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CERTIFIED MAIL # P 378 901 729

Mr. J. B. Beauboeuf
Waste Management Division
Michigan Department of Natural Resources
John Hannah Building
P. O. Box 30241
Lansing, MI 48909

March 11, 1994

Dear Mr. Beauboeuf:

RE: Donald C. Cook Nuclear Plant
Groundwater Discharge Permit Application

Enclosed please find a groundwater discharge permit application for the Cook Nuclear Plant located in Bridgman, Michigan, Berrien County. As requested by Mr. Scott Ross during our meeting on November 10, 1993, also enclosed is a study which compares the quality of the effluent from the Turbine Room Sump (TRS) discharge to that of the absorption pond discharge to groundwater. Included with the permit application is a description of the changes scheduled to be made to further reduce the concentrations of impurities discharged into the absorption pond.

Please note, also as requested by Mr. Scott Ross, that this application addresses only the Cook Nuclear Plant's discharges to the groundwater. An application for renewal of the NPDES surface water discharge permit MI0005827 will be submitted by April 1, 1994.

The attached study indicates the absorption pond provides excellent mixing, with a mixing/dilution factor of approximately 20:1. Furthermore, the actual water entering the ground meets all of the proposed groundwater effluent limits with the exception of aluminum. The aluminum discharge is the result of the use of aluminum sulfate (alum) as a flocculent in the makeup water plant. The replacement of alum is currently being pursued, as described in Attachment 4.

Additional changes planned for the Cook Nuclear Plant will result in further reduction of the concentrations of impurities to the absorption pond. Attachments 1 and 2 describe the makeup plant neutralization system and sequencing batch reactors respectively, which will result in improved effluent water quality.

9/11/2070157

March 11, 1994
Mr. J. B. Beauboeuf
Page 2

Attachment 3 is a description of the present zebra mussel control strategy as it affects the groundwater discharge as well as some of the options being evaluated for future improvements.


Attachment 5 is a description of chemical corrosion control additives which will be used in various plant systems. These additives will be chosen on their reduced environmental toxicity as well as corrosion control performance.

Finally, we offer to the agency the following proposals for establishing compliance with the proposed groundwater effluent standards:

- * We propose to continue compliance monitoring at the turbine room sump discharge. The absorption pond study has demonstrated that the water entering the aquifer meets the proposed groundwater effluent limits for boron, sulfates, sodium, and total dissolved solids. Therefore, we propose a monthly composite sample made up of 24 hour daily composite samples be utilized for compliance monitoring.
- * We request that aluminum be regulated by total pounds released as proposed by Mr. Ross in our November meeting, rather than by concentration in the absorption pond. The proposed poundage limit is a maximum 125 pounds alum per day.

Should you have any questions on the attached material please contact John Carlson, Cook Nuclear Plant Environmental Supervisor, at (616)465-5901 ext. 1153 or me at (219)425-2118. We would be happy to meet with you at your convenience to discuss the application if you believe that would be helpful.

Very truly yours,


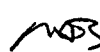


Donald L. Baker
Environmental Affairs Director

DLB/sdb/046,042
Enclosure

March 11, 1994
Mr. J. B. Beauboeuf
Page 3

bc: W. N. D'Onofrio/M. A. Bailey/J. L. Hughey
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S. J. Brewer
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1) ~~W.N. D'ONOFRIO~~ 
2) ~~M.A. BAILEY~~ 
3) ~~J.L. HUGHEY~~

Attachment 1

Makeup Demineralizer Regeneration Waste Neutralization System

The Cook Plant is installing a system to collect and treat makeup demineralizer regeneration wastes to meet proposed pH permit limits. The current practice is to isolate the Turbine Room Sump (TRS), accumulate the wastes within the TRS, neutralize the waste with sulfuric acid or sodium hydroxide, then discharge the neutralized contents of the TRS to the Absorption Pond. Because the regeneration wastes are not the only source of water being collected in the TRS, a high water level within the TRS may require the discharge of the sump contents prior to the wastes being completely neutralized.

The new system will allow collection and neutralization of the regeneration wastes apart from the TRS. The holding tank for the waste will also be the point of treatment with the capability to add and mix sulfuric acid or sodium hydroxide with the waste prior to metering the neutral mixture to the TRS. The total cost of the Makeup Demineralization Waste System is \$3,600,000.00. The system is targeted for completion by January of 1995, with system startup to occur thereafter.

Attachment 2

Sequencing Batch Reactors

The Cook Plant is currently requesting quotations to install a pair of pre-engineered sequencing batch reactors (SBR) to meet the proposed groundwater effluent limits. The new system will operate at a design flow of 50,000 GPD with a maximum flow of 60,000 GPD. The South Extended Aeration Package Plant will be utilized as a retention tank to ensure efficient SBR operation. Effluent from the new system will continue to be discharged into one of the two seepage lagoons. The new system will be installed and operational by December of 1995.

Attachment 3

Zebra Mussel Control Strategy

Zebra mussels are a menace to any industrial or municipal process drawing water from Lake Michigan. Our current control plan is to chlorinate and perform periodic shock chemical treatments utilizing a proprietary chemical formulation. The Plant has also changed the source water for the fire protection system to a potable supply from Lake Township. This method of control was developed for short term relief from the effects of zebra mussel infestation. Based on over three years experience in dealing with the mussels at Cook Plant and other Great Lakes facilities, a new strategy is being proposed to our corporate management for approval to protect all operations from infestation.

The new strategy incorporates intermittent oxidizing biocide treatments of the circulating water system beginning at the intake structures in Lake Michigan, continuous oxidizing biocide treatment of the essential service water and non-essential service water systems, addition of sodium bisulfite to reduce any residual oxidizing biocide prior to discharge to the lake, and, if necessary, shock treatments utilizing proprietary chemical formulations. The goal of the program is to (1) eradicate existing populations and control further settlement of zebra mussels within the plant systems utilizing lake water, (2) treat the residual oxidant being discharged to non-detectable levels, and (3) reduce or eliminate the number of remedial shock treatments necessary to kill settled colonies of zebra mussels.

The resultant zebra mussel control changes will ultimately affect discharges to the Turbine Room Sump from plant systems that are supplied by miscellaneous sealing and cooling water and systems that use non-essential service water that discharge directly to the TRS.

Attachment 4

Alum Replacement Program

A Chemistry Task Force has been evaluating chemical flocculent replacements for alum (aluminum sulfate). Our corporate management is currently reviewing various flocculents, taking both groundwater effluent standards and reverse osmosis system performance into consideration. The replacements currently being reviewed are mainly polymeric flocculent which will enhance the removal of suspended solids in the pre-filters and meet manufacturer recommendations for the water entering the reverse osmosis system. The recommendations from the task force, once approved, will require additional time to test and implement. The environmental benefit of this review is the reduced amount of aluminum which will be discharged to the groundwater through the Turbine Room Sump discharge. The scheduled target implementation date to use a new flocculent is fourth quarter of 1994.

Attachment 5

Chemistry Corrosion Control Additives

The Plant is evaluating substitutes for the current corrosion control additives in the steam generators, plant heating boiler, feedwater and condensate systems, and closed heating/cooling systems. These substitutes will include carbohydrazide, and other available products from chemical companies such as Betz or Nalco. The environmental benefits of these additives include utilization of more benign corrosion control products or products requiring lower effective concentrations. Use of these products will necessitate discharge to the Turbine Room Sump pathway in concentrations to be determined upon effective optimization. Consequently, higher concentrations of iron and other system products can initially be expected.

Comparative Study of Turbine Room Sump Discharges
and Absorption Pond Water Chemistry

Cook Nuclear Plant
Groundwater Application

February 7, 1994

INTRODUCTION

A study was conducted to characterize the water quality in the Cook Nuclear Plant Absorption Pond complex prior to discharge into the groundwater. This was at the request of Mr. Scott Ross (Michigan DNR) during our November 1993 meeting in Lansing, MI. The intent of the study was to determine the mixing and dilution effects of the Absorption Pond on discharges from the plant's Turbine Room Sump (TRS). This report presents the results of the study, data analysis, and groundwater implications.

Wastewater generated in the plant either drains to the TRS or is pumped to the TRS from localized sumps. The primary sources of wastewater include Makeup Plant demineralizer regenerations, filter backwashes, floor drains, chemistry lab wastes, various equipment and system drains, and non-contact cooling water. Water is collected in the TRS, neutralized as necessary, and is periodically discharged to an onsite Absorption Pond complex. The ponds are located approximately 825 feet southeast of the plant (Figure 1).

The Absorption Pond complex consists of the original Absorption Pond and an Overflow Pond connected by a 392 foot ditch. The ponds have received an average TRS discharge flow of 301,000 gallons per day during the last six months of plant operation. Both ponds maintain relatively stable water levels with the Absorption Pond overflowing continuously to the downstream Overflow Pond. The pond water entering the ground eventually flows to Lake Michigan based on a 1991 hydrogeology study.

MATERIALS AND METHODS

The Absorption Pond study consisted of three stages: 1) a preliminary conductivity survey and pond volume determination, 2) an 18-day comparison of TRS and Absorption Pond water chemistry, and 3) data analysis and report generation. The preliminary conductivity survey was conducted to determine the uniformity of water chemistry within the Absorption Pond and to obtain pond depth readings. The subsequent 18-day study included two Makeup Plant demineralizer regenerations and was conducted with both plant units operating between 70 and 100% power. The second regeneration was "forced" to compress the study time and provide a more conservative evaluation of the effects of regenerations. The amount of acid and caustic used in the regenerations was maintained at normal levels.



Preliminary Survey

A sampling grid was established on the Absorption Pond and Overflow Pond on 40 foot intervals using permanent reference points. At each point, a conductivity measurement was taken at a depth of approximately 1.5 feet using a Hach Model 44600 conductivity meter. Pond depths were also taken at each point using an Impulse Model 4400 depth finder. Additional depth readings were taken around the periphery of the ponds to better develop depth contour maps.

The areas of the two ponds were determined using a November 1993 aerial photograph scaled to 1 inch = 660 feet and an electronic planimeter. Ten repetitive measurements were taken on each pond. Average areas were then calculated for the ponds.

The volumes of the two ponds and the interconnecting stream were calculated using the depth contour maps and area data. The areas between the depth contour lines were multiplied by the average depth and added to obtain the total pond volumes.

18-Day Study

The study was designed to obtain daily composite samples from the TRS and Absorption Pond complex during a period encompassing two demineralizer regenerations. Samples were collected once per day from the Absorption Pond. The NPDES autocompositor was used to obtain daily TRS composites for the study. Cook Nuclear Plant personnel analyzed the samples for pH and conductivity. Halliburton NUS Environmental Laboratory analyzed the samples for sulfate, chloride, sodium, total dissolved solids, total aluminum, dissolved aluminum, total boron and dissolved boron.

Four sample locations were selected to make up the daily composite for the Absorption Pond complex. Two central points were located at 10 foot depths in the Absorption Pond and two central points at two foot depths were located in the Overflow Pond (Figure 2). Tygon tubing was secured at each sample location and run to the pond shores for sampling. Battery operated peristaltic pumps were used to purge and draw the samples. Equal quantities from each point were combined to make up the Absorption Pond composite.

A TRS and Absorption Pond study period composite was also analyzed for the above parameters which consisted of equal quantities from the 18 daily composites. The composites were used as checks on the daily analytical data.

An additional set of independent grab samples was collected over a 28 hour period during and after the second demineralizer regeneration to provide more detailed data on the event. Grab samples were collected every four hours from the TRS and composite samples (four points) were collected every six hours from the Absorption Pond. The samples were analyzed for conductivity to provide a relative indication of the short-term effects of demineralizer regenerations.

Data Analysis and Report

The data from the study was compared statistically using Systat software. The following comparisons and calculations were performed to evaluate the data and test the validity of the study:

- The TRS and Absorption Pond data were compared with proposed groundwater discharge limits to determine if the limits would be met during demineralizer regenerations.

- The TRS and Absorption Pond data were compared graphically to ensure the patterns matched mass balance calculations.

- Mass balances for selected chemistry parameters were performed including calculated versus actual Absorption Pond value comparisons.

- The study data were compared with the NPDES discharge monitoring data from past months to ensure the study was representative of plant operations.

Statistical significance is expressed with a percent confidence level and method, when appropriate.

RESULTS

Preliminary Survey and Pond Volumes

Initial conductivity measurements indicated the ponds were mixing uniformly. Conductivities ranged from 310-328 uS in the Absorption Pond and from 340-347 uS in the Overflow Ponds. It was concluded that the TRS discharge plume was mixing very quickly and that the selection of sample points could be based on representing equal areas of the Absorption Pond complex. The four sample points shown in Figure 2 were selected on this basis.

Depth readings were obtained at 60 locations in the Absorption Pond and at 15 locations in the Overflow Pond. Depth contour maps were developed from this data for the two ponds (Figures 3 and 4). The maximum measured depth of the Absorption Pond was 19.0 feet and 4.7 feet for the Overflow Pond.

Pond surface areas and volumes are shown in Table 1. The total water surface area is 2.21 acres with a combined volume of approximately six million gallons. This provides a daily TRS dilution factor of almost 20:1 based on a 301,000 gpd average flow rate.

18 Day Study

The TRS water chemistry remains relatively constant (normal TDS range of 130-170 mg/l) except following Makeup Plant (MUP) demineralizer regenerations. The sulfuric acid and sodium hydroxide used to regenerate the demineralizers sharply increase the sulfate, sodium, conductivity, and TDS levels for approximately 12 hours. The regenerations are conducted on an as needed basis and averaged once per 12 days during the last six months. The trend is toward more infrequent regenerations as operation of the reverse osmosis (RO) unit is refined.

Analysis results for the 18 day sampling period for the TRS and Absorption Pond are listed in Table 2. The analysis results for the TRS and Absorption Pond are compared graphically in Figures 5 through 14. Even following demineralizer regenerations, the studied chemistry parameters remained well below the proposed groundwater limits in the Absorption Pond with the exception of dissolved aluminum.

The sharp increases in conductivity, sulfate, sodium, boron, and TDS are directly correlated with MUP demineralizer regenerations. The two boron peaks are thought to be due to the release of boron from the cation beds during the regenerations. A Lake Michigan boron level of 83 ug/l was reported in our 1990 NPDES Permit application. The amount of boron removed from processing approximately 4-5 million gallons of Lake Michigan water between regenerations would account for the peaks.

The dissolved aluminum exceeded or equaled proposed ground water discharge limits in the Absorption Pond on each day; dissolved aluminum values ranged from 50-140 ug/l compared to a limit of 50 ug/l. Aluminum levels in the TRS are elevated due to the use of alum (aluminum sulfate) at an average rate of 300 pounds per week. Higher rates are used during turbid lake conditions.

There was excellent correlation between the TRS and Absorption Pond results for all parameters studied. Table 3 lists the multiple correlation coefficients (R^2), F-Ratios for the linear regression tests, and significance level (p). In most cases, the probability of the TRS and Absorption Pond chemistry parameters not being related is less than 0.1%. The correlation between the TRS and Absorption Pond could be improved slightly by comparing Absorption Pond data one day later than the TRS data ("lagging one day"). This probably reflects the sampling time difference: 1000 hours for the Absorption Pond and 2200 hours for the TRS. This indicates the Absorption Pond data are reliable in assessing the true effects of the TRS on Absorption Pond water chemistry.



Mass balances were also conducted following the regeneration events to further define the validity of the study. The calculated concentrations for the Absorption Pond following regeneration are reasonably close to the actual concentrations obtained from analysis. The results are presented in Table 4.

A more intensive short-term study of the effects of regenerations on TRS and Absorption Pond water chemistry was conducted on January 4-5, 1994. The conductivity results are included in Table 5 and shown graphically in Figure 15. The results indicate that the TRS returns to normal water chemistry approximately 12 hours after the start of a regeneration. The data also indicates that the Absorption Pond mixes very quickly, thereby buffering TRS chemistry spikes.

In addition to meeting the proposed limits for the TRS discharges, installation of the reverse osmosis (RO) unit has resulted in a marked reduction in levels of groundwater contaminants. Figure 16 illustrates the water quality effects of operating the RO unit to reduce demineralizer regenerations on the TRS and groundwater Well #11, the closest well to the Absorption Pond. As the plant becomes more efficient at operating the Makeup Plant and other improvements are made, we expect this trend to continue.

CONCLUSIONS

The quality of the Absorption Pond water entering the aquifer was within the proposed groundwater limits for all of the parameters studied except for dissolved aluminum. The aluminum levels were still very low and will be reduced below the 50 ug/l limit once plans to replace alum as a flocculant are completed. Therefore, the TRS compositor sample can continue to be used for discharge monitoring with assurance that the groundwater limits will be met.

Mixing and dilution of TRS discharges with Absorption Pond complex water provided a buffering effect resulting in stable pond water quality even during demineralizer regeneration periods. Other than aluminum, the average concentrations of the chemical parameters studied were equal to or less than 60 percent of the proposed concentration limits. This indicates that there is a substantial margin against exceedances should plant operating conditions deviate from the normal conditions included in this study.

From the trends in groundwater well data over the last year, it is also apparent that the Cook Nuclear Plant has made great strides in improving groundwater discharge quality. We expect this trend to continue with further refinements of our Makeup Plant and installation of the neutralization tank and new sewage treatment facility.

Table 1 - Pond Volumes and Absorption Areas

Location	Area		Volume	
	Sq. Feet	Acres	Cu. Feet	Gallons
Absorption Pond	62,291	1.43	704,606	5,270,453
Overflow Pond	30,056	0.69	85,396	638,762
Connecting Stream	3,920	0.09	3,920	29,321
Total	96,267	2.21	793,922	5,938,536



Table 2 - TRS and Absorption Pond Analytical Results (mg/l)																				
Day ¹	Sulfate		Sodium		Chloride		TDS		Total-Al		Dissol-Al		Total-B		Dissol-B		Cond(uS)		pH	
	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP	TRS	AP
0	53	NA	4.4	NA	10	NA	150	NA	0.50	NA	0.10	NA	0.04	NA	0.05	NA	261	NA	7.22	NA
1	53	88	6.2	22	10	11	150	200	0.80	0.40	0.07	0.09	0.04	0.06	0.06	0.06	263	363	7.19	7.22
2	52	96	4.8	24	9	11	150	210	0.58	0.20	0.09	0.05	0.06	0.06	0.06	0.07	267	365	7.25	7.24
3	48	91	4.7	23	10	10	150	220	0.67	0.24	0.19	0.07	0.05	0.06	0.05	0.06	275	372	7.16	7.20
4	55	90	8.5	23	10	10	160	220	0.89	0.25	0.14	0.14	0.05	0.06	0.05	0.06	265	362	7.26	7.09
5	85	100	16	24	10	11	170	210	0.90	0.22	0.09	0.15	0.06	0.06	0.06	0.06	281	379	7.08	7.00
6	49	94	5.5	22	10	11	130	210	1.60	0.26	0.11	<.05	0.06	0.06	0.05	0.06	276	381	6.99	7.17
7	55	97	8.3	22	11	11	140	200	1.20	0.25	0.16	0.10	0.05	0.06	0.05	0.06	275	376	7.06	7.19
8	60	92	5.9	23	10	11	140	200	0.75	0.32	0.15	0.06	0.06	0.06	0.03	0.06	287	365	7.60	7.23
9	480	94	190	23	11	10	740	190	1.10	0.31	0.09	0.08	0.12	0.06	0.11	0.06	1135	369	7.67	7.17
10	47	110	7	25	11	10	130	220	0.91	0.23	0.12	0.08	0.06	0.06	0.05	0.06	269	415	7.44	7.25
11	51	110	6.3	28	11	11	140	190	0.97	0.36	0.30	0.07	0.05	0.06	0.05	0.05	303	406	7.42	7.18
12	53	110	6	28	10	9	130	210	0.98	0.33	0.30	0.10	0.05	0.06	0.05	0.06	251	406	7.72	7.40
13	52	110	5.6	30	10	10	130	210	1.60	0.35	0.20	0.10	0.06	0.06	0.04	0.06	306	420	7.49	7.61
14	51	100	5.9	31	10	10	140	190	1.50	0.50	0.30	0.07	0.05	0.06	0.06	0.04	300	425	7.60	7.69
15	47	110	5.5	28	10	10	150	190	1.80	0.50	0.17	0.09	0.05	0.06	0.05	0.05	303	410	7.30	7.05
16	680	110	260	27	10	10	960	220	0.16	0.27	0.50	0.07	0.09	0.06	0.09	0.06	1700	395	7.18	7.60
17	65	130	14	40	9	10	160	260	0.61	0.38	0.16	0.20	0.16	0.06	0.15	0.06	284	450	7.19	7.07
18	NA	120	NA	38	NA	10	NA	240	NA	0.28	NA	0.07	NA	0.07	NA	0.06	NA	399	7.16	6.89
Avg.	113	103	31	26	10	10	223	211	0.97	0.31	0.17	0.09	0.06	0.06	0.06	0.06	406	342	7.30	7.19
Comp ²	350	110	150	29	11	10	600	220	0.66	0.29	0.30	0.08	0.1	0.06	0.11	0.06	989	399	7.16	6.89

Table 2 - Continued

1. The first TRS sample was collected at approximately 2200 on December 19, 1993 (Day 0). The Day 0 data was included in the Table 3 linear regression model when TRS data was shifted down (lagged) one day. A TRS sample was not collected on the evening of the final day of the study, January 6, 1994. Demineralizer regenerations were conducted on Day 9 (December 28) and Day 16 (January 4).
2. Study composite samples consisted of combining equal quantities of the daily composites from the TRS and AP. The much higher than expected analytical results for the TRS composite are believed to have been caused by the inadvertent addition of a grab sample during the 28-hour regeneration study.

**Table 3 - Correlation of TRS and Absorption Pond
Analytical Results Using Linear Regression**

Analysis ¹	Correlation ²	F-Ratio ³	p ⁴
Conductivity	0.537	18.550	0.001
Lag TRS 1 Day	0.583	23.815	0.000
pH	1.000	72989.813	0.000
Lag TRS 1 Day	1.000	58350.284	0.000
Sulfate	0.315	7.367	0.015
Lag TRS 1 Day	0.368	9.884	0.006
Sodium	0.185	3.182	0.096
Lag TRS 1 Day	0.263	5.350	0.035
Chloride	0.994	2572.686	0.000
Lag TRS 1 Day	0.994	2874.217	0.000
TDS	0.489	15.306	0.001
Lag TRS 1 Day	0.548	20.643	0.000
Total -	0.884	121.569	0.000
Lag TRS 1 Day	0.820	77.553	0.000
Dissolved-Al	0.563	23.330	0.001
Lag TRS 1 Day	0.862	106.585	0.000
Total - B	0.833	84.777	0.000
Lag TRS 1 Day	0.850	102.220	0.000
Dissolved - B	0.828	77.200	0.000
Lag TRS 1 Day	0.860	104.419	0.000

1. The analyses in bold are linear regression models that include data from the TRS and AP from the same day. Analyses that have been "lagged" include data from the AP that is one day later than the TRS (e.g. Day 1 TRS data is compared to Day 2 AP data). The graphs suggest this is a closer fit since the AP samples were collected at about 1000 hours and the TRS samples at 2200 hours on each day.

2. The multiple correlation coefficient (R^2) represents the variation in one variable (eg TRS) that can be accounted for by a second variable (AP); the ability of a variable to predict another. A value of zero means no correlation and 1 or -1 indicates perfect correlation.

3. The F-Ratio is the statistical value of the F Test used to determine whether the two variables are significantly correlated. The higher the value, the higher will be the significance.

4. The "p" is the probability that the two variables, TRS and AP are not related. It can be read as "there is less than or equal to a 0.1% probability that the TRS and AP conductivities are not related".



Table 4 - Mass Balance Comparisons During Demineralizer Regenerations (mg/l)

Day 9 Regen	TRS ¹ Conc	AP ² Conc	Excess Conc ³	Calc ⁴ Increase	Actual ⁵ Increase
Sulfate	480	94	386	21	16
Sodium	190	23	167	9	5
TDS	740	190	550	31	30
Conductivity	1135	369	766	43	46
Boron	0.11	0.06	0.05	0.003	0.00
Day 16 Regen					
Sulfate	680	110	570	32	20
Sodium	260	27	233	13	13
TDS	960	220	740	42	40
Conductivity	1700	395	1305	74	55
Boron	0.09	0.06	0.03	0.002	0.00

1. Regenerations were started at approximately 0800 and discharge to the Absorption Pond (AP) began at approximately 1200 each day. TRS daily composites were collected at about 2100.
2. The AP composites collected at approximately 1000 on the day of the regeneration (prior to TRS discharge) were used as the pre-regeneration concentrations.
3. AP pre-regeneration concentrations were subtracted from TRS regeneration concentrations (Column 1 - Column 2) to obtain an excess concentration; the concentration that would contribute to AP concentration increases.
4. Calculated Increase = Excess Concentration X Dilution Factor
Dilution Factor(Day 9 Regen) = $332,800 \text{ gpd TRS} \div 5,938,536 \text{ AP Vol.} = 0.056$
Dilution Factor(Day 16 Regen) = $341,100 \text{ gpd TRS} \div 5,938,536 \text{ AP Vol.} = 0.057$
5. Actual Increase = AP composite on the day following regeneration (1000 hours on Days 10 and 17). The line graphs and linear regression models indicate this day is the best predictor of TRS concentrations.

Table 5 - Regeneration
Effects on Conductivity
(uS) over a 28-Hour Period

Time	TRS	Abs. Pond
800	263	NA
1000	NA	395
1200 ¹	6,820	NA
1600	2,380	470
2000	367	NA
2200	NA	447
2400	195	NA
400	200	436
800	256	NA
1000	NA	445
1200	245	NA

