

ATTACHMENT

Consumers Power Company
Palisades Plant
Docket 50-255

NOTIFICATION OF SUBMITTAL OF REQUEST FOR RENEWAL
OF THE NATIONAL POLLUTANT DISCHARGE
ELIMINATION SYSTEM (NPDES) PERMIT

April 13, 1994



**Consumers
Power**

POWERING

MICHIGAN'S PROGRESS

Environmental & Technical Services Department: 1945 West Farnall Rd, Jackson, MI 49201 • FAX (517) 788-2329

March 25, 1994

Mr William Shaw
Surface Water Quality Division
Permits Section
Michigan Department of Natural Resources
PO Box 30273
Lansing, MI 48909-7258

21E01M90518.6
DAO 94-025

NPDES PERMIT RENEWAL APPLICATION - MI0049131

Dear Mr Shaw

Attached for your review is a standard NPDES Permit Application Form for the discharge of treated groundwater to Lake Michigan resulting from remediation of a chlorinated solvent release at the Palisades Nuclear Plant. The existing NPDES Permit No MI0049131 for this discharge is set to expire on October 1, 1994.

A note written under Item 5 of Section II of the Permit Application Form requires explanation. None of the waste water characteristics listed in Part A of Item 5 will be increased above background levels during the treatment and discharge of groundwater to Lake Michigan. Therefore, we request a waiver from sampling and reporting these discharge characteristics.

If you need any further information regarding the permit request, please contact me at (517) 788-2980.

Sincerely

David A Olsen, PE
Environmental and Technical Services

00394-36.DAO

A CMS ENERGY COMPANY

SECTION I

EPA I.D. NUMBER

M I D 0 9 8 6 4 4 6 8 5

PERMIT
NUMBER

M I D 0 0 4 9 1 3 1

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		CONSUMERS POWER COMPANY	
B. DIV./BUREAU		N A	
C. PLANT OR FACILITY		PALISADES	
D. TYPE OF FACILITY		NUCLEAR POWER P L T	
F. STREET NUMBER		G. STREET NAME	
2 7 7 8 0		B L U E S T A R M E M H W Y	
H. CITY NAME		I. ZIP CODE	
C O V E R T		M I 4 9 0 4 3	
J. TOWNSHIP		K. COUNTY (REFER TO TABLE I)	
C O V E R T		V A N B U R E N	
L. NAME OF AUTHORIZED CONTACT PERSON		M. TITLE	
A N T H O N Y C A L L O W A Y		P L A N T C H E M I S T	
N. TELEPHONE NUMBER		O. ADDRESS (IF DIFFERENT FROM ABOVE)	
6 1 6 7 6 4 8 9 1 3		N A	
P. CITY NAME		Q. STATE	
C O V E R T		M I	
S. TYPE OF TREATMENT FACILITY (REFER TO TABLE II)		R. ZIP CODE	
I K		4 9 0 4 3	
T. PROGRAM FOR EFFECTIVE RESIDUALS MANAGEMENT		DATE SUBMITTED	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N.A.		DATE IMPLEMENTED	
U. BACK-UP POWER SOURCE		V. POLLUTION INCIDENT PREVENTION PLAN	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N.A.		DATE SUBMITTED	
<input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N.A.		DATE IMPLEMENTED	
W. NUMBER OF EMPLOYEES		6 5 0	
X. TYPE OF DISCHARGE		Y. DO YOU HAVE A CERTIFIED OPERATOR?	
GROUNDWATER <input type="checkbox"/> BOTH <input type="checkbox"/> SURFACE WATER <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
OPERATOR'S NAME		S.S.#	
Anthony Calloway		3 6 4 5 8	
FACILITY #		CERTIFICATION #	
8 0 0 0 8 2		W 2 8 4 1	

ITEM
2MAILING
ADDRESS
OF
APPLICANT

A. NAME	
T H O M A S P A L M I S A N O	
B. NAME	
A N T H O N Y C A L L O W A Y	
C. STREET ADDRESS OR POST OFFICE BOX	
2 7 7 8 0 B L U E S T A R M E M O R I A L H W Y	
D. CITY NAME	
C O V E R T	
E. STATE	
M I	
F. ZIP CODE	
4 9 0 4 3	

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:

DATE:

3/23/84

NAME: THOMAS PALMISANO

TITLE:

ACTING
PLANT MANAGER

SIGNATURE OF LOCAL GOVERNMENTAL REPRESENTATIVE (SEE NOTE ON REVERSE SIDE)

SIGNATURE:

NA

DATE:

NAME:

TITLE:

SECTION I

SEE INSTRUCTIONS
ON REVERSE SIDE

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ITEM 3

SOURCE
OF
WATER
SUPPLY

A. MUNICIPAL	NAME	N A	
	QUANTITY (MAX.)	GALLONS/DAY	
	B. SURFACE WATER INTAKE	NAME OF WATERWAY	N A
		QUANTITY (MAX.)	GALLONS/DAY
C. PRIVATE WELL	QUANTITY (MAX.)	N A GALLONS/DAY	
D. OTHER	SPECIFY	N A	
	QUANTITY (MAX.)	GALLONS/DAY	

