'S DISCHARGES OR ON A RECEIVING WATER IN RELATION TO A DISCHARGE, PROVIDE THIS INFORMATION AS AN ATTACHMENT TO THIS APPLICATION.	☒ NOT APPLICABLE ☐ APPLICABLE/SEE ATTACHED
K. IF A CONTRACT LABORATORY OR CONSULTING FIRM PERFORMED ANY OF THE ANLAYSES REQUIRED BY THIS APPLICATION, PROVIDE THE NAME AND ADDRESS OF EACH LABORATORY OR FIRM AND THE ANALYSES PERFORMED AS AN ATTACHMENT OF THIS APPLICATION.	☐ NOT APPLICABLE ☒ APPLICABLE/SEE ATTACHED See Below
L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 6 AND IIA THROUGH VA PAGES 42-43. IF YES, THEN IDENTIFY THE CHEMICAL SUBSTANCES AND ESTIMATE THE FINAL EFFLUENT CONCENTRATIONS. SUBMIT THIS INFORMATION AS AN ATTACHMENT TO THIS APPLICATION.	☒ NOT APPLICABLE ☐ APPLICABLE/SEE ATTACHED

K. WW Engineering and Science, Inc.
Environmental Laboratory Division
5555 Glenwood Hills Parkway SE
P.O. Box 874
Grand Rapids, MI 49588-0874

SEE INSTRUCTIONS ON REVERSE SIDE

SECTION II

PERMIT NUMBER

ITEM 7

CRITICAL MATERIALS ▪ TOXIC POLLUTANTS ▪ HAZARDOUS SUBSTANCES IN DISCHARGE

OUTFALL NUMBER

A. USE THIS DATA SHEET TO RECORD INFORMATION AS REQUIRED IN: (CHECK APPROPRIATE BOX FOR WHICH INFORMATION THIS DATA SHEET REPRESENTS.)

- ☐ 1. SECTION II, ITEM 4-E. GROUNDWATER DISCHARGE INFORMATION (PAGE 35)
- ☐ 2. SECTION II, ITEM 6. PRIORITY POLLUTANTS IN SURFACE WATER DISCHARGE (PAGE 37)
- ☐ 3. B. BELOW: CRITICAL MATERIALS (TABLE IV) IN SURFACE WATER DISCHARGE (PAGE 39)

B. LIST ANY CRITICAL MATERIAL (TABLE IV PAGE 6) NOT ADDRESSED IN SECTION II ITEM 6 PRIORITY POLLUTANTS WHICH YOU KNOW OR HAVE REASON TO BELIEVE TO BE PRESENT IN THE DISCHARGE. SEE REVERSE SIDE OF THIS PAGE FOR FURTHER DIRECTIONS.

- ☒ NOT APPLICABLE
- ☐ APPLICABLE (SEE BELOW)

MATERIAL 1	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 2	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 3	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 4	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 5	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 6	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 7	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE
MATERIAL 8	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	UNIT CODE SAMPLE TYPE # OF ANALYSES
	C. MAXIMUM CONCENTRATION AND MASS	UNIT CODE UNIT CODE

UNITS CODE

1 Mg/l
2 Ug/l
3 LBS/DAY
4 KG/DAY

SAMPLE TYPE

1 GRAB
2 24 HR.COMP.

ADDITIONAL PAGES OF THIS ITEM 7 ARE ATTACHED FOR THE REST OF THE CRITICAL MATERIALS AND/OR PRIORITY POLLUTANTS REQUIRED TO BE REPORTED.

☐ YES
☐ NO

WW ENGINEERING & SCIENCE
ENVIRONMENTAL LABORATORY DIVISION

CLIENT: PEARSON DRILLING & ENGINEERING
PROJECT NO.: 26511
LOCATION: WEXFORD CO. L.F.
SAMPLED BY:
DESCRIPTION: QUARTERLY WATER ANALYSIS

DATE SAMPLED: 06/10/91 TIME:
DATE RECEIVED: 06/12/91 TIME: 1:00 PM
DATE COMPLETED: 06/28/91
SCHEDULED COMPLETION: 06/28/91
ANALYST: GEP,HLD,AMF,TL
QUALITY CONTROL REVIEW BY: KVH,BJD
WORKSHEET NO: 1