1. Makeup Plant demineralizer regeneration discharge from the TRS began at approximately 1140 hours on 01/04/93.



Figure 2 - Absorption Pond and Overflow Pond Sample Locations

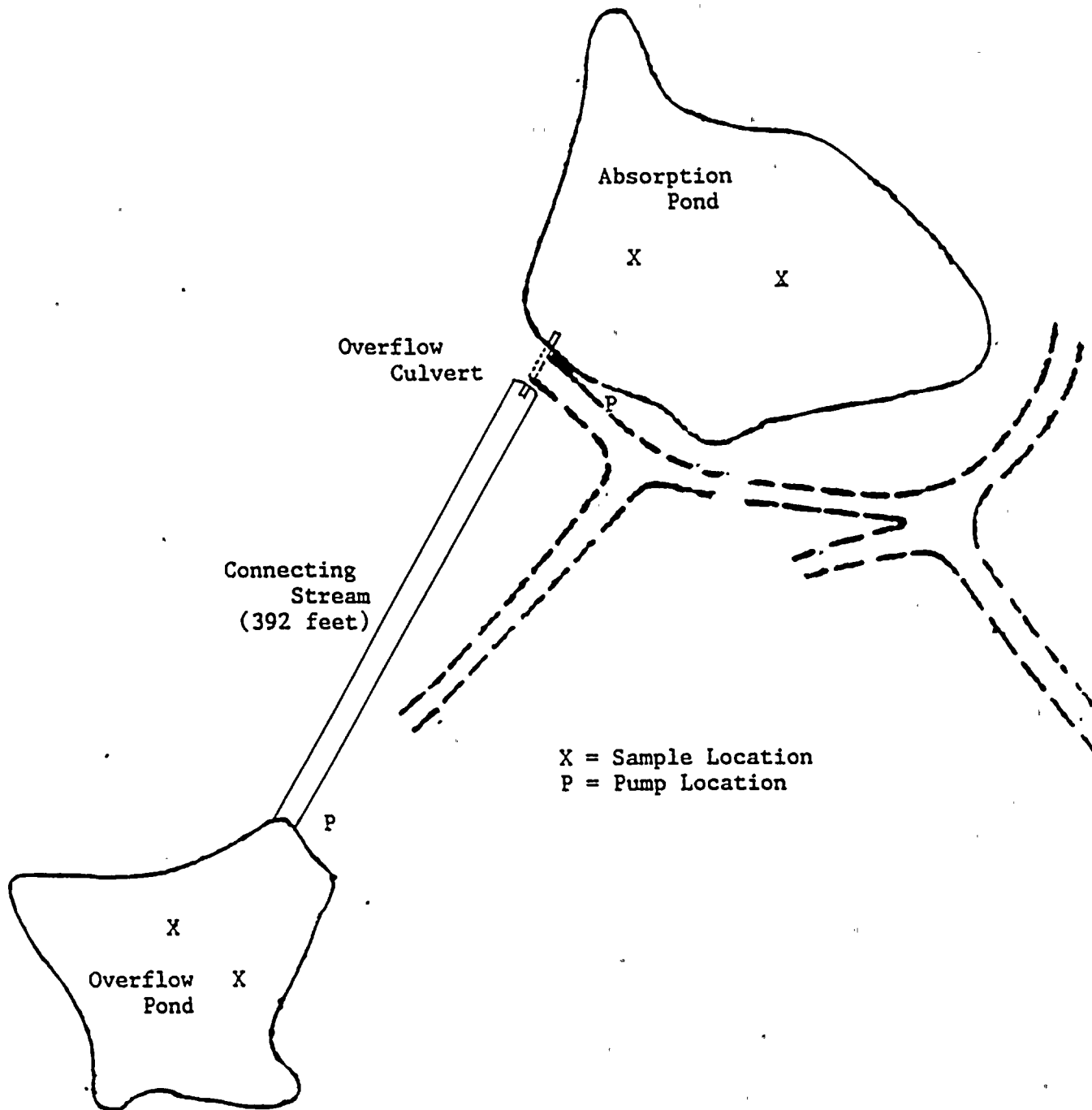


Figure 3 - Absorption Pond Depth Contours

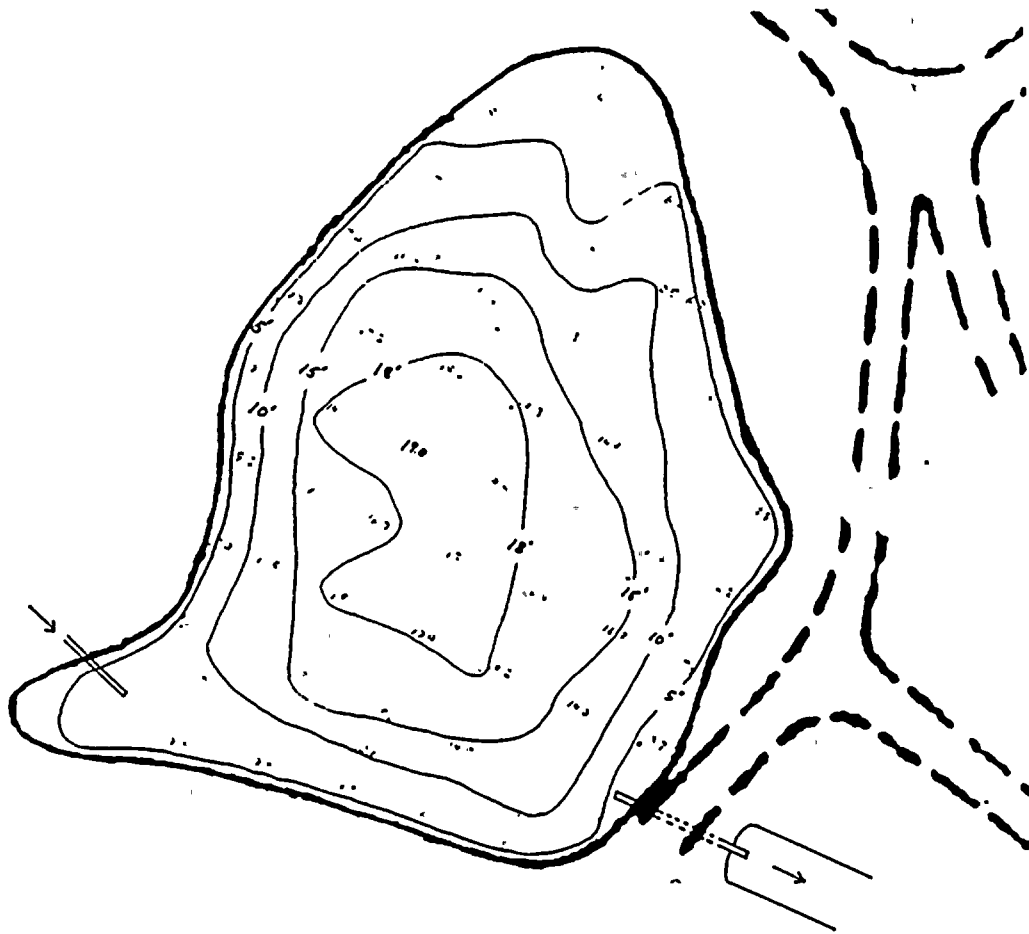


Figure 4 - Overflow Pond Depth Contours

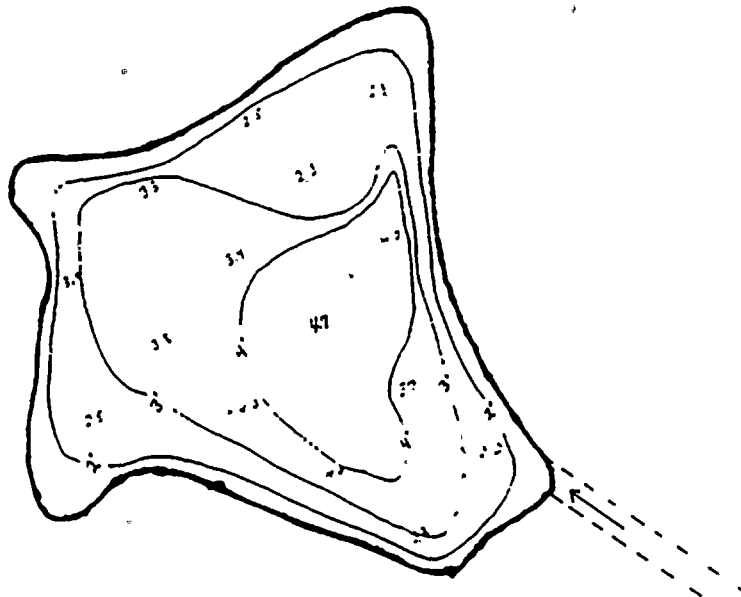


Figure 5 - Conductivity

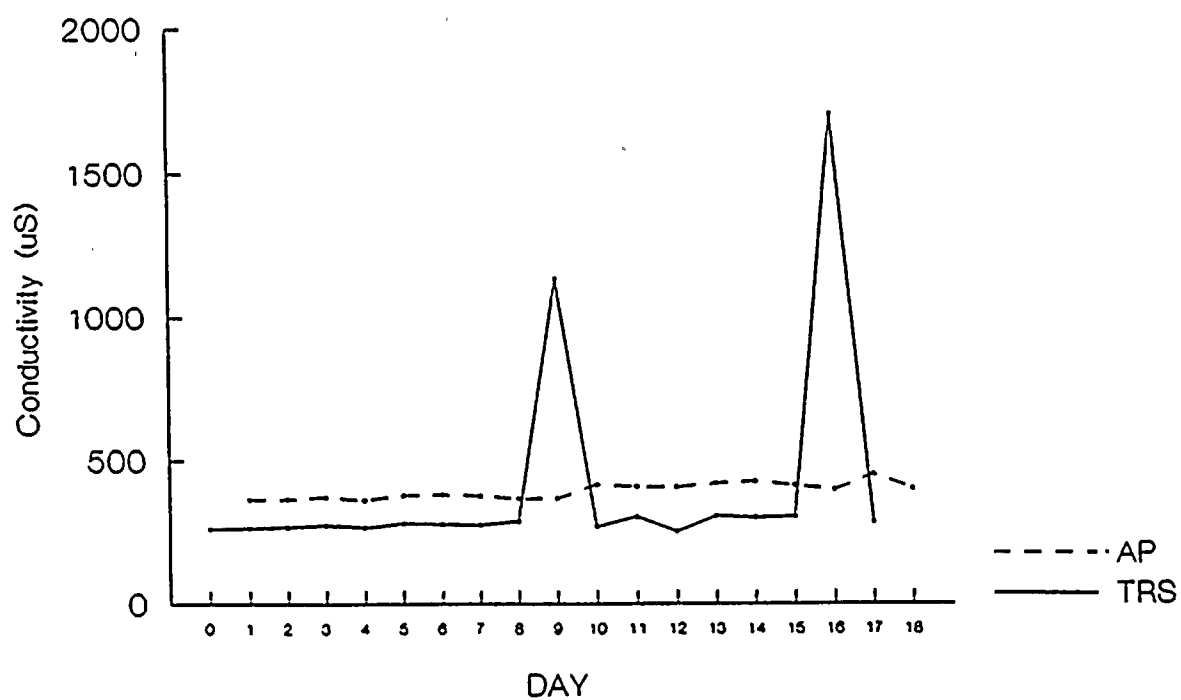


Figure 6 - pH

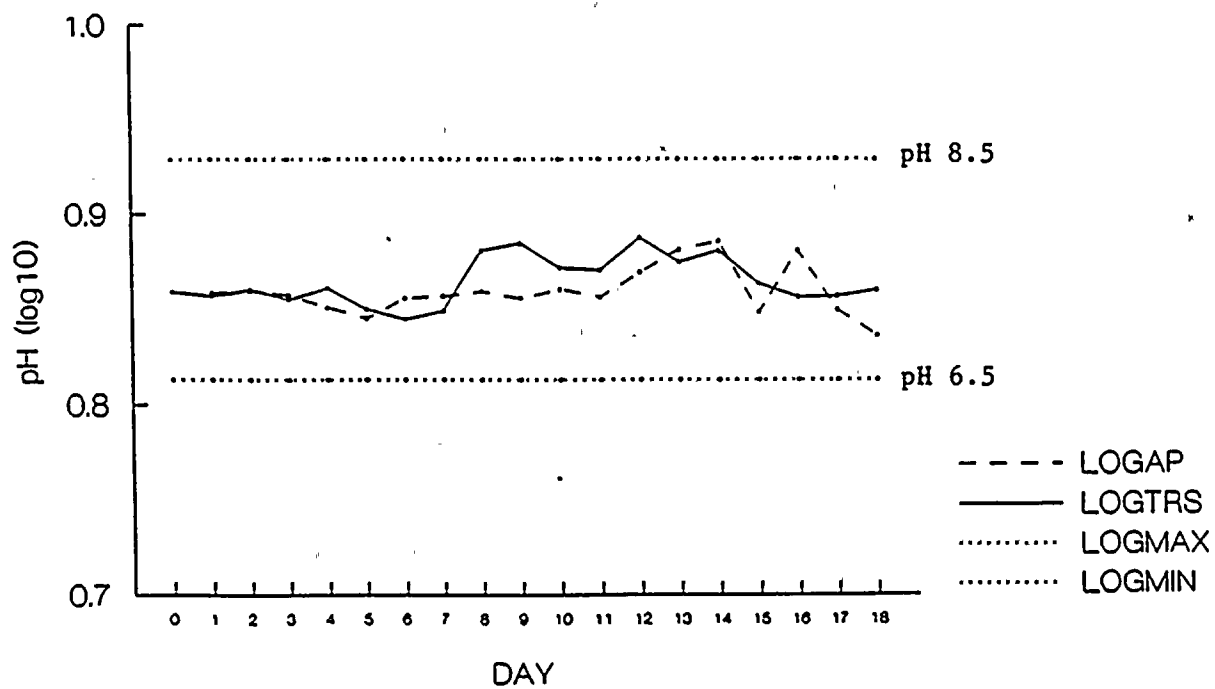


Figure 7 - Sulfate

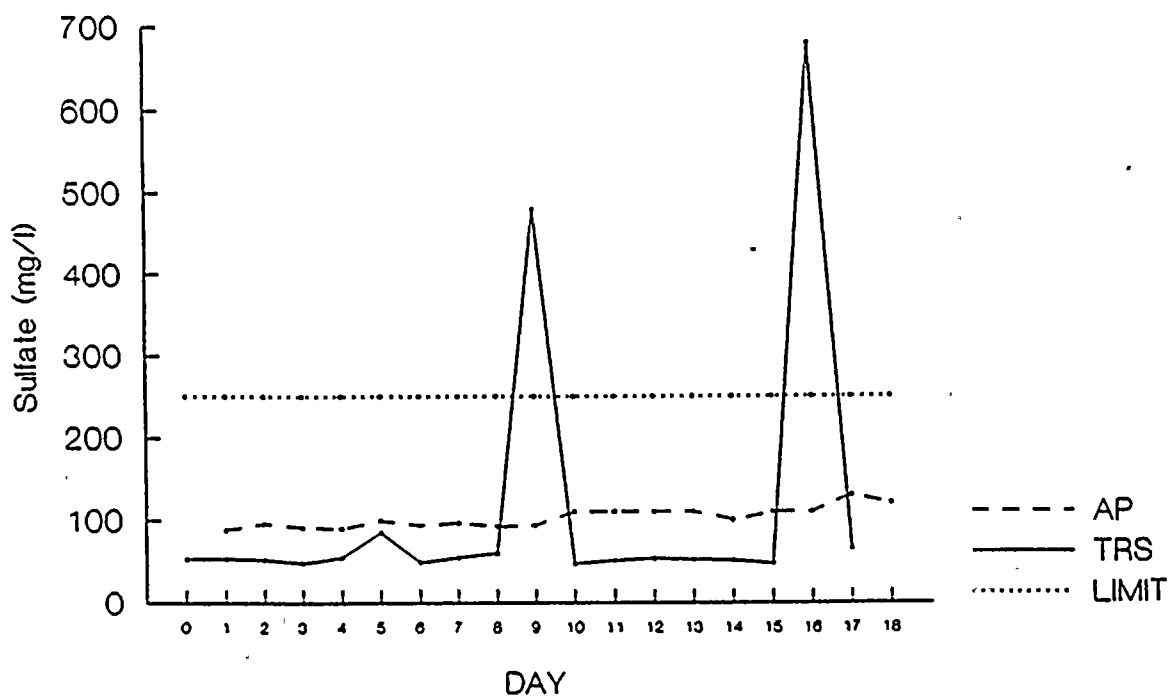


Figure 8 - Sodium

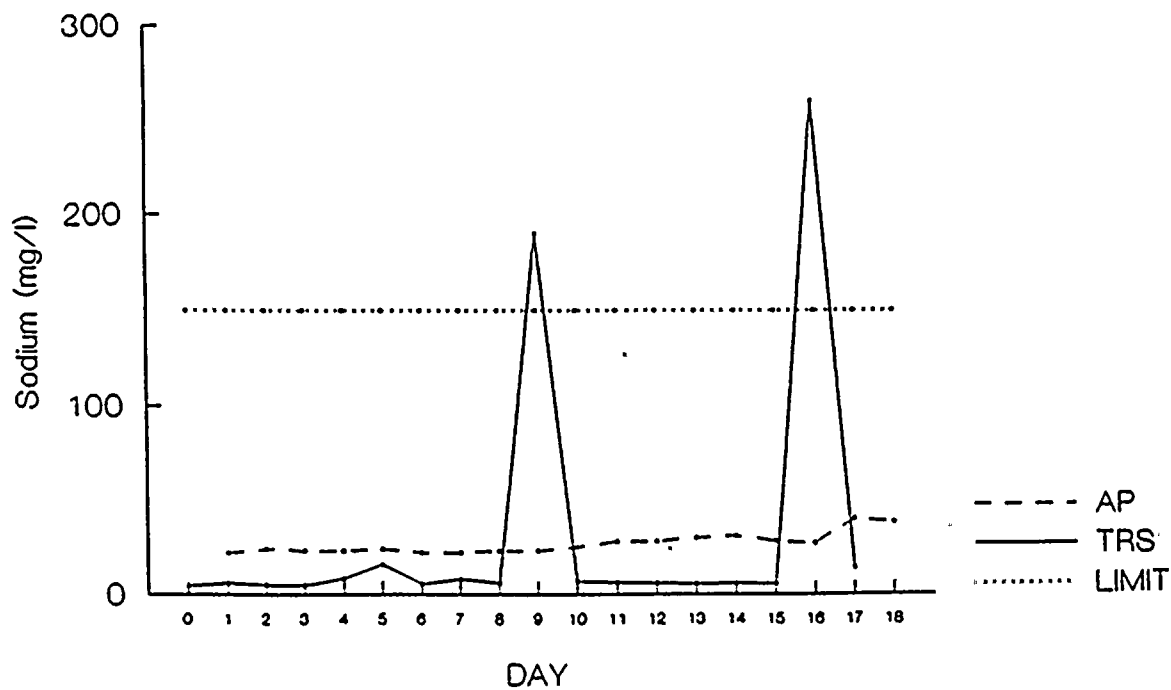


Figure 9 - Chloride

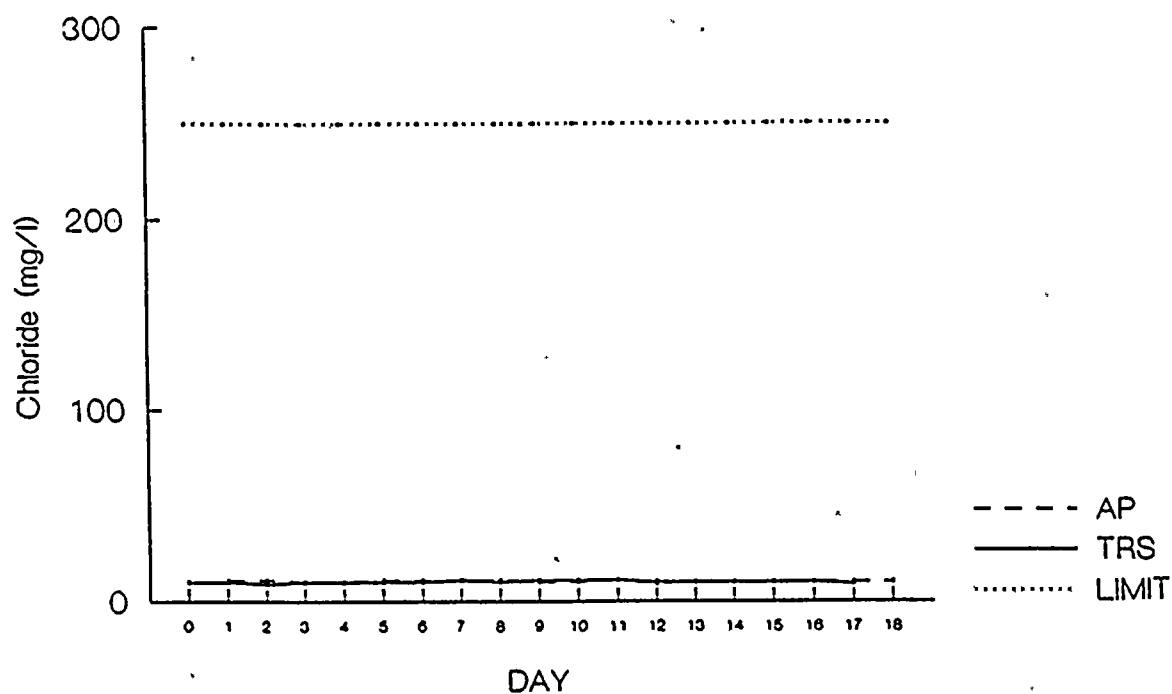


Figure 10 - Total Dissolved Solids

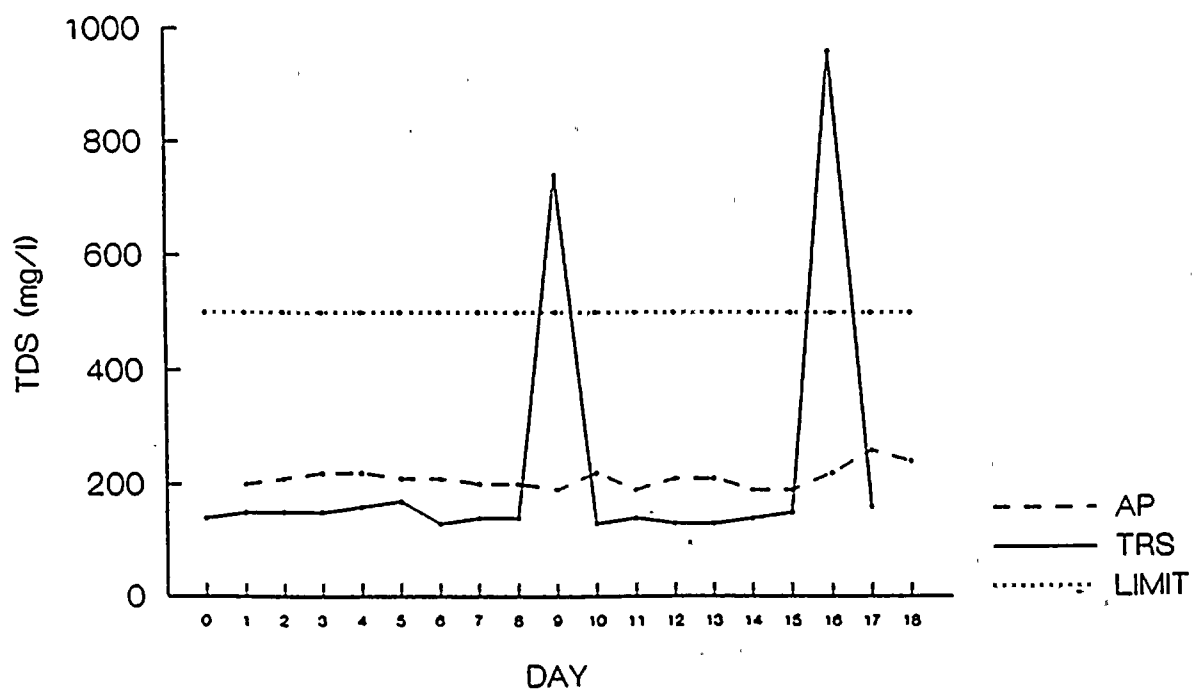


Figure 11 - Total Aluminum

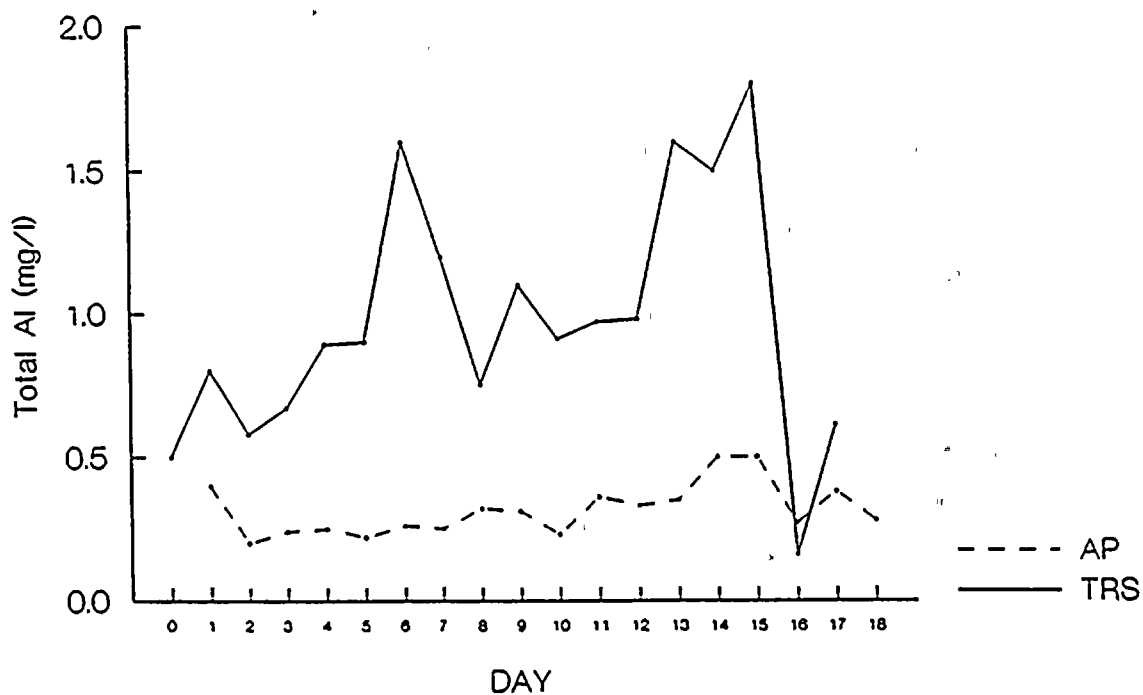


Figure 12 - Dissolved Aluminum

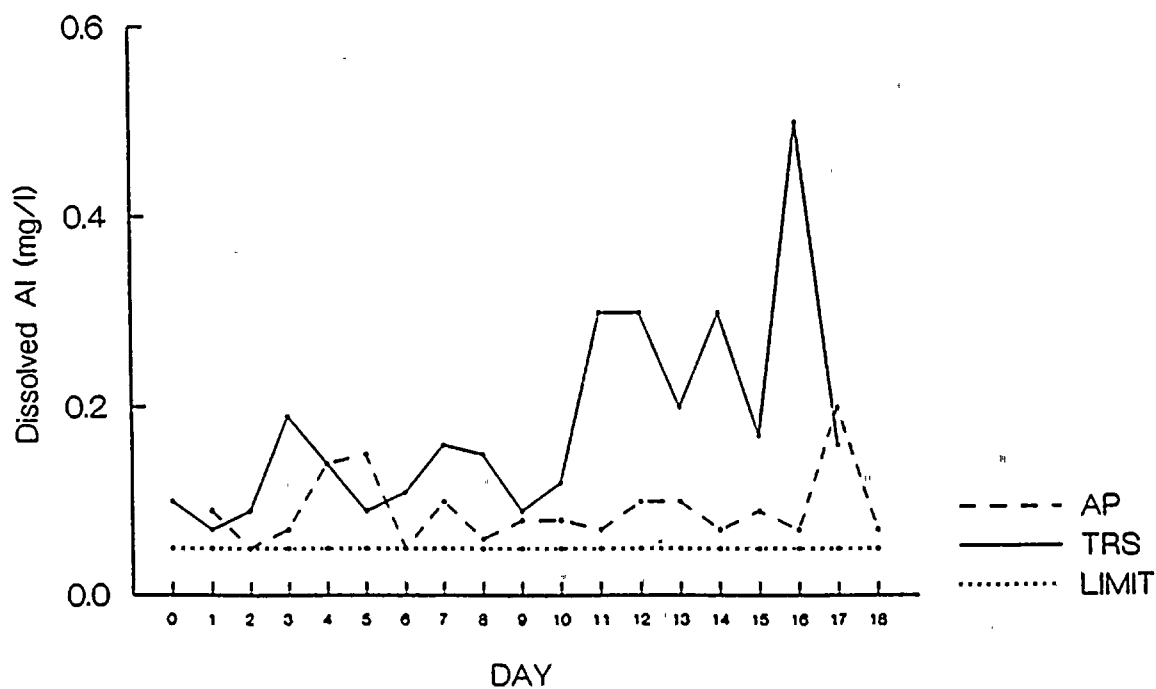


Figure 13 - Total Boron

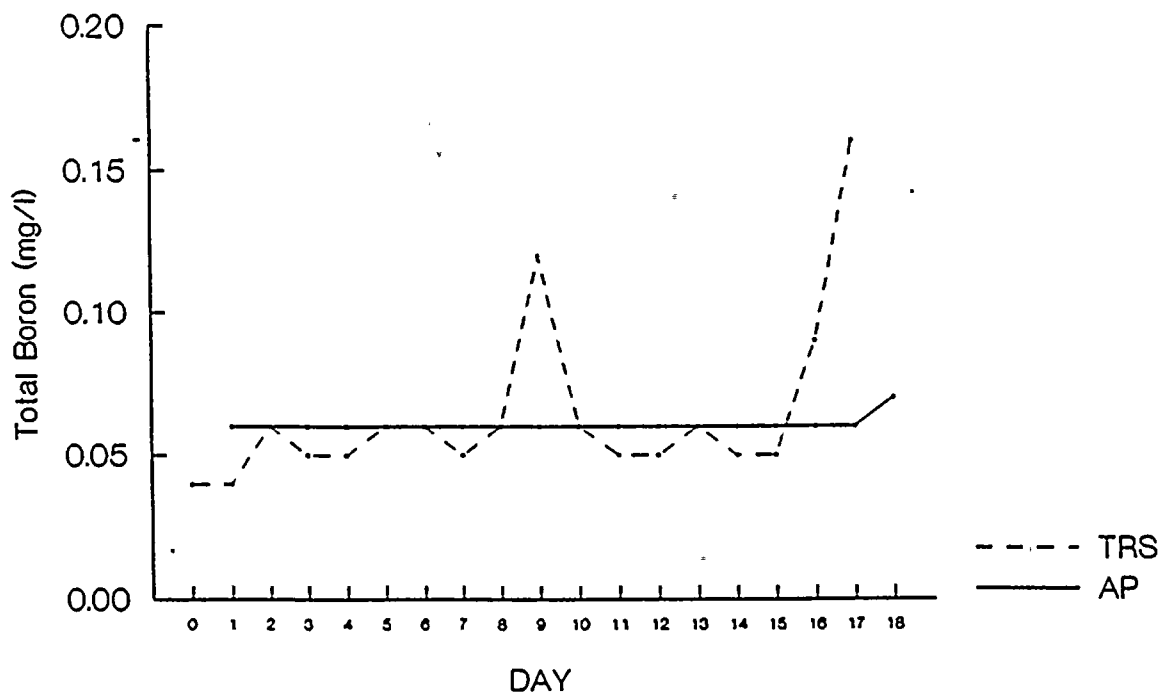


Figure 14 - Dissolved Boron

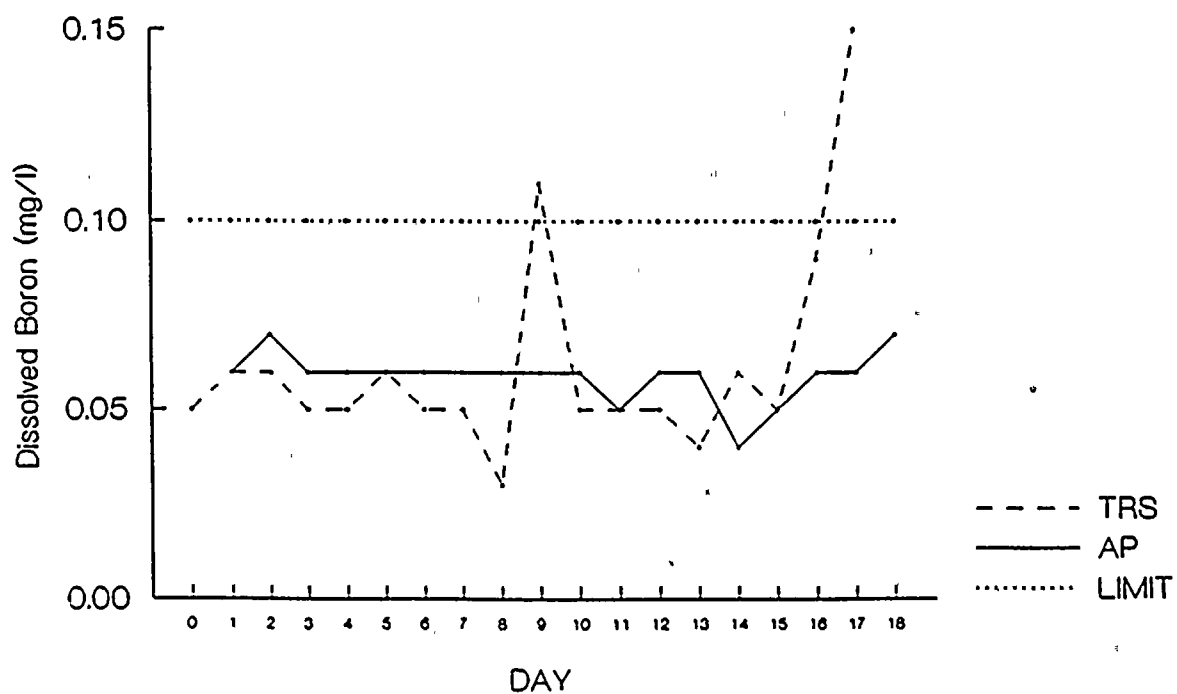


Figure 15 - Effects of Demineralizer Regenerations on TRS and Absorption Pond Conductivity Over a 28-Hour Period

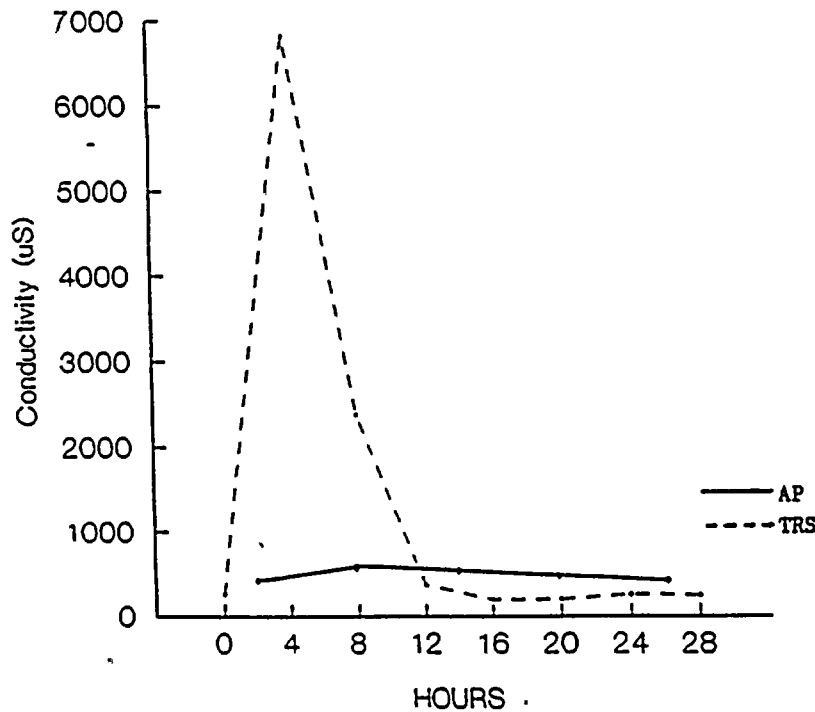
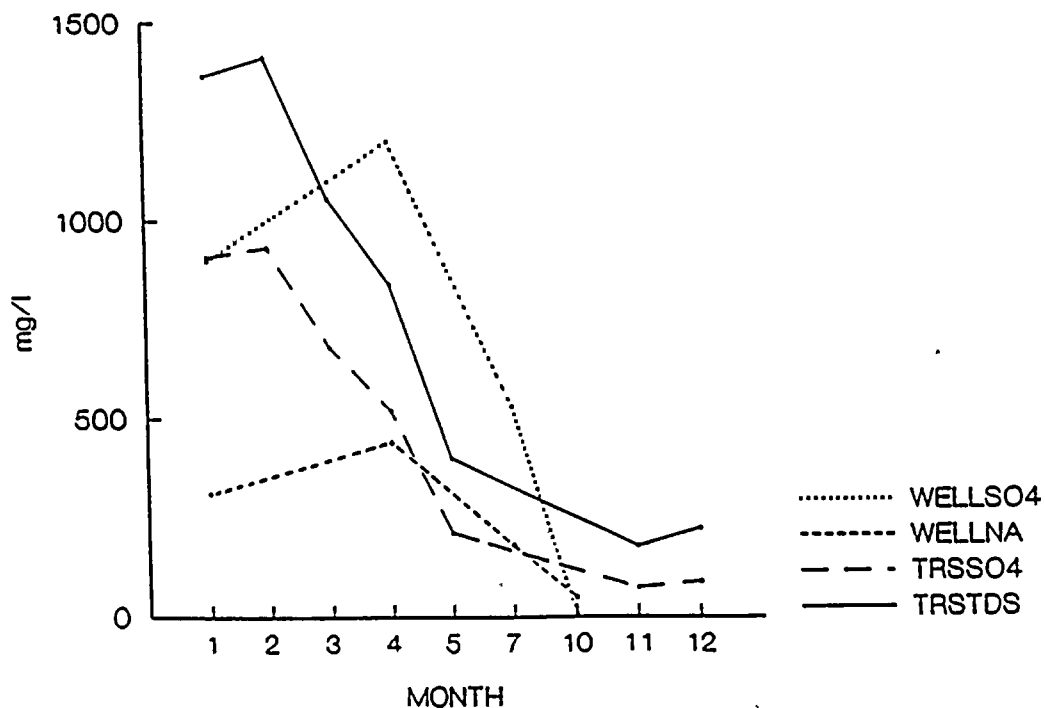


Figure 16 - Decreases in 1993 Chemistry Parameters for Groundwater Well #11 and the TRS Due to RO Unit Installation and Reduced Regenerations



SECTION I

EPA I.D. NUMBER	M I D 0 9 8 6 4 7 6 2 1			
PERMIT NUMBER	M I 0 0 0 5 8 2 7			
APPLICATION FOR DISCHARGE PERMIT IS:				
MODIFICATION	EXISTING	NEW	INCREASED USE	REISSUANCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM
1

PHYSICAL

LOCATION

ADDRESS

AND

INFORMATION

A. PARENT COMPANY/DEPT./OWNER		I N D I A N A M I C H I G A N P O W E R C O M P A N Y	
B. DIV./BUREAU		N / A	
C. PLANT OR FACILITY		D I C C O O K P L A N T	
D. TYPE OF FACILITY		S T M E L E C T R I C G E N	
E. STANDARD INDUSTRIAL CLASSIFICATION (REFER TO TABLE III)		4 9 1 1	
F. STREET NUMBER	G. STREET NAME		
1	C O O K P L A C E		
H. CITY NAME		I. ZIP CODE	
B R I D G M A N		MI	4 9 1 0 6
J. TOWNSHIP	K. COUNTY (REFER TO TABLE I)		
L A K E	B E R R I E N		
L. NAME OF AUTHORIZED CONTACT PERSON		M. TITLE	
D O N A L D L B A K E R		E N V A F F A I R S D I R	
N. TELEPHONE NUMBER		O. ADDRESS (IF DIFFERENT FROM ABOVE)	
2 1 9 4 2 5 2 1 1 8		1 1 0 E W A Y N E S T R E E T	
P. CITY NAME		Q. STATE	R. ZIP CODE
F O R T W A Y N E		IN	4 6 8 0 2
S. TYPE OF TREATMENT FACILITY (REFER TO TABLE II)		T. PROGRAM FOR EFFECTIVE RESIDUALS MANAGEMENT	
1 L 1 Z 2 K 3 A 4 G		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 checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N.A.		DATE SUBMITTED 11/18/92	
		DATE IMPLEMENTED 11/15/92	
W. NUMBER OF EMPLOYEES			
9 0 6			
X. TYPE OF DISCHARGE		Y. DO YOU HAVE A CERTIFIED OPERATOR?	
GROUNDWATER <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
BOTH <input type="checkbox"/> SURFACE WATER <input type="checkbox"/>		OPERATOR'S NAME D. M. Fitzgerald S.S.# 3 0 9 7 0 4 8 0 2	
		FACILITY # 1 1 1 0 0 5 1 4 CERTIFICATION # 1 W 2 8 6 3 1	

ITEM
2

MAILING
ADDRESS
OF
APPLICANT

A. NAME	
R I C M E N G E	
B. NAME	
I N D I A N A M I C H I G A N P O W E R C O M P A N Y	
C. STREET ADDRESS OR POST OFFICE BOX	
1 1 0 E W A Y N E S T R E E T	
D. CITY NAME	E. STATE
F O R T W A Y N E	IN
F. ZIP CODE	
4 6 8 0 2	

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 OF LOCAL GOVERNMENTAL REPRESENTATIVE (SEE NOTE ON REVERSE SIDE)

SIGNATURE:

DATE:

3/14/94

SIGNATURE:

DATE:

NAME: R. C. Menge

TITLE: President

NAME:

TITLE:

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 1 AND 2

This form requires information about the facility address, discharge location, plant controls, type of disposal facility and name, address, and signature of the applicant and local governmental representative.

Enter Environmental Protection Agency (EPA) Number if available.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

In the box "Application For Discharge Permit Is" check one of the five categories (modification, existing unpermitted, new, increased use, or reissuance) which your permit application falls into (see page 14 for definitions).

ITEM 1

PHYSICAL LOCATION ADDRESS AND INFORMATION

A.-C. Enter the naming information in accordance with the following:

- For industrial facilities, provide the parent company name (A.), the division name (B.), and the plant name (C.).
- For federal and state facilities provide the department name (A.), the division or the bureau name (B.), and the facility name (C.).
- For commercial facilities provide the owner's name, doing-business as (d.b.a.) (A.) and the facility name (C.).

D. Enter type of facility. Examples of this are: foundry; high school; automatic car wash; dry cleaners; self-serve laundromat.

E. Refer to Table III (page 5) for the list of Standard Industrial Classification Code (SIC). Enter the code number that best describes the major product or service produced.

F.-I. Enter the physical location of the facility. DO NOT use post office box number.

J.-K. Enter the township and county in which this facility is located. The county code number can be found in Table I (page 3).

L.-R. Enter the name, title, address and telephone number of the facility's authorized contact person. This person should be thoroughly familiar with the facts reported on these forms in the event that contact regarding the permit application must be made.

S. Refer to Table II (page 4) for the list of Treatment Facility Types, enter up to five methods used by the facility to treat the wastewater.

T. Indicate whether this facility has a "Residuals Management Plan". If so, enter date plan was submitted and the date the plan was or is to be implemented. Such a plan may be needed as deemed appropriate by the proper Division staff.

U. Indicate whether the waste treatment facilities have a back-up source of power or whether emergency procedures have been developed in case of a power outage to the waste treatment facility. If the waste treatment facility is not dependent on a source of power, check the "NA" box.

V. Indicate whether this facility has submitted a Pollution Incident Prevention Plan as required under the Michigan Water Resources Commission Part 5 Rules for the "Spillage of Oil and Polluting Materials".

W. If facility has sanitary wastewater (water used for domestic purposes; e.g., toilets, sinks, showers), enter the number of people using this facility.

X. Check the type of discharge(s) from this facility.

Y. Indicate whether your waste treatment or control facilities are under the supervision of a certified operator. If yes, please provide the person's name, social security number, and certificate number plus the company's facility number.

ITEM 2

MAILING ADDRESS FOR ALL CORRESPONDENCE

A. Provide the name of the applicant. For the purposes of this application the applicant is defined as the person signing below in accordance with the directions provided on page 14. Correspondence regarding this application and future permit matters will be sent to the applicant.

B. Provide the name of the facility, company, or organization which the applicant in "A." above uses for receipt of mail.

C.-D. Provide the applicant's address to be used for future correspondence.

SIGNATURE OF LOCAL GOVERNMENTAL REPRESENTATIVE

NOTE: If sanitary sewage is to be discharged from housing developments, apartment buildings, shopping centers, or other commercial developments, into a system other than an approved municipal sanitary waste collection system, this application shall be co-signed by an authorized municipal official or township officer.