ITEM 4

FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	N A GALLONS/DAY
	B. NONCONTACT COOLING WATER	QUANTITY (MAX.)
C. SANITARY WATER		QUANTITY (MAX.)
D. OTHER	SPECIFY	N A
	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	NA
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 2	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 3	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 4	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 5	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 6	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR
MATERIAL 7	NAME OF SUBSTANCE	
	PARAMETER NUMBER	
	QUANTITY	UNITS /YEAR

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
6

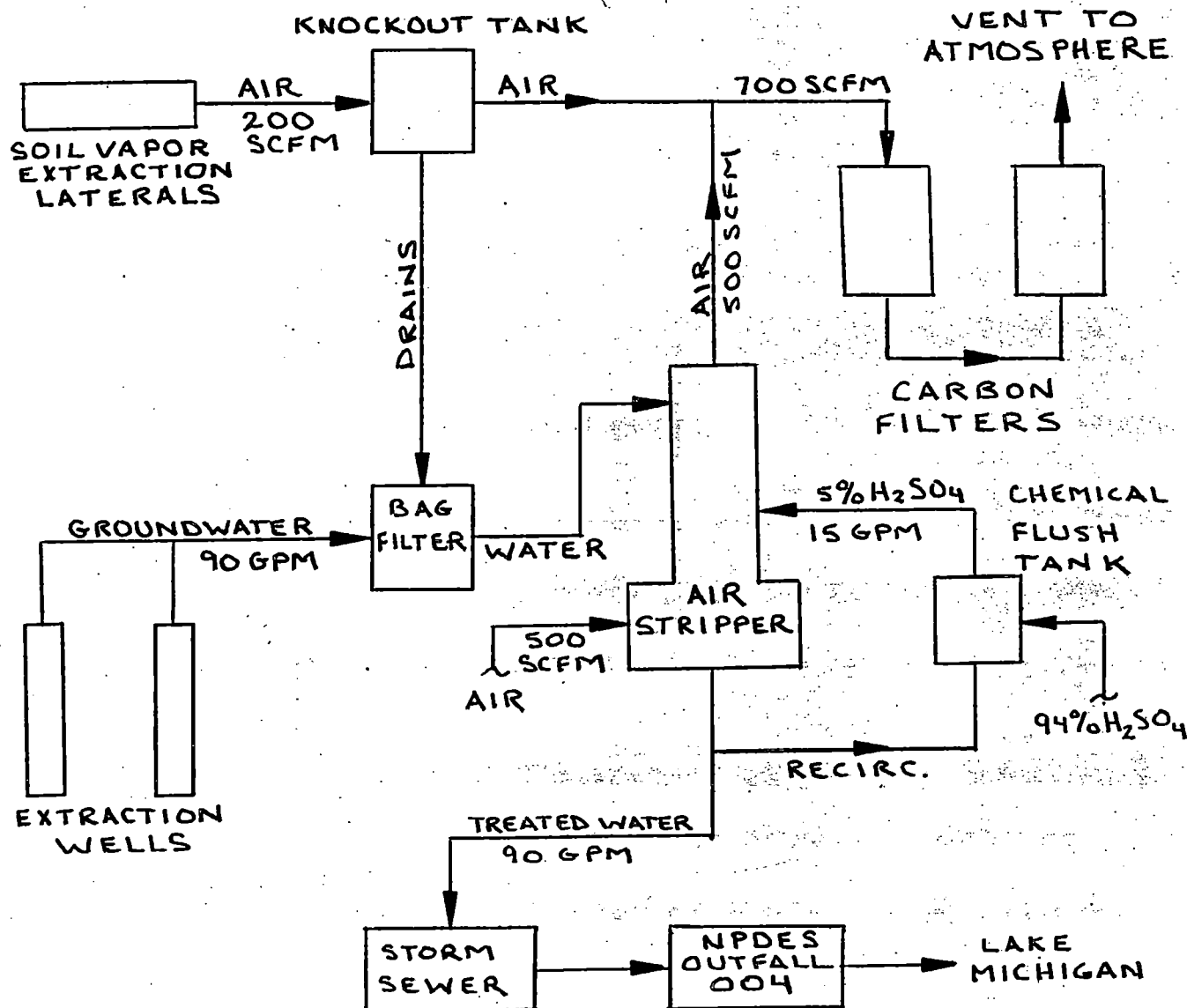
DESCRIPTION

AND

DIAGRAM

A. PROVIDE A BRIEF DESCRIPTION AND LINE DIAGRAM SHOWING THE WATER FLOW THROUGH YOUR FACILITY FROM INTAKE TO DISCHARGE. SHOW ALL OPERATIONS CONTRIBUTING WASTEWATER, INCLUDING PROCESS AND PRODUCTION AREAS, SANITARY FLOWS, COOLING WATER, AND STORMWATER RUNOFF. YOU MAY GROUP SIMILAR OPERATIONS INTO A SINGLE UNIT. THE WATER BALANCE SHOULD SHOW AVERAGE FLOWS. SHOW ALL SIGNIFICANT LOSSES OF WATER TO PRODUCTS, ATMOSPHERE, AND DISCHARGE. YOU SHOULD USE ACTUAL MEASUREMENTS WHENEVER AVAILABLE; OTHERWISE USE YOUR BEST ESTIMATE.