	PURGE #1 0 HRS.	PURGE #1 2 HRS.	PURGE #1 6 HRS.	PURGE #1 12 HRS.	DETECTION LIMIT	UNITS
LAB SAMPLE NO:	67319	67320	67321	67322		
MDNR SCAN 1 & 2	ENCLOSED	ENCLOSED	ENCLOSED	ENCLOSED		
CONDUCTIVITY @ 25 C	768	706	751	776	5	umhos/cm
pH VALUE	7.02	7.11	7.14	7.15	---	std. units
ALKALINITY, TOTAL	447	437	427	434	2.0	mg/l CaCO3
SULFATE	8.4	13	7.6	8.4	5.0	mg/l
CHLORIDE	18	16	16	17	2.0	mg/l
TOC	2.1	2.1	<1.0	1.3	1.0	mg/l
COD	5.7	6.3	5.3	<5.0	5.0	mg/l
NITROGEN, AMMONIA	1.4	1.1	1.0	0.89	0.05	mg/l

5555 GLENWOOD HILLS PARKWAY SE • PO BOX 874 • GRAND RAPIDS, MI 49588-0874 • (616) 942-9600 FX (616) 942-6499

WW ENGINEERING & SCIENCE
PRIORITY POLLUTANT ANALYSIS

TABLE 1
VOLATILE FRACTION

CLIENT: PEARSON DRILLING & ENGINEERING
PROJECT NO.: 26511
SAMPLE: PURGE #1 0 HRS.

DATE SAMPLED: 06/10/91 TIME:
DATE RECEIVED: 06/12/91 TIME: 1:00 PM
DATE COMPLETED: 06/15/91

SAMPLE NO. 67319

COMPOUND	RESULT (ug/l)	D.L.	COMPOUND	RESULT (ug/l)	D.L.
BENZENE	*	1.0	TRANS-1,2-DICHLOROETHYLENE	6.0	1.0
BROMODICHLOROMETHANE	*	1.0	1,2-DICHLOROPROPANE	*	1.0
BROMOFORM	*	1.0	CIS-1,3-DICHLOROPROPYLENE	*	1.0
BROMOMETHANE	*	1.0	TRANS-1,3-DICHLOROPROPYLENE	*	1.0
CARBON TETRACHLORIDE	*	1.0	ETHYL BENZENE	*	1.0
CHLOROBENZENE	*	1.0	METHYLENE CHLORIDE	*	1.0
CHLORODIBROMOMETHANE	*	1.0	1,1,2,2-TETRACHLOROETHANE	*	1.0
CHLOROETHANE	*	1.0	TETRACHLOROETHYLENE	*	1.0
2-CHLOROETHYLVINYL ETHER	---	---	TOLUENE	2.0	1.0
CHLOROFORM	*	1.0	1,1,1-TRICHLOROETHANE	*	1.0
CHLOROMETHANE	---	---	1,1,2-TRICHLOROETHANE	*	1.0
1,1-DICHLOROETHANE	1.0	1.0	TRICHLOROETHYLENE	4.0	1.0
1,2-DICHLOROETHANE	*	1.0	TRICHLOROFLUOROMETHANE	*	1.0
1,1-DICHLOROETHYLENE	*	1.0	VINYL CHLORIDE	*	1.0

*COMPOUND NOT PRESENT AT DETECTION LIMIT
**THIS COMPOUND COELUTES WITH TRANS 1,2 DICHLOROETHYLENE AND THEREFORE, THE VALUE GIVEN MAY REPRESENT A COMBINATION OF BOTH COMPOUNDS.

5555 GLENWOOD HILLS PARKWAY SE • PO BOX 874 • GRAND RAPIDS, MI 49588-0874 • (616) 942-9600 FX (616) 942-6499

WW ENGINEERING & SCIENCE
PRIORITY POLLUTANT ANALYSIS

TABLE 1
VOLATILE FRACTION

CLIENT: PEARSON DRILLING & ENGINEERING
PROJECT NO.: 26511
SAMPLE: PURGE #1 0 HRS.

DATE SAMPLED: 06/10/91 TIME:
DATE RECEIVED: 06/12/91 TIME: 1:00 PM
DATE COMPLETED: 06/15/91

SAMPLE NO. 67319

COMPOUND	RESULT (ug/l)	D.L.
XYLENE	<3.0	3.0
CIS-1,2 DICHLORO-ETHYLENE	**	1.0