It is the rule of the Commission that applications involving the disposal of sewage of human origin from any entity other than local government should include the local government as a co-signer of the statement, and that all proceedings and hearings against said entity will include the local unit of government as a party by appropriate notice, and all permits issued as a result of such hearings and proceedings will be filed jointly against the said unit and entity (Water Resources Commission Part 3 Rules R 323.1038(3) and the Michigan Water Resources Commission Act 245 P.A. of 1929 as amended Section 6(b)). This co-signature requirement is only applicable to sanitary sewage discharges and is not for any nonsanitary waste streams from this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE**ITEM
3**SOURCE
OF
WATER
SUPPLY

A. MUNICIPAL	NAME	L, A, K, E, T, O, W, N, S, H, I, P
	QUANTITY (MAX.)	5, 0, 0, 0, 0, 0 GALLONS/DAY
B. SURFACE WATER INTAKE	NAME OF WATERWAY	L, A, K, E, M, I, C, H, I, G, A, N
	QUANTITY (MAX.)	2, 6, 5, 1, 6, 1, 6, 0, 0, 0 GALLONS/DAY
C. PRIVATE WELL	QUANTITY (MAX.)	N, A
D. OTHER	SPECIFY	N, A
	QUANTITY (MAX.)	GALLONS/DAY

**ITEM
4**FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	6, 3, 4, 4, 0, 0, 0 GALLONS/DAY
B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	2, 6, 4, 2, 1, 1, 2, 0, 0, 0 GALLONS/DAY
C. SANITARY WATER	QUANTITY (MAX.)	6, 0, 0, 0, 0 GALLONS/DAY
D. OTHER	SPECIFY	F, I, R, E, P, R, O, T, E, C, T, I, O, N, W, T, E, R
	QUANTITY (MAX.)	3, 6, 0, 0, 0, 0, 0 GALLONS/DAY

**ITEM
5**CRITICAL
MATERIALS
&
PRIORITY
POLLUTANTS
USED
•
STORED
•
PRODUCEDREFER
TO
TABLES
IV & V

UNITS CODE

- 1 POUNDS
2 GALLONS
3 CUBIC
YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	HYDRAZINE
	PARAMETER NUMBER	0, 0, 3, 0, 2, 0, 1, 2
	QUANTITY	6, 5, 0, 0 UNITS / YEAR
MATERIAL 2	NAME OF SUBSTANCE	CHLORINE (SODIUM HYPOCHLORITE)
	PARAMETER NUMBER	0, 7, 7, 8, 2, 5, 0, 5
	QUANTITY	3, 5, 7, 5, 0, 0 UNITS / YEAR
MATERIAL 3	NAME OF SUBSTANCE	XYLENE
	PARAMETER NUMBER	0, 1, 3, 3, 0, 2, 0, 7
	QUANTITY	2, 5, 0, 0 UNITS / YEAR
MATERIAL 4	NAME OF SUBSTANCE	TOLUENE
	PARAMETER NUMBER	0, 0, 1, 0, 8, 8, 8, 3
	QUANTITY	1, 95 UNITS / YEAR
MATERIAL 5	NAME OF SUBSTANCE	LITHIUM (Lithium Hydroxide form)
	PARAMETER NUMBER	C, L, A, S, S, 0, 2, 0
	QUANTITY	1, 0, 0 UNITS / YEAR
MATERIAL 6	NAME OF SUBSTANCE	HYDROQUINONE
	PARAMETER NUMBER	0, 0, 1, 2, 3, 3, 1, 9
	QUANTITY	5 UNITS / YEAR
MATERIAL 7	NAME OF SUBSTANCE	MERCURY
	PARAMETER NUMBER	C, L, A, S, S, 0, 2, 1
	QUANTITY	* UNITS / YEAR

* Total quantity unknown, contained in thermometers, barometers and mercoid switches located throughout the plant.

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 3, 4, AND 5

This form requires information about the water supply to the facility, the facility's water usage, and critical materials and priority pollutants used, stored, or produced at this facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

ITEM 3

SOURCE OF WATER SUPPLY

List all water supplies used. The volume may be estimated from water supply meter readings or from billing statements from a water supply utility. If water is not metered, estimate from pump capacity. Where a name is required, enter name of water supply; e.g., Mud Lake, Huron River, or the City of Millpond.

ITEM 4

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process Water - see Glossary for definition (page 48).

Noncontact Cooling Water - see Glossary for definition (page 48).

Sanitary Water - Water used for domestic purposes; e.g., toilets, sinks, showers.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume per day of the last designated use before treatment and/or discharge. For example, if water is initially used as noncontact cooling water and then as process water, the quantity of water given should be indicated as process water.

The total of Item 4 should equal the total of Item 3. Any difference in these totals should be explained in an attached sheet of this application.

ITEM 5

CRITICAL MATERIALS AND PRIORITY POLLUTANTS USED, STORED, PRODUCED

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) that are currently used, stored, or produced by this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE**ITEM
3**SOURCE
OF
WATER
SUPPLY

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

**ITEM
4**FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	
B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	
C. SANITARY WATER	QUANTITY (MAX.)	
D. OTHER	SPECIFY	
	QUANTITY (MAX.)	

**ITEM
5**CRITICAL
MATERIALS
&
PRIORITY
POLLUTANTS
USED
•
STORED
•
PRODUCEDREFER
TO
TABLES
IV & V

UNITS CODE

- 1 POUNDS
2 GALLONS
3 CUBIC
YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	MERCURIC NITRATE
	PARAMETER NUMBER	C, L, A, S, S, 0, 2, 1
	QUANTITY	1 UNITS / YEAR
MATERIAL 2	NAME OF SUBSTANCE	MERCURIC SULFATE
	PARAMETER NUMBER	C, L, A, S, S, 0, 2, 1
	QUANTITY	1, 0 UNITS / YEAR
MATERIAL 3	NAME OF SUBSTANCE	CHROMIC ACID
	PARAMETER NUMBER	C, L, A, S, S, 0, 1, 5
	QUANTITY	1, 0 UNITS / YEAR
MATERIAL 4	NAME OF SUBSTANCE	CHLOROFORM
	PARAMETER NUMBER	0, 0, 0, 6, 7, 6, 6, 3
	QUANTITY	1, 0 UNITS / YEAR
MATERIAL 5	NAME OF SUBSTANCE	COPPER SULFATE
	PARAMETER NUMBER	C, L, A, S, S, 0, 1, 7
	QUANTITY	1 UNITS / YEAR
MATERIAL 6	NAME OF SUBSTANCE	TRIARYL PHOSPHATE ESTER
	PARAMETER NUMBER	C, L, A, S, S, 0, 8, 4
	QUANTITY	7, 2, 0, 0 UNITS / YEAR
MATERIAL 7	NAME OF SUBSTANCE	ASBESTOS
	PARAMETER NUMBER	0, 1, 3, 3, 2, 2, 1, 4
	QUANTITY	* UNITS / YEAR

* Contained in insulation throughout plant; believed not to be present in the discharge.

INSTRUCTIONS FOR COMPLETING SECTION I
ITEMS 3, 4, AND 5

This form requires information about the water supply to the facility, the facility's water usage, and critical materials and priority pollutants used, stored, or produced at this facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

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ITEM 4

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process Water - see Glossary for definition (page 48).

Noncontact Cooling Water - see Glossary for definition (page 48).

Sanitary Water - Water used for domestic purposes; e.g., toilets, sinks, showers.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume per day of the last designated use before treatment and/or discharge. For example, if water is initially used as noncontact cooling water and then as process water, the quantity of water given should be indicated as process water.

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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) that are currently used, stored, or produced by this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

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.)	GALLONS/DAY
ITEM 4 FACILITY WATER USAGE	D. OTHER	SPECIFY	
		QUANTITY (MAX.)	GALLONS/DAY
	A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	GALLONS/DAY
	B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	GALLONS/DAY
	C. SANITARY WATER	QUANTITY (MAX.)	GALLONS/DAY
ITEM 5 CRITICAL MATERIALS & PRIORITY POLLUTANTS USED • STORED • PRODUCED REFER TO TABLES IV & V <u>UNITS CODE</u> 1 POUNDS 2 GALLONS 3 CUBIC YARDS 4 TONS	MATERIAL 1	NAME OF SUBSTANCE	NICKEL NITRATE
		PARAMETER NUMBER	C, L, A, S, S, 0, 2, 2
		QUANTITY	1 UNITS / YEAR
	MATERIAL 2	NAME OF SUBSTANCE	ANTIMONY POTASSIUM TARTRATE
		PARAMETER NUMBER	C, L, A, S, S, 0, 1, 0
		QUANTITY	1, 0 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

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 3, 4, AND 5

This form requires information about the water supply to the facility, the facility's water usage, and critical materials and priority pollutants used, stored, or produced at this facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

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SOURCE OF WATER SUPPLY

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ITEM 4

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process Water - see Glossary for definition (page 48).

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Sanitary Water - Water used for domestic purposes; e.g., toilets, sinks, showers.

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ITEM 5

CRITICAL MATERIALS AND PRIORITY POLLUTANTS USED, STORED, PRODUCED

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) that are currently used, stored, or produced by this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

FEM
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.

(See attached Descriptions)

INSTRUCTIONS FOR COMPLETING SECTION I
ITEM 6

This form requires information about the water flow through your facility from intake to discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXISTING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

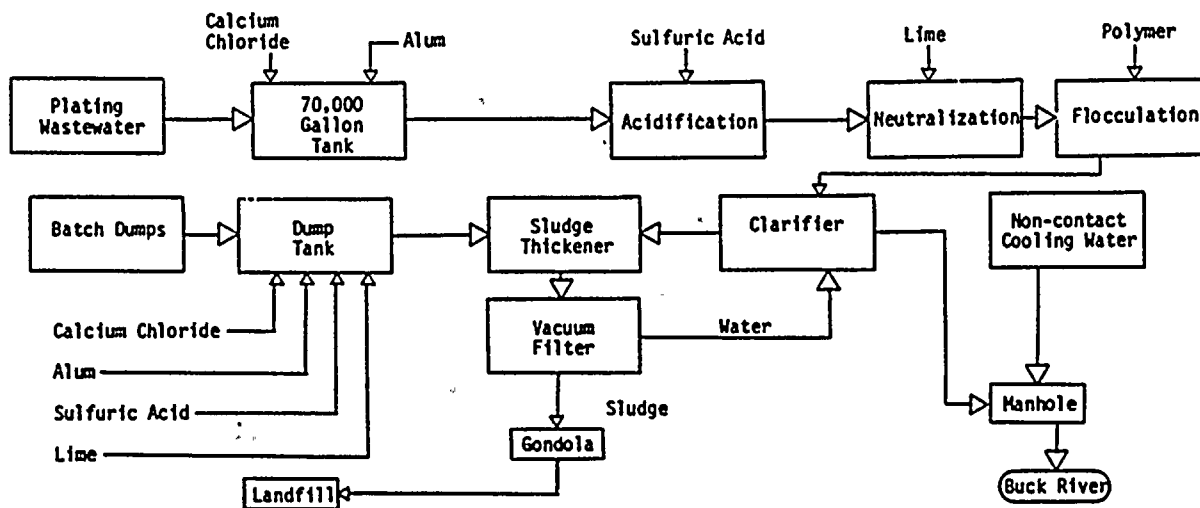
ITEM 6

DESCRIPTION AND LINE DIAGRAM OF FACILITY'S PROCESSES AND TREATMENT SCHEME

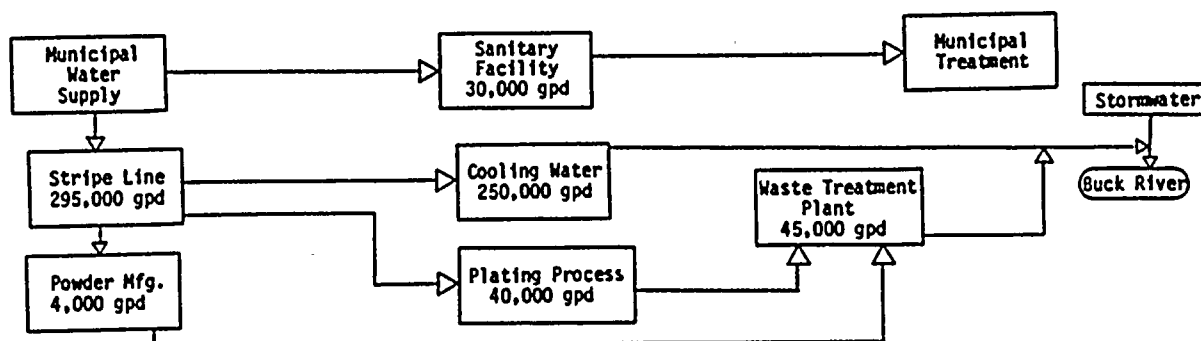
A. Briefly describe the route taken by water in your facility from the intake to the discharge and also provide a line drawing.

Example Description and Diagram

Narrative: The rinse water from the various plating operations is collected in one of the two 35,000 gallon tanks. Calcium chloride and alum are added to assist in fluoride removal and aid in coagulation. The water is adjusted to a pH of about 5.5 using dilute sulfuric acid. The pH is then raised to a pH of about 10.3 with lime to precipitate the metals as hydroxide. Polymer is added to flocculate the metal hydroxides. The waste stream flows through a clarifier, the metal hydroxide settles to the bottom as "sludge". The treated water flows from the clarifier to a manhole where it commingles with contact cooling water from the strip line. This commingled water is discharged to the Buck River. The sludge from the clarifier goes to a vacuum filter where it is dewatered. The sludge is later taken to a landfill.



John Doe, Inc., Deertown, manufactures sleeve bearings for automotive and truck engines. Production is divided into 3 phases. Metal powder is produced in the first phase. This is accompanied by melting copper, tin and lead into ingots in an electric furnace and applying a jet of water to quench and solidify the melting metal into powder form. The second phase consists of adhering the fine metal powder to a coil of steel by passing the two slowly through furnaces. Water used to cool the strip constitutes the contact cooling water. Bearings are then formed and machined from the coated steel. In the third phase, most bearings receive a nickel strike and lead, tin copper electroplate. The remaining bearings are aluminum or babbit and receive a tin or lead plate. Rinse water before and after the various plating operations constitutes the process water.



Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

Outfall 00D - Description of Utility Waste Waters

Utility waste water from within the plant is discharged into an on-site absorption pond. The ultimate disposition of these waste waters is to the ground which vents to Lake Michigan. The waste waters include:

WASTEWATER FLOW DIAGRAM #1

- ▶ Wastes from the makeup water treatment system. The main contributors to the waste stream are: the makeup plant demineralizer regeneration wastes (avg. 40,000 gallons per regeneration), degasifier pump seal water (108,000 gpd), carbon filter backwash water (avg. 45,000 gpd) and pre-filter backwash water (avg. 72,000 gpd). The retention tank periodically discharges a very small volume of solid material removed by settling. Alum (aluminum sulfate) is added to the pre-filter influent as a flocculent. These pre-filters are backwashed to the TRS to remove the suspended matter captured on the filter media. The Alum contained in the backwash is discharged to the TRS in the form of insoluble aluminum hydroxide. Carbon filters are also periodically backwashed to the TRS. These filters primarily remove organics, chlorine and small amounts of iron. Sulfuric acid and sodium hydroxide used by the makeup demineralizers to regenerate the resin are rinsed to the TRS and generally neutralize each other in the sump, forming sodium sulfate prior to discharge. Non-essential service water is used to supply vacuum degasifier pumps which utilize approximately 75 gpm total via two pumps to remove dissolved gases (primarily carbon dioxide and oxygen) from the vacuum degasifier and exhaust them to the atmosphere.
- ▶ A new component of the makeup plant, a reverse osmosis (RO) system, has been installed to remove the bulk of the dissolved solids from the lake water prior to demineralization. Normal reject water flow is to Lake Michigan. The RO system must maintain very clean membranes to assure efficient operation and purity of water. Several methods are used to maintain this level of cleanliness from scale and biofouling. Using hydrochloric acid or sulfuric acid, the feed water pH is lowered to reduce the scaling tendencies of the water. Approximately once per month a flush is performed using approximately 0.5% hydrochloric acid and caustic to dissolve any scale that deposits on the membranes (avg. 5000 gallons per month). A chemical cleaning is performed when the periodic acid washes no longer are effective.

Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

WASTEWATER FLOW DIAGRAM #1 (cont.)

The chemical cleaning involves several steps and may contain citric acid, hydrochloric acid, phosphoric acid, sodium hydroxide and a neutral pH detergent (avg. 10,000 gallons per event). Also, to remove dead biological matter from the membranes, a soak using sodium bisulfite may be performed as necessary, approximately once per year (avg. 5000 gallons per event).

WASTEWATER FLOW DIAGRAM #2

- ▶ During periods when not in operation, the heating boiler is stored full of treated boiler water containing at most 400 ppm hydrazine (for oxygen scavenging) and 50 ppm ammonia or 50 ppm ethanolamine (ETA) (for corrosion protection). Prior to use, this "wet lay-up" water is drained to the TRS for discharge into the Absorption Pond. The volume drained is approximately 1600 gallons and may occur 30 times per year.
- ▶ During a unit outage, the condensers are checked for leaks by filling the steam side with condensate containing approximately 1000 grams of fluorescein disodium salt or Rhodamine B. These dyes are fluorescent under black light which aids in the detection of joint and tube leaks during visual inspection. The volume of water drained from the condensers ranges from 160,000 up to 1,000,000 gallons and may occur one time per year. In addition, the cooling water side of the condensers are drained to the TRS for general maintenance periodically (8 condenser halves per unit, approximately 25,000 gallons of lake water per half).
- ▶ The component cooling water system (CCW) is periodically drained to allow for equipment inspection, maintenance or repair. This system uses demineralized water from the makeup plant as its source of makeup water along with a maximum of 1200 ppm nitrite (from Calgon LCS 60) and 100 ppm glutaraldehyde as treatment chemicals. The infrequent drainings may occur and release approximately 60,000 gallons of treated water to the TRS per year.
- ▶ The diesel generator cooling jacket water system (DJW) also employs the same chemical control for corrosion as in the component cooling water system with a maximum of 2000 ppm nitrites from Calgon LCS 60.

Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

WASTEWATER FLOW DIAGRAM #2 (cont.)

This system is drained to the floor drains to the TRS when maintenance is performed on the jacket water system. The system volume is approximately 1000 gallons. Any minor system leaks would also be directed to the floor drain during normal operations.

- ▶ The essential service water systems (ESW) and non-essential service water systems (NESW) are also periodically drained to allow for equipment inspection, maintenance, or repair. These drains may discharge approximately 72,000 gallons of Lake Michigan water used for non-contact cooling into the TRS. This water is either chlorinated intermittently at a residual concentration of 0.2 mg/l TRC or continuously at 0.036 ppm total residual chlorine. During some special treatment periods, this water may contain zebra mussel biocides, used as a molluscicide for zebra mussel control. Periodically, components of the ESW or NESW systems may be chemically cleaned to remove iron deposits using vendor supplied cleaning solution such as EDTA (ethylenediaminetetraacetic acid) or ascorbic acid, acetic acid and ammonia. These wastes could either be drained to the TRS or Lake Michigan.
- ▶ The steam generators (S/G) are drained for inspection and maintenance during scheduled unit outages (approximately every 18 months) and during an event where steam generator failure is detected that requires a unit shutdown. The steam generators utilize 150 ppb hydrazine, 20 ppm ammonia, and 2.5 ppm ETA to control the water and steam chemistry to be non-aggressive to cycle components. Unit 1 steam generator also utilizes 10 ppm boron to control corrosion. A steam generator volume released during the draining is approximately 32,000 gallons each.

During wet lay-up the S/Gs are stored full of water with up to 400 ppm of hydrazine and 50 ppm ammonia or ETA are added for corrosion control. This water is normally drained to surface water via NPDES outfalls 00A or 00B, but may be drained to the TRS in some instances.

- ▶ The miscellaneous drain tanks can be aligned to discharge to the TRS. As much as 350,000 gallons per day may be directed to the TRS to control the chemistry limitations on the secondary water systems. Water chemistry is primarily the same as steam generators.
- ▶ Around the plant miscellaneous sumps collect approximately 45,000 gpd of water from various equipment drains, leaks, pump seals, steam jet air ejector drains, etc.

Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

WASTEWATER FLOW DIAGRAM #2 (cont.)

The frequency of discharge and types of chemicals used in this equipment have been described elsewhere in this description.

- ▶ **Miscellaneous floor drains** are located throughout the plant to provide a safe working environment by routing spilled or leaked water to the TRS. The major chemical influx into these drains are from the detergents and waxes used to maintain the floors. Also routed to the TRS through the floor drains are the chemical feed tank drains, fire protection water, drinking water, cooling water, and drains from bioboxes used to monitor the zebra mussel control measures and other chemical control monitors. The chemical feed tanks which may be drained contain hydrazine, ammonia, boron, ETA, sodium hypochlorite. The bioboxes will discharge chlorine and, during zebra mussel treatments, zebra mussel biocides.
- ▶ **Non-radiological chemical lab sink and floor drains** are routed to the TRS for disposal. The drains carry water and the wastes generated while performing analyses and preparing laboratory standards including those on the attached list. Also discharged will be glassware and normal laboratory cleaning wastes. The average volume directed to the TRS is estimated to be 500-1000 gpd.
- ▶ **Secondary (steam generator or condensate) sample water** from continuous analyzers are routed to drains which discharge to the TRS. The analyzers are on the cycles which may contain as much as 10 ppm boron, 150 ppb hydrazine, 20 ppm ammonia, and 2.5 ppm ethanolamine. The analyzers measure corrosion transport at a average flow of 8500 gallons per day.
- ▶ **Miscellaneous sealing and cooling water** supplies cooling and sealing water to the TRS pumps, condensate booster pumps, circulating water pumps, vacuum priming pumps, drain seal reservoir tanks and drain sample coolers. The average flow per day is approximately 150,000 gallons.
- ▶ **Non-essential service water** supplies approximately 53,000 gpd of non-contact cooling water to various sample coolers throughout the plant's turbine building including the Conductivity Room and the Steam Jet Air Ejector sample points.
- ▶ **Chemical spills** that enter the TRS may be neutralized within the sump to prevent a discharge to the environment. The potential for spills to the TRS exists for the following chemicals with the proposed neutralizers listed: 19d



Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

WASTEWATER FLOW DIAGRAM #2 (cont.)

Chemical

Sulfuric acid
Sodium hydroxide
Sodium hypochlorite
Hydrazine

Neutralizer

Sodium hydroxide
Sulfuric acid
Sodium thiosulfate
NESW (lake water), Hydrogen
peroxide

Outfall 00E - Sanitary Waste Discharges

WASTEWATER FLOW DIAGRAM #3

Sanitary wastes are presently segregated and routed to two extended aeration package treatment plants. The existing equipment is designed to treat 50,000 GPD and the effluent from the sewage treatment plants discharge into one of the two seepage lagoons. The lagoons discharge into the groundwater with the ultimate disposition being Lake Michigan. The sludge removed from the sedimentation tank basins is taken to a local POTW for disposal or dewatered and stored as low level radioactive waste, as appropriate.

Plant sanitary waste consists of shower and restroom facilities, janitor washbasins located throughout the plant non-radiological property. Kitchen wastes are generated from the plant cafeteria, the Energy Information Center and Training buildings.

The chemistry training laboratory discharges to the sewage treatment plants via a limestone bed neutralization tank. The chemistry lab is used to train technicians on analyses performed in the plant. The discharge from the lab carries water and wastes generated while performing analyses and preparing laboratory standards including those on the attached list. A small photo lab in the training building uses (on an emergency basis) small quantities of hydroquinone to develop black and white pictures for plant use. The training building HVAC system also drains to the limestone bed. A radiography lab in the plant also discharges small quantities of processing chemicals for non-destructive testing in the plant. None of the products in the radiography lab contain critical materials or priority pollutants.

All portable toilet wastes on the plant site are collected and discharged to the package plants. A biodegradable deodorant is used in the portable toilets. Sludge effluent waste may also be recycled through the plants to decrease the amount of sludge for processing when possible.



Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

WASTEWATER FLOW DIAGRAM #3 (cont.)

Miscellaneous rinsing of waste receptacles and possible miscellaneous cleaning operations waste utilizing various detergents may be rinsed to the sewage treatment plants.

Miscellaneous Outfall

WASTEWATER FLOW DIAGRAM #4

The main plant transformers on each unit are located within concrete berms. The berms are for spill containment should a catastrophic failure of a transformer occur. To protect against operational and safety concerns which stem from ponded water, these areas gravity drain to oil/water separators specific for each unit. Each separator is a below ground concrete basin designed to retain oil and release water to a series of drywells. Also discharging into the separators are the emergency diesel generator pit sumps. These sumps collect limited water and fuel oil (less than 500 gallons per year) from the emergency diesel generator room. Periodically, the oil/water separators are pumped clean to remove the accumulated oil for proper off-site disposal.

The Security Diesel Generator Day tank has an overflow line that connects to the Unit One transformer deck catchbasin. Discharge to the catchbasin would only occur if the day tank were overfilled. Procedures and level indicators are used to prevent overfilling.

CHEMICAL LAB ANALYSIS

Additional Information
Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

PLANT CHEMISTRY LAB (to Outfall 00D)

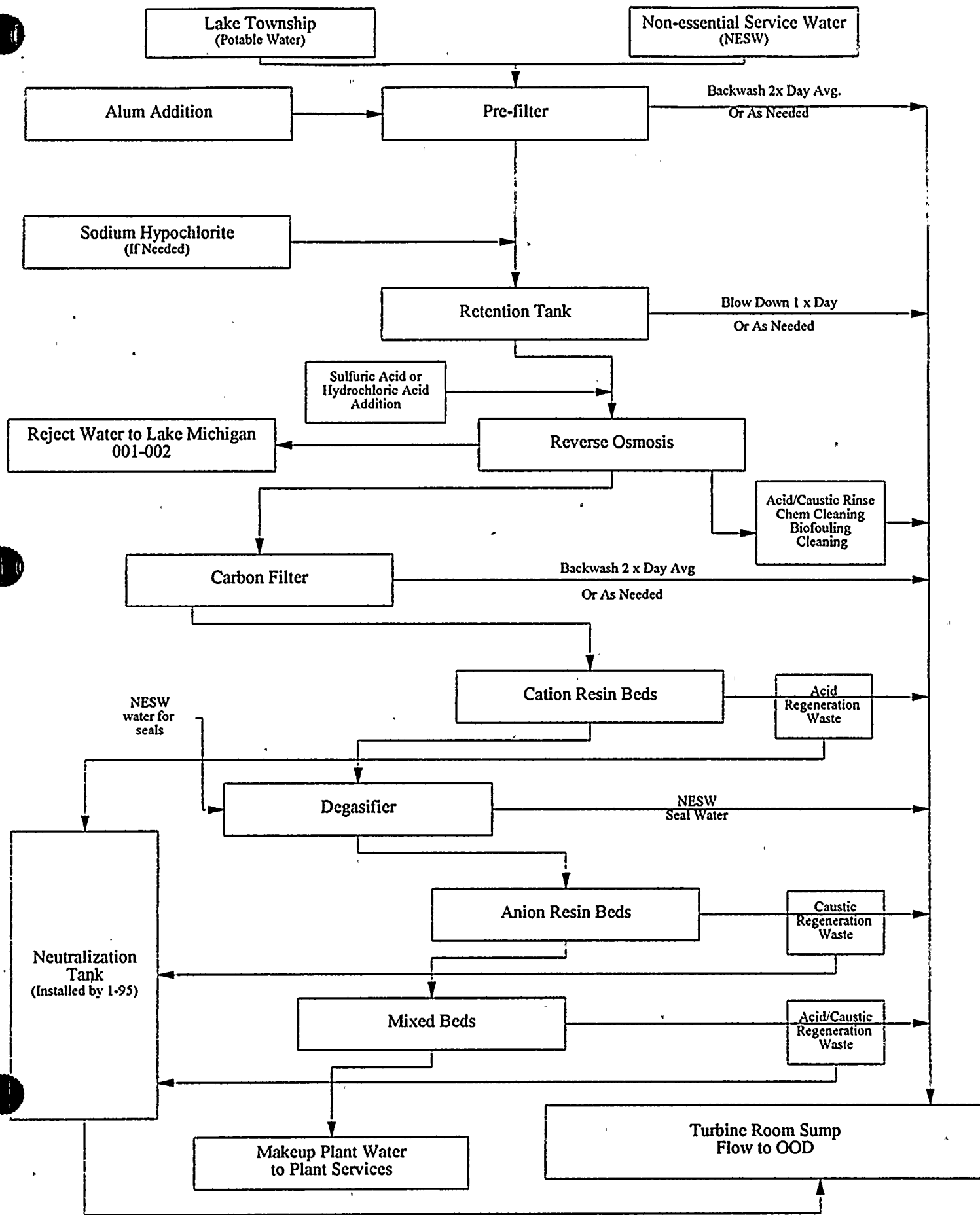
Chloride	ASTM D-512-81 (1986)
Fluoride	ASTM D-1179-80 (1986)
	Standard Methods 413 B (1985)
Hardness	ASTM D-1126-80
	EPA-600-4-79-020 Method 130.2 (1979)
Hydrazine	ASTM D-1385 (1983)
Silica	ASTM D Power Water Analysis Manual CH-41
Oil & Grease	EPA-600-4-79-020 Method 413.1 (1979)
pH	ASTM D-1293-84
	Standard Methods 423 (1985)
Free Mineral Acidity	ASTM D-1067-82 Method B
Total Phosphorus	EPA-600-4-79-020 Method 365.3 (1979)
Chemical Oxygen Demand	EPA-600-4-79-020 Method 410.2 (1979)
Sulfate	ASTM D-516-82 Method A (1985)
	EPA-600-4-79-020 Method 375.3 (1979)
	Standard Methods 426 A (1980)
Nitrites	Determination of Corrosion Inhibition by Calgon Corporation
Total Residual Chlorine	ASTM D-1253 (1986)
	Standard Methods (1980)

TRAINING BUILDING LAB (to Outfall 00E)

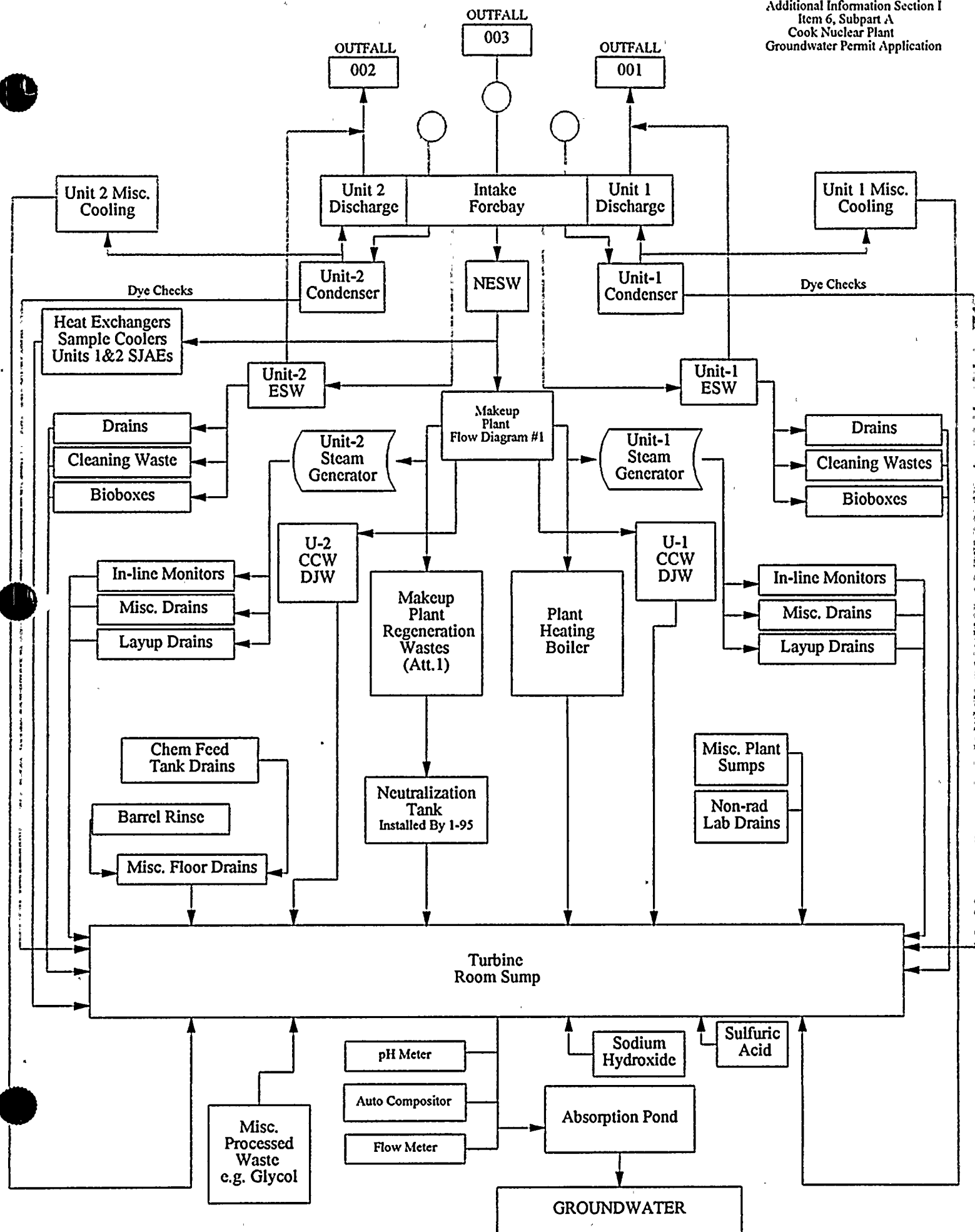
Boron	Westinghouse Chemical Analysis Procedure for PWR WCAD 7333 Rev. 1 (1973)
Chloride	ASTM D-512-81 (1986)
Fluoride	ASTM D-1179-80 (1986)
	Standard Methods 413 B (1985)
Hardness	ASTM D-1126-80
	EPA-600-4-79-020 Method 130.2 (1979)
Hydrazine	ASTM D-1385 (1983)
Silica	ASTM Power Water Analysis Manual CH-41
Oil & Grease	EPA-600-4-79-020 Method 413.1 (1979)
pH	ASTM D-1293-84
	Standard Methods 423 (1985)
Total Phosphorus	EPA-600-4-79-020 Method 365.3 (1979)
Atomic Absorption Metals	Standard Methods 302B, 303A (1985)
	EPA-600-4-79-020 Method 215.1, 220.1, 242.1, 249.1, 273.1 (1979)
Ion Chromatography	Dionex System Operators Manual

WASTEWATER FLOW DIAGRAM #1
MAKEUP PLANT

Additional Information Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application