A groundwater treatment system was installed at the Palisades Plant in conjunction with a soil vapor extraction system to remediate groundwater and soil contaminated by Tetrachloroethylene (PCE) and Trichloroethylene (TCE). Groundwater is pumped from two extraction wells, as well as from the soil vapor extraction system knockout tank, to an air-stripping tower. Air is forced into the tower bottom by a blower to remove volatile organic compounds (TCE & PCE) from the groundwater. The treated water collects in the air-stripper sump, from which point the water is gravity fed to a storm sewer drain that discharges to Lake Michigan via NPDES Outfall 004. The air is directed through two vapor phase granular-activated carbon filters to remove the remaining volatile organic compounds to below specified limits. This treatment process is schematically shown below:



SEE INSTRUCTIONS
ON REVERSE SIDE

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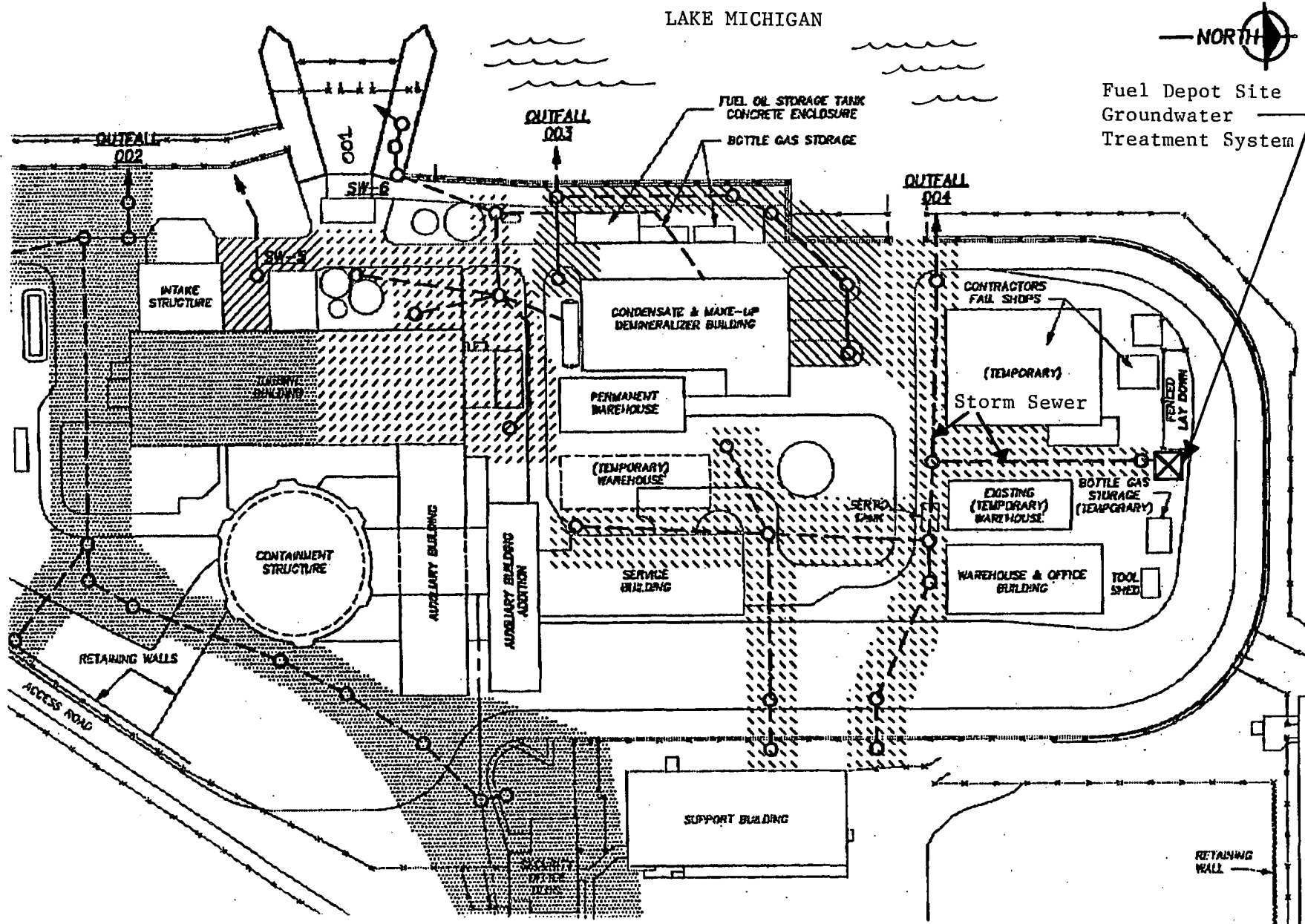
ITEM
7

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.