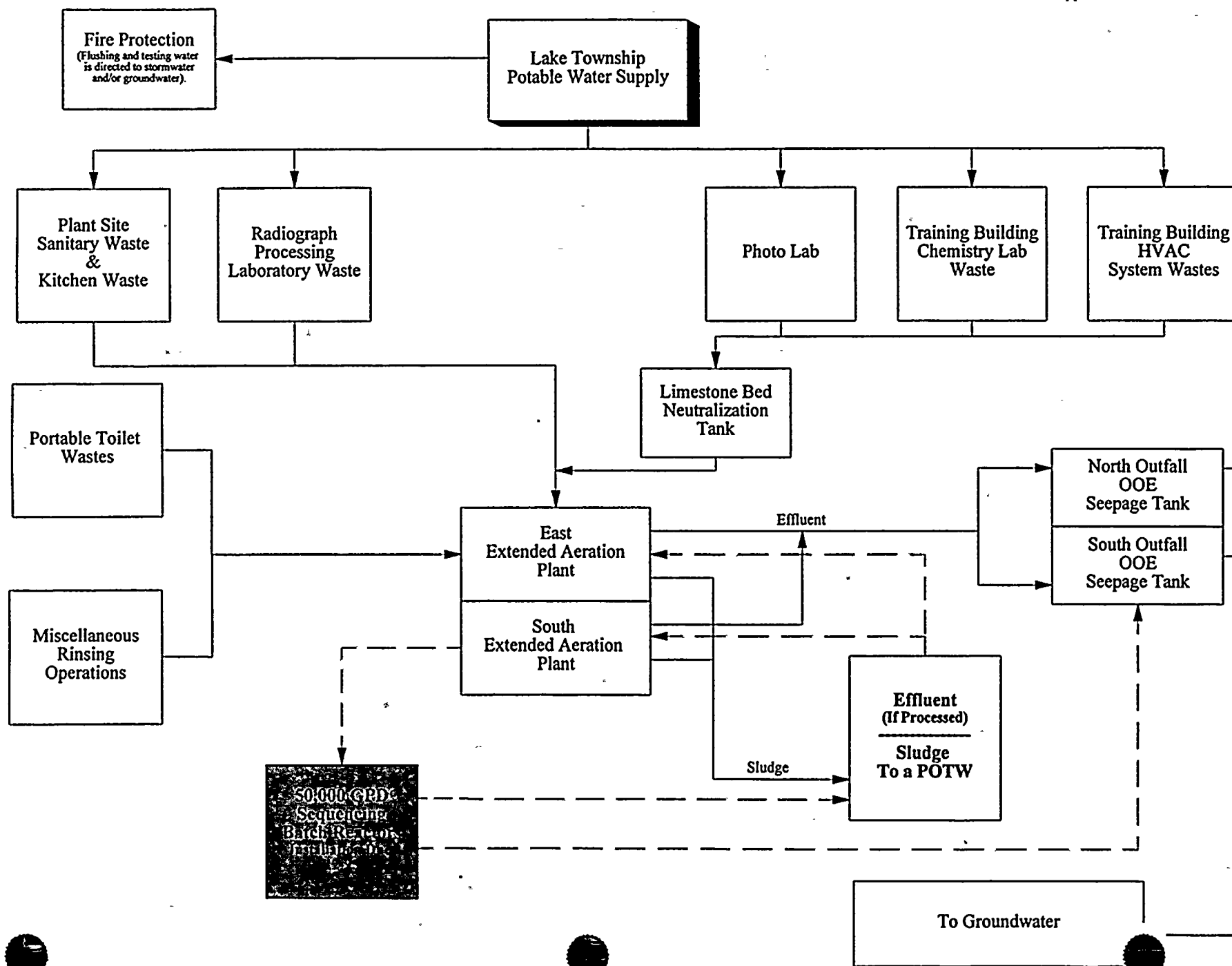


**Additional Information Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application**



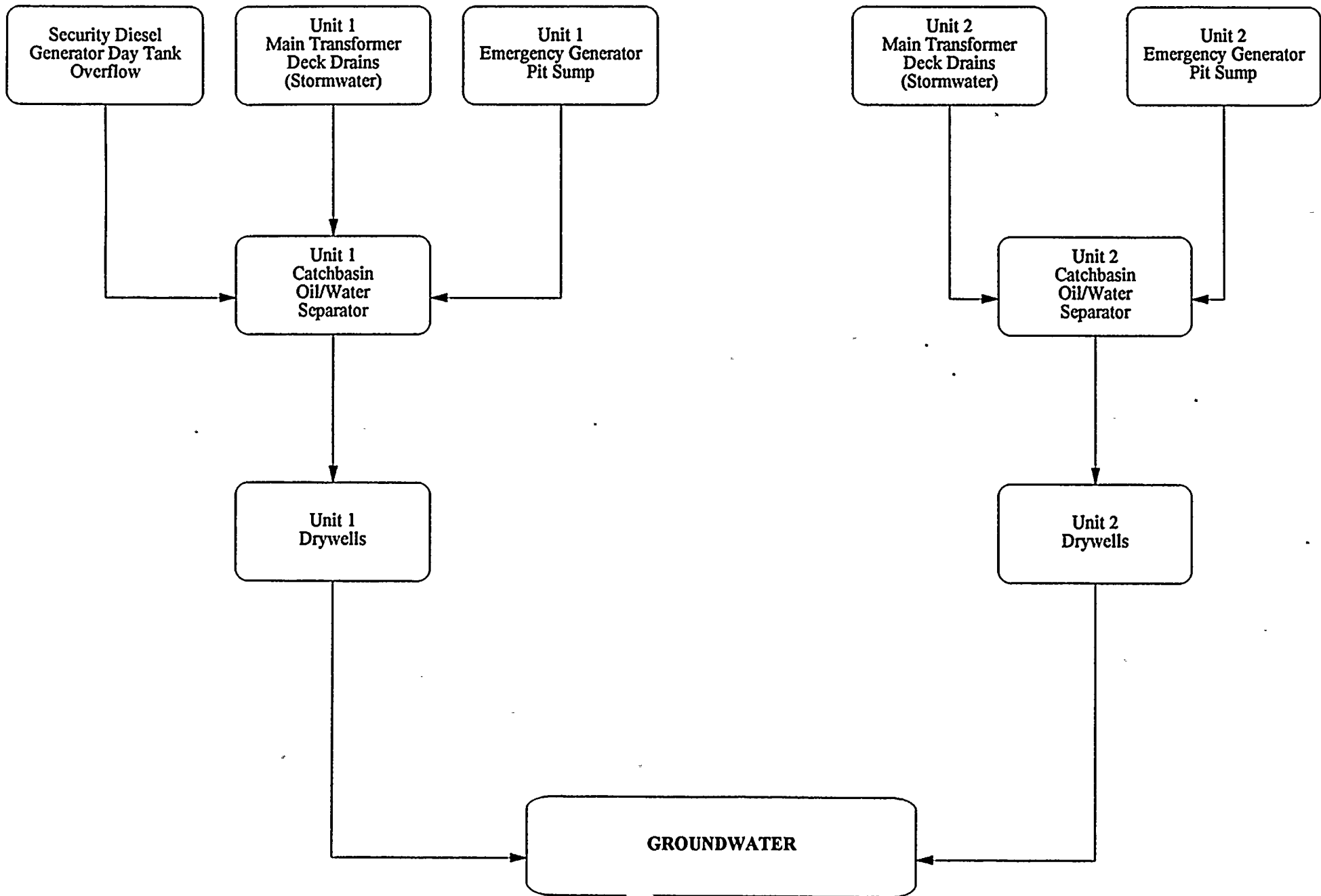
**WASTE WATER FLOW DIAGRAM #3
SEWAGE TREATMENT PLANT**

Additional Information Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application



**WASTE WATER FLOW DIAGRAM-4
DRYWELLS**

Additional Information Section I
Item 6, Subpart A
Cook Nuclear Plant
Groundwater Permit Application



SECTION I

SEE INSTRUCTIONS
ON REVERSE SIDE

PERMIT
NUMBER

MI 0005827

EM
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.

(See Attached Map)

INSTRUCTIONS FOR COMPLETING SECTION I

ITEM 7

This form requires a location map of the treatment facility showing discharge point(s).

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

ITEM 7

LOCATION MAP

- A. Provide a detailed location map of the treatment facility, showing the location of the discharge point(s) for all surface water and groundwater discharges, and all known supply and drinking water wells of adjacent properties to the facility. For both surface and groundwater discharge applicants, indicate the location and identification number of any groundwater monitoring wells relative to the facility which are currently being used by the applicant to monitor the groundwater. Also, include the receiving stream, lake, or storm sewer and the streets and roads in the area.

SECTION I

PERMIT
NUMBER

MI 0005827

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
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	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 1	N/A	_____	_____
TYPE 2	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 3	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 4	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 5	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 6	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 7	A. LIST TYPE OF ANIMAL.	_____	_____
TYPE 8	A. LIST TYPE OF ANIMAL.	_____	_____

INSTRUCTIONS FOR COMPLETING SECTION 1

ITEMS 8 AND 9.

This form requires information about the design, size, and type and numbers of animals in a concentrated animal feedlot.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

GENERAL INFORMATION

Not all animal feeding operations are required to obtain NPDES permits. Exclusions are based on size and occurrence of discharge. In particular, for animal feeding operations, the size cutoffs depend on whether or not pollutants are discharged through a manmade device or by direct contact with the facility or animals. A facility for laying hens or broilers is not required to have a permit unless it has a liquid manure handling system or continuous overflow watering. Also, facilities which discharge only in the case of a 25 year, 24 hour storm event are not required to have a permit.

ITEM 9-B

Give only the area used for the animal confinement or feeding facility. Do not include any area used for growing or operating feed.

ITEM 9-C

Check "yes" if any system for collection of runoff has been constructed. Supply the information under D, E, and F to the best of your knowledge.

ITEM 10-B AND C

Give the maximum number of each type of animal in open confinement or housed under roof (either partially or totally) which are held at your facility for a total of 45 days or more in any 12 month period.

Use the following categories for type of animals:

- | | |
|--|---------------|
| - Slaughter Cattle | - Lambs |
| - Feeder Cattle | - Turkeys |
| - Mature Dairy Cattle (milked or dry) | - Laying Hens |
| - Swine (each weighing over 55 pounds) | - Broilers |
| - Horses | - Ducks |
| - Sheep | |

¹A permit is not required unless the facility has a liquid manure handling system or continuous overflow watering.

ANIMAL FEEDING OPERATION means a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

- (A) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period; and
- (B) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Two or more animal feeding operations under common ownership are a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.

ANIMAL UNIT means a unit of measurement for any animal feeding operation calculated by adding the following numbers: The number of slaughter and feeder cattle multiplied by 1.0; plus the number of mature dairy cattle multiplied by 1.4; plus the number of swine weighing over 25 kilograms (approximately 55 pounds) multiplied by 0.4; plus the number of sheep multiplied by 0.1; plus the number of horses multiplied by 2.0.

CONCENTRATED ANIMAL FEEDING OPERATION means an animal feeding operation which meets the criteria set forth in either (A) or (B) below or which the Director designates as such on a case-by-case basis.

A. More than the numbers of animals specified in any of the following categories are confined (REGARDLESS OF WHETHER A SURFACE WATER DISCHARGE EXISTS):

1. 1,000 slaughter or feeder cattle.
2. 700 mature dairy cattle (whether milked or dry cows).
3. 2,500 swine each weighing over 25 kilograms (approximately 55 pounds).
4. 500 horses.
5. 10,000 sheep or lambs.
6. 55,000 turkeys.
7. 100,000 laying hens or broilers (if the facility has a continuous overflow watering).
8. 30,000 laying hens or broilers (if the facility has a liquid manure handling system).
9. 5,000 ducks.
10. 1,000 animal units.

OR

B. More than the following numbers and types of animals are confined (WITH SURFACE WATER DISCHARGE AS DESCRIBED BELOW):

1. 300 slaughter or feeder cattle.

2. 200 mature dairy cattle (whether milked or dry cows).
3. 750 swine each weighing over 25 kilograms (approximately 55 pounds).
4. 150 horses.
5. 3,000 sheep or lambs.
6. 16,500 turkeys.
7. 30,000 laying hens or broilers (if the facility has continuous overflow watering).
8. 9,000 laying hens or broilers (if the facility has a liquid manure handling system).
9. 1,500 ducks.
10. 300 animal units.

AND

"Either one of the following conditions are met: pollutants are discharged into waters of the United States through a manmade ditch, flushing system or other similar manmade device ("manmade" means constructed by man and used for the purpose of transporting wastes); or pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Provided, however, that no animal feeding operation is a concentrated animal feeding operation as defined above if such animal feeding operation discharges only in the event of a 25 year, 24 hour storm event.

NOTE: The permittee shall continue with Section 11 and address items 1, 2, 4, and 5 on pages 31, 33, and 35.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEEM
10AQUATIC
ANIMAL
PRODUCTION
FACILITYA. DO YOU OPERATE AN AQUATIC ANIMAL PRODUCTION FACILITY?
(IF NO, CONTINUE TO ITEM 12)☐ YES☒ NOB. INDICATE THE TOTAL NUMBER OF PONDS, RACEWAYS AND SIMILAR
STRUCTURES AT YOUR FACILITY.

_____, PONDS

_____, RACEWAYS

SPECIFY _____

_____, OTHER

C. INDICATE IN WHICH CALENDAR MONTH MAXIMUM FEEDING OCCURS.

_____, _____

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

_____, POUNDS

ITEM
11SPECIES
OF
AQUATIC
ANIMALS
PRODUCED
AT THIS
FACILITYSPECIES
1

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

☐ 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

SPECIES
2

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

SPECIES
3

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

SPECIES
4

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

SPECIES
5

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

SPECIES
6

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

INSTRUCTIONS FOR COMPLETING SECTION I
ITEMS 10 AND 11

This form requires information about the design, size, and type and numbers of animals in an aquatic animal production facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank, and a number will be assigned.

GENERAL INFORMATION

Not all fish farms are required to obtain NPOES permits. Exclusions are based on size and occurrence of discharge. For aquatic animal production facilities, the size cutoffs are based on whether the species are warm water or cold water, on the production weight per year in harvestable pounds, and on the amount of feeding in pounds of food (for cold water species). Also, facilities which discharge less than 30 days per year, or only during periods of excess runoff (for warm water fish) are not required to have a permit.

CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY means a hatchery, fish farm, or other facility which contains, grows or holds aquatic animals in either of the following categories, or which the Director designates as such on a case-by-case basis.

- A. Cold water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family of fish (e.g., trout and salmon) in ponds, raceways or other similar structures which discharge at least 30 days per year but does not include:
1. Facilities which produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year.
 2. Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.
- B. Warm water fish species or other warm water aquatic animals including, but not limited to, the Ameluridae, Cetrachidae, and Cyprinidae families of fish (e.g., respectively, catfish, sunfish, and minnows) in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:
1. Closed ponds which discharge only during periods of excess runoff.
 2. Facilities which produce less than 45,454 harvest weight kilograms (approximately 100,000 pounds) of aquatic animals per year.

ITEM 10-B

Give the total number of discrete ponds or raceways in your facility. Under "other" give a descriptive name of any structure which is not a pond or a raceway but which results in discharge to waters of the United States.

ITEM 10-D

The value given for maximum monthly pounds of food should be representative of your normal operation.

ITEM 11-B

The name of fish species should be proper, common, or scientific names.

ITEM 11-C AND D

The values given for total weight produced by your facility per year and the maximum weight present at any one time should be representative of your normal operation.

NOTE: The permittee shall continue with Section II and address items 1, 2, 4, and 5 on pages 31, 33, and 35.

SECTION I

PERMIT
NUMBER

MI 0005827

ITEM
12

MAILING
LIST
OF
ADJACENT
PROPERTY
OWNERS

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

See attached list.

Section I, Item 12
ADJACENT PROPERTY OWNERS

EAST

Interstate I-94 (Michigan Dept. of State Highways)

SOUTH

Lake Township
c/o Gerald Wasko
Township Supervisor
1410 Shawnee Road
Bridgman, MI 49106

WEST

Lake Michigan (State of Michigan and United States of America)

NORTH

Rosemary Beach

11-11-6800

0038-00-5 Tengerstrom, Eric H.; 3415 S. 59th;
Cicero, IL 60650

0037-02-5 Tengerstrom, Eric H.; 3415 S. 59th;
Cicero, IL 60650

0037-01-7 Merkel's Floor Covering, Inc.; 8314
Scottsdale Rd.; Berrien Springs, MI 49103

0037-00-9 Kraiss, Wilbur & Marilou; 5004 S. Long
Ave.; Chicago, IL 60638

0036-00-2 Temmel, Edward P. & Kathleen; 9617 E.
Shore Dr.; Oak Lawn, IL 60453

0033-00-3 Gilpin, Clark & Nancy; 1005 E. 60th St.;
Chicago, IL 60637

0032-01-5 Wittebort, Robert J., Jr. & Nancy H.;
3180 N. Lakeshore Dr.; Chicago, IL 60657

0030-02-1 Meier, Paul & Louise G.; 1357 Madison
Park; Chicago, IL 60615

0028-01-8 Balka, Ronald A. & Janet M.; 3334 Louise
Dr.; Lansing, IL 60438

Section I, Item 12
ADJACENT PROPERTY OWNERS
Page 2

11-110006

- 0002-03 Michigan Dept. of Natural Resources;
P.O. Box 30028; Lansing, MI 48909
- 0004-00 Franklin Real Estate Co.; P.O. Box 2000;
St. Joseph, MI 49085
- 0004-04 Temmel, Edward P.; 9617 E. Shore Dr.; Oak
Lawn, IL 60453
- 0004-01 Caparo, William E. & Oyler, Kathryn E.;
122 S. Ellsworth Pl.; South Bend, IN
46635
- 0004-02 Rosemary Beach Corp.; c/o Secretary; 3415
S. 59th St.; Cicero, IL 60650

11-11-0007

- 0013-00 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0013-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0006-01 Indiana Michigan Power Company
- 0001-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0004-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106

11-11-0005

- 0029 Technisand, Inc.; 11833 Ravenna Rd.;
Chardon, OH 44024
- 0036-01 Ruff, Timothy W.; P.O. Box 504
Bridgman, MI 49106
- 0027-00 Technisand, Inc.; 11833 Ravenna Rd.;
Chardon, OH 44024
- 0036-00 Emery, Martin; Hopkins, Elwood J. & Mable
N.; 7499 Thornton Dr.; Stevensville, MI
49127
- 0036-02 Indiana Michigan Power Company

11-11-0005-0002

- 01-6 Bank of America Texas P.O. Box 650380
Dallas, TX 75265

11-11-0008

- 0041-00 Michigan Dept. of Transportation;
Lansing, MI 48900
- 0009-00 Franklin Real Estate Co.; P.O. Box 2000;
St. Joseph, MI 49085

Sulfuric Acid

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sulfuric Acid Formula: H_2SO_4 Molecular Weight: 98.08
Chemical Name: Sulfuric Acid Chemical Family: Inorganic Acid CAS# 7664-93-9
Synonyms: Sulphuric Acid, Oil of Vitriol, Battery Acid
Product Use: Used in manufacture of fertilizers, explosives, other acids, metal pickling and petroleum processing.

MARSULEX Inc.
111 Gordon Baker Road
Suite 300
North York, ONT
M2H 3R1
(416) 496-9655

MARSULEX Inc.
40 Richards Avenue
P.O. Box 5453
Norwalk, CT
06856-5453
(203) 854-0300

EMERGENCY TELEPHONE NUMBER
(800) 263-9502

Δ Prepared by MARSULEX Technical Section (416) 496-4164.

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Ingredients</u>	% by Wt.	CAS Number
✓ Sulfuric Acid	70-100%	7664-93-9
<u>Non-Hazardous Ingredients</u>		
✓ Water	0-30%	7732-18-5

3. HAZARD INFORMATION

EMERGENCY OVERVIEW:

✓ **Danger!** Extremely corrosive. Causes severe burns. Reacts violently with water. Highly reactive and capable of igniting combustible materials on contact. Not flammable, but reacts with most metals to form explosive hydrogen gas.

✓ Sulfuric Acid is a colorless to amber, clear to slightly cloudy, oily liquid.

Δ **National Fire Protection Association (NFPA) Rating**
Hazardous Materials Identification System (HMIS) Rating

	NFPA	HMIS
HEALTH	3	3
FIRE	0	0
REACTIVITY	2	2
SPECIAL	W	

4 = Extreme/Severe
3 = High/Serious
2 = Moderate
1 = Slight
0 = Minimum
W = Water Reactive

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

3. HAZARD INFORMATION (continued)

POTENTIAL HEALTH EFFECTS:

Exposure Limits:

	ACGIH (TLV)	OSHA (PEL)
Sulfuric Acid	1 mg/m ³ (TWA)	1 mg/m ³ (TWA)
	3 mg/m ³ (STEL)	

In contact with the skin: Concentrated solution may cause pain and severe burns to the skin and brownish or yellow stains. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

In contact with the eyes: Immediate pain, severe burns and corneal damage which may result in blindness.

Inhaled: Mists and vapors may cause irritation of the eyes, nose and respiratory tract. May cause increased pulmonary resistance, transient cough and bronchoconstriction. Severe overexposure may result in lung collapse and pulmonary edema which can be fatal.

Ingested: Severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur.

Long Term Exposure:

Repeated exposure may produce erosion and discoloration of teeth.

Although no direct link has been established between exposure to sulfuric acid, itself, and cancer in man, the World Health Organization (WHO) International Agency for Research on Cancer (IARC) have concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box) and, to a lesser extent, the lung. Exposure to any mist or aerosol during the use of this product should be avoided and, in any case, keep exposures below the occupational exposure limit for sulfuric acid.

Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Repeated overexposure may lead to contact dermatitis, may cause bronchitis with cough, phlegm, shortness of breath and emphysema, can cause chronic runny nose, tearing of the eyes, nosebleeds and stomach upsets. Strict adherence to first aid measures following any exposure is essential.

Existing Medical Conditions Possibly Aggravated By Exposure: Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

Carcinogenicity Data: Although there are reports linking exposure to sulfuric acid to cancer, this product is not classified by NTP (National Toxicology Program), not regulated as carcinogenic by OSHA (Occupational Safety and Health Administration), and has not been evaluated by IARC (International Agency for Research on Cancer) or ACGIH (American Conference of Governmental Industrial Hygienists). (See also, Long Term Exposure).

4. FIRST AID MEASURES

Prompt removal of this material from contact with the body is of utmost importance.

START FIRST AID AT ONCE.

- ▲ **Precaution:** Persons attending the victim should avoid direct contact with heavily contaminated clothing and vomitus. Wear impervious gloves while decontaminating skin and hair.

In contact with the skin: Flush skin with running water for a minimum of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport.

- ▲ While the patient is being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues.

- ▲ Discard heavily contaminated clothing and shoes in a manner which limits further exposure. Otherwise, wash clothing separately before reuse.

In contact with the eyes: Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Inhaled: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

Ingested: If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control center. IMMEDIATELY transport victim to an emergency facility.

- ▲ **Note to Physician:** All treatments should be based on observed signs and symptoms of distress in the patient. Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. Severity of the burn is generally determined by the concentration of the solution and the duration of exposure. In the event of skin or eye contact, immediate and thorough flushing is essential. Continued washing of the effected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Cream or ointments should not be applied before or during the washing phase of the treatment.

5. FIRE FIGHTING MEASURES

Flash Point (method): Not applicable, product is non-flammable

Autoignition Temperature: Not combustible

Flammability Limits in air(%): UEL: Not applicable LEL: Not applicable

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

5. FIRE FIGHTING MEASURES (continued)

Fire Extinguishing Media: For small fires use dry chemical or carbon dioxide. For large fires, flood fire area with water from a distance. Expect violent reaction with water. Do not get solid stream of water on spilled material.

Special Fire Fighting Procedures: Wear a NIOSH/MSHA approved self-contained breathing apparatus if vapors or mists are present and full protective clothing. For fighting fires in close proximity to spill or vapors, use acid-resistant personal protective equipment. Evacuate residents who are downwind of fire. Prevent unauthorized entry to fire area. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents (see Deactivating Chemicals, Section 6). Cool containers that are exposed to flame with streams of water until fire is out.

Other Fire or Explosion Hazards: Not flammable but highly reactive. Capable of igniting finely divided combustible materials on contact. Reacts violently with water and organic materials with evolution of heat. Extremely hazardous in contact with many materials, particularly carbides, chlorates, fulminates, nitrates and picrates. Sulfuric acid reacts with most metals, especially when dilute to give flammable, potentially explosive hydrogen gas. Hydrogen gas can accumulate to explosive concentrations inside confined spaces. Follow appropriate NFPA codes.

6. ACCIDENTAL RELEASE MEASURES

- ▲ **Steps to be taken in the event of a spill or leak:** Remove all ignition sources. Ventilate area. Use appropriate Personal Protection Equipment. Prevent liquid from entering sewers or waterways. Dike with inert material (sand, earth, etc.). Stop or reduce leak if safe to do so. Collect into containers for reclamation or disposal only if container is suitable to withstand the material. Consider insitu neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases.

Deactivating Chemicals: Lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, dilute sodium hydroxide, dilute aqua ammonia.

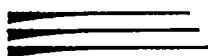
Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

- ▲ **Note -** Clean-up material may be a RCRA Hazardous Waste on disposal.
Spills are subject to CERCLA reporting requirements: RQ = 1000 lbs.

7. HANDLING AND STORAGE

Precautions: Wear appropriate Personal Protection Equipment. Do not breath sprays or mists. Do not ingest. Do not get in eyes, on skin or on clothing. Keep ignition sources away from sulfuric acid storage, handling and transportation equipment.

Handling Procedures and Equipment: Carbon steel or stainless steel materials are suitable for use for acid concentrations equal to or greater than 93%. However, the effect of lower concentrations on the materials of construction can be very complex. Contact product supplier for specific recommendations when handling sulfuric acid at strengths less than 77%.

**Sulfuric Acid**

7. HANDLING AND STORAGE (continued)

Storage Temperature: Store above freezing point (Section 9). Elevated temperatures will increase the corrosion / rate of most metals.

Storage Requirements: Store packaged acid in a dry, well, ventilated location away from combustibles, oxidizers, bases, or metallic powders. Storage tanks should be protected from water ingress, be well ventilated, and maintained structurally in a safe and reliable condition.

Other Precautions: Sulfuric acid will attack some forms of plastics and coatings. Always add acid to water - not / water to acid. If kept in upper floors of building, floors should be acid proof with drains to a recovery tank.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

✓ Recommendations listed in this section indicate the type of equipment which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

✓ **Engineering Controls:** Local exhaust ventilation required.

✓ **Respiratory Protection:** A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, mist cartridges for concentrations up to 10 mg/m³. An air-supplied respirator if concentrations are higher or unknown.

✓ **Skin Protection:** Impervious (i.e., neoprene, PVC) gloves, coveralls, boots and/or other acid resistant protective clothing.

✓ **Eye Protection:** Tight-fitting chemical goggles and face shield.

✓ **Other Personal Protective Equipment:** Where there is a danger of spilling or splashing, acid resistant aprons or suits should be worn. Trouser legs should be worn outside (not tucked in) rubber boots. Safety showers and / eyewash fountains should be installed in storage and handling areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance and Odor: Sulfuric acid is a clear to amber, heavy, oily liquid which may have a sharp penetrating odor.

Odor Threshold: No data

- Δ **Boiling Point:** 77.67%: 193°C (380°F); 93.19%: 276°C (529°F); 98%: 330°C (626°F)
- Δ **Melting/Freezing Point:** 77.67%: -11.2°C (+11.6°F); 93.19%: -29.5°C (-21.1°F); 98%: -1.1°C (30°F)
- Δ **Vapor Pressure at 40°C (102°F):** 77.67%: 1.2 mmHg; 93.19%: 0.0016 mmHg; 98%: 0.002 mmHg
- Δ **Specific Gravity at 15°C (60°F):** 77.67%: 1.7059; 93.19%: 1.8354; 98%: 1.8437
- Δ **Vapor Density: (Air=1):** 3.4 sulfuric acid component
- Bulk Density:** Not applicable (see specific gravity)

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

9. PHYSICAL AND CHEMICAL PROPERTIES (continued)

Evaporation Rate: Not applicable

Solubility: Miscible in all proportions in water. Also soluble in alcohol.

pH: 0.3 (1N solution at 25°C/78°F)

10. STABILITY AND REACTIVITY

Stability:

Under Normal Conditions: Stable, but reacts violently with water and organic materials with evolution of heat.

Under Fire Conditions: Decomposes to form sulfur oxides(SO_x).

Conditions to Avoid: Temperatures which may have a negative effect on the materials of construction used in equipment.

Materials to Avoid: Contact with organic materials (such as chlorates, carbides, fulminates and picrates) may cause fire and explosions. Contact with metals may produce flammable hydrogen gas. When diluting, add acid to water. Do NOT add water to the acid.

Hazardous Decomposition or Combustion Products: Toxic gases and vapors (e.g. sulfur dioxide, sulfuric acid vapors/mists and sulfur trioxide) may be released when sulfuric acid decomposes.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Toxicological Data: LD₅₀ (oral, rat) = 2140 mg/kg
LC₅₀ (inhalation, rat) = 510 mg/m³ for 2 hrs

Skin effects (rabbit): Severe irritation

Eye effects (rabbit): Severe irritation

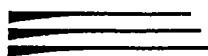
Carcinogenicity Data: Although there are reports linking exposure to sulfuric acid to cancer, this product is not classified by NTP (National Toxicology Program), not regulated as carcinogenic by OSHA (Occupational Safety and Health Administration), and has not been evaluated by IARC (International Agency for Research on Cancer) or ACGIH (American Conference of Governmental Industrial Hygienists). See Section 3. Hazard Information, regarding Potential Health Effects (Long Term Exposure) for further discussion.

Reproductive Effects: No information is available and no adverse reproductive effects are anticipated.

Mutagenicity Data: No information is available and no adverse mutagenic effects are anticipated.

Teratogenicity Data: No information is available and no adverse teratogenic effects are anticipated.

Synergistic Materials: None known

**Sulfuric Acid**

12. ECOLOGICAL INFORMATION

✓ **Ecotoxic Effects:** Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intake; Fish toxicity critical concentration = 10 mg/L; 7.34 mg/L/48 hrs - Lymnaea Palustris - 0-100% mortality.

Δ **13. DISPOSAL CONSIDERATIONS**

- Responsibility for proper waste disposal is with the owner of the waste. Work with the appropriate regulatory bodies to ensure compliance with regulations.
 - ✓ • Consider the collection of residual sulfuric acid into containers for reclamation or disposal only if the container is suitable to withstand the material.
 - Consider insitu neutralization and disposal.
 - Clean-up material may be a RCRA Hazardous Waste on disposal.
 - Provincial/State or local regulations or restrictions are complex and may differ from Federal regulations.
 - The information applies to the material as manufactured; processing, neutralizing, use or contamination may make the information inappropriate, inaccurate or incomplete.
-

14. TRANSPORT INFORMATION

U.S. (Under DOT)**Canada (Under TC)**✓ **Shipping Name:** RQ Sulfuric acid**Shipping Name:** Sulphuric acid✓ **Hazard Class or Division:** 8**Classification(s):** Class 8 (9.2)✓ **Product Identification No. (PIN):** UN1830**Product Identification No. (PIN):** UN1830Δ **Packing Group:** II**Packing Group:** II

Δ **15. REGULATORY INFORMATION**

U.S.A.**SARA Title III HAZARD CATEGORIES AND LISTS****Product Hazard Categories**

✓ **Acute (Immediate) Health:** Yes
Chronic (Delayed) Health: Yes
Fire: No
Reactivity: Yes
Sudden Release of Pressure: No

Lists

Extremely Hazardous Substance Yes
(40 CFR 355, SARA Title III Section 302)
CERCLA Hazardous Substance Yes
(40 CFR 302.4)
Toxic Chemical Yes
(40 CFR 372.65, SARA Title III Section 313)

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

15. REGULATORY INFORMATION (continued)

Reportable Quantity (RQ) under U.S. EPA CERCLA: RQ=1000 lb

TSCA Inventory Status: Reported/Included

✓ CANADA

Workplace Hazardous Materials Information System (WHMIS)

WHMIS Classification(s): Class E - Corrosive
Class D1A - Very Toxic

WHMIS Health Effects Index: Acute Lethality - very toxic - Immediate
Corrosive to animal skin

WHMIS Ingredient Disclosure List: Confirmed A; Meets criteria for disclosure at 1% or greater.

Reportable Quantity (RQ) under Transport Canada - TDG:
RQ=5 litres (or Kg) if it represents a danger to health, life, property or the environment.

16. OTHER INFORMATION

Additional Information and References

1. Enviro-TIPS Manual, "Sulphuric Acid and Oleum", Environment Canada, February 1984.
2. Weast, R.C. (Ed.), "CRC Handbook of Chemistry and Physics", 60th Edition (1980)
3. Sax, N.I., "Dangerous Properties of Industrial Materials", 7th Edition (1989)
4. ACGIH, "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices", 1991-92
5. Sittig, Marshall, "Handbook of Toxic and Hazardous Chemicals and Carcinogens", 2nd Edition, 1985

Revision Indicators:

Δ In the left margin indicates a revision or addition of information since the previous issue.

16. OTHER INFORMATION (continued)

Legend:

CAS #	- Chemical Abstracts Service Registry Number
✓ CERCLA	- Comprehensive Environmental Response, Compensation, and Liability Act
CFR	- Code of Federal Regulations
DOT	- Department of Transportation
EPA	- Environmental Protection Agency
LC ₅₀	- The concentration of material in air expected to kill 50% of a group of test animals
LD ₅₀	- Lethal Dose expected to kill 50% of a group of test animals
LEL	- Lower Explosive Limit
MSHA	- Mine Safety and Health Administration
NIOSH	- National Institute for Occupational Safety and Health
✓ PEL	- Permissible Exposure Limit
PVC	- Polyvinyl chloride
RCRA	- Resource Conservation and Recovery Act
SARA	- Superfund Amendments and Reauthorization Act of the U.S. EPA
STEL	- Short Term Exposure Limit
TC	- Transport Canada
TDG	- Transportation of Dangerous Goods Act/Regulations
TLV	- Threshold Limit Value
TSCA	- Toxic Substances Control Act
TWA	- Time-Weighted Average
UEL	- Upper Explosive Limit

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INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
1DISCHARGE
LOCATION

SCHEDULE

FLOW
RATEWASTEWATER
TYPE CODE1 CONTACT
COOLING2 NONCONTACT
COOLING

3 PROCESS

4 SANITARY

5 STORMWATER

UNIT CODE

1 MGY

2 MGD

3 GPD

OUTFALL NUMBER

O, O, D,

A. LOCATION OF DISCHARGE

S, W, & S, E, SECTION 0, 6, TOWN 0, 6, S, RANGE 1, 9, W

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

A, B, S, O, R, P, T, I, O, N, P, O, N, D,

C. DO YOU DISCHARGE SEASONALLY?
(IF NO, CONTINUE TO E)☐ YES☒ NO

D. IF YES, LIST DISCHARGE PERIODS

N/A

MO. / DAY

MO. / DAY

THROUGH

THROUGH

THROUGH

THROUGH

THROUGH

THROUGH

E. LAND APPLICATION RATE

N/A

IN./HR.

HR./DAY

IN./WK.

☒ NA

F. TYPE OF WASTEWATER DISCHARGE

3

2

WASTEWATER TYPE CODE

G. DISCHARGE SCHEDULE (YEARLY AVERAGE)

HOURS/DAY

2, 4

DAY/YEAR

3, 6, 5

H. DISCHARGE FLOW RATE

TOTAL YEARLY

9, 4, 9

UNIT CODE

DAILY MINIMUM

0

2

DAILY MAXIMUM

2, 6

2

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

AUTHORIZED

2, 6

UNIT CODE

J. MAXIMUM DESIGN DISCHARGE FLOW RATE.

DESIGN

5, 2

UNIT CODE

A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE?
(IF NO, CONTINUE TO ITEM 3)☒ YES☐ NOB. NAME, FUNCTION, AND CHEMICAL COMPOSITION
OF THESE ADDITIVES.NAME
SULFURIC ACID

SODIUM HYDROXIDE

FUNCTION

pH Neutralization*

pH Neutralizat

C. NAME AND ADDRESS OF MANUFACTURERS
OF THESE ADDITIVES.

SULFURIC ACID

SODIUM HYDROXIDE

MARSULEX, INC.
111 GORDON BAKER ROAD, SUITE 300
NORTH YORK, ONT M2H 3R1HAVILAND PRODUCTS COMPANY
421 ANN ST., N.W.
GRAND RAPIDS, MI 49504

D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.

MINIMUM

UNITS CODE

AVERAGE

UNITS CODE

MAXIMUM

UNITS CODE

ADDITIVE NAME Sodium Sulfate

0, 1, 3, 0, 0, 1, 1, 5, 0, 0, 1

ADDITIVE NAME

ADDITIVE NAME

E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?

☐ YES☒ NO

F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?

N/A

% REMOVAL

DISCHARGE FREQUENCY

HRS./DAY

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.
MSDS attached.

* Approximately instantaneous neutralization upon mixing - (New tank to be completed January of 1995 will ensure complete neutralization prior to discharge.)

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

SECTION I - IDENTIFICATION

MANUFACTURER'S NAME..... Haviland Products Company
ADDRESS (STREET,CITY,STATE,ZIP) 421 Ann St., N.W., Grand Rapids, MI 49504
PHONE NUMBER..... (616) 361-6691
EMERGENCY PHONE NUMBER..... CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 6/18/91
TRADE NAME..... SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE
CHEMICAL FAMILY..... Alkali, Base

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	OSHA/PEL	ACGIH/TLV (Units)	PROD. CAS #
Sodium Hydroxide (Caustic Soda) (48.5-51.0% by wt)	2 mg/m ³ TWA	2 mg/m ³ TWA	1310-73-2
Sodium Chloride (0.8-1.3% by wt)	Not Established	Not Established	7647-14-5
Water (Balance)	Not Established	Not Established	7732-18-5

SECTION III - PHYSICAL DATA

BOILING POINT..... 293°F (145°C)
FREEZING POINT 60°F (15.6°C)
VAPOR PRESSURE (mm Hg)..... 1.5 @ 20°C
VAPOR DENSITY (Air=1)..... No Information Available
SOLUBILITY IN H₂O..... Completely
APPEARANCE/ODOR..... Clear, Colorless Liquid; Odorless
SPECIFIC GRAVITY (H₂O=1)..... 1.52
PH..... Not Established

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... Not Flammable
LOWER EXPLOSIVE LIMIT (% by Volume) Not Applicable
UPPER EXPLOSIVE LIMIT (% by Volume) Not Applicable
EXTINGUISH MEDIA..... As for Surrounding Fires

MATERIAL SAFETY DATA SHEET

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

SPECIAL FIRE FIGHTING PROCEDURES... Wear NIOSH/MSHA approved self contained breathing apparatus and full protective equipment when this material is involved in a fire.

UNUSUAL FIRE HAZARD..... In solution caustic can react with amphoteric metals generating hydrogen which is flammable and/or explosive if ignited.

SECTION V - HEALTH HAZARD DATA

CARCINOGENICITY..... None

NTP..... No

IARC..... no

OVER EXPOSURE EFFECTS..... Redness of Exposed Tissues with possible burns resulting in deep ulceration.

PRIMARY ROUTE(S) OF ENTRY..... Skin Contact

FIRST AID PROCEDURES..... If inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

In case of contact: Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If conscious, dilute by giving several glasses of water. Call a Physician Immediately.

EXPOSURE AGGRAVATED MEDICAL CONDITIONS None Currently Known

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Stable

CONDITIONS TO AVOID..... Not Applicable

INCOMPATIBLE MATERIALS..... Acids

DECOMPOSITION PRODUCTS..... None Currently Known

HAZARDOUS POLYMERIZATION..... Will Not Occur

POLYMERIZATION AVOID..... Not Applicable

SECTION VII - SPILL OR LEAK PROCEDURE

MATERIAL SAFETY DATA SHEET

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

FOR SPILL Add non-reactive dry, absorbent such as diatomaceous earth. Shovel or sweep up and place in an approved DOT container and seal. Flush contaminated area and neutralize with dilute acid.

WASTE DISPOSAL METHOD..... Dispose of spilled or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

=====

SECTION VIII - SPECIAL PROTECTION

=====

RESPIRATORY PROTECTION..... Supplied air or self contained breathing apparatus with full face piece.

VENTILATION..... To maintain vapors below limits.

PROTECTIVE GLOVES..... Rubber or other impervious materials.

EYE PROTECTION..... Chemical splash proof goggles.

OTHER PROTECTIVE EQUIPMENT.... A safety shower and eye bath should be available. For operations where spills or splashing may occur, use an impervious body covering and boots.

HANDLING AND STORAGE..... Store in cool, dry, well ventilated area. Keep containers closed when not in use.

=====

SECTION IX - SPECIAL PRECAUTIONS

=====

HAZARD CLASS..... Corrosive Material

DOT SHIPPING NAME..... SODIUM HYDROXIDE, LIQUID

UN NUMBER..... UN1824

REPORTABLE QUANTITY (RQ)..... 2000 lbs.

REFERENCES HMIS: H-3,F-0,R-1

SODHYDOX

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

000D

A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)

☒ 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.

☒ YES ☐ NO

Report Submitted 12/6/91

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 ☒ 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 ☒ 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.

☒ NOT APPLICABLE/BELIEVED ABSENT

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

☐ PRESENT, DATA PROVIDED IN ITEM 7ITEM
5EXPECTED
WASTEWATER
CHARACTERISTICS

UNITS CODE

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

A. DISCHARGE CHARACTERISTICS

CONCENTRATION

UNITS CODE # ANALYSES SAMPLE TYPE

AVE

MAX

CODE

*BOD₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)

1111 . 1111 1111 . 1111

111111

11

*COD (CHEMICAL OXYGEN DEMAND)

115 . 0111 118 . 0111

115211

21

*TOC (TOTAL ORGANIC CARBON)

1111 . 1111 1111 . 1111

111111

11

*AMMONIA NITROGEN (AS N)

1111 . 1111 1111 . 1111

111111

11

*TOTAL SUSPENDED SOLIDS

1111 . 1111 1111 . 1111

111111

11

TOTAL PHOSPHORUS (AS P)

110 . 0121 110 . 0198

115211

21

TOTAL RESIDUAL CHLORINE

1111 . 1111 1111 . 1111

111111

11

DISSOLVED OXYGEN

MIN

1111 . 1111 1111 . 1111

111111

11

*PH

1111 . 1111

1111 . 1111

111111

11

FECAL COLIFORM BACTERIA

111111 111111

113111

11

*TEMPERATURE (SUMMER)

1111 . 1111 1111 . 1111

115111

11

*TEMPERATURE (WINTER)

1111 . 1111 1111 . 1111

115111

11

B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE

115 . 0111 110 . 0111

115211

11

CHLORIDE

110 . 9111 110 . 8111

115211

21

SULFATE

118 . 0111 118 . 2111

116111

21

TOTAL DISSOLVED SOLIDS

119 . 5111 112 . 5111

116111

21

1111 . 1111 1111 . 1111

111111

11

1111 . 1111 1111 . 1111

111111

11

1111 . 1111 1111 . 1111

111111

11

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

Analysis per J. B. Beauboeuf, Target Permit Effluent
Limits List.

INSTRUCTIONS FOR COMPLETING SECTION II
ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.
3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.
4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:
 - (a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
 - (b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
 - (c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)
5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEEM
6PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER

O, O, D

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.)

S, T, M, E, L, E, C, P, W, R,

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 IIA PAGE 43.

RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.

(CONTINUE WITH E-K BELOW)

☐ VOLATILE Analysis per
☐ BASE/NEUTRAL J.B. Beauboeuf
☐ ACID Target Permit
☐ PESTICIDE Effluent Limits

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
N/A
☐ 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
N/A
☐ 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); 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
N/A
☐ 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 9 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

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(II)(A) or 122.21(g)(7)(III)(A).

A.-C. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.
and
E.-J.

- D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Gudge Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Delink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER

O O D

EM
7CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

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

LBS/DAY

KG/DAY

SAMPLE TYPE

1 GRAB

2 24 HR.COMP.

MATERIAL 1	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	* Hydrazine										10	10	13	10	12	10	11	12	
	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	* Chlorine (Sodium Hypochl)										10	17	17	18	12	15	10	15	
	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					

* Hydrazine or Sodium Hypochlorite are not expected to be present in discharge but
 ADDITIONAL PAGES OF THIS ITEM 7 ARE ATTACHED FOR THE REST OF THE CRITICAL ☐ YES
 MATERIALS AND/OR PRIORITY POLLUTANTS REQUIRED TO BE REPORTED. ☒ NO

small quantities may be found in the Turbine Room Sump but would not be expected
 to be found in the actual discharge flow to the absorption pond.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.



Lockheed Analytical Services

INDIANA MICHIGAN POWER COMPANY

SAMPLE ANALYSIS
SUMMARY PACKAGE

FOR

VOLATILE AND SEMI-VOLATILE ORGANICS,
PESTICIDE/PCBS, CHLORIDE,
NITRATE/NITRITE, SULFATE,
FLUORIDE, CYANIDE, METALS, AND MERCURY

LOG-IN NUMBER: L1009

QUOTATION NUMBER: Q331620

DOCUMENT FILE NUMBER: 1229485





Environmental Systems & Technologies Co.

Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 361-0220
Fax: (702) 361-6434

February 4, 1994

Mr. Rocky Beem
Cook Nuclear Plant
1 Cook Place
Bridgeman, MI 49106

RE: Log-in No.:	L1009
Quotation No.:	Q331620
Document File No.:	1229485

The attached data package contains the results of analyses on samples that were submitted to Lockheed Analytical Services on December 29, 1993. The samples were received at 5°C.

SUMMARY ANALYSIS STATEMENT:

Inorganics

All ground water samples were received in good condition on December 29, 1993. All samples were analyzed within the method-specific holding times. The method blanks were free of contamination.

All Internal Quality Control were within acceptance limits with the following exception: The matrix spike recoveries for barium and selenium were slightly outside of acceptance limits. The acceptable recovery of the Laboratory Control Samples supports that the analytical systems were operating within control limits.

The reporting detection limit for nitrite was raised to 0.50 mg/L for sample S. Sewage Plant Eff. (L1009-4) due to interferences from chloride.

Organics

Method 8260

All calibrations and quality control criteria were met with the following exceptions:

All samples were analyzed initially within holding times but failed surrogate recovery QC limits. The samples were reanalyzed one day beyond the method specified holding time and all samples met surrogate recovery QC limits. Tentatively identified compound searches were performed on all submitted samples. Only the reanalyses are reported.



Method 8010/8020

All calibrations and quality control criteria were met with the following exceptions:

The matrix spike and matrix spike duplicate precision for 1,1-dichloroethene exceeded the QC criteria although all percent recovery criteria were met. Data quality is not effected.

Method 8270

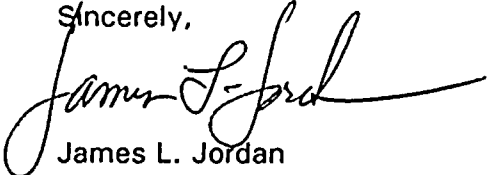
All samples were extracted and analyzed within the method specified holding time. All initial and continuing calibration criteria were met. Bis(2-ethylhexyl)phthalate was detected in the method blank at 1.3 ug/L. There was no other contamination detected in the method blank. Percent recoveries for all surrogate compounds was within QC limits for all samples analyzed. A laboratory control sample (LCS) and laboratory control sample duplicate (LCS DUP) was prepared and analyzed with this set of samples. The percent recovery criteria for all spiked compounds was within the QC limits as was the relative percent difference between the two. The response for bis(2-ethylhexyl)phthalate in sample TRANS. CATCHBASIN exceeded the calibration range in the initial analysis. The sample was reanalyzed at a dilution of 1:4 and all compounds fell within the calibration range. Both sets of results are reported.

Method 8080

All samples were extracted and analyzed within the method specified holding time. All initial and continuing calibration criteria were met. No contamination was found in the method blank. Few of the surrogate spike recoveries were within the QC limits due to an apparent spiking solution problem. Data quality is not effected since all percent recovery criteria were met for the laboratory control sample and laboratory control sample duplicate. No target compounds were detected above the reporting detection limit and there was no dilution or reanalysis performed.

If you have any questions concerning the analysis or the data please do not hesitate to contact James L. Jordan, (702) 361-3955, ext. 289.

Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

Sincerely,

James L. Jordan
Client Services Representative

JLJ/at

cc: Client Services
Document Control Department



Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 582-7605
Fax: (702) 361-8146

February 17, 1994

Mr. Rocky Beem
Cook Nuclear Plant
1 Cook Place
Bridgman, MI 49106

Dear Rocky,

Per your request during our phone conversation this morning, the following is an explanation of the procedure used for the determination of the non-standard organic compounds in your groundwater samples.

The samples were analyzed using instruments that were set up for standard methods 8260 and 8270. A few of the compounds on your lists of analytes are not standard method 8260 or 8270 compounds. Once the samples are analyzed and a chromatogram was obtained for the samples, all peaks that were present in the samples that did not correspond to one of the calibrated compounds were investigated further. This involved taking the mass spectra obtained from these peaks and comparing the spectra to an NIST library of spectra. This library contains approximately 52,000 known mass spectra. The mass spectra of the additional analytes of interest to you are contained within this library. None of the non-standard analytes were detected in any of your samples.

For the next quarters round of sampling, we are endeavoring to obtain the standards for these compounds so that they will be calibrated for in the analyses of those samples. If you have any further questions or if I can be of any further assistance, please do not hesitate to call me at (702) 361-1626 ex. 289.

Sincerely,

James L. Jordan
Project Manager

cc: M. Butler

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> -- Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> -- Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> -- Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> -- Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

Lockheed Analytical Services
DATA QUALIFIERS FOR ORGANIC ANALYSES
[Revised 04/20/93]

For Use on the Analytical Data Reporting Forms	
A	<i>For CLP analyses Only</i> -- The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. <i>[pesticide/PCB analyses only]</i>
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to <u>surrogates</u> being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	<i>Estimated value</i> -- (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs (<i>For CLP Reporting Only</i>).
N	<i>For CLP Reporting Only</i> -- Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	<i>For CLP Reporting Only</i> -- The percent difference between the concentrations detected on both GC columns was greater than 25 percent <i>[pesticide/PCB analyses only]</i> .
U	<i>For CLP Reporting Only</i> -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
For Use on the QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: TRS	LAL Sample ID: L1009-33
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	114	65-125
BFB	92	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	



VOLATILE ORGANIC ANALYSIS RESULTS
GC/PID ANALYSES USING METHOD 8020

Client Sample ID: TRS	LAL Sample ID: L1009-33
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	94	70-120
BFB	95	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	0.52	0.5	
Toluene	0.57	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: TRS-OA	LAL Sample ID: L1009-35
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	120	65-125
BFB	86	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/PID ANALYSES USING METHOD 8020

Client Sample ID: TRS-QA	LAL Sample ID: L1009-35
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	97	70-120
BFB	97	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	0.53	0.5	
Toluene	1.8	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: TRS	LAL Sample ID: L1009-41
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	84	76-114
Toluene-d8	97	88-110
4-Bromofluorobenzene	88	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: TRS	LAL Sample ID: L1009-41
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS	LAL Sample ID: L1009-41
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration (μ g/L)	Retention Time (minutes)	Data Qualifier(s)
NONE	< 10	0.00	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: TRS-QA	LAL Sample ID: L1009-43
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	85	76-114
Toluene-d8	96	88-110
4-Bromofluorobenzene	89	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: TRS-OA	LAL Sample ID: L1009-43
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS-QA	LAL Sample ID: L1009-43
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE	<10	0.00	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRS	LAL Sample ID: L1009-25
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	41	21-100
Phenol-d ₆	26	10-94
Nitrobenzene-d ₅	59	35-114
2-Fluorobiphenyl	55	43-116
2,4,6-Tribromophenol	85	10-123
p-Terphenyl-d ₁₄	99	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRS		LAL Sample ID: L1009-25	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	1.4	10	J
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.5	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS	LAL Sample ID: L1009-25
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (μ g/L)	Retention Time (minutes)	Data Qualifier(s)
Unknown	100	6.44	J
Unknown	20	30.26	J

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRS-QA	LAL Sample ID: L1009-27
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	38	21-100
Phenol-d ₆	26	10-94
Nitrobenzene-d ₅	61	35-114
2-Fluorobiphenyl	56	43-116
2,4,6-Tribromophenol	89	10-123
p-Terphenyl-d ₁₄	97	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRS-QA		LAL Sample ID: L1009-27	
Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	1.5	10	J
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.9	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS-QA	LAL Sample ID: L1009-27
Date Received: 29-DEC-93	Date Analyzed: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
Unknown	4	5.28	J
Unknown	100	6.44	J
Hydrocarbon	4	29.97	J
Unknown	20	30.26	J
Hydrocarbon	5	31.98	J
Hydrocarbon	4	32.94	J
Hydrocarbon	6	33.86	J

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: TRS	LAL Sample ID: L1009-17
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	65	60-150
DCB	52*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: TRS-OA	LAL Sample ID: L1009-19
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	65	60-150
DCB	46*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene

DCB - Deca-chloro-biphenyl

METALS RESULTS

Client Sample ID: TRS	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-13
Antimony	6020	<0.060	0.060		01-27-94	L1009-13
Arsenic	6020	<0.010	0.010		01-27-94	L1009-13
Barium	6020	<0.20	0.20	N	01-27-94	L1009-13
Beryllium	6020	<0.005	0.005		01-27-94	L1009-13
Boron	6010	0.28	0.20		01-20-94	L1009-13
Cadmium	6020	<0.005	0.005		01-27-94	L1009-13
Chromium	6020	<0.010	0.010		01-27-94	L1009-13
Cobalt	6020	<0.050	0.050		01-27-94	L1009-13
Copper	6020	<0.025	0.025		01-27-94	L1009-13
Iron	6010	<0.10	0.10		01-20-94	L1009-13
Lead	6020	<0.003	0.003		01-27-94	L1009-13
Magnesium	6010	18	5.0		01-20-94	L1009-13
Manganese	6020	0.026	0.015		01-27-94	L1009-13
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-13
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-13
Nickel	6020	<0.040	0.040		01-27-94	L1009-13
Selenium	6020	0.0055	0.005	N	01-27-94	L1009-13
Silver	6020	<0.010	0.010		01-27-94	L1009-13
Sodium	6010	900	5.0		01-20-94	L1009-13
Thallium	6020	<0.010	0.010		01-27-94	L1009-13
Tin	6020	<0.20	0.20		01-27-94	L1009-13
Titanium	6010	<0.10	0.10		01-20-94	L1009-13
Vanadium	6010	<0.050	0.050		01-20-94	L1009-13
Zinc	6020	<0.020	0.020		01-27-94	L1009-13

Comments:

METALS RESULTS

Client Sample ID: TRS-QA	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-14
Antimony	6020	<0.060	0.060		01-27-94	L1009-14
Arsenic	6020	<0.010	0.010		01-27-94	L1009-14
Barium	6020	<0.20	0.20	N	01-27-94	L1009-14
Beryllium	6020	<0.005	0.005		01-27-94	L1009-14
Boron	6010	0.27	0.20		01-20-94	L1009-14
Cadmium	6020	<0.005	0.005		01-27-94	L1009-14
Chromium	6020	<0.010	0.010		01-27-94	L1009-14
Cobalt	6020	<0.050	0.050		01-27-94	L1009-14
Copper	6020	<0.025	0.025		01-27-94	L1009-14
Iron	6010	<0.10	0.10		01-20-94	L1009-14
Lead	6020	<0.003	0.003		01-27-94	L1009-14
Magnesium	6010	17	5.0		01-20-94	L1009-14
Manganese	6020	0.027	0.015		01-27-94	L1009-14
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-14
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-14
Nickel	6020	<0.040	0.040		01-27-94	L1009-14
Selenium	6020	0.0078	0.005	N	01-27-94	L1009-14
Silver	6020	<0.010	0.010		01-27-94	L1009-14
Sodium	6010	890	5.0		01-20-94	L1009-14
Thallium	6020	<0.010	0.010		01-27-94	L1009-14
Tin	6020	<0.20	0.20		01-27-94	L1009-14
Titanium	6010	<0.10	0.10		01-20-94	L1009-14
Vanadium	6010	<0.050	0.050		01-20-94	L1009-14
Zinc	6020	0.022	0.020		01-27-94	L1009-14

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: TRS	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	0.29	0.15		01-24-94	L1009-1
Chloride, in mg/L	300.0	19	0.016		12-29-93	L1009-1
Nitrate-Nitrogen, in mg/L	300.0	0.91	0.017		12-29-93	L1009-1
Nitrite-Nitrogen, in mg/L	300.0	<0.012	0.012		12-29-93	L1009-1
Sulfate, in mg/L	300.0	2000	0.59	D(1:10)	12-29-93	L1009-1
Ammonia-Nitrogen, in mg/L	350.1	3.4	0.050		01-05-94	L1009-5
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-9

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: TRS-QA	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	0.31	0.15		01-24-94	L1009-2
Chloride, in mg/L	300.0	20	0.016		12-29-93	L1009-2
Nitrate-Nitrogen, in mg/L	300.0	0.90	0.017		12-29-93	L1009-2
Nitrite-Nitrogen, in mg/L	300.0	<0.012	0.012		12-29-93	L1009-2
Sulfate, in mg/L	300.0	2200	0.59	D(1:10)	12-29-93	L1009-2
Ammonia-Nitrogen, in mg/L	350.1	3.4	0.050		01-05-94	L1009-6
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-10

Comments:

GENERAL CHEMISTRY QC DATA SUMMARY

LAL Batch ID(s): 1229 im

Constituent	Client Sample ID	LAL Sample ID	Date Analyzed	QC Sample Analyses		
				Reagent Blank	Duplicate Precision (% RPD)	Matrix Spike Recovery (%)
Fluoride, in mg/L	TRS	L1009-1	01-24-94	<0.15	4	107
Chloride, in mg/L	TRS	L1009-1	12-29-93	<0.016	0.2	91
Nitrate-Nitrogen, in mg/L	TRS	L1009-1	12-29-93	<0.017	1	93
Nitrite-Nitrogen, in mg/L	TRS	L1009-1	12-29-93	<0.012	b	96
Sulfate, in mg/L	TRS	L1009-1	12-29-93	<0.059	0.1	96
Ammonia-Nitrogen, in mg/L	TRS	L1009-5	01-05-94	<0.050	0	122
Total Cyanide, in mg/L	TRS	L1009-9	01-03-94	<0.020	b	94

"b" - The RPD cannot be computed, because the sample or the duplicate concentration was below the Detection Limit.

Comments:



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January 18, 1994
Report No.: 00018939
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27476
NUS SAMPLE NO: P0259284
P.O. NO.: 69034-040-3N

DATE SAMPLED: 30-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNIT
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	51	mg/L
2	ANAW	Sodium, Total (Na)	6.3	mg/L
3	1130	Chloride (as Cl)	11	mg/L
4	1590	Solids, Dissolved at 180C	140	mg/L
5	AALW	Aluminum, Total (Al)	0.97	mg/L

COMMENTS:





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Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27476 / FILTERED
NUS SAMPLE NO: P0259285
P.O. NO.: 69034-040-3N

DATE SAMPLED: 30-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS

1	AALF	Aluminum, Dissolved (Al)	0.3	mg/L

COMMENTS:





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January 18, 1994
Report No.: 00018939
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27503
NUS SAMPLE NO: P0259286
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS

1	I730	Sulfate, Turbidimetric (as SO ₄)	53	mg/L
2	ANAW	Sodium, Total (Na)	6.0	mg/L
3	I130	Chloride (as Cl)	10	mg/L
4	I590	Solids, Dissolved at 180C	130	mg/L
5	AALW	Aluminum, Total (Al)	0.98	mg/L

COMMENTS:





Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27503 / FILTERED
NUS SAMPLE NO: P0259287
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.3	mg/L

COMMENTS:



Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27506
NUS SAMPLE NO: P0259288
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	I730	Sulfate, Turbidimetric (as SO ₄)	52	mg/L
2	ANAW	Sodium, Total (Na)	5.6	mg/L
3	I130	Chloride (as Cl)	10	mg/L
4	I590	Solids, Dissolved at 180C	130	mg/L
5	AALW	Aluminum, Total (Al)	1.6	mg/L

COMMENTS:





Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27506 / FILTERED
NUS SAMPLE NO: P0259289
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	AALF	Aluminum, Dissolved (Al)	0.2	mg/L

COMMENTS:



Halliburton NUS CORPORATION

NUS LABORATORY
Two Marquis Office Plaza, Suite 200
5313 Campbells Run Road
Pittsburgh, Pennsylvania 15205

(412) 747-2580
FAX: (412) 747-2684
January 18, 1994
Report No.: 00018939
Section A, Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27509
NUS SAMPLE NO: P0259290
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

LH	TEST CODE	DETERMINATION	RESULT	UNITS

1	1730	Sulfate, Turbidimetric (as SO ₄)	51	mg/L
2	ANAW	Sodium, Total (Na)	5.9	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	140	mg/L
5	AALW	Aluminum, Total (Al)	1.5	mg/L
6	1490	pH	7.6	
7	1700	Specific Conductance at 25C	300	umhos/cm

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27509 / FILTERED
NUS SAMPLE NO: P0259291
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF.	Aluminum, Dissolved (Al)	0.3	mg/L

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259292
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	28	mg/L
3	1130	Chloride (as Cl)	9	mg/L
4	1590	Solids, Dissolved at 180C	210	mg/L
5	AALW	Aluminum, Total (Al)	0.33	mg/L

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259293
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.099	mg/L

COMMENTS:



Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 11

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259294
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	I730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	30	mg/L
3	I130	Chloride (as Cl)	10	mg/L
4	I590	Solids, Dissolved at 180C	210	mg/L
5	AALW	Aluminum, Total (Al)	0.35	mg/L

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259295
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.10	mg/L

COMMENTS:





Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 13

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259296
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	100	mg/L
2	ANAW	Sodium, Total (Na)	31	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	190	mg/L
5	AALW	Aluminum, Total (Al)	0.5	mg/L
6	1700	Specific Conductance at 25C	400	umhos/cm

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259297
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.072	mg/L

COMMENTS:



Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 15

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP 66998
NUS SAMPLE NO: P0259298
P.O. NO.: 69034-040-3N

DATE SAMPLED: 03-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	28	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	190	mg/L
5	AALW	Aluminum, Total (Al)	0.5	mg/L
8	1700	Specific Conductance at 25C	410	umhos/cm

COMMENTS:



Halliburton NUS
CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 16

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP 66998 / FILTERED
NUS SAMPLE NO: P0259299
P.O. NO.: 69034-040-3N

DATE SAMPLED: 03-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.088	mg/L

COMMENTS:

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

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		O.O.E.	
	A. LOCATION OF DISCHARGE		S.W. & S.E. 1/4, SECTION 06, TOWN 06S, RANGE 19W	
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		SANITARY, ABS. POND	
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
	D. IF YES, LIST DISCHARGE PERIODS		MO. / DAY	
			THROUGH	
			THROUGH	
			THROUGH	
	E. LAND APPLICATION RATE		NA	
	F. TYPE OF WASTEWATER DISCHARGE		4 3 WASTEWATER TYPE CODE	
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY 24 DAY/YEAR 365		
H. DISCHARGE FLOW RATE * Based on all-time dly max flow		TOTAL YEARLY * 1,350,500 UNITS CODE 1		
		DAILY MINIMUM 0 2		
		DAILY MAXIMUM 0,37 2		
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED 0,060 UNITS CODE 2		
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN 0,060 UNITS CODE 2		
ITEM 2 WATER TREATMENT ADDITIVES UNITS CODE 1 Mg/l 2 Uq/l	A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME: Calcium Hypochlorite for Filamentous Algae control	
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.		VAN WATERS AND ROGERS, INC. 1600 NORTON BUILDING SEATTLE, WASHINGTON 98104-1564	
	D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		MINIMUM UNITS CODE AVERAGE UNITS CODE MAXIMUM UNITS CODE	
	ADDITIVE NAME: Total Residual Chlorine		0, 0, 0	
	ADDITIVE NAME			
	ADDITIVE NAME			
	E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
	F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		% REMOVAL DISCHARGE FREQUENCY	
	ADDITIVE NAME		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.				
MSDS Attached				

Calcium Hypochlorite is added to the mixed liquor and is used up prior to discharge.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbiocides. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

REPORT NUMBER: 971

MSDS NO: PG0310

EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 001

VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:

PROD NO :

FAXED
2/17

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)889-3400
6100 CARILLON POINT , KIRKLAND , WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

----- FOR PRODUCT AND SALES INFORMATION -----

CONTACT YOUR LOCAL VAN WATERS & ROGERS BRANCH OFFICE AT
VW&R SOUTH BEND 219-289-0321 SOUTH BEND , IN

PRODUCT NAME:
CALCIUM HYPOCHLORITE GRANULAR

MSDS #: PG0310

--- CALCIUM HYPOCHLORITE GRANULAR

DATE: 08/16/93
EDITION: 004
TRADE NAME: CALCIUM HYPOCHLORITE GRANULAR
CHEM NAME/SYN: CAL HYPO, PITTCLO, INDUCLO, REPAK, ZAPPIT

CHEMICAL FAMILY: HYPOCHLORITE
FORMULA: CA(OCL)2
CAS NUMBER: 007778-54-3
U.S. DOT SHIPPING NAME: CALCIUM HYPOCHLORITE, HYDRATED
U.S. DOT HAZARD CLASS: 5.1 (OXIDIZER)
SUBSIDIARY RISK: N/A
I.D. NUMBER: UN2880
PACKING GROUP: II
PORTABLE QUANTITY: 10 LBS/4.5 KG
IMO DESCRIPTION: CALCIUM HYPOCHLORITE, HYDRATED, CLASS 5.1, UN2880,
PACKING GROUP II, RQ, IMDG CODE PAGE 5138.

FLAXE

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002
VERSION: 001

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

SECTION 1 - PHYSICAL DATA

BOILING POINT @ 760 MM HG: DECOMPOSES @ 180 C
VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY (H2O=1): N/A
PH OF SOLUTIONS: ALKALINE
FREEZING/MELTING POINT: N/A
SOLUBILITY (WEIGHT % IN WATER): 217 G/L @ 27 C

BULK DENSITY: 65-67 LBS/CU.FT.
VOLUME % VOLATILE: N/A
VAPOR PRESSURE: N/A
EVAPORATION RATE: N/A
HEAT OF SOLUTION: SLIGHTLY EXOTHERMIC
APPEARANCE AND ODOR:

WHITE POWDER WITH SLIGHT CHLORINE ODOR

SECTION 2 - INGREDIENTS

MATERIAL	PERCENT
CALCIUM HYPOCHLORITE (65% AVAILABLE CHLORINE)	65
INERT (INCLUDES 5.5 - 10% MOISTURE)	35

SECTION 3 - FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED):
NONE

FLAMMABLE LIMITS IN AIR (% BY VOLUME)
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
WATER ONLY! SMOTHERING INEFFECTIVE-PRODUCT SUPPLIES OWN OXYGEN

SPECIAL FIRE FIGHTING PROCEDURES:
FIRE FIGHTERS MUST WEAR NIOSH/MSHA APPROVED, PRESSURE DEMAND SELF-CONTAINED
BREATHING APPARATUS WITH FULL FACE PIECE FOR POSSIBLE EXPOSURE TO
HAZARDOUS GASES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
DECOMPOSES AT 180 C RELEASING OXYGEN GAS; CONTAINERS MAY RUPTURE.

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 003
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

SECTION 4 - HEALTH HAZARD DATA

TOXICITY DATA:

LC50 INHALATION: (RAT) NO MORTALITY @ 3.5 MG/L (1 HR)
LD50 DERMAL: (RABBIT) >1000 MG/KG
SKIN/EYE IRRITATION: SEE SECTION 5
LD50 INGESTION: SEE SECTION 5
FISH, LC50 (LETHAL CONCENTRATION): TLM 96 HR.: 10-1 PPM

CLASSIFICATION:

INHALATION: IRRITATING
SKIN: SLIGHTLY TOXIC
SKIN/EYE: CORROSIVE
INGESTION: SLIGHTLY TOXIC
AQUATIC: HIGHLY TOXIC

SECTION 5 - EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?
NTP - NO IARC - NO OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
NONE KNOWN

PERMISSIBLE EXPOSURE LIMITS:

NONE ESTABLISHED BY OSHA OR ACGIH FOR THIS PRODUCT.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 1 MG/CU.M., 8-HOUR TWA
(TIME WEIGHTED AVERAGE) 2 MG/CU.M. STEL (SHORT-TERM EXPOSURE LIMIT).

ACUTE:

INHALATION: INHALATION OF CALCIUM HYPOCHLORITE DUST AND DEPOSITION OF PARTICLES IN THE RESPIRATORY TRACT CAN LEAD TO IRRITATION OF THE TISSUE AND CAUSE A VARIETY OF EFFECTS. THESE EFFECTS ARE DEPENDENT ON CONCENTRATION AND INCLUDE: UPPER RESPIRATORY TRACT IRRITATION, NASAL CONGESTION, COUGHING, SORE THROAT, LARYNGITIS AND SHORTNESS OF BREATH. IN OPERATIONS WHERE THERE ARE HIGH CONCENTRATIONS OF RESPIRABLE PARTICULATES, PULMONARY EDEMA (FLUID IN THE LUNG) MAY BE PRODUCED. IF NOT TREATED IMMEDIATELY, PULMONARY EDEMA CAN BE LIFE THREATENING. SINCE THIS PRODUCT IS IN GRANULAR FORM, PARTICLES OF RESPIRABLE SIZE ARE NOT GENERALLY ENCOUNTERED.

REPORT NUMBER: 971

MSDS NO: PG0310

EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.

MATERIAL SAFETY DATA SHEET

PAGE: 004

VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:

PROD NO :

EYE/SKIN: CALCIUM HYPOCHLORITE IS CORROSIVE TO THE EYES. CONTACT OF CALCIUM HYPOCHLORITE DUST WITH THE EYES, EVEN A MINUTE AMOUNT FOR A SHORT DURATION, CAN CAUSE SEVERE IRRITATION AND EVEN BLINDNESS. CONTACT WITH THE SKIN MAY CAUSE SEVERE IRRITATION, BURNS, OR TISSUE DESTRUCTION.

IN STUDIES UTILIZING RABBITS, THE SKIN IRRITATION SCORE WAS 8/8 AND THE EYE IRRITATION SCORE WAS 98.5/110. THE CLASSIFICATION FOR BOTH OF THESE IS CORROSIVE.

INGESTION: CALCIUM HYPOCHLORITE, IF SWALLOWED, CAUSES SEVERE BURNS TO THE DIGESTIVE TRACT AND CAN BE FATAL.

CHRONIC:

GENOTOXICITY: CALCIUM HYPOCHLORITE PRODUCED POSITIVE RESPONSES IN IN-VITRO ASSAYS USING BACTERIAL SYSTEMS (THE AMES TEST) AND CHROMOSOMAL ABERRATIONS IN CHINESE HAMSTER FIBROBLASTS. IN A WHOLE ANIMAL EXPERIMENT (MOUSE MICRONUCLEUS TEST), EXPOSURES RANGING FROM 20 TO 160 MG/KG PRODUCED NO COMPOUND RELATED CHROMOSOMAL ABNORMALITIES.

CARCINOGENESIS: ALTHOUGH NO STUDY HAS BEEN CONDUCTED WITH CALCIUM HYPOCHLORITE, THE CARCINOGENIC POTENTIAL OF SODIUM HYPOCHLORITE WAS STUDIED IN F344 RATS. AFTER 104 WEEKS OF DRINKING WATER CONTAINING UP TO 2000 PPM SODIUM HYPOCHLORITE, THERE WAS NO EVIDENCE THAT THIS CHEMICAL PRODUCED ANY CARCINOGENIC RESPONSE. IN ADDITION, THIS EXPOSURE DID NOT RESULT IN ANY ADVERSE EFFECTS IN BLOOD, CLINICAL CHEMISTRY, OR OTHER TARGET ORGANS.

ONE OF THE MAJOR USES OF CALCIUM HYPOCHLORITE IS AS A SOURCE OF CHLORINE FOR WATER SANITIZATION IN DRINKING AND RECREATIONAL WATER. STUDIES HAVE BEEN CONDUCTED TO DETERMINE THE LONG-TERM EFFECTS OF CHLORINATED DRINKING WATER. SEVEN GENERATIONS OF RATS WERE GIVEN 100 PPM CHLORINE IN THEIR DRINKING WATER. NO DIFFERENCE IN FERTILITY, GROWTH, BLOOD PARAMETERS, OR SPECIFIC ORGAN TOXICITY WAS OBSERVED BETWEEN CONTROL AND EXPOSED ANIMALS. TWO SEPARATE ANIMAL STUDIES CONDUCTED BY DIFFERENT GOVERNMENT AGENCIES DETERMINED THAT THE CHLORINATION OF MUNICIPAL DRINKING WATER DID NOT RESULT IN TOXICITY TO THE DEVELOPING MOUSE FETUS.