LOCATION
MAP



Fuel Depot Site
Groundwater
Treatment System



PALISADES NUCLEAR PLANT - SITE PLAN

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SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 8

CONCENTRATED
ANIMAL
FEEDING
OPERATION

A. DO YOU OPERATE A CONCENTRATED ANIMAL FEEDING FACILITY? (IF NO CONTINUE TO ITEM 10)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
B. NUMBER OF ACRES USED FOR CONFINEMENT FEEDING?	_____ ACRES
C. IF THERE IS OPEN CONFINEMENT, HAS A RUNOFF DIVERSION AND CONTROL SYSTEM BEEN CONSTRUCTED? (IF NO, CONTINUE TO ITEM 9)	<input type="checkbox"/> YES <input type="checkbox"/> NO
D. WHAT IS THE DESIGN BASIS FOR THE CONTROL SYSTEM? CHECK ONE OF THE FOLLOWING AND ENTER NUMBER OF INCHES OF RAIN?	<input type="checkbox"/> 10 YEAR, 24 HOUR STORM _____ INCHES <input type="checkbox"/> 25 YEAR, 24 HOUR STORM _____ INCHES <input type="checkbox"/> OTHER (SPECIFY) _____ INCHES
TYPE _____	
E. WHAT IS THE NUMBER OF ACRES OF CONTRIBUTING DRAINAGE?	_____ ACRES
F. WHAT IS THE DESIGN SAFETY FACTOR FOR THIS CONTROL SYSTEM?	_____

ITEM 9

TYPE
&
NUMBER
OF
ANIMALS
IN
OPEN
AND
HOUSED
CONFINEMENT

TYPE 1	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 2	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 3	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 4	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 5	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 6	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 7	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____
TYPE 8	A. LIST TYPE OF ANIMAL.	_____
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	_____
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	_____

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SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 10

AQUATIC
ANIMAL
PRODUCTION
FACILITY

A. DO YOU OPERATE AN AQUATIC ANIMAL PRODUCTION FACILITY?
(IF NO, CONTINUE TO ITEM 12)

☐ YES

☒ NO

B. INDICATE THE TOTAL NUMBER OF PONDS, RACEWAYS AND SIMILAR
STRUCTURES AT YOUR FACILITY.

____ . PONDS

____ . RACEWAYS

____ . OTHER

SPECIFY _____

C. INDICATE IN WHICH CALENDAR MONTH MAXIMUM FEEDING OCCURS.

D. ENTER THE TOTAL NUMBER OF POUNDS OF FOOD FED DURING THIS
MONTH?

_____ POUNDS

ITEM 11

SPECIES
OF
AQUATIC
ANIMALS
PRODUCED
AT THIS
FACILITY

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ COLD

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ COLD

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ COLD

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ COLD

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ COLD

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?

☐ WARM

☐ POUNDS

B. GIVE THE NAME OF THIS SPECIE.

C. ENTER THE TOTAL HARVESTABLE WEIGHT OF THIS SPECIE
PRODUCED BY THIS FACILITY PER YEAR IN POUNDS.

_____ POUNDS

D. ENTER THE MAXIMUM WEIGHT PRESENT FOR THIS SPECIE WHICH
WOULD REPRESENT YOUR NORMAL OPERATION.

_____ POUNDS

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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

1. Van Buren State Park
Department of Natural Resources
Real Estate Division
PO Box 30028
Lansing, MI 48909
2. Harold Vandersalm II
1324 Meadowbrook Lane
Kalamazoo, MI 49001
3. Palisades Park County Club
Route 2, Box 161
Covert, MI 49043

PERMIT NO. MI0049131

Section II - Item 2

Outfall 004

Text for Parts D, E, F and G of Item 2, Page 31:

Due to the presence of minerals in the groundwater, the packing material in the air-stripping tower is expected to accumulate scale during continuous operation. The scale, in turn, causes the tower pressure drop to exceed design limits. To remove the scale, the groundwater treatment system operation will be temporarily interrupted and a 5% sulfuric acid solution will be recirculated through the the tower at a rate of 12 to 15 GPM for approximately 20 minutes. The acid solution is prepared in a chemical flush tank (X-102 GW) by mixing 6 gallons of 94% H_2SO_4 in 120 gallons of water. Upon completion of the acid cleaning, the waste water is collected in Tank X-102 GW to allow for sampling and neutralization with a 50% NaOH solution prior to discharge into the storm sewer line servicing this treatment system. Although there has not been a need to perform this cleaning operation as of the date of this permit renewal, it is anticipated that the cleaning may be required once or twice per calendar quarter.

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDE

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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

004

A. LOCATION OF DISCHARGE

S E 1/4, N W 1/4, SECTION 05, TOWN 02 S, RANGE 17 W

B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)

LAKE MICHIGAN

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.

☒ N

F. TYPE OF WASTEWATER DISCHARGE

3

WASTEWATER TYPE CODE

G. DISCHARGE SCHEDULE (YEARLY AVERAGE)

HOURS/DAY

12 14

DAY/YEAR

3 6 5

H. DISCHARGE FLOW RATE

TOTAL YEARLY

UNIT CODE

DAILY MINIMUM

DAILY MAXIMUM

4 3 2 0 0 0

3

I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.