SAFE HANDLING OF THIS MATERIAL ON A LONG-TERM BASIS SHOULD EMPHASIZE MINIMIZING REPEATED ACUTE EXPOSURES.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION:

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION,

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 005
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
CALL A PHYSICIAN.

EYE OR SKIN CONTACT:

FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING
CONTAMINATED CLOTHING AND SHOES. FOR EYE CONTACT, GET IMMEDIATE
MEDICAL ATTENTION. IF SKIN IRRITATION OCCURS, GET MEDICAL ATTENTION.

INGESTION:

IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER AND ANY COMMON COOKING
(VEGETABLE) OIL, IF AVAILABLE. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY
TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE
IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO INDUCE VOMITING OR GIVE
ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):
TREAT SYMPTOMATICALLY.

SECTION 6 - REACTIVITY DATA

STABILITY:

UNSTABLE
CONDITIONS TO AVOID:
CONTAMINATION OR EXCESSIVE HEAT ABOVE 177 C

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE-WILL NOT POLYMERIZE

INCOMPATIBILITY (MATERIALS TO AVOID):

ACIDS, COMBUSTIBLE MATERIALS, ORGANICS, REDUCING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS:

ACIDS OR AMMONIA CONTAMINATION WILL RELEASE TOXIC GASES. EXCESSIVE
HEAT WILL CAUSE DECOMPOSITION RESULTING IN THE RELEASE OF OXYGEN AND
CHLORINE GAS.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:

NOTE: USE EXTREME CAUTION IN HANDLING SPILLED MATERIAL. CONTAMINATION WITH
ORGANIC OR COMBUSTIBLE MATERIAL MAY CAUSE FIRE OR VIOLENT DECOMPOSITION. IF
FIRE OR DECOMPOSITION OCCURS IN AREA OF SPILL, IMMEDIATELY DOUSE WITH PLENTY
OF WATER. OTHERWISE, SWEEP UP ALL VISIBLE MATERIAL USING A CLEAN, DRY SHOVEL
AND BROOM AND DISSOLVE MATERIAL IN WATER. DISPOSE OF WASTE MATERIAL AS

REPORT NUMBER: 971

MSDS NO: PG0310

EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.

MATERIAL SAFETY DATA SHEET

PAGE: 006

VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:

PROD NO :

OUTLINED BELOW.

WASTE DISPOSAL METHOD:

SPIILLED MATERIAL THAT HAS BEEN SWEEPED UP AND DISSOLVED IN WATER SHOULD BE USED IMMEDIATELY IN THE NORMAL APPLICATION FOR WHICH CALCIUM HYPOCHLORITE IS BEING CONSUMED. IF THIS IS NOT POSSIBLE, CAREFULLY NEUTRALIZE DISSOLVED MATERIAL BY ADDING HYDROGEN PEROXIDE (ONE PINT OF 35% HYDROGEN PEROXIDE SOLUTION PER POUND OF CALCIUM HYPOCHLORITE TO BE NEUTRALIZED) THEN DILUTE THE NEUTRALIZED MATERIAL WITH PLENTY OF WATER AND FLUSH TO SEWER. NOTE: ONLY PROPERLY NEUTRALIZED MATERIAL SHOULD BE FLUSHED TO SEWER. UNNEUTRALIZED MATERIAL CAN CAUSE ENVIRONMENTAL DAMAGE TO RECEIVING WATER OR CAN INTERFERE WITH TREATMENT PLANT OPERATION. FOR ON-SITE NEUTRALIZATION, CAREFULLY AND SLOWLY POUR THE APPROPRIATE QUANTITY OF 35% HYDROGEN PEROXIDE SOLUTION OVER ALL SPILLED MATERIAL THEN FLUSH AREA WITH PLENTY OF WATER.

COMMENTS: CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, FIFRA, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

IF DUSTY CONDITIONS ARE ENCOUNTERED, USE NIOSH/MSHA APPROVED RESPIRATOR WITH ACID GAS CARTRIDGE AND DUST PREFILTER. THE RESPIRATOR USE LIMITATIONS SPECIFIED BY NIOSH/MSHA OR THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 CFR 1910.134.

VENTILATION(TYPE):

NONE, UNLESS DUSTY CONDITIONS ARE ENCOUNTERED.

EYE PROTECTION:

CHEMICAL SAFETY GOGGLES

GLOVES:

NATURAL OR SYNTHETIC RUBBER

OTHER PROTECTIVE EQUIPMENT:

BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 007
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

SECTION 9 - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

- DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.
- KEEP IN ORIGINAL CONTAINER IN A COOL, DRY PLACE.
- KEEP CONTAINER CLOSED WHEN NOT IN USE.
- KEEP AWAY FROM HEAT SOURCES, SPARKS, OPEN FLAMES AND LIGHTED TOBACCO PRODUCTS.
- USE ONLY A CLEAN, DRY SCOOP MADE OF METAL OR PLASTIC EACH TIME THIS PRODUCT IS TAKEN FROM CONTAINER.
- DO NOT ADD THIS PRODUCT TO ANY DISPENSING DEVICE CONTAINING REMNANTS OF ANY OTHER PRODUCT. SUCH USE MAY CAUSE VIOLENT REACTION LEADING TO FIRE OR EXPLOSION.
- ADD THIS PRODUCT ONLY TO WATER.
- MAY CAUSE FIRE OR EXPLOSION IF MIXED WITH OTHER CHEMICALS.
- FIRE MAY RESULT IF CONTAMINATED WITH ACIDS OR EASILY COMBUSTIBLE MATERIAL SUCH AS OIL, KEROSENE, GASOLINE, PAINT PRODUCTS AND MOST OTHER ORGANIC MATERIALS.
- WASH HANDS AFTER HANDLING.
- DO NOT REUSE CONTAINER. RESIDUAL MATERIAL REMAINING IN EMPTY DRUM CAN REACT TO CAUSE FIRE. THOROUGHLY FLUSH EMPTY CONTAINER WITH WATER THEN DESTROY BY PLACING IN TRASH COLLECTION. DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.

OTHER PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- STRONG OXIDIZER - FIRE MAY RESULT FROM CONTACT WITH HEAT, ACIDS, ORGANIC OR COMBUSTIBLE MATTER.
- MAY BE FATAL OR HARMFUL IF SWALLOWED.
- MAY CAUSE CHEMICAL BURNS.
- IRRITATING TO NOSE AND THROAT - AVOID BREATHING DUST.

COMMENTS:

TSCA - CALCIUM HYPOCHLORITE IS ON THE TSCA INVENTORY UNDER CAS #7778-54-3.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE AND REACTIVITY, B) NOT LISTED IN SECTION 313, C) NOT LISTED AS AN "EXTREMELY HAZARDOUS SUBSTANCE" IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 10 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 00-424-8802.

RCRA - WASTE CALCIUM HYPOCHLORITE AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEANUP ARE D001 HAZARDOUS WASTE AS PER 40 CFR 261.21(A)(4) AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA.

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 008

VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

FIFRA - CALCIUM HYPOCHLORITE IS REGISTERED WITH EPA AS A PESTICIDE.

NSF - PPG CALCIUM HYPOCHLORITE IS CERTIFIED FOR MAXIMUM USE AT 46 MG/L
UNDER ANSI/NSF STANDARD 60.

REVISIONS MADE TO 7/28/92, 3RD EDITION: DATE, EDITION, ADDITION OF NSF
STATEMENT.

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR VW&R SOUTH BEND
DURING BUSINESS HOURS, PACIFIC TIME (206)889-3400

02/17/94 12:21 PRODUCT: CUST NO: ORDER NO:

----- NOTICE -----

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BELIEVED TO BE ACCURATE, VW&R MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR
SUFFICIENCY. CONDITIONS OF USE ARE BEYOND VW&RS CONTROL AND THEREFORE USERS
ARE RESPONSIBLE TO VERIFY THIS DATA UNDER THEIR OWN OPERATING CONDITIONS TO
DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY
ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM
THE PUBLICATION OR USE OF, OR RELIANCE UPON, INFORMATION CONTAINED HEREIN.
THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT
RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER
PROCESS.

* * * E N D O F M S D S * * *

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 3		OUTFALL NUMBER	O.O.E.	
PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE	PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	S, A, N, I, T, A, R, Y, W, A, T, E, R, 4, 9, 1, 1	
		B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 24 DAYS/YEAR 365	
		C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY 8577 UNIT CODE 9 DAILY MINIMUM 011 6 DAILY MAXIMUM 037 6	
		D. PROCESS PRODUCTION RATE	N/A	
	PROCESS 2	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 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	N/A	
		B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR	
		C. PROCESS WASTEWATER FLOW RATE	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	N/A	
		B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR	
		C. PROCESS WASTEWATER FLOW RATE	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	N/A	
		B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY DAYS/YEAR	
		C. PROCESS WASTEWATER FLOW RATE	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

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

O, O, E

A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)

☒

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.

☒

YES

☐

NO

Submitted 12/6/91

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

☒

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

☒

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.

☐

NOT APPLICABLE/BELIEVED ABSENT

☒

PRESENT, DATA PROVIDED IN ITEM 7

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

ITEM
5EXPECTED
WASTEWATER
CHARAC-
TERISTICS

UNITS CODE

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

A. DISCHARGE CHARACTERISTICS

CONCENTRATION

UNITS CODE # ANALYSES SAMPLE TYPE

AVE

MAX

CODE

*BOD₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)

14 10 . 0 15 9 9 . 6

1 5 17

1

*COD (CHEMICAL OXYGEN DEMAND)

.

1 . .

. .

*TOC (TOTAL ORGANIC CARBON)

.

1 . .

. .

*AMMONIA NITROGEN (AS N)

13 18 . 3 15 17 19 . 0

1 6 5

1

*TOTAL SUSPENDED SOLIDS

2 5 . 5 5 1 1 6 . 0

1 2 6 0

1

TOTAL PHOSPHORUS (AS P)

. 7 . 0 3 6 1 2 . 0 5

1 6 5

1

TOTAL RESIDUAL CHLORINE

.

1 . .

. .

DISSOLVED OXYGEN

MIN

.

1 . .

. .

*PH

6 . 4

7 . 8

4 1 1 3

1

FECAL COLIFORM BACTERIA

.

3 . .

. .

*TEMPERATURE (SUMMER)

.

5 . .

. .

*TEMPERATURE (WINTER)

.

5 . .

. .

B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE

.

.

.

Total Inorganic Nitro.

6 5 . 5 6 2 0 8 . 0

1 6 5

1

SAMPLE
TYPE1 GRAB
2 24 HOUR
COMPOSITE

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.

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*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

- A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

- B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.
3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.
4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:
 - (a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
 - (b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
 - (c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)
5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEEM
6PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER

O, O, E

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.)

S, T, M, E, L, E, C, P, W, R

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 IIA PAGE 43.

RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.
(CONTINUE WITH E-K BELOW)

☐ VOLATILE Analysis per
J.B. Beauboeuf
☐ BASE/NEUTRAL Groundwater
Division
☐ 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
N/A
☐ 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
N/A
☐ PRESENT/DATA IS ATTACHED

G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO:

USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHOXY ACETIC ACID (2, 4, 5-T);
2-(2, 4, 5-TRICHLOROPHOXY) PROPANOIC ACID (SILVEX, 2, 4, 5, TP);
2-(2, 4, 5-TRICHLOROPHOXY) 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
N/A
☐ 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
N/A
☐ 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 TO THIS APPLICATION.

☐ NOT APPLICABLE
☒ APPLICABLE/SEE ATTACHED

L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 4 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
N/A
☐ APPLICABLE/SEE ATTACHED

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. and E.-J. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.

- D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

EM
7

CRITICAL
MATERIALS
•
TOXIC
POLLUTANTS
•
HAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

O, O, E,

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

LBS/DAY

KG/DAY

SAMPLE TYPE

1 GRAB

2 24 HR.COMP

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

* Small quantities of Hydroquinone may be used in black and white film developing in emergency situations only. No film was developed in 1993 and no hydroquinone was discharged. Approximately one liter would be used when processing is necessary.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:**
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-39
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 05-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	108	65-125
BFB	85	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/PID ANALYSES USING METHOD 8020

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-39
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	93	70-120
BFB	101	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	<0.5	0.5	
Toluene	<0.5	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-47
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	82	76-114
Toluene-d8	94	88-110
4-Bromofluorobenzene	86	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: S. SEWAGE PLANT EFFL.

LAL Sample ID: L1009-47

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-47
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
UNKNOWN SULFUR COMPOUND	37	4.47	J
UNKNOWN	28	9.70	J

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-31
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: Q11194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	26	21-100
Phenol-d ₆	18	10-94
Nitrobenzene-d ₅	61	35-114
2-Fluorobiphenyl	54	43-116
2,4,6-Tribromophenol	70	10-123
p-Terphenyl-d ₁₄	76	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	≤50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS
FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: S. SEWAGE PLANT EFFL		LAL Sample ID: L1009-31	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.3	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-31
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
Benzaldehyde	8	7.85	J
Unknown	8	25.05	J
Unknown	10	27.46	J
Unknown	4	30.25	J
Hydrocarbon	4	31.99	J
Hydrocarbon	4	33.87	J

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-23
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	70	60-150
DCB	50*	60-150

Constituent	Concentration (μ g/L)	Reporting Detection Limit (μ g/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

METALS RESULTS

Client Sample ID: S. SEWAGE PLANT EFF	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-16
Antimony	6020	<0.060	0.060		01-27-94	L1009-16
Arsenic	6020	<0.010	0.010		01-27-94	L1009-16
Barium	6020	<0.20	0.20	N	01-27-94	L1009-16
Beryllium	6020	<0.005	0.005		01-27-94	L1009-16
Boron	6010	<0.20	0.20		01-20-94	L1009-16
Cadmium	6020	<0.005	0.005		01-27-94	L1009-16
Chromium	6020	<0.010	0.010		01-27-94	L1009-16
Cobalt	6020	<0.050	0.050		01-27-94	L1009-16
Copper	6020	<0.025	0.025		01-27-94	L1009-16
Iron	6010	<0.10	0.10		01-20-94	L1009-16
Lead	6020	<0.003	0.003		01-27-94	L1009-16
Magnesium	6010	14	5.0		01-20-94	L1009-16
Manganese	6020	0.025	0.015		01-27-94	L1009-16
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-16
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-16
Nickel	6020	<0.040	0.040		01-27-94	L1009-16
Selenium	6020	<0.005	0.005	N	01-27-94	L1009-16
Silver	6020	<0.010	0.010		01-27-94	L1009-16
Sodium	6010	34	5.0		01-20-94	L1009-16
Thallium	6020	<0.010	0.010		01-27-94	L1009-16
Tin	6020	<0.20	0.20		01-27-94	L1009-16
Titanium	6010	<0.10	0.10		01-20-94	L1009-16
Vanadium	6010	<0.050	0.050		01-20-94	L1009-16
Zinc	6020	0.047	0.020		01-27-94	L1009-16

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: S. SEWAGE PLANT EFFL	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		01-24-94	L1009-4
Chloride, in mg/L	300.0	120	0.016		12-29-93	L1009-4
Nitrate-Nitrogen, in mg/L	300.0	24	0.017		12-29-93	L1009-4
Nitrite-Nitrogen, in mg/L	300.0	<0.50	0.50		12-29-93	L1009-4
Sulfate, in mg/L	300.0	39	0.059		12-29-93	L1009-4
Ammonia-Nitrogen, in mg/L	350.1	24	0.50	D(1:10)	01-05-94	L1009-8
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-12

Comments:

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
1DISCHARGE
LOCATION

SCHEDULE

FLOW
RATEWASTEWATER
TYPE CODE1 CONTACT
COOLING2 NONCONTACT
COOLING

3 PROCESS

4 SANITARY

5 STORMWATER

UNIT CODE

1 MGY

2 MGD

3 GPD

OUTFALL NUMBER

N/A

A. LOCATION OF DISCHARGE

S.W. & S.E. 1/4 SECTION 06, TOWN 06S, RANGE 19W

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

D.R.Y. W.E.L.L.S.

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

THROUGH

THROUGH

THROUGH

E. LAND APPLICATION RATE

IN./HR.

HR./DAY

IN./WK.

☐ NA

F. TYPE OF WASTEWATER DISCHARGE

3 5

WASTEWATER TYPE CODE

G. DISCHARGE SCHEDULE (YEARLY AVERAGE)

HOURS/DAY

5

DAY/YEAR

010

H. DISCHARGE FLOW RATE

TOTAL YEARLY

04

UNIT CODE

1

DAILY MINIMUM

0

3

DAILY MAXIMUM

2,500,000

3

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

AUTHORIZED

04

UNIT CODE

1

J. MAXIMUM DESIGN DISCHARGE FLOW RATE.

DESIGN

2,500,000

UNIT CODE

3

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

NAME

FUNCTION

ITEM
2WATER
TREATMENT
ADDITIVES

UNITS CODE

1 Mg/l

2 Ug/l

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

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.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
3PROCESS
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		N/A	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	TRANS, DECK, DRN, 4911	
	B. PROCESS SCHEDULE (YEARLY AVERAGE) *	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY	0.4 UNIT CODE
	D. PROCESS PRODUCTION RATE	DAILY MINIMUM	0.2
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	DIESEL, SUMP, S, 4911	
	B. PROCESS SCHEDULE (YEARLY AVERAGE) **	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE **	TOTAL YEARLY	UNIT CODE
	D. PROCESS PRODUCTION RATE **	DAILY MINIMUM	UNIT CODE
PROCESS 3	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	SEC, DIESEL, OIL, TK, 4911	
	B. PROCESS SCHEDULE (YEARLY AVERAGE) ***	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE ***	TOTAL YEARLY	UNIT CODE
	D. PROCESS PRODUCTION RATE ***	DAILY MINIMUM	UNIT CODE
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
	D. PROCESS PRODUCTION RATE	DAILY MINIMUM	UNIT CODE
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
	D. PROCESS PRODUCTION RATE	DAILY MINIMUM	UNIT CODE

- * Primarily based on rainfall frequency and duration. Deluge testing would be 3-30min/day for no more than 10 days.
 ** EDG sump discharges volumes are insignificant.
 *** No known discharges

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

N A

A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR
GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)☒ YES☐ NOB. 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.☒ YES☐ NO

Submitted 12/6/91

C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER
RULE R.323.2207 (10) (PAGE 45) 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☒ NOD. 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☒ NOE. 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.☒

NOT APPLICABLE/BELIEVED ABSENT

☐

PRESENT, DATA PROVIDED IN ITEM 7

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

ITEM
5EXPECTED
WASTEWATER
CHARAC-
TERISTICS

UNITS CODE

1 Mg/l
2 Ug/l
3 COUNTS/
100 ml
4 S.U.
5 °F
6 LBS/DAYSAMPLE
TYPE1 GRAB
2 24 HOUR
COMPOSITE

A. DISCHARGE CHARACTERISTICS

CONCENTRATION

UNITS CODE # ANALYSES SAMPLE TYPE

AVE

MAX

CODE

*BOD₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)

.

1

.

*COD (CHEMICAL OXYGEN DEMAND)

.

1

.

*TOC (TOTAL ORGANIC CARBON)

.

1

.

*AMMONIA NITROGEN (AS N)

.

1

.

*TOTAL SUSPENDED SOLIDS

.

1

.

TOTAL PHOSPHORUS (AS P)

.

1

.

TOTAL RESIDUAL CHLORINE

.

1

.

DISSOLVED OXYGEN

MIN

.

1

.

*PH

.

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4

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FECAL COLIFORM BACTERIA

.

.

3

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*TEMPERATURE (SUMMER)

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5

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*TEMPERATURE (WINTER)

.

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5

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B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE

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** P, C, B

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** T, O, C

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*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

** See attached sample analysis

INSTRUCTIONS FOR COMPLETING SECTION II
ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

- A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

- B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.
3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.
4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:
 - (a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
 - (b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
 - (c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)
5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.



NUS LABORATORY
Two Marquis Office Plaza, Suite 200
5313 Campbells Run Road
Pittsburgh, Pennsylvania 15205

(412) 747-2580
FAX: (412) 747-2684
January 11, 1994
Report No.: 00018818
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGEMAN, MI 49106-
ATTENTION: MR. ROLAND BEEM

NUS CLIENT NO: 0663 0018
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: OIL/WATER SEPARATOR
NUS SAMPLE NO: P0258839
P.O. NO.: 69034-040-3H

DATE SAMPLED: 28-DEC-93
DATE RECEIVED: 29-DEC-93
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	G122W	PCB ANALYSIS		
		PCB-1016	< 0.05	ug/L
		PCB-1221	< 0.05	ug/L
		PCB-1232	< 0.05	ug/L
		PCB-1242	< 0.05	ug/L
		PCB-1248	< 0.05	ug/L
		PCB-1254	< 1.0	ug/L
		PCB-1260	< 1.0	ug/L
3	I106	Carbon, Organic - Nonpurgeable	6	mg/L
4	I680	Oil and Grease, Gravimetric	3	mg/L
5	I490	pH	7.4	

COMMENTS:

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

**EM
6**

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER		N/A	
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)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
B. INDICATE TYPE OF PRIMARY INDUSTRY AS LISTED IN TABLE IA PAGE 41. (CONTINUE WITH C.)		S, T, M, E, L, E, C, P, W, R,	
C. DOES THIS OUTFALL DISCHARGE CONTAIN ANY PROCESS WASTEWATER? (IF NO, GO TO E) (IF YES, GO TO D)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> 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)		<input type="checkbox"/> VOLATILE <input type="checkbox"/> BASE/NEUTRAL <input type="checkbox"/> ACID <input type="checkbox"/> PESTICIDE Analysis per J.B. Beauboeuf Target Permit Effluent Limits	
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.		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT N/A <input type="checkbox"/> 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.		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT N/A <input type="checkbox"/> PRESENT/DATA IS ATTACHED	
G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO: USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHOXY ACETIC ACID (2, 4, 5-T); 2-(2, 4, 5-TRICHLOROPHOXY) PROPANOIC ACID (SILVEX, 2, 4, 5, TP); 2-(2, 4, 5-TRICHLOROPHOXY) ETHYL 2, 2-DICHLOROPROPIONATE (ERBON); O, 0-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.		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT N/A <input type="checkbox"/> 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.		<input type="checkbox"/> NOT APPLICABLE N/A <input type="checkbox"/> 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.		<input type="checkbox"/> NOT APPLICABLE <input checked="" type="checkbox"/> APPLICABLE/SEE ATTACHED	
L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 4 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.		<input type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> APPLICABLE/SEE ATTACHED N/A	

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. and E.-J. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.

D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

One Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER

N A

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)

7

CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

UNITS CODE

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

SAMPLE TYPE

- 1 GRAB
- 2 24 HR. COMP.

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

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:**
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: TRANS CATCH BASIN	LAL Sample ID: L1009-37
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 05-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	99	65-125
BFB	76	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/PID ANALYSES USING METHOD 8020

Client Sample ID: TRANS CATCH BASIN	LAL Sample ID: L1009-37
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	89	70-120
BFB	89	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	<0.5	0.5	
Toluene	0.53	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRANS. CATCHBASIN	LAL Sample ID: L1009-29
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	38	21-100
Phenol-d ₆	28	10-94
Nitrobenzene-d ₅	59	35-114
2-Fluorobiphenyl	62	43-116
2,4,6-Tribromophenol	93	10-123
p-Terphenyl-d ₁₄	84	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<11	11	
bis(2-Chloroethyl)ether	<11	11	
2-Chlorophenol	<11	11	
1,3-Dichlorobenzene	<11	11	
1,4-Dichlorobenzene	<11	11	
Benzyl alcohol	<11	11	
1,2-Dichlorobenzene	<11	11	
2-Methylphenol	<11	11	
bis(2-Chloroisopropyl)ether	<11	11	
4-Methylphenol	<11	11	
N-Nitroso-Di-n-propylamine	<11	11	
Hexachloroethane	<11	11	
Nitrobenzene	<11	11	
Isophorone	<11	11	
2-Nitrophenol	<11	11	
2,4-Dimethylphenol	<11	11	
Benzoic acid	<55	55	
bis(2-Chloroethoxy)methane	<11	11	
2,4-Dichlorophenol	<11	11	
1,2,4-Trichlorobenzene	<11	11	
Naphthalene	<11	11	
4-Chloroaniline	<11	11	
Hexachlorobutadiene	<11	11	
4-Chloro-3-methylphenol	<11	11	
2-Methylnaphthalene	<11	11	
Hexachlorocyclopentadiene	<11	11	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRANS. CATCHBASIN		LAL Sample ID: L1009-29	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<11	11	
2,4,5-Trichlorophenol	<11	11	
2-Chloronaphthalene	<11	11	
2-Nitroaniline	<28	28	
Dimethylphthalate	<11	11	
Acenaphthylene	<11	11	
2,6-Dinitrotoluene	<11	11	
3-Nitroaniline	<28	28	
Acenaphthene	<11	11	
2,4-Dinitrophenol	<28	28	
4-Nitrophenol	<28	28	
Dibenzofuran	<11	11	
2,4-Dinitrotoluene	<11	11	
Diethylphthalate	<11	11	
4-Chlorophenyl-phenylether	<11	11	
Fluorene	<11	11	
4-Nitroaniline	<28	28	
4,6-Dinitro-2-methylphenol	<28	28	
N-Nitrosodiphenylamine	<11	11	
4-Bromophenyl-phenylether	<11	11	
Hexachlorobenzene	<11	11	
Pentachlorophenol	<28	28	
Phenanthrene	<11	11	
Anthracene	<11	11	
Di-n-butylphthalate	<11	11	
Fluoranthene	<11	11	
Pyrene	<11	11	
Butylbenzylphthalate	<11	11	
3,3'-Dichlorobenzidine	<22	22	
Benzo(a)anthracene	<11	11	
Chrysene	<11	11	
bis(2-Ethylhexyl)phthalate	280	11	E B
Di-n-octylphthalate	<11	11	
Benzo(b)fluoranthene	<11	11	
Benzo(k)fluoranthene	<11	11	
Benzo(a)pyrene	<11	11	
Indeno(1,2,3-cd)pyrene	<11	11	
Dibenz(a,h)anthracene	<11	11	
Benzo(g,h,i)perylene	<11	11	
Carbazole	<11	11	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRANS. CATCHBASIN	LAL Sample ID: L1009-29
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
Hydrocarbon	8	14.50	J
Hydrocarbon	10	15.00	J
Unknown	7	15.83	J
Hydrocarbon	20	16.75	J
Unknown	10	17.58	J
Hydrocarbon	20	17.79	J
Unknown	10	18.01	J
Hydrocarbon	30	18.40	J
Unknown	6	19.17	J
Unknown	10	19.25	J
Hydrocarbon	10	19.42	J
Hydrocarbon	30	19.96	J
Hydrocarbon	30	21.43	J
Hydrocarbon	30	21.51	J
Unknown	6	22.32	J
Hydrocarbon	20	22.95	J
Hydrocarbon	10	24.17	J
Hydrocarbon	9	24.54	J
Hydrocarbon	10	25.43	J
Hydrocarbon	6	26.65	J

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRANS. CATCHBASIN	LAL Sample ID: L1009-29RE
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 4
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 18-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	42	21-100
Phenol-d ₆	28	10-94
Nitrobenzene-d ₅	56	35-114
2-Fluorobiphenyl	66	43-116
2,4,6-Tribromophenol	76	10-123
p-Terphenyl-d ₁₄	72	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<40	40	
bis(2-Chloroethyl)ether	<40	40	
2-Chlorophenol	<40	40	
1,3-Dichlorobenzene	<40	40	
1,4-Dichlorobenzene	<40	40	
Benzyl alcohol	<40	40	
1,2-Dichlorobenzene	<40	40	
2-Methylphenol	<40	40	
bis(2-Chloroisopropyl)ether	<40	40	
4-Methylphenol	<40	40	
N-Nitroso-Di-n-propylamine	<40	40	
Hexachloroethane	<40	40	
Nitrobenzene	<40	40	
Isophorone	<40	40	
2-Nitrophenol	<40	40	
2,4-Dimethylphenol	<40	40	
Benzoic acid	<200	200	
bis(2-Chloroethoxy)methane	<40	40	
2,4-Dichlorophenol	<40	40	
1,2,4-Trichlorobenzene	<40	40	
Naphthalene	<40	40	
4-Chloroaniline	<40	40	
Hexachlorobutadiene	<40	40	
4-Chloro-3-methylphenol	<40	40	
2-Methylnaphthalene	<40	40	
Hexachlorocyclopentadiene	<40	40	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS
FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRANS. CATCHBASIN		LAL Sample ID: L1009-29RE	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<40	40	
2,4,5-Trichlorophenol	<40	40	
2-Chloronaphthalene	<40	40	
2-Nitroaniline	<100	100	
Dimethylphthalate	<40	40	
Acenaphthylene	<40	40	
2,6-Dinitrotoluene	<40	40	
3-Nitroaniline	<100	100	
Acenaphthene	<40	40	
2,4-Dinitrophenol	<100	100	
4-Nitrophenol	<100	100	
Dibenzofuran	<40	40	
2,4-Dinitrotoluene	<40	40	
Diethylphthalate	<40	40	
4-Chlorophenyl-phenylether	<40	40	
Fluorene	<40	40	
4-Nitroaniline	<100	100	
4,6-Dinitro-2-methylphenol	<100	100	
N-Nitrosodiphenylamine	<40	40	
4-Bromophenyl-phenylether	<40	40	
Hexachlorobenzene	<40	40	
Pentachlorophenol	<100	100	
Phenanthrene	<40	40	
Anthracene	<40	40	
Di-n-butylphthalate	<40	40	
Fluoranthene	<40	40	
Pyrene	<40	40	
Butylbenzylphthalate	<40	40	
3,3'-Dichlorobenzidine	<80	80	
Benzo(a)anthracene	<40	40	
Chrysene	<40	40	
bis(2-Ethylhexyl)phthalate	350	40	
Di-n-octylphthalate	<40	40	
Benzo(b)fluoranthene	<40	40	
Benzo(k)fluoranthene	<40	40	
Benzo(a)pyrene	<40	40	
Indeno(1,2,3-cd)pyrene	<40	40	
Dibenz(a,h)anthracene	<40	40	
Benzo(g,h,i)perylene	<40	40	
Carbazole	<40	40	

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: TRANS CATCHBASIN	LAL Sample ID: L1009-21
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	85	60-150
DCB	40	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

METALS RESULTS

Client Sample ID: TRANS. CATCHBASIN	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-15
Antimony	6020	<0.060	0.060		01-27-94	L1009-15
Arsenic	6020	<0.010	0.010		01-27-94	L1009-15
Barium	6020	<0.20	0.20	N	01-27-94	L1009-15
Beryllium	6020	<0.005	0.005		01-27-94	L1009-15
Boron	6010	<0.20	0.20		01-20-94	L1009-15
Cadmium	6020	<0.005	0.005		01-27-94	L1009-15
Chromium	6020	<0.010	0.010		01-27-94	L1009-15
Cobalt	6020	<0.050	0.050		01-27-94	L1009-15
Copper	6020	<0.025	0.025		01-27-94	L1009-15
Iron	6010	0.54	0.10		01-27-94	L1009-15
Lead	6020	<0.003	0.003		01-27-94	L1009-15
Magnesium	6010	1.6	5.0		01-20-94	L1009-15
Manganese	6020	0.059	0.015		01-27-94	L1009-15
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-15
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-15
Nickel	6020	<0.040	0.040		01-27-94	L1009-15
Selenium	6020	<0.005	0.005	N	01-27-94	L1009-15
Silver	6020	<0.010	0.010		01-27-94	L1009-15
Sodium	6010	<5.0	5.0		01-20-94	L1009-15
Thallium	6020	<0.010	0.010		01-27-94	L1009-15
Tin	6020	<0.20	0.20		01-27-94	L1009-15
Titanium	6010	<0.10	0.10		01-20-94	L1009-15
Vanadium	6010	<0.050	0.050		01-20-94	L1009-15
Zinc	6020	0.15	0.020		01-27-94	L1009-15

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: TRANS. CATCHBASIN	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		01-24-94	L1009-3
Chloride, in mg/L	300.0	0.52	0.016		12-29-93	L1009-3
Nitrate-Nitrogen, in mg/L	300.0	<0.017	0.017		12-29-93	L1009-3
Nitrite-Nitrogen, in mg/L	300.0	<0.012	0.012		12-29-93	L1009-3
Sulfate, in mg/L	300.0	4.7	0.059		12-29-93	L1009-3
Ammonia-Nitrogen, in mg/L	350.1	13	0.50	D(1:10)	01-05-94	L1009-7
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-11

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: BLANK	LAL Sample ID: AD5176
Date Collected: N/A	Date Received: N/A
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	94	65-125
BFB	94	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS

GC/PID ANALYSES USING METHOD 8020

Client Sample ID: BLANK	LAL Sample ID: AD5176
Date Collected: N/A	Date Received: N/A
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	102	70-120
BFB	99	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	<0.5	0.5	
Toluene	<0.5	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

AQUEOUS MATRIX SPIKE DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8010

Client Sample ID: MATRIX SPIKE/DUPLICATE	LAL Sample ID: L1012-7
Analytical Batch #: 122093-801020-O-3	Date Analyzed: 05-JAN-94
QC Batch ID: 122093-801020-O-3	

Constituent	Spike Added (µg/L)	Sample Concentration (µg/L)	Matrix Spike Concentration (µg/L)	% Recovery	QC Limits
					% Recovery
1,1-Dichloroethene	15	ND	7.30	49	28-167
Trichloroethene	15	ND	14.5	97	35-146
Chlorobenzene	15	ND	12.6	84	38-150

Constituent	Spike Added (µg/L)	Matrix Spike Duplicate Concentration (µg/L)	% Recovery	RPD	QC Limits	
					RPD	% Recovery
1,1-Dichloroethene	15	11.4	76	43*	20	28-167
Trichloroethene	15	14.5	97	0	20	35-146
Chlorobenzene	15	12.6	84	0	20	38-150



AQUEOUS MATRIX SPIKE DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8020

Client Sample ID: MATRIX SPIKE/DUPLICATE	LAL Sample ID: L1012-7
Analytical Batch #: 122093-801020-O-3	Date Analyzed: 05-JAN-94
QC Batch ID: 122093-801020-O-3	

Constituent	Spike Added ($\mu\text{g/L}$)	Sample Concentration ($\mu\text{g/L}$)	Matrix Spike Concentration ($\mu\text{g/L}$)	% Recovery	QC Limits
					% Recovery
Benzene	15	ND	12.9	86	39-150
Toluene	15	ND	12.5	83	46-148
Chlorobenzene	15	ND	12.6	84	55-135

Constituent	Spike Added ($\mu\text{g/L}$)	Matrix Spike Duplicate Concentration ($\mu\text{g/L}$)	% Recovery	RPD	QC Limits	
					RPD	% Recovery
Benzene	15	12.4	83	4	20	39-150
Toluene	15	12.0	80	4	20	46-148
Chlorobenzene	15	12.6	84	0	20	55-135

LCS DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8010

Client Sample ID: LCS	LAL Sample ID: AD5177
Analytical Batch #: 122093-801020-O-3	Date Analyzed: 04-JAN-94
QC Batch ID: 122093-801020-O-3	

Constituent	Spike Added (µg/L)	Blank Concentration (µg/L)	LCS Concentration (µg/L)	% Recovery	QC Limits
					% Recovery
1,1-Dichloroethene	15	ND	9.1	61	28-167
Trichloroethene	15	ND	15.0	100	35-146
Chlorobenzene	15	ND	12.2	81	38-150

LCS DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8020

Client Sample ID: LCS	LAL Sample ID: AD5177
Analytical Batch #: 122093-801020-O-3	Date Analyzed: 04-JAN-93
QC Batch ID: 122093-801020-O-3	

Constituent	Spike Added ($\mu\text{g/L}$)	Blank Concentration ($\mu\text{g/L}$)	LCS Concentration ($\mu\text{g/L}$)	% Recovery	QC Limits
					% Recovery
Benzene	15	ND	14.9	99	39-150
Toluene	15	ND	14.1	94	46-148
Chlorobenzene	15	ND	14.4	96	55-135

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: BLANK	LAL Sample ID: AD5214
Date Collected: N/A	Date Received: N/A
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	88	76-114
Toluene-d8	102	88-110
4-Bromofluorobenzene	94	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: BLANK	LAL Sample ID: AD5214
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: BLANK	LAL Sample ID: AD5412
Date Received: N/A	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE	<10	0.00	

WATER MATRIX SPIKE DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8260

Client Sample ID: MATRIX SPIKE/DUPLICATE	LAL Sample ID: L968-27MS/MSD
Analytical Batch : 011294-8260-F2	Date Analyzed: 12-JAN-94
QC Batch ID: 011294-8260-F2	

Constituent	Spike Added ($\mu\text{g/L}$)	Sample Concentration ($\mu\text{g/L}$)	Matrix Spike Concentration ($\mu\text{g/L}$)	% Recovery	QC Limits
					% Recovery
1,1-Dichloroethene	50	1.2	51	99	62-124
Benzene	50	1.4	51	99	67-127
Trichloroethene	50	1.2	52	102	60-120
Toluene	50	1.7	52	101	72-132
Chlorobenzene	50	1.1	54	106	68-128

Constituent	Spike Added ($\mu\text{g/L}$)	Matrix Spike Duplicate Concentration ($\mu\text{g/L}$)	% Recovery	RPD	QC Limits	
					RPD	% Recovery
1,1-Dichloroethene	50	49	96	3	14	62-124
Benzene	50	51	99	0	11	67-127
Trichloroethene	50	50	98	4	14	60-120
Toluene	50	51	99	2	13	72-132
Chlorobenzene	50	53	104	2	13	68-128

WATER LCS DATA SUMMARY
FOR VOLATILE ORGANIC ANALYSIS
USING EPA METHOD 8260

Client Sample ID: LCS	LAL Sample ID: AD5213
Analytical Batch: 011094-8260-F2	Date Analyzed: 11-JAN-94
QC Batch ID: 011094-8260-F2	

Constituent	LCS % Recovery	QC Limits
		% Recovery
1,1-Dichloroethene	100	62-124
Benzene	108	67-127
Trichloroethene	111	60-120
Toluene	110	72-132
Chlorobenzene	117	68-128

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: BLANK	LAL Sample ID: 3964MB
Date Collected: N/A	Date Received: N/A
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	43	21-100
Phenol-d ₆	27	10-94
Nitrobenzene-d ₅	66	35-114
2-Fluorobiphenyl	64	43-116
2,4,6-Tribromophenol	87	10-123
p-Terphenyl-d ₁₄	86	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: BLANK		LAL Sample ID: 3964MB	
Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.3	10	J
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: BLANK	LAL Sample ID: 3964MB
Date Received: N/A	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
None			

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: LCS	LAL Sample ID: 3964LCS
Date Collected: N/A	Date Received: N/A
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	37	21-100
Phenol-d ₆	26	10-94
Nitrobenzene-d ₅	60	35-114
2-Fluorobiphenyl	60	43-116
2,4,6-Tribromophenol	90	10-123
p-Terphenyl-d ₁₄	80	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	40	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	85	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	39	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	78	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	45	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	100	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS
FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: LCS		LAL Sample ID: 3964LCS	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	68	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	22	25	J
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	81	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	170	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	100	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: LCS DUP	LAL Sample ID: 3964LCS DUP
Date Collected: N/A	Date Received: N/A
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	31	21-100
Phenol-d ₆	24	10-94
Nitrobenzene-d ₅	62	35-114
2-Fluorobiphenyl	62	43-116
2,4,6-Tribromophenol	86	10-123
p-Terphenyl-d ₁₄	85	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	39	10	
bis(2-Chloroethyl)ether	< 10	10	
2-Chlorophenol	80	10	
1,3-Dichlorobenzene	< 10	10	
1,4-Dichlorobenzene	41	10	
Benzyl alcohol	< 10	10	
1,2-Dichlorobenzene	< 10	10	
2-Methylphenol	< 10	10	
bis(2-Chloroisopropyl)ether	< 10	10	
4-Methylphenol	< 10	10	
N-Nitroso-Di-n-propylamine	74	10	
Hexachloroethane	< 10	10	
Nitrobenzene	< 10	10	
Isophorone	< 10	10	
2-Nitrophenol	< 10	10	
2,4-Dimethylphenol	< 10	10	
Benzoic acid	< 50	50	
bis(2-Chloroethoxy)methane	< 10	10	
2,4-Dichlorophenol	< 10	10	
1,2,4-Trichlorobenzene	52	10	
Naphthalene	< 10	10	
4-Chloroaniline	< 10	10	
Hexachlorobutadiene	< 10	10	
4-Chloro-3-methylphenol	99	10	
2-Methylnaphthalene	< 10	10	
Hexachlorocyclopentadiene	< 10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS
FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: LCS DUP		LAL Sample ID: 3964LCS DUP	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	69	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	35	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	79	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	180	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	100	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

**SEMIVOLATILE ORGANICS QUALITY CONTROL DATA SUMMARY
FOR METHOD 8270**

Client Sample ID: LCS	LAL Sample ID: 3964LCS/LCS DUP
Analytical Batch #: 011194-8270-B	Date Analyzed: 11-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	

Compound	Spike % Recovery	Spike Duplicate % Recovery	RPD	QC Limits	
				% Recovery	RPD
Phenol	27	26	4	5-112	42
2-Chlorophenol	57	53	7	23-134	40
1,4-Dichlorobenzene	39	41	5	20-124	28
N-Nitroso-di-n-propylamine	78	74	5	D-230	38
1,2,4-Trichlorobenzene	45	52	14	44-142	28
4-Chloro-3-methylphenol	68	66	3	22-147	42
Acenaphthene	68	69	1	47-145	31
4-Nitrophenol	15	23	42	D-132	50
2,4-Dinitrotoluene	81	79	2	39-139	38
Pentachlorophenol	111	121	9	14-176	50
Pyrene	101	101	0	52-115	31

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: METHOD BLANK	LAL Sample ID: 3965MB
Date Collected: NA	Date Received: NA
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	46*	60-150*
DCB	23*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: LAB CONTROL SAMPLE	LAL Sample ID: 3965 LCS
Date Collected: NA	Date Received: NA
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	60	60-150
DCB	29*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	0.88	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	0.70	0.05	
ALDRIN	0.0	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	1.85	0.1	
DIELDRIN	1.81	0.1	
ENDRIN	1.91	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: LAB CONTROL SAMPLE DUP	LAL Sample ID: 3965 LCSD
Date Collected: NA	Date Received: NA
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	54*	60-150
DCB	20*	60-150

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	0.88	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	0.66	0.05	
ALDRIN	0.55	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	1.80	0.1	
DIELDRIN	1.85	0.1	
ENDRIN	1.94	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

**PESTICIDES QUALITY CONTROL DATA SUMMARY
FOR METHOD 8080**

Client Sample ID: LAB CONTROL SAMPLE	LAL Sample ID: 3965 LCS
Analytical Batch #: 012094-8080-C-1	Date Analyzed: 21-JAN-94
QC Batch ID: 8080 PES/PCBS_3965	Matrix: WATER

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	60	60-150
DCB	29*	60-150

Constituent	Spike Added ($\mu\text{g/L}$)	LCS Concentration ($\mu\text{g/L}$)	% Recovery	QC Limits
				% Recovery
G-BHC (Lindane)	1	0.88	88	56-123
Heptachlor	1	0.70	70	40-131
Aldrin	1	0.60	60	40-120
4,4'-DDT	2	1.85	92	38-127
Dieldrin	2	1.81	90	52-126
Endrin	2	1.1	96	56-121

PESTICIDES QUALITY CONTROL DATA SUMMARY FOR METHOD 8080

Client Sample ID: LAB CONTROL SAMPLE	LAL Sample ID: 3965 LCS/LCSD
Analytical Batch #: 012094-8080-C-1	Date Analyzed: 21-JAN-94
QC Batch ID: 8080 PEST/PCBS_3965	

Constituent	Spike Added ($\mu\text{g/L}$)	Sample Concentration ($\mu\text{g/L}$)	Matrix Spike Concentration ($\mu\text{g/L}$)	% Recovery	QC Limits
					% Recovery
G-BHC (Lindane)	1		0.88	88	32-127
Heptachlor	1		0.70	70	34-111
Aldrin	1		0.60	60	42-122
4,4'-DDT	2		1.85	92	25-160
Dieldrin	2		1.81	90	36-146
Endrin	2		1.91	96	30-147

Constituent	Spike Added ($\mu\text{g/L}$)	Matrix Spike Duplicate Concentration ($\mu\text{g/L}$)	% Recovery	RPD	QC Limits	
					RPD	% Recovery
G-BHC (Lindane)	1	0.88	88	0	15	32-127
Heptachlor	1	0.66	66	6	20	34-111
Aldrin	1	0.55	55	9	22	42-122
4,4'-DDT	2	1.8	90	2	27	25-160
Dieldrin	2	1.85	93	3	18	36-146
Endrin	2	1.94	97	1	21	30-147

METALS QC DATA SUMMARY

LAL Batch ID(s): 1220 im

Constituent	Client Sample ID	LAL Sample ID	Date Analyzed	QC Sample Analyses		
				Reagent Blank (mg/L)	Duplicate Precision (% RPD)	Matrix Spike Recovery (%)
Aluminum	TRS	L1009-13	01-20-94	<0.20	b	104
Antimony	TRS	L1009-13	01-27-94	<0.060	b	104
Arsenic	TRS	L1009-13	01-27-94	<0.010	b	110
Barium	TRS	L1009-13	01-27-94	<0.20	b	74
Beryllium	TRS	L1009-13	01-27-94	<0.005	b	97
Boron	TRS	L1009-13	01-20-94	<0.20	1	88
Cadmium	TRS	L1009-13	01-27-94	<0.005	b	100
Chromium	TRS	L1009-13	01-27-94	<0.010	b	98
Cobalt	TRS	L1009-13	01-27-94	<0.050	b	96
Copper	TRS	L1009-13	01-27-94	<0.025	b	97
Iron	TRS	L1009-13	01-20-94	<0.10	b	101
Lead	TRS	L1009-13	01-27-94	<0.003	b	84
Magnesium	TRS	L1009-13	01-20-94	<5.0	1	102
Manganese	TRS	L1009-13	01-27-94	<0.015	0	98
Mercury	TRS-QA	L1009-14	01-07-94	<0.0002	b	106
Molybdenum	TRS	L1009-13	01-27-94	<0.20	b	106
Nickel	TRS	L1009-13	01-27-94	<0.040	b	94
Selenium	TRS	L1009-13	01-27-94	<0.005	8	137
Silver	TRS	L1009-13	01-27-94	<0.010	b	98
Sodium	TRS	L1009-13	01-20-94	<5.0	1	a
Thallium	TRS	L1009-13	01-27-94	<0.010	b	103
Tin	TRS	L1009-13	01-27-94	<0.20	b	104
Titanium	TRS	L1009-13	01-20-94	<0.20	b	NA
Vanadium	TRS	L1009-13	01-20-94	<0.050	b	107
Zinc	TRS	L1009-13	01-27-94	<0.020	b	94

- "b" - The RPD cannot be computed, because the sample or the duplicate concentration was below the Reporting Detection Limit.
- "a" - The matrix spike recovery is not reported. The sample concentration was greater than four times the spiking level.
- NA - Titanium is not included in the spiking solution.

MISCELLANEOUS WATER SYSTEMS (TURBINE ROOM SUMP)

12THP6020LAB.041

DSR-703 DSX-702		TEST UNITS SPEC		COLUMN FLUSH B-G H3							TMPC	BETA GAMMA	H3	TOTAL ACT.	TECHNICAL ASSN	SUPERVISOR	
SAMPLE NUMBER	WEEKLY DLY GRAB	DATE	TIME									uCi/cc	uCi/cc	uCi/cc			
27460R	DLY	12-27-93	2150								4.03E-4	2.39E-6	1.21E-6		JF		
93204706	DLY	12-28-93	0450												DC		
FORM APPROVAL: <i>[Signature]</i> 5-25-92		REMARKS:														FINAL REVIEW:	

Summary of Nuclear Activity
Sample ID: 98X00700

Acquisition Date: 27 JUL 1993

Total number of lines in spectrum	1
Number of unidentified lines	0
Number of lines tentatively identified by NIT	1 100.00%

**** There are no nuclides meeting summary criteria ****

Flags: 'X' : Keyline not found 'A' : Manually accepted
 'E' : Manually edited 'N' : Nuclide specific data limit

Minimum Detectable Activity Report (Continued)

Sample ID : 93200700

Acquisition Date : 27 JUL 1993 12:04:11

Nuclide	Background Sum	Energy (KeV)	MDA (dpm/HR)
SB-124	13.	602.71	1.4512E-08
SB-125	13.	427.89	3.4331E-08
XE-127	68.	202.34	1.7701E-08
I-131	27.	364.48	1.3389E-08
XE-131a	79.	163.93	6.1490E-07
I-132	10.	667.69	1.3064E-07
TE-132	51.	223.16	1.4245E-08
BA-133	18.	356.01	1.6133E-08
I-133	16.	529.37	2.3473E-08
XE-133	79.	81.00	3.5825E-08
XE-133a	47.	233.22	1.2476E-07
CS-134	8.	604.70	1.1828E-08
CS-134a	63.	127.42	5.7257E-07
I-134	9.	847.03	6.3417E-07
I-135	6.	1260.41	2.1374E-07
XE-135	29.	249.79	2.3738E-08
XE-135a	12.	526.56	6.1223E-06
CS-136	3.	1048.07	1.7864E-08
CS-137	14.	661.65	1.3704E-08
CS-138	1.	1435.86	1.2693E-06
XE-138	39.	253.31	1.7642E-05
BA-139	66.	165.85	1.1558E-06
CE-139	66.	165.85	1.3411E-08
BA-140	11.	587.32	4.8391E-08
BA-140	1.	1596.49	1.6332E-08
CE-141	59.	190.22	6.0726E-06
CE-141	64.	145.44	2.1354E-08
CE-144	84.	133.54	1.0644E-07
NU-147	94.	91.11	4.6627E-08
EU-152	21.	344.27	3.8019E-08
EU-154	3.	1274.45	4.3582E-08
HE-181	19.	482.03	1.6229E-08
W-187	3.	635.31	6.1904E-08
HG-203	37.	279.19	1.3708E-08
RN-211	6.	674.20	3.2118E-08
RA-226	19.	609.31	3.5791E-08
TH-232	17.	583.14	4.9600E-08
U-238	83.	131.20	5.5827E-08
NP-239	72.	106.13	5.5359E-08
AM-241	48.	59.54	3.4533E-08

Sample	Background Sum	Energy (KeV)	MDA (Bq/g)
BE-7	18.	477.39	1.2366E-07
NA-22	3.	1274.54	1.5436E-08
NA-24	2.	1368.33	2.5848E-08
UL-38	0.	1642.42	9.2468E-07
K-40	20.	1460.81	3.8833E-07
AR-41	2.	1293.64	1.7569E-07
SC-46	7.	1120.31	1.8962E-08
CR-51	30.	320.08	1.1507E-07
MN-54	8.	834.83	1.5357E-08
MN-56	9.	346.75	1.3300E-07
CU-57	78.	122.06	1.2910E-08
CU-58	7.	310.76	1.4302E-08
FE-59	4.	1099.22	2.7135E-08
CU-60	2.	1332.49	1.3005E-08
CU-64	4.	1345.90	6.6577E-06
NI-65	4.	1431.34	6.9808E-07
ZN-65	3.	1115.52	2.7275E-08
ZN-69M	17.	433.63	2.1879E-08
SE-75	20.	264.65	1.3535E-08
AS-76	8.	559.10	3.2717E-08
BR-82	10.	154.32	2.1031E-08
BR-84	6.	331.50	3.0340E-06
KR-85	20.	513.99	3.3480E-06
KR-85M	63.	151.13	5.9891E-08
R-85	20.	513.99	1.4886E-08
R-85M	54.	231.69	3.3366E-07
KR-87	19.	402.58	4.6076E-07
KR-88	57.	196.32	3.0351E-07
RB-88	1.	1836.01	1.8768E-05
Y-88	1.	1836.01	1.3826E-08
RB-89	2.	1031.88	7.9782E-06
MO-90	26.	257.34	4.0277E-08
SR-91	1.	1024.30	6.1606E-08
Y-91M	3.	557.57	4.2989E-07
Y-92	3.	934.46	4.8213E-07
Y-93	27.	266.90	2.9177E-07
NB-94	12.	702.63	1.5646E-08
NB-95	7.	765.79	1.3429E-08
ZR-95	7.	756.72	2.4385E-08
NB-97	13.	657.90	3.4914E-07
ZR-97	5.	743.36	1.9783E-08
MO-99	65.	140.51	1.2963E-08
TC-99M	65.	140.51	3.6379E-08
RU-103	9.	497.03	1.0987E-08
RH-105	29.	318.90	7.3668E-08
RU-105	9.	724.50	1.3264E-07
RU-106	14.	621.84	1.5311E-07
CU-109	68.	33.03	2.9493E-07
AG-110M	14.	657.75	1.6428E-08
SN-113	15.	391.69	1.5292E-08
-122	15.	563.93	2.2636E-08



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January 11, 1994
Report No.: 00018818
Section B Page 1

QUALITY CONTROL REPORT
SUPPLEMENTAL INFORMATION

----- SAMPLE PREPARATION -----						----- SAMPLE ANALYSIS -----			
TEST		LR-		DATE/TIME		LR-		ANLS	
LN	CODE	BATCH	METHOD	DATE/TIME	ANALYST	METHOD	DATE/TIME	ANALYST	BATCH INSTRUMENT

SAMPLE ID: SEWAGE PLANT

NUS SAMPLE NO: P0258838

1	ASNW	23036	02-4.1.3	03-JAN-94	0730 RAW	R2-200.7	07-JAN-94	808 JWC	0	3560
2	1050	23039	NA			03-507	03-JAN-93	700 DB	0	
3	1610	23014	NA			02-160.2	30-DEC-93	700 EDB	0	
4	1490	23050	NA			02-150.1	03-JAN-93	715 DB	0	

LR Method Literature Reference

02 EPA-Methods for Chemical Analysis of Water & Wastes, 1984.
03 APHA-Standard Methods for the Examination of Water and Wastewater, 16th edition
R2 Inductively Coupled Plasma-Atomic Emission Spectrometric Method for Trace Elements

SAMPLE ID: OIL/WATER SEPARATOR

NUS SAMPLE NO: P0258839

1	G122W	22987	05-608	29-DEC-93	0800 PS	05-608	30-DEC-93	1146 JC	22987	
3	1106	23061	NA			02-415.1	04-JAN-94	1000 JJM	0	
4	1680	23097	NA			02-413.1	03-JAN-93	1230 TM	0	
5	1490	23050	NA			02-150.1	03-JAN-93	715 DB	0	

LR Method Literature Reference

02 EPA-Methods for Chemical Analysis of Water & Wastes, 1984.
05 EPA-40 CFR 136, October 26, 1984.



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Section C Page 1

QUALITY CONTROL REPORT
SURROGATE STANDARD RECOVERY

TEST SURROGATE			PERCENT	ACCEPTANCE	REF
LN	CODE	COMPOUND	RECOVERY	LIMITS	LN

SAMPLE ID: OIL/WATER SEPARATOR			NUS SAMPLE NO: P0258839		
2	SPCBW	PCB SURROGATE			1
		nonachlorobiphenyl	111	-	





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Report No.: 00018818
Section D Page 1

QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE RECOVERY

TEST CODE	DETERMINATION	PERCENT RECOVERY	DUPLICATE RECOVERY	RPD	ACCEPTANCE LIMITS

BATCH: 23036	SAMPLE ID: Lab Control Sample				NUS SAMPLE NO: P0259637
ASNW	Tin, Total (Sn)	92.5			NA -
BATCH: 23039	SAMPLE ID: Lab Control Sample				NUS SAMPLE NO: P0259643
1050	BOD (02) - 5 day	101.7			NA -
	BOD (02) - 5 day #2	94			NA -
	BOD (02) - 5 day #3	99			NA -
	BOD (02) - 5 day #4	104			NA -
BATCH: 23050	SAMPLE ID: Lab Control Sample				NUS SAMPLE NO: P0259658
1490	pH	100.5			NA -
	pH #2	100			NA -
	pH #3	99.1			NA -
BATCH: 23061	SAMPLE ID: Lab Control Sample				NUS SAMPLE NO: P0259673
1106	Carbon, Organic - Nonpurgeable	110			NA -
	Carbon, Organic - Nonpurgeable #2	96.3			NA -
	Carbon, Organic - Nonpurgeable #3	106			NA -
BATCH: 23097	SAMPLE ID: Lab Control Sample				NUS SAMPLE NO: P0259728
1680	Oil and Grease, Gravimetric	84.8	83.8	1.19	-



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Report No.: 00018818
Section E Page 1

QUALITY CONTROL REPORT
METHOD BLANK DATA

TEST CODE	Determination	RESULT	UNITS
BATCH: 22987	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259059	
G122W	PCB ANALYSIS		
	PCB-1016	< 0.50	ug/L
	PCB-1221	< 0.50	ug/L
	PCB-1232	< 0.50	ug/L
	PCB-1242	< 0.50	ug/L
	PCB-1248	< 0.50	ug/L
	PCB-1254	< 1.0	ug/L
	PCB-1260	< 1.0	ug/L
BATCH: 23014	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259602	
I610	Solids, Suspended at 103C	< 10	mg/L
BATCH: 23036	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259638	
ASNW	Tin, Total (Sn)	< 0.1	mg/L
BATCH: 23039	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259644	
I050	BOD (O2) - 5 day	0.63	mg/L
BATCH: 23061	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259674	
I106	Carbon, Organic - Nonpurgeable	< 1	mg/L
BATCH: 23097	SAMPLE ID: Method Blank	NUS SAMPLE NO: P0259729	
I680	Oil and Grease, Gravimetric	< 3	mg/L



NUS LABORATORY
Two Marquis Office Plaza, Suite 200
5313 Campbells Run Road
Pittsburgh, Pennsylvania 15205

(412) 747-2580
FAX: (412) 747-2684
January 11, 1994
Report No.: 00018818
Section F Page 1

QUALITY CONTROL REPORT
DUPLICATE AND MATRIX SPIKE DATA

PREP BATCH: 23050

NUS SAMPLE NO: P0258838

<u>TEST</u>	<u>DETERMINATION</u>	<u>ORIGINAL RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RANGE / RPD</u>	<u>UNITS</u>	<u>MS RESULT</u>	<u>MS % RCVRY</u>
I490	pH	6.8	6.77		.02			

PREP BATCH: 23014

NUS SAMPLE NO: P0258810

<u>TEST</u>	<u>DETERMINATION</u>	<u>ORIGINAL RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RANGE / RPD</u>	<u>UNITS</u>	<u>MS RESULT</u>	<u>MS % RCVRY</u>
I610	Solids, Suspended at 103C	12	13	mg/L	1	mg/L		

PREP BATCH: 23036

NUS SAMPLE NO: P0259167

<u>TEST</u>	<u>DETERMINATION</u>	<u>ORIGINAL RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RANGE / RPD</u>	<u>UNITS</u>	<u>MS RESULT</u>	<u>MS % RCVRY</u>
ASNW	Tin, Total (Sn)	0.4	0.4	mg/L	1.98	mg/L	2.28	94.0

PREP BATCH: 23039

NUS SAMPLE NO: P0258780

<u>TEST</u>	<u>DETERMINATION</u>	<u>ORIGINAL RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RANGE / RPD</u>	<u>UNITS</u>	<u>MS RESULT</u>	<u>MS % RCVRY</u>
I050	BOD (02) - 5 day	5	3.81	mg/L	1	mg/L		

PREP BATCH: 23061

NUS SAMPLE NO: P0258851

<u>TEST</u>	<u>DETERMINATION</u>	<u>ORIGINAL RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RANGE / RPD</u>	<u>UNITS</u>	<u>MS RESULT</u>	<u>MS % RCVRY</u>
I106	Carbon, Organic - Nonpurgeable	7	6.86	mg/L	3.82	mg/L	57.7	101



Halliburton NUS
CORPORATION

NUS LABORATORY
Two Marquis Office Plaza, Suite 200
5313 Campbells Run Road
Pittsburgh, Pennsylvania 15205

(412) 747-2580
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January 11, 1994
Report No.: 00018818
Section H Page 1

QUALITY CONTROL REPORT
MATRIX SPIKE AND MATRIX SPIKE DUPLICATE DATA

ANLS BATCH: 22987

NUS SAMPLE NO: P0258792

<u>TEST</u>	<u>DETERMINATION</u>	<u>MS</u> <u>RESULT</u>	<u>MSD</u> <u>RESULT</u>	<u>UNITS</u>	<u>RPD</u>	<u>MS PCT</u> <u>RECOVERY</u>	<u>MSD PCT</u> <u>RECOVERY</u>
G122W PCB-1242		4.57	4.55	ug/L	0.4	91	91
G122W PCB-1260		4.73	4.73	ug/L	0	95	95

**NPDES STORM WATER
DRAINAGE PERMIT
APPLICATION**

**D.C. COOK NUCLEAR PLANT
ONE COOK PLACE
BRIDGMAN, MI 49106**

9412070157

EPA FORM 1

GENERAL INFORMATION

FORM 1		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> <i>(Read the "General Instructions" before starting.)</i>	I. EPA I.D. NUMBER <div style="border: 1px solid black; padding: 2px;"> F MID 0 9 8 6 4 7 6 2 1 </div>													
GENERAL LABEL ITEMS		GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the Instructions for detailed item descriptions and for the legal authorizations under which this data is collected.														
I. EPA I.D. NUMBER	II. FACILITY NAME	V. FACILITY MAILING ADDRESS	VI. FACILITY LOCATION	PLEASE PLACE LABEL IN THIS SPACE												
II. POLLUTANT CHARACTERISTICS INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.																
SPECIFIC QUESTIONS		MARK "X"	SPECIFIC QUESTIONS													
		YES NO FORM ATTACHED														
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		<div style="border: 1px solid black; padding: 2px;">X</div>	B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)													
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? X FORM 2F		<div style="border: 1px solid black; padding: 2px;">X</div>	D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)													
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		<div style="border: 1px solid black; padding: 2px;">X</div>	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)													
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		<div style="border: 1px solid black; padding: 2px;">X</div>	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)													
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		<div style="border: 1px solid black; padding: 2px;">X</div>	J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)													
III. NAME OF FACILITY <div style="border: 1px solid black; padding: 2px;"> 1 SKIP D. C, COOK NUCLEAR PLANT </div>																
IV. FACILITY CONTACT <table style="width:100%; border: none;"> <tr> <td style="width:60%; text-align: center;">A. NAME & TITLE (last, first, & title)</td> <td style="width:40%; text-align: center;">B. PHONE (area code & no.)</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">2 BAKER D. L. Environmental Affairs Director</td> <td style="border: 1px solid black; padding: 2px;">2 1 9 425 2118</td> </tr> </table>					A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)	2 BAKER D. L. Environmental Affairs Director	2 1 9 425 2118								
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2 BAKER D. L. Environmental Affairs Director	2 1 9 425 2118															
V. FACILITY MAILING ADDRESS <table style="width:100%; border: none;"> <tr> <td style="width:60%; text-align: center;">A. STREET OR P.O. BOX</td> <td style="width:40%; text-align: center;">B. CITY OR TOWN</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">3 P O BOX 60</td> <td style="border: 1px solid black; padding: 2px;">4 FORT WAYNE</td> </tr> <tr> <td style="width:60%; text-align: center;">C. STATE</td> <td style="width:40%; text-align: center;">D. ZIP CODE</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">IN</td> <td style="border: 1px solid black; padding: 2px;">46801</td> </tr> </table>					A. STREET OR P.O. BOX	B. CITY OR TOWN	3 P O BOX 60	4 FORT WAYNE	C. STATE	D. ZIP CODE	IN	46801				
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VI. FACILITY LOCATION <table style="width:100%; border: none;"> <tr> <td style="width:60%; text-align: center;">A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER</td> <td style="width:40%; text-align: center;">B. COUNTY NAME</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">5 ONE COOK PLACE</td> <td style="border: 1px solid black; padding: 2px;">BERRIEN</td> </tr> <tr> <td style="width:60%; text-align: center;">C. CITY OR TOWN</td> <td style="width:40%; text-align: center;">D. STATE</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">6 BRIDGMAN</td> <td style="border: 1px solid black; padding: 2px;">MI</td> </tr> <tr> <td style="width:60%; text-align: center;">E. ZIP CODE</td> <td style="width:40%; text-align: center;">F. COUNTY CODE (if known)</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">49106</td> <td style="border: 1px solid black; padding: 2px;">1 1</td> </tr> </table>					A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME	5 ONE COOK PLACE	BERRIEN	C. CITY OR TOWN	D. STATE	6 BRIDGMAN	MI	E. ZIP CODE	F. COUNTY CODE (if known)	49106	1 1
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME															
5 ONE COOK PLACE	BERRIEN															
C. CITY OR TOWN	D. STATE															
6 BRIDGMAN	MI															
E. ZIP CODE	F. COUNTY CODE (if known)															
49106	1 1															

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST				B. SECOND			
9	1	1	(specify) STEAM ELECTRIC POWER	7			(specify)
C. THIRD				D. FOURTH			
7			(specify)	7			(specify)

VIII. OPERATOR INFORMATION

A. NAME										B. Is the name listed in Item VIII-A also the owner?				
8	INDIANA MICHIGAN POWER CO.										<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)										D. PHONE (area code & no.)				
F = FEDERAL	M = PUBLIC (other than federal or state)	P	(specify)	A	6	1	6	4	6	5	5	9	0	1
S = STATE	O = OTHER (specify)													
P = PRIVATE														

E. STREET OR P.O. BOX													
ONE COOK PLACE													
F. CITY OR TOWN										G. STATE	H. ZIP CODE	IX. INDIAN LAND	
BRIDGMAN										MT	49106	Is the facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)										D. PSD (Air Emissions from Proposed Sources)										
9	N	MI 0005827								9	P									
B. UIC (Underground Injection of Fluids)										E. OTHER (specify)										
9	U									9		* (specify) Air Permit (application made)								
C. RCRA (Hazardous Wastes)										E. OTHER (specify)										
9	R									9		(specify)								

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

The Cook Nuclear Plant is a 2130 MW steam electric generating station situated in a belt of sand dunes on the southeastern shore of lake Michigan between Stevensville and Bridgman. Preparation of the site for construction of the plant began in 1968. Unit 1 was operational in 1975 and Unit 2 in 1978.

XIII. CERTIFICATION (see instructions)

I 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 persons immediately responsible for obtaining the information contained in the application, 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.

A. NAME & OFFICIAL TITLE (type or print)		B. SIGNATURE		C. DATE SIGNED	
R. C. Menge, President		<i>RC Menge</i>		3-30-94	

COMMENTS FOR OFFICIAL USE ONLY

--	--	--	--	--	--	--	--	--	--

EPA FORM 2F

NPDES PERMIT

NOTICE

Several of the sections in this permit application (Form 2F) are completed via the use of attachments. These sections reference the appropriate attachment. Please carefully read each section to avoid any confusion.

**Form
2F
NPDES**



Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

[illegible]

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions. N/A

[illegible]

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction. Refer to Attachment A

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage or disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility.

IV. Narrative Description of Pollutant Sources

- A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall. See Attachment B

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)

- B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

See Attachment B for significant materials

See Attachment B-1 for Herbicide Information

See Attachment B-2 for other potential exposures to stormwater

- C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

Outfall Number	Treatment	List Codes from Table 2F-1
	See Attachment B	

V. Nonstormwater Discharges

- A. I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name and Official Title (type or print)	Signature	Date Signed
D.L. Baker Env. Affairs Director,	<i>D.L. Baker</i>	3-30-94

- B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Samples procured and analyzed as per applicable guidelines. Outfall 003S sampled before and after mixing with groundwater.

VI. Significant Leaks or Spills

Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

See Attachment C

Continued from Page 2

VII. Discharge Information

A, B, C, & D: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided.

Tables VII-A, VII-B, and VII-C are included on separate sheets numbered VII-1 and VII-2.

E. Potential discharges not covered by analysis - is any toxic pollutant listed in table 2F-2, 2F-3 or 2F-4, a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ Yes (list all such pollutants below)☒ No (go to Section IX)**VIII. Biological Toxicity Testing Data**

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ Yes (list all such pollutants below)☐ No (go to Section IX)

N/A

IX. Contract Analysis Information

Were any of the analysis reported in item VII performed by a contract laboratory or consulting firm?

☒ Yes (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)☐ No (go to Section X)

A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
Lockheed Analytical Services	975 Kelly Johnson Dr. Las Vegas, Nevada 89119-3705	1(800) 361-0220	Inorganics Organics Radiochemistry
W.W. Engineering & Science	Glenwood Hills Parkway P.O. Box 874 Grand Rapids, MI 49588-0874	1(616) 942-9600	BOD 5 (Biological Oxygen Demand) Surfactants

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name & Official Title (type or print)

R.C. Menge, President

B. Area Code and Phone No.

(219) 425-2118

C. Signature

RC Menge

D. Date Signed

3/30/94

REFER TO ATTACHMENT D

Part D - Provide data for the storm event(s) which resulted in the maximum values for the flow weighted composite sample.

1. Date of Storm Event	2. Duration of Storm Event (in minutes)	3. Total rainfall during storm event (in inches)	4. Number of hours between beginning of storm meas- ured and end of previous measurable rain event	5. Maximum flow rate during rain event (gallons/minute or specify units)	6. Total flow from rain event (gallons or specify units)
Dec. 18, 1993	210 min.	0.14 inches	280.5 hours	2 liters/min.	1,260 liters 210 min. x 1.5 L/ min. x 4 outfalls = 1260 liters
		(Refer to Attachment D for Storm Event Description)			

7. Provide a description of the method of flow measurement or estimate.

One liter container used in conjunction with a stop watch.

Instructions - Form 2F

Application for Permit to Discharge Storm Water Associated with Industrial Activity

Who Must File Form 2F

Form 2F must be completed by operators of facilities which discharge storm water associated with industrial activity or by operators of storm water discharges that EPA is evaluating for designation as a significant contributor of pollutants to waters of the United States, or as contributing to a violation of a water quality standard.

Operators of discharges which are composed entirely of storm water must complete Form 2F (EPA Form 3510-2F) in conjunction with Form 1 (EPA Form 3510-1).

Operators of discharges of storm water which are combined with process wastewater (process wastewater is water that comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, waste product, or wastewater) must complete and submit Form 2F, Form 1, and Form 2C (EPA Form 3510-2C).

Operators of discharges of storm water which are combined with nonprocess wastewater (nonprocess wastewater includes noncontact cooling water and sanitary wastes which are not regulated by effluent guidelines or a new source performance standard, except discharges by educational, medical, or commercial chemical laboratories) must complete Form 1, Form 2F, and Form 2E (EPA Form 3510-2E).

Operators of new sources or new discharges of storm water associated with industrial activity which will be combined with other nonstormwater new sources or new discharges must submit Form 1, Form 2F, and Form 2D (EPA Form 3510-2D).

Where to File Applications

The application forms should be sent to the EPA Regional Office which covers the State in which the facility is located. Form 2F must be used only when applying for permits in States where the NPDES permits program is administered by EPA. For facilities located in States which are approved to administer the NPDES permits program, the State environmental agency should be contacted for proper permit application forms and instructions.