AUTHORIZED

4 3 2 0 0 0

UNIT CODE

3

J. MAXIMUM DESIGN DISCHARGE FLOW RATE.

DESIGN

4 3 2 0 0 0

UNIT CODE

3

ITEM 2

WATER
TREATMENT
ADDITIVES

UNITS CODE

- 1 Mg/l
- 2 U_g/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
Sulfuric Acid (5% Soln)	Remove Iron Scale From Air Stripper Packing
Sodium Hydroxide (50% Soln)	Neutralization

C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.

VWR Scientific
PO Box 66929
Chicago, Illinois

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?

ADDITIVE NAME

% REMOVAL

DISCHARGE FREQUENCY

HRS./DAY DAYS/WK.

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.
For Items D, E, F and G, see attached sheet

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SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM
3

PROCESS
STREAMS
CONTRIBUTING
TO
OUTFALL
DISCHARGE

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

OUTFALL NUMBER

004

PROCESS
1

A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

N, A

B. PROCESS SCHEDULE (YEARLY AVERAGE)

HOURS/DAY

DAYS/YEAR

C. PROCESS WASTEWATER FLOW RATE

TOTAL YEARLY

UNIT CODE

DAILY MINIMUM

DAILY MAXIMUM

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

TOTAL YEARLY

UNIT CODE

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

TOTAL YEARLY

UNIT CODE

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

TOTAL YEARLY

UNIT CODE

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

TOTAL YEARLY

UNIT CODE

DAILY MINIMUM

DAILY MAXIMUM

D. PROCESS PRODUCTION RATE

UNITS / TIME

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

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ITEM
4

GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER	0 0 4	
A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> YES	<input type="checkbox"/> 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.	<input type="checkbox"/> YES	<input type="checkbox"/> 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.	<input type="checkbox"/> YES	<input type="checkbox"/> 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.	<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input type="checkbox"/> PRESENT, DATA PROVIDED IN ITEM 7	
THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.		

ITEM
5

EXPECTED
WASTEWATER
CHARAC-
TERISTICS

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 See Cover Letter for Explanation		CONCENTRATION		UNITS CODE	# ANALYSES	SAMPLE TYPE
		AVE	MAX			CODE
*BOD ₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)	IN 1A			1		
*COD (CHEMICAL OXYGEN DEMAND)	IN 1A			1		
*TOC (TOTAL ORGANIC CARBON)	IN 1A			1		
*AMMONIA NITROGEN (AS N)	IN 1A			1		
*TOTAL SUSPENDED SOLIDS	IN 1A			1		
TOTAL PHOSPHORUS (AS P)	IN 1A			1		
TOTAL RESIDUAL CHLORINE	IN 1A			1		
DISSOLVED OXYGEN	MIN			1		
*PH	6 10		9 0	4		
FECAL COLIFORM BACTERIA	N 1A			3		
*TEMPERATURE (SUMMER)	N 1A			5		
*TEMPERATURE (WINTER)	N 1A			5		
B. OTHER WASTEWATER CHARACTERISTICS						
OIL & GREASE	N 1A					

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI0049131

ITEM 6

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER

01014

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.)

STEAM ELEC

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 45 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
Xylene*

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); 0,
0-DIMETHYL 0-(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 ANALYSES 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

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
☒ CIS-1,2-Dichloroethene*
APPLICABLE/SEE ATTACHED

*See attached letter to the Plainwell SWQD dated September 14, 1993.

SECTION II

PERMIT
NUMBER

MI0049131

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
7CRITICAL
MATERIALS
■
TOXIC
POLLUTANTS
■
HAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

004

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)

UNITS CODE

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

SAMPLE TYPE

- 1 GRAB
- 2 24 HR.COMP.

MATERIAL 1	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	Tetrachloroethylene										1	2	7	-	1	8	-	4
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 2	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	Trichloroethylene										7	9	-	0	1	-	6	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 3	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	Xylene																	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 4	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	CIS-1,2-Dichloroethene																	
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 5	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT																		
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 6	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT																		
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 7	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT																		
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		
MATERIAL 8	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT																		
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES																		
	C. MAXIMUM CONCENTRATION AND MASS																		

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



**Consumers
Power
POWERING
MICHIGAN'S PROGRESS**

General Offices: 212 West Michigan Avenue, Jackson, MI 49201 • (517) 788-0550

September 14, 1993

21E01M90518.6

Mr Fred Morley
District Supervisor
Surface Water Quality Div
Michigan Department of Natural Resources
Plainwell District Office Bldg
621 North Kent St
PO Box 355
Plainwell, MI 49080

Re: PALISADES PLANT NPDES PERMIT NO MI0049131

In response to the special conditions of the Palisades Plant NPDES Permit No MI0049131 (Section A.2.3.b), we have recently detected other chemicals in the groundwater which were not listed in the NPDES permit application. The attached analytical results indicate that trace concentrations (<2ug/l) of xylene and cis-1,2- Dichloroethene are present in the water from extraction wells EW-1 and EW-2. This water is pumped through an air stripper tower to remove the previously identified chemicals (tetrachloroethene and trichloroethene) prior to discharge at outfall 001. Based on the analytical results for the system effluent (sample SC-6GW), both of these additional chemicals are being removed in the stripper. Since the concentration of xylene and dichloroethene in the groundwater are well below the MDNR's Type B health based drinking water limit of 13,000 ug/l and 77ug/l, respectively, it would not be necessary to modify the NPDES permit. Should these groundwater chemical concentrations increase beyond the cleanup limits, your office will be notified accordingly.

If you have any questions concerning this matter, please contact me at (517) 788-2980.

Sincerely

David A Olsen, P.E.
Environmental and Technical Services

00993-07.DA0

A CMS ENERGY COMPANY

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

* UNTREATED GROUNDWATER FROM ^{-A1-} WELLS EW-1 & EW-2
 ** TREATED EFFLUENT IN OUTFALL 001

TABLE A2. ANALYTICAL RESULTS

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

LOCATION	PALISADES PLANT - Groundwater Treatment System					Project Number CHEM-93-1953
Sample Identification	SVE	SC-3GW*	SC-6GW**	SC-3GW*	SC-6GW**	
Sample Type	Liquid	0750hr	0740hr	0710hr	0705hr	
Sample Date	water	water	water	water	water	
Received Date	09-03-93	09-04-93	09-04-93	09-05-93	09-05-93	
Analysis Date	09-07-93	09-07-93	09-07-93	09-07-93	09-07-93	
Report Date	09-07-93	09-07-93	09-07-93	09-07-93	09-07-93	
Control Number	931953-01	931953-02	931953-03	931953-05	931953-04	
SCAN 601, ug/L - 8021						TMDL
Bromoform	nd	nd	nd	nd	nd	1
Bromomethane	nd	nd	nd	nd	nd	1
Carbon Tetrachloride	nd	nd	nd	nd	nd	1
Chlorobenzene	nd	nd	nd	nd	nd	1
Chloroethane	nd	nd	nd	nd	nd	1
2-Chloroethylvinyl Ether	nd	nd	nd	nd	nd	1
Chloroform	nd	nd	nd	nd	nd	1
Chloromethane	nd	nd	nd	nd	nd	1
Dibromochloromethane	nd	nd	nd	nd	nd	1
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	1
Dichlorodifluoromethane	nd	nd	nd	nd	nd	1
1,1-Dichloroethane	nd	nd	nd	nd	nd	1
1,2-Dichloroethane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloroethene	1.0	1.3	nd	0.7	nd	1
trans-1,2-Dichloroethene	nd	nd	nd	nd	nd	1
1,2-Dichloropropane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
trans-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
Methylene Chloride	nd	nd	nd	nd	nd	1
1,1,1,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
Tetrachloroethene	20.5	17.1	0.4	42.8	0.3	1
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1
1,1,2-Trichloroethane	nd	nd	nd	nd	nd	1
Trichloroethene	10.3	59.8	0.7	10.1	0.7	1
Trichlorofluoromethane	nd	nd	nd	nd	nd	1
Vinyl Chloride	nd	nd	nd	nd	nd	1
Surrogate Recovery	% Recovery		% Recovery		% Recovery	
Bromochloromethane	86	85	85	86	85	
2-Bromo-1-chloropropane	96	96	95	95	97	
4-Bromofluorobenzene	98	98	97	98	98	
NOTES: TMDL = Target Method Detection Limit, ug/L (parts-per-billion) nd = Parameter Not Detected At TMDL						
Reviewed By	[Signature]			Date	090893	Data File 931953

-A2-

* UNTREATED GROUNDWATER FROM WELLS EW-1 & EW-2

** TREATED EFFLUENT TO OUTFALL 001

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

-B1-

TABLE B2. ANALYTICAL RESULTS

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

LOCATION	PALISADES PLANT - Groundwater Treatment System				Project Number CHEM-93-1953	
Sample Identification	SC-3GW 1910hr	SC-6GW 1920hr	SC-3GW 0630hr	SC-6GW 0640hr	Method Blank	
Sample Type	water	water	water	water	water	
Sample Date	09-05-93	09-05-93	09-06-93	09-06-93	-	
Received Date	09-07-93	09-07-93	09-07-93	09-07-93	-	
Analysis Date	09-07-93	09-07-93	09-07-93	09-07-93	09-07-93	
Report Date	09-08-93	09-08-93	09-08-93	09-08-93	09-08-93	
Control Number	931953-06	931953-07	931953-08	931953-09	931953-MB	
SCAN 601, ug/L - 8021						TMDL
Bromoform	nd	nd	nd	nd	nd	1
Bromomethane	nd	nd	nd	nd	nd	1
Carbon Tetrachloride	nd	nd	nd	nd	nd	1
Chlorobenzene	nd	nd	nd	nd	nd	1
Chloroethane	nd	nd	nd	nd	nd	1
2-Chloroethylvinyl Ether	nd	nd	nd	nd	nd	1
Chloroform	nd	nd	nd	nd	nd	1
Chloromethane	nd	nd	nd	nd	nd	1
Dibromochloromethane	nd	nd	nd	nd	nd	1
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	1
Dichlorodifluoromethane	nd	nd	nd	nd	nd	1
1,1-Dichloroethane	nd	nd	nd	nd	nd	1
1,2-Dichloroethane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloroethene	1.9	nd	0.5	nd	nd	1
trans-1,2-Dichloroethene	nd	nd	nd	nd	nd	1
1,2-Dichloropropane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
trans-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
Methylene Chloride	nd	nd	nd	nd	nd	1
1,1,1,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
Tetrachloroethene	12.8	0.4	8.7	0.2	nd	1
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1
1,1,2-Trichloroethane	nd	nd	nd	nd	nd	1
Trichloroethene	46.6	1.0	33.3	0.7	nd	1
Trichlorofluoromethane	nd	nd	nd	nd	nd	1
Vinyl Chloride	nd	nd	nd	nd	nd	1
Surrogate Recovery	% Recovery		% Recovery		% Recovery	
Bromochloromethane	84	85	96	86	85	
2-Bromo-1-chloropropane	97	96	95	96	97	
4-Bromofluorobenzene	99	98	98	97	98	