Information on whether a particular program is administered by EPA or by a State agency can be obtained from your EPA Regional Office. Form 1, Table 1 of the "General Instructions" lists the addresses of EPA Regional Offices and the States within the jurisdiction of each Office.

Completeness

Your application will not be considered complete unless you answer every question on this form and on Form 1. If an item does not apply to you, enter "NA" (for not applicable) to show that you considered the question.

Public Availability of Submitted Information

You may not claim as confidential any information required by this form or Form 1, whether the information is reported on the forms or in an attachment. Section 402(j) of the Clean Water Act requires that all permit applications will be available to the public. This information will be made available to the public upon request.

Any information you submit to EPA which goes beyond that required by this form, Form 1, or Form 2C you may claim as confidential, but claims for information which are effluent data will be denied.

If you do not assert a claim of confidentiality at the time of submitting the information, EPA may make the information public without further notice to you. Claims of confidentiality will be handled in accordance with EPA's business confidentiality regulations at 40 CFR Part 2.

Definitions

All significant terms used in these instructions and in the form are defined in the glossary found in the General Instructions which accompany Form 1.

EPA ID Number

Fill in your EPA Identification Number at the top of each odd-numbered page of Form 2F. You may copy this number directly from item I of Form 1.

ATTACHMENT A

ATTACHMENT A

II. Improvements

B. The D.C. Cook Nuclear Plant is pursuing the following water treatment projects:

1. **Makeup Demineralizer Regeneration Waste Neutralization System**

The Cook Plant is installing a system to collect and treat makeup demineralizer regeneration wastes to meet proposed pH permit limits. The current practice is to isolate the Turbine Room Sump (TRS), accumulate the wastes within the TRS, neutralize the waste with sulfuric acid or sodium hydroxide, then discharge the neutralized contents of the TRS to the Absorption Pond. Because the regeneration wastes are not the only source of water being collected in the TRS, a high water level within the TRS may require the discharge of the sump contents prior to the wastes being completely neutralized.

The new system will allow collection and neutralization of the regeneration wastes apart from the TRS. The holding tank for the waste will also be the point of treatment with the capability to add and mix sulfuric acid or sodium hydroxide with the waste prior to metering the neutral mixture to the TRS. The system is targeted for completion by January of 1995, with system start-up to occur thereafter.

2. **Sequencing Batch Reactors**

The Cook Plant is currently requesting quotations to install a pair of pre-engineered sequencing batch reactors (SBR) to meet the proposed groundwater effluent limits. The new system will operate at a design flow of 50,000 GPD with a maximum flow of 60,000 GPD. The South Extended Aeration Package Plant will be utilized as a retention tank to ensure efficient SBR operation. Effluent from the new system will continue to be discharged into one of the two seepage lagoons. The new system will be installed and operational by December of 1995.

3. **Alum Replacement Program**

A Chemistry Task Force is evaluating chemical flocculent replacements for alum (aluminum sulfate), taking both groundwater effluent standards and reverse osmosis system performance into consideration. The replacements currently being reviewed are polymeric flocculents that will enhance the removal of suspended solids in the pre-filters and meet manufacturer's recommendations for the water

ATTACHMENT A (Cont.)

entering the reverse osmosis system. The recommendations from the task force, once approved, will require additional time to test and implement. The environmental benefit of this review is the reduced amount of aluminum that will be discharged to the groundwater through the Turbine Room Sump discharge. The scheduled implementation date to use a new flocculent is fourth quarter of 1994.

4. Zebra Mussel Control Strategy

The current control plan employs chlorination and periodic shock chemical treatments utilizing a proprietary chemical formulation. The Plant has also changed the source water for the fire protection system to a potable supply from Lake Township. This method of control was developed for short term relief from the effects of zebra mussel infestation. Based on over three years of experience in dealing with the mussels at the Plant and other Great Lakes facilities, a new strategy is being evaluated to protect all operations from infestation.

The new strategy incorporates intermittent oxidizing biocide treatments of the circulating water system beginning at the intake structures in Lake Michigan, continuous oxidizing biocide treatment of the essential service water and non-essential service water systems, and addition of sodium bisulfite to reduce any residual oxidizing biocide prior to discharge to the lake. If necessary, shock treatments utilizing proprietary chemical formulations will be administered. The goal of the program is to (1) eradicate existing populations and control further settlement of zebra mussels within the plant systems which utilize lake water, (2) treat the residual oxidant being discharged to non-detectable levels, and (3) reduce or eliminate the number of remedial shock treatments necessary to kill settled colonies of zebra mussels.

5. Chemistry Corrosion Control Additives

The Plant is evaluating substitutes for the current corrosion control additives in the steam generators, plant heating boiler, feedwater and condensate systems, and closed heating/cooling systems. These substitutes will include carbohydrazide, and other available products from chemical companies such as Betz or Nalco. The environmental benefits of these additives include utilization of more benign corrosion control products or products requiring lower effective concentrations. These products will discharge to the Turbine Room Sump in concentrations to be determined upon treatment optimization.

ATTACHMENT B

ATTACHMENT B

IV. Narrative Description of Pollutant Sources at the D.C. Cook Nuclear Plant in Bridgman, Michigan.

A. Approximate Surface Area (in ft²) of Impervious Surface and Total Area Drained (Impervious and Pervious) by Outfall Number:

<u>OUTFALL#</u>	<u>SURFACE AREA</u> <u>(Impervious)</u>	<u>TOTAL AREA DRAINED</u> <u>(Impervious & Pervious)</u>
001S	1,400,000	1,800,000
002S	400,000	800,000
003S	150,000	450,000
004S	4,000	300,000

B. Significant Materials - Treated, Stored, or Disposed of:

Specific chemicals that are stored or used in a way that may potentially expose them to the yard drainage system are as follows:

- a. Fuel Oil - Stored in several underground and above ground storage tanks throughout the site. All fill areas are within a containment area and overfill alarms are installed for each tank. Yard drain basins are installed with a valve which is closed during the filling process. In the unlikely event a spill does occur, free product is held within the containment. Any and all free product is properly removed by qualified and trained personnel prior to the opening of the basin valve. Strict procedures are outlined by the company for proper filling procedures in these areas. During maintenance periods, small tanks containing diesel fuel are located around the plant site to fuel generators, compressors, and other auxiliary equipment. These tanks are bermed and deliveries to them are in small quantities. Spills which could occur are immediately cleaned up with absorbent material.

ATTACHMENT B (cont.)

- b. Sulfuric Acid - Stored in a 10,000 gallon tank which is bermed within a lined concrete structure designed to hold 150% of it's contents in the event of tank overfill or rupture. The sulfuric acid in this tank is used for demineralizer regenerations and pH neutralization. The tank and it's containment structure are located outside and directly adjacent to the Unit 1 Turbine Building. This tank, like all other bulk chemical and fuel oil storage tanks, has an overfill alarm system to help prevent spill events while filling the tank. The fill for this tank is located along the west wall of the Unit 1 Turbine Building and shares a lined concrete spill basin located within the North Chemical Unloading Area with the heating boiler fuel oil tank vents.

NOTE:

The North Chemical Unloading Area is a bermed tank truck unloading area typical of other unloading areas on the plant site. The area is slightly depressed and sloped to a single storm drain. This drain is outfitted with a valve to isolate the containment from the storm drainage system. The operation of this valve, and others like it within containment areas around the plant site are controlled by plant procedures.

Sulfuric acid is also used to regenerate the membranes in the reverse osmosis (RO) unit used for water purification. The RO unit is located outside in the roadway directly west of the Screenhouse. The sulfuric acid is stored in 55 gallon drums which are bermed within a containment system adjacent to the reverse osmosis unit. These drums are changed under the direction of the RO unit operator. Plans are to upgrade this bulk storage to a bermed tank system. Hydrochloric acid as a substitute for the sulfuric acid is being evaluated.

- c. Sodium Hydroxide - Stored in a 10,000 gallon tank which is vaulted in the basement of the Unit 1 Turbine Building. This tank has an overfill alarm system. Leaks and spills from the tank and piping are contained within the vault and routed to the turbine room sump for neutralization. The fill for this tank is located next to the fill for the sulfuric acid tank located within the North Chemical Unloading Area.
- d. Transformer Oil - Transformers containing mineral oil contaminated with low level PCB's (<50 ppm) which are not routed to oil water separators, are bermed and contain a shutoff valve or manually controlled sump pump. These containments are inspected and released by a trained operator onto the roadways, which eventually enter the yard drain system. Any contamination that is found within the containment areas is removed prior

ATTACHMENT B (cont.)

to release of the material to the roadways and yard drain system.

The transformers are routinely drained for maintenance and refilled on the plant site. Trucks and piping are bermed during transferring operations. I&M transmission/distribution crews maintain the transformers on the plant site in accordance with company procedures.

- e. Sodium Hypochlorite (Chlorine) - Unloaded at the South Chemical Unloading Area which is similar in design to the North Chemical Unloading Area. Yard drain basins in this area, are installed with a valve, which is closed during the offload process. In the unlikely event a spill does occur, all free product is held within the containment. Any runoff that enters the yard drain system is retained by the valve at the basin. Any and all free product is properly removed prior to the opening of the basin valve.
- f. Clam-trol CT-1 (or other zebra mussel control biocides) - Are applied via tanker trucks staged at the North Chemical Unloading Area. Yard drain basins in this area are installed with a valve, which is closed during the application process. In the unlikely event a spill does occur, all free product is retained within the containment. Any runoff that enters the yard drain system is retained by the valve at the basin. Any and all free product is properly removed prior to the opening of the basin valve. Company procedures are used to apply this chemical. Basin drains in the vicinity of the chemical spargers are diked to prevent release of this chemical to the yard drain system.
- g. Herbicides - These materials are used in various areas throughout the Cook Plant property. No bulk quantities of these materials are stored on site. All quantities are ordered and mixed before applications provided by an offsite vendor.

Attachment B-1 lists the herbicide reports for the past three years. These reports describe application locations, quantity, and type of material used.

ATTACHMENT B (cont.)

- h. Non-radioactive Waste Oil and Non-Hazardous Wastes - An above ground 2,000 gallon concrete vaulted (Convault) waste oil tank is located within a containment area directly north of the North Chemical Unloading Area. The stormwater basin within this area is covered with a rubber gasketed steel cover. Draining of stormwater, and loading and unloading of waste oil in this area, is performed by qualified personnel. Barrels of waste oils and other non-hazardous wastes including hydraulic oil, EPA 2000 and glycol waiting processing are also accumulated in this area.
- i. Radioactive Waste Oil - One 1,500 gallon radioactive waste oil tank is located in the North Chemical Unloading Area. Radioactive waste oil is processed in accordance with plant procedures. Spills from this tank would be contained within the North Chemical Unloading Area.
- j. Sodium Nitrite (Calgon LCS-60) - Added as a corrosion inhibitor in many of the Plant's closed cooling systems. These include the component cooling water system, diesel jacket cooling water system, and air conditioning and heating systems on the plant site. The potential of sodium nitrite contaminating the storm water system is most likely in the office building HVAC systems where small amounts of sodium nitrite solution may leak to condensate drains and into outfall 001S. Storage of this chemical is in bulk drums which pose no threat to the stormwater system.
- k. Ethylene Glycol - Used as a refrigerant in the plant's containment ice condenser system and also in the training simulator chiller system. Leaks from the plant's containment ice condenser system are contained and collected within the confines of the auxiliary building and reactor containments. Leaks from the training simulator chiller system are contained and drummed. The resulting ethylene glycol/water solutions can also be collected in the temporary glycol storage tank located within the North Chemical Unloading Area.

Periodically, a temporary processing unit is erected on the plant site to process the collected ethylene glycol/water solution. The process is as follows: Hydrogen peroxide (35%) for oxidation and sodium hydroxide (50%) for pH balance are added to the glycol/water solution and introduced into a UV light cell. Ethylene glycol is broken down into carbon dioxide and organic acids. The processing unit is completely bermed and processing is performed under continuous supervision of the processing contractor with oversight from plant staff.

ATTACHMENT B (cont.)

- l. **Make-up Plant Regeneration Waste** - After January 1995, acidic and caustic waste solutions produced from regeneration of the Make-up Plant resin beds will be routed to the Make-up Plant Neutralization Tank located immediately west of the Unit 2 Turbine Building. Sulfuric Acid or sodium hydroxide are added to neutralize the wastes in the tank before they are eventually drained and pumped to the turbine room sump for release to the on site absorption pond. The tank is of a double-walled construction with both walls having been hydro-tested. The inner tank is equipped with level alarm instrumentation. The overflow for the inner tank is routed to the interstitial space between the tank walls. This space can be visually inspected and drained under plant supervision. Piping is above ground and heat traced. Any leak in this piping would be easily detected and repaired.
- m. **Low Level Radioactive Corrosion Products** - During outage periods, low level radioactive corrosion products are sludge-lanced from the steam generators. A high pressure demineralized water hose is used to clean out the corrosion products which collect at the tube sheet. The resulting solution is removed and processed by a contractor with oversight by plant personnel. The sludge-lance unit and auxiliary equipment are completely bermed with the probability of a release from this system to the stormwater system unlikely.
- n. **Sewage Sludge** - Sewage sludge is collected in a temporary tank located at the south end of the South Sewage Treatment Plant. Transferring of sludge is performed by the sewage waste contractor under the supervision of plant personnel.
- o. **Chemicals Awaiting Storage** - For brief periods, portable bulk tanks and pallets containing chemicals in drums are off-loaded onto the loading dock in the shipping and receiving area until they can be placed into storage. Deliveries are made to the plant protected area via trucks and forklifts, and placed inside the Turbine Building or other areas where needed.
- p. **Chemical Cleaning of Heat Exchangers & Piping** - Oxidizers and organic acids are used to clean heat exchangers and piping around the plant site. The cleaning equipment is contained and operated by contractors with oversight by plant supervision.

All other chemical materials are stored within the confines of various buildings and are not considered to be a threat to the yard drainage system.

ATTACHMENT B (cont.)

C. Control Methods by Outfall (refer to table 2F-1 for codes)

001S & 002S - Containment areas and basin valves are structural and mechanical control measures in place for these two outfalls. In addition, containment oil booms are strategically placed at the outlets of these two outfalls. These booms will aid in the containment and absorption of any contaminants should other containment systems fail. These booms are inspected and replaced routinely.

Treatment Code: 4-A (discharge to open water)

003S & 004S - Risk of contaminants from these two outfalls is negligible, therefore, no control measures are in place at this time.

Treatment Code: 4-A(discharge to open water)

ATTACHMENT B-1

ATTACHMENT B-1

D.C. Cook Plant

SUMMARY OF PROGRAM - 1991 Herbicide Spray Report

From April 22-May 1, 1991, Townsend Tree Service applied a mixture of Karmex, Amizine and Oust to control weed growth on the Plant Site.

A total of 48 lbs. of Karmex, 560 lbs. of Amizine and 2 lbs of Oust was applied over 36 acres.

The following areas were inspected and treated for weeds:

1. Sewage Ponds
2. Road to Absorption Pond
3. 765 Kv Switchgear Yard
4. 345 Kv Switchgear Yard
5. Railroad Tracks east of Training Center
6. Parking lot B
7. 69 Kv Switchgear Yard
8. North Protected Area Fence
9. South Protected Area Fence
10. East Protected Area Fence
11. ICMS Office Trailer
12. ICMS Fab Shop
13. Southwest side of Turbine Building
14. South end of Turbine Building
15. Unit 1 RWST Area
16. Unit 2 RWST Area
17. Hydrogen/Nitrogen Storage Tank Area
18. Construction Fab Shop
19. Road to Meteorological Towers

Based upon review of application records and observations of the treated areas, it appears that the herbicides were applied in accordance with herbicide label requirements, and no adverse environmental effects occurred.

ATTACHMENT B-1 (cont.)

SUMMARY OF PROGRAM - 1992 Herbicide Spray Report

From June 3 - 7, 1992, Townsend Tree Service applied a mixture of Stomp and Oust to control weed growth on the Plant Site.

A total of 91.2 quarts of Stomp and 91.2 ounces of Oust were applied over 36 acres. The manufacturer's label recommends that Stomp be applied at a rate of between 2-4 quarts per acre. Stomp was applied at a rate of 2.7 quarts per acre. The manufacturer's label recommends that Oust be applied up to 12 ounces per acre. Oust was applied at a rate of 2.7 ounces per acre.

The following areas were inspected and treated for weeds:

1. Sewage Ponds
2. Road to Absorption Pond
3. 765 Kv Switchgear Yard
4. 345 Kv Switchgear Yard
5. Railroad Tracks east of Training Center
6. Parking lot B
7. 69 Kv Switchgear Yard
8. North Protected Area Fence
9. South Protected Area Fence
10. East Protected Area Fence
11. ICMS Office Trailer
12. ICMS Fab Shop
13. Southwest side of Turbine Building
14. South end of Turbine Building
15. Unit 1 RWST Area
16. Unit 2 RWST Area
17. Hydrogen/Nitrogen Storage Tank Area
18. Construction Fab Shop
19. Road to Meteorological Towers

Based upon review of application records and observations of the treated areas, it appears that the herbicides were applied in accordance with herbicide label requirements, and no adverse environmental effects occurred.

ATTACHMENT B-1 (cont.)

SUMMARY OF PROGRAM - 1993 Herbicide Spray Report

From March 8 - October 5, 1993, various contractors have applied a mixture of Trimec 899, Orthene 75s, Stomp, Oust, Roundup, and Tri-power to control weed growth on the Plant Site.

A total of 270 ounces of Trimec 899, 2 lbs. of Orthene 75s, 103.5 quarts of Stomp, 103.5 ounces of Oust, 214 ounces of Roundup, and 298.4 oz of Tri-power were applied over 36 acres. All were applied as per manufacturers' labels recommendations.

The following areas were inspected and treated for weeds:

1. Sewage Ponds
2. Road to Absorption Pond
3. 765 Kv Switchgear Yard
4. 345 Kv Switchgear Yard
5. Railroad Tracks east of Training Center
6. Parking lot B
7. 69 Kv Switchgear Yard
8. North Protected Area Fence
9. South Protected Area Fence
10. East Protected Area Fence
11. ICMS Office Trailer
12. ICMS Fab Shop
13. Southwest side of Turbine Building
14. South end of Turbine Building
15. Unit 1 RWST Area
16. Unit 2 RWST Area
17. Hydrogen/Nitrogen Storage Tank Area
18. Construction Fab Shop
19. Road to Meteorological Towers
20. Energy Information Center Lawn

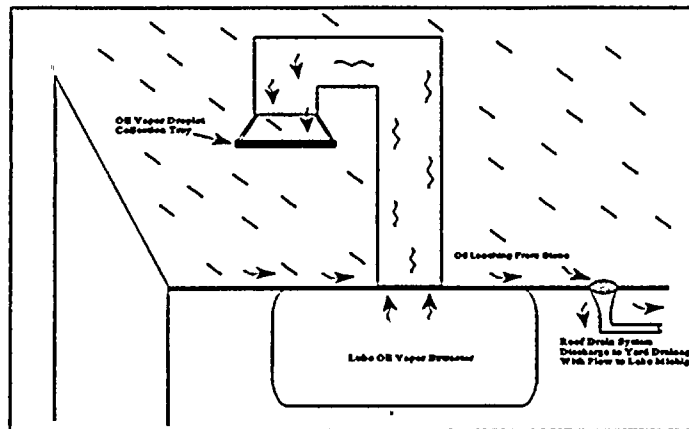
Based upon review of application records and observations of the treated areas, it appears that the herbicides were applied in accordance with herbicide label requirements, and no adverse environmental effects occurred.

ATTACHMENT B-2

OTHER POTENTIAL EXPOSURES TO STORMWATER

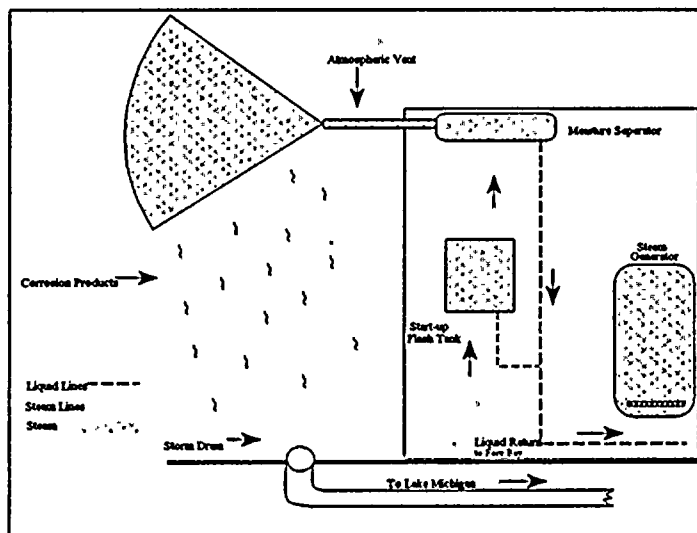
There are seven (7) potential areas of concern which apply to this section which are as follows:

1. **Lube Oil Vapor Extractors** - located at various sites on the roof of the turbine building. Small amounts of oil vapor droplets (Mobile DTE 797) have the potential to be spilled onto the roof. During rain periods this oil material would eventually be washed into the roof drain system. From this point it would enter the yard drains and be released to Lake Michigan as depicted in the following diagram:



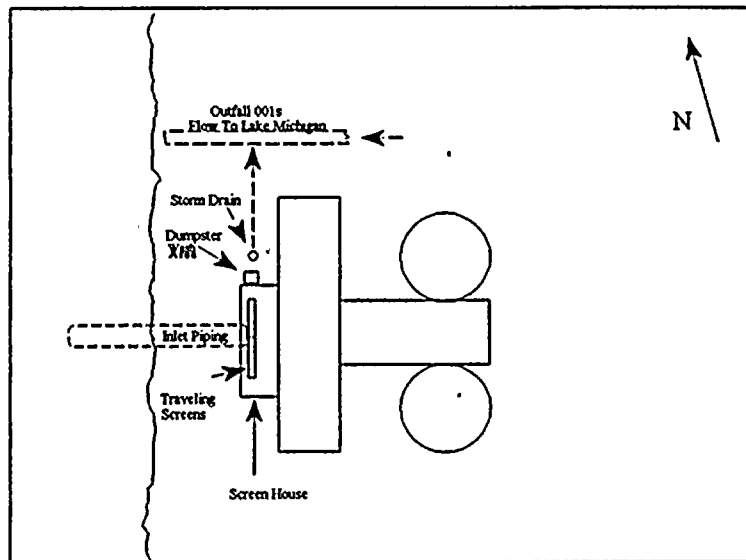
2. **Steam Generator Blowdowns** - Two (2) blowdown outlets are located on the east side of the Auxiliary Building. The steam generators are purged of corrosion products periodically to prevent degradation to the steam generator tubes. Large amounts of steam, which may contain trace amounts of organics, ethanolamine, and boric acid are released into the air outside the plant. The products in the steam precipitate to the ground and eventually enter the yard drain system as demonstrated in the following diagram:

Note: Water used in this system (to form the steam) is ultra-purified lake water. This water undergoes stringent purification process before it enters the system.



3. Dumpster Cleaning - Dumpster Cleaning

Main condenser cooling water is screened through 3/8" mesh traveling screens before passing through the main circ. water pump and service water pump inlets. Materials impinged on these screens including sticks, leaves, zebra mussels, and fish, are routinely backwashed into a trench and sluiced to both ends of the Screenhouse into debris collection baskets. These collection baskets are then dumped into dumpsters which are hauled off the plant site by a local waste hauler. For public health reasons, these dumpsters are cleaned out periodically. Pathfinder, a low suds cleaner, is used with water to wash out these dumpsters. The wash water flows down a yard drain and out outfall 001S.



4. **Roadways and Parking Lots-** Automobiles, trucks, and heavy equipment require gasoline, diesel fuel, coolants, hydraulic oil, and lubricants for their operation. Small leaks can eventually be washed down the storm drains to Outfalls 001S, 002S, 003S, and 004S.

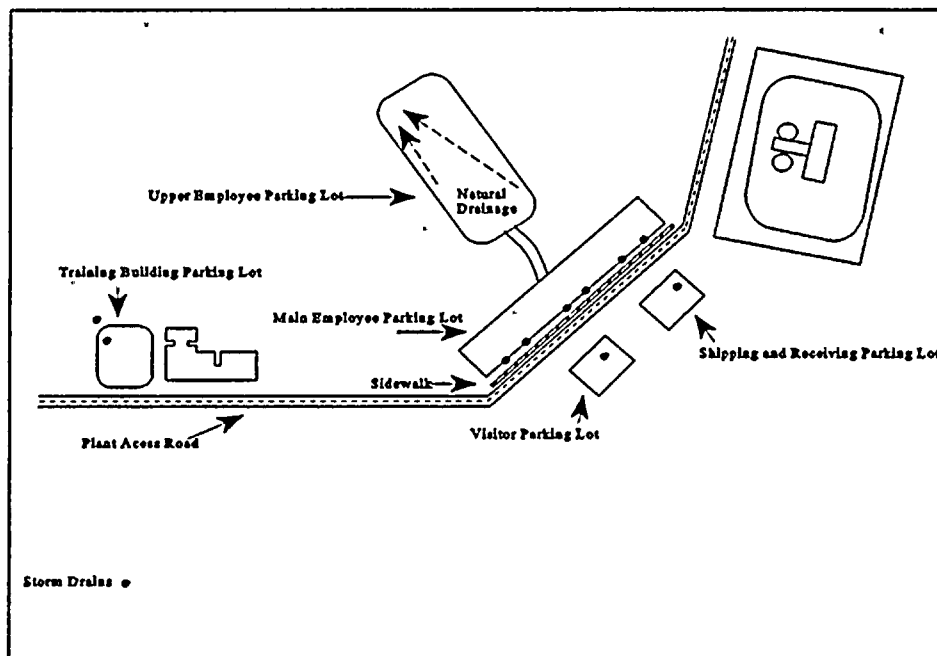
5. **Garon De-Icer** 95% Calcium Chloride and 4% Sodium Chloride.

Gran-U-Thaw : 90% Carbonyldiamine, Nitrogen Compounds-Urea.

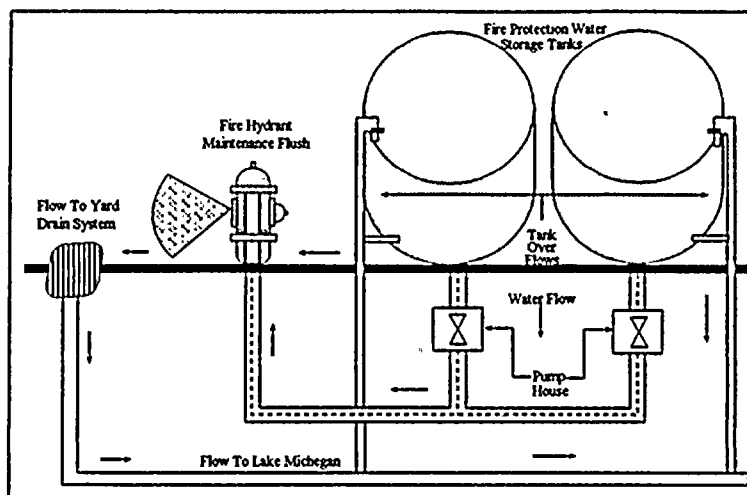
Safe Step Airport Ice Control: Potassium Chloride, Sodium Chloride, Urea, and Methylglucoside. Manufacturer trade secret, percentages unavailable.

Used on roads, and sidewalks throughout the facility. This material with precipitation will eventually enter the yard drain system that flows to Lake Michigan through outfalls 001S, 002S, 003S and 004S.

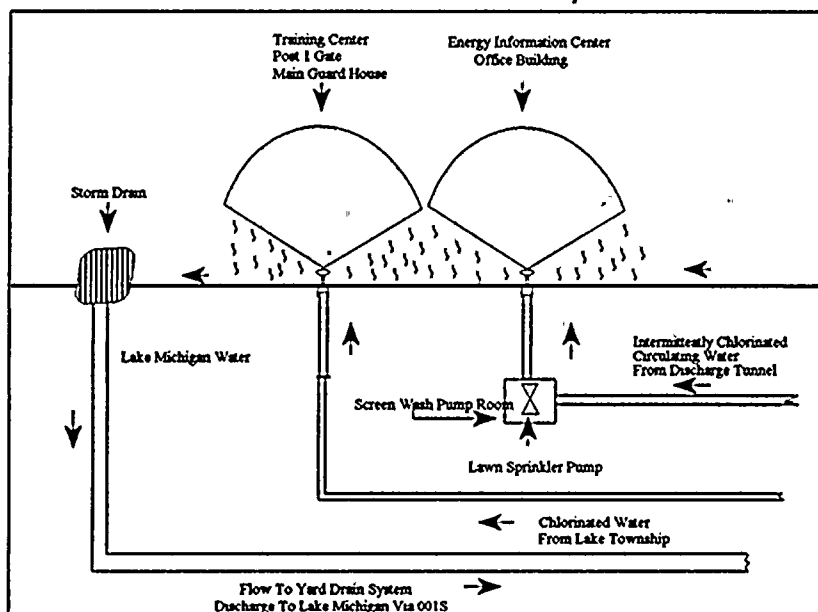
These road salt compounds tend to leach oils from the asphalt pavement which are washed into the yard drainage system.



6. Fire Protection Systems - To eliminate the threat of zebra mussel infestation in its fire protection system, the plant converted from lake water to a chlorinated municipal water supply. Two 650,000 gallon tanks located south of the plant site provide storage for the fire protection water. The tanks are equipped with an alarm system. The overflow and drainage for these tanks are to the yard drainage system Outfall 003S. On occasion these tanks are drained to perform repairs. Periodically, the fire protection system header and hydrants are flow tested with the water being directed to the yard drain system. Outfalls 001S, 002S, 003S, and 004S are impacted by these by this testing procedure. The following diagram illustrates the testing and draining process:



7. Lawn Sprinkler System- The plant lawn sprinkler system is operated using both circulating water and municipal water supplies. Small amounts of chlorine are contained in the municipal water and in the circulating water which can enter the storm water drainage system and Outfall 001S. Refer to the following diagram for further information.



ATTACHMENT C

ATTACHMENT C

SIGNIFICANT LEAKS OR SPILLS (past three years)

On February 15, March 4, and March 22, 1993, Cook Plant personnel observed a slight sheen on the surface of Lake Michigan, adjacent to the plant's storm water discharges. Subsequent investigation of plant oil systems and operations proved the source to be oil residue from employee vehicles entering the storm water collection system from parking lot runoff. Attempts were made to prevent additional oil from entering the catch basins by the use of absorbent booms on all three occasions. A summary of each event is as follows:

February 15, 1993	-	Oil sheen from Outfalls 001S and 002S
March 4, 1993	-	Oil sheen from Outfall 001S
March 22, 1993	-	Oil sheen from Outfall 001S

ATTACHMENT D
(ANALYTICAL RESULTS)

ATTACHMENT D

*** * DESCRIPTION OF RAINFALL EVENT * ***

Fourteen one-hundredths of an inch (0.14) of rain fell on December 18, 1993. The event started at 0630 hrs. and terminated at 1000 hrs. Outfalls 001S, 002S, 003S, and 004S continued to flow at a rate of 1-2 liters/min. until 1100 hrs. The previous significant event terminated at 1400 hrs. on December 6, 1993 for a total elapsed time of 280.5 hrs. between events.

*** * SAMPLING METHOD * ***

Both grab and flow composite samples were taken during the single storm event of December 18, 1993. Stormwater outfalls 001S, 002S, and 003S were sampled. Since the outfall characteristics of Outfall 003S and 004S are essentially identical, and in very close proximity, Outfall 004S was not sampled. Both Outfall 003S and 004S receive groundwater which emerges from the base of a dune and collects in a trench east of the outfalls. This groundwater mixes with stormwater runoff from the parking lots and roadways south of the plant and flows through outfalls 003S and 004S to Lake Michigan. For purposes of this characterization study, samples were taken of Outfall 003S both before and after mixing with groundwater during the storm event. The results of the analyses are shown in the following pages.

ATTACHMENT D

VII. Discharge Information

PART A

OUTFALL 001S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Oil and Grease	3.6 mg/l	2.8 mg/l	3.6 mg/l	2.8 mg/l	1	Storm water runoff
Biological Oxygen Demand (BOD5)	4.8 mg/l	3.2 mg/l	4.8 mg/l	3.2 mg/l	1	Storm water runoff
Chemical Oxygen Demand (COD)	37 mg/l	<18 mg/l	37 mg/l	<18 mg/l	1	Storm water runoff
Total Suspended Solids (TSS)	34 mg/l	13 mg/l	34 mg/l	13 mg/l	1	Storm water runoff
Total Kjeldahl Nitrogen	4.9 mg/l	3.7 mg/l	4.9 mg/l	3.7 mg/l	1	Storm water runoff
Nitrate plus Nitrite Nitrogen	1.5 mg/l	1.8 mg/l	1.5 mg/l	1.8 mg/l	1	Storm water runoff
Total Phosphorus	0.19 mg/l	0.11 mg/l	0.19 mg/l	0.11 mg/l	1	Storm water runoff
pH	Minimum	7.4	Maximum	7.4		

ATTACHMENT D (cont.)

Part A

OUTFALL 002S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Oil and Grease	<1 mg/l	<1 mg/l	<1 mg/l	<1 mg/l	1	Storm water runoff
Biological Oxygen Demand (BOD5)	1.5 mg/l	2.9 mg/l	1.5 mg/l	2.9 mg/l	1	Storm water runoff
Chemical Oxygen Demand (COD)	<18 mg/l	<18 mg/l	<18 mg/l	<18 mg/l	1	Storm water runoff
Total Suspended Solids (TSS)	<12 mg/l	<12 mg/l	<12 mg/l	<12 mg/l	1	Storm water runoff
Total Kjeldahl Nitrogen	20 mg/l	13 mg/l	20 mg/l	13 mg/l	1	Storm water runoff
Nitrate plus Nitrite Nitrogen	5.6 mg/l	3.2 mg/l	5.6 mg/l	3.2 mg/l	1	Storm water runoff
Total Phosphorus	0.14 mg/l	0.20 mg/l	0.14 mg/l	0.20 mg/l	1	Storm water runoff
pH	Minimum	7.9	Maximum	8.4		

ATTACHMENT D (cont.)

Part A

OUTFALL 003S (Before mixing with groundwater)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Oil and Grease	2.1 mg/l	1.8 mg/l	2.1 mg/l	1.8 mg/l	1	Storm water runoff
Biological Oxygen Demand (BOD5)	2.7 mg/l	2.6 mg/l	2.7 mg/l	2.6 mg/l	1	Storm water runoff
Chemical Oxygen Demand (COD)	18 mg/l	19 mg/l	18 mg/l	19 mg/l	1	Storm water runoff
Total Suspended Solids (TSS)	23 mg/l	15 mg/l	23 mg/l	15 mg/l	1	Storm water runoff
Total Kjeldahl Nitrogen	2.0 mg/l	2.1 mg/l	2.0 mg/l	2.1 mg/l	1	Storm water runoff
Nitrate plus Nitrite Nitrogen	0.78 mg/l	1.0 mg/l	0.78 mg/l	1.0 mg/l	1	Storm water runoff
Total Phosphorus	0.29 mg/l	0.36 mg/l	0.29 mg/l	0.36 mg/l	1	Storm water runoff
pH	Minimum	7.5	Maximum	7.5		

ATTACHMENT D (cont.)

Part A

OUTFALL 003S (After mixing with ground water)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Oil and Grease	2.2 mg/l	1.8 mg/l	2.2 mg/l	1.8 mg/l	1	Storm water runoff
Biological Oxygen Demand (BOD5)	2.9 mg/l	1.8 mg/l	2.9 mg/l	1.8 mg/l	1	Storm water runoff
Chemical Oxygen Demand (COD)	26 mg/l	<18 mg/l	26 mg/l	<18 mg/l	1	Storm