NOTES:

TMDL = Target Method Detection Limit, ug/L (parts-per-billion)

nd = Parameter Not Detected At TMDL

Reviewed By PCWDate 090893

Data File 931953

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

-A1-

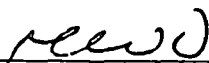
TABLE A2. ANALYTICAL RESULTS

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

LOCATION	PALISADES PLANT - Groundwater Treatment System					Project Number CHEM-93-1973
Sample Identification	SC-1GW EW-1 Inlet water	SC-2GW EW-2 Inlet water	SC-3GW Inlet water	SC-6GW Treated water	SC-3GW Inlet water	
Sample Type						
Sample Date	09-08-93	09-08-93	09-08-93	09-08-93	09-07-93	
Received Date	09-09-93	09-09-93	09-09-93	09-09-93	09-09-93	
Analysis Date	09-09-93	09-09-93	09-09-93	09-09-93	09-09-93	
Report Date	09-10-93	09-10-93	09-10-93	09-10-93	09-10-93	
Control Number	931973-01	931973-02	931973-03	931973-04	931973-05	
SCAN 601, ug/L - 8021						TMDL
Bromoform	nd	nd	nd	nd	nd	1
Bromomethane	nd	nd	nd	nd	nd	1
Carbon Tetrachloride	nd	nd	nd	nd	nd	1
Chlorobenzene	nd	nd	nd	nd	nd	1
Chloroethane	nd	nd	nd	nd	nd	1
2-Chloroethylvinyl Ether	nd	nd	nd	nd	nd	1
Chloroform	nd	nd	nd	nd	nd	1
Chloromethane	nd	nd	nd	nd	nd	1
Dibromochloromethane	nd	nd	nd	nd	nd	1
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	1
Dichlorodifluoromethane	nd	nd	nd	nd	nd	1
1,1-Dichloroethane	nd	nd	nd	nd	nd	1
1,2-Dichloroethane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloroethene	0.7	1.5	1.1	nd	0.7	1
trans-1,2-Dichloroethene	nd	nd	nd	nd	nd	1
1,2-Dichloropropane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
trans-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
Methylene Chloride	nd	nd	nd	nd	nd	1
1,1,1,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
Tetrachloroethene	6.7	57.5	24.9	1.7	6.5	1
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1
1,1,2-Trichloroethane	nd	nd	nd	nd	nd	1
Trichloroethene	23.9	6.1	13.3	1.3	22.1	1
Trichlorofluoromethane	nd	nd	nd	nd	nd	1
Vinyl Chloride	nd	nd	nd	nd	nd	1
Surrogate Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
Bromochloromethane	83	85	85	84	81	
2-Bromo-1-chloropropane	93	95	96	96	95	
4-Bromofluorobenzene	97	98	98	97	97	

NOTES: TMDL = Target Method Detection Limit, ug/L (parts-per-billion)
nd = Parameter Not Detected At TMDL

Reviewed By



Date 09-10-93

Data File

931973

LOCATION	PALISADES PLANT - Groundwater Treatment System				Project Number CHEM-93-1973	
Sample Identification	SC-6GW				Method	
Sample Type	Treated				Blank	
Sample Date	water				water	
Received Date	09-07-93				-	
Analysis Date	09-09-93				-	
Report Date	09-09-93				09-09-93	
Control Number	09-10-93				09-10-93	
	931973-06				931973-mb	
SCAN 602, ug/L - 8021						TMDL
Benzene	nd				nd	1
Toluene	nd				nd	1
Ethylbenzene	nd				nd	1
m/p-Xylene	nd				nd	1
o-Xylene	nd				nd	1
Surrogate Recovery	% Recovery				% Recovery	
4-Bromofluorobenzene	98				95	

NOTES:

TMDL = Target Method Detection Limit, ug/L (parts-per-billion)

nd = Parameter Not Detected At TMDL

Reviewed By

Heidi

Date

09/08/93

Data File

931973

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

LOCATION	PALISADES PLANT - Groundwater Treatment System				Project Number CHEM-93-1973	
Sample Identification	SC-6GW				Method	
Sample Type	Treated				Blank	
Sample Date	water				water	
Received Date	09-07-93				-	
Analysis Date	09-09-93				-	
Report Date	09-09-93				09-09-93	
Control Number	09-10-93				09-10-93	
	931973-06				931973-mb	
SCAN 601, ug/L - 8021						TMDL
Bromoform	nd				nd	1
Bromomethane	nd				nd	1
Carbon Tetrachloride	nd				nd	1
Chlorobenzene	nd				nd	1
Chloroethane	nd				nd	1
2-Chloroethylvinyl Ether	nd				nd	1
Chloroform	nd				nd	1
Chloromethane	nd				nd	1
Dibromochloromethane	nd				nd	1
1,2-Dichlorobenzene	nd				nd	1
1,3-Dichlorobenzene	nd				nd	1
1,4-Dichlorobenzene	nd				nd	1
Dichlorodifluoromethane	nd				nd	1
1,1-Dichloroethane	nd				nd	1
1,2-Dichloroethane	nd				nd	1
cis-1,2-Dichloroethene	nd				nd	1
trans-1,2-Dichloroethene	nd				nd	1
1,2-Dichloropropane	nd				nd	1
cis-1,2-Dichloropropene	nd				nd	1
trans-1,2-Dichloropropene	nd				nd	1
Methylene Chloride	nd				nd	1
1,1,1,2-Tetrachloroethane	nd				nd	1
1,1,2,2-Tetrachloroethane	nd				nd	1
Tetrachloroethene	0.4				nd	1
1,1,1-Trichloroethane	nd				nd	1
1,1,2-Trichloroethane	nd				nd	1
Trichloroethene	0.8				nd	1
Trichlorofluoromethane	nd				nd	1
Vinyl Chloride	nd				nd	1
Surrogate Recovery	% Recovery				% Recovery	
Bromochloromethane	82				86	
2-Bromo-1-chloropropane	91				96	
4-Bromofluorobenzene	95				98	
NOTES: TMDL = Target Method Detection Limit, ug/L (parts-per-billion) nd = Parameter Not Detected At TMDL						
Reviewed By	HWW			Date	09-10-93	Data File 931973

TABLE A2. ANALYTICAL RESULTS

CONSUMERS POWER COMPANY
Environmental & Technical Services Department

LOCATION	PALISADES PLANT - Groundwater Treatment System				Project Number CHEM-93-1984	
Sample Identification	SC-1GW	SC-2GW	SC-3GW	SC-6GW	Method	
Sample Type	water	water	water	water	Blank	
Sample Date	09-09-93	09-09-93	09-09-93	09-09-93	water	
Received Date	09-10-93	09-10-93	09-10-93	09-10-93	-	
Analysis Date	09-10-93	09-10-93	09-10-93	09-10-93	-	
Report Date	09-10-93	09-10-93	09-10-93	09-10-93	09-10-93	
Control Number	931984-01	931984-02	931984-03	931984-04	931984-mb	
SCAN 601, ug/L - 8021						TMDL
Bromoform	nd	nd	nd	nd	nd	1
Bromomethane	nd	nd	nd	nd	nd	1
Carbon Tetrachloride	nd	nd	nd	nd	nd	1
Chlorobenzene	nd	nd	nd	nd	nd	1
Chloroethane	nd	nd	nd	nd	nd	1
2-Chloroethylvinyl Ether	nd	nd	nd	nd	nd	1
Chloroform	nd	nd	nd	nd	nd	1
Chloromethane	nd	nd	nd	nd	nd	1
Dibromochloromethane	nd	nd	nd	nd	nd	1
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	1
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	1
Dichlorodifluoromethane	nd	nd	nd	nd	nd	1
1,1-Dichloroethane	nd	nd	nd	nd	nd	1
1,2-Dichloroethane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloroethene	0.6	1.2	1.1	nd	nd	1
trans-1,2-Dichloroethene	nd	nd	nd	nd	nd	1
1,2-Dichloropropane	nd	nd	nd	nd	nd	1
cis-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
trans-1,2-Dichloropropene	nd	nd	nd	nd	nd	1
Methylene Chloride	nd	nd	nd	nd	nd	1
1,1,1,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	nd	1
Tetrachloroethene	8.1	35.5	22.1	0.7	nd	1
1,1,1-Trichloroethane	nd	nd	nd	nd	nd	1
1,1,2-Trichloroethane	nd	nd	nd	nd	nd	1
Trichloroethene	28.4	5.8	15.4	0.5	nd	1
Trichlorofluoromethane	nd	nd	nd	nd	nd	1
Vinyl Chloride	nd	nd	nd	nd	nd	1
Surrogate Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
Bromochloromethane	82	83	85	88	88	
2-Bromo-1-chloropropane	94	94	95	96	97	
4-Bromofluorobenzene	98	96	96	98	95	

NOTES:

TMDL = Target Method Detection Limit, ug/L (parts-per-billion)

nd = Parameter Not Detected At TMDL

Reviewed By

fwj

Date

09-10-93

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CONSUMERS POWER COMPANY
Environmental & Technical Services Department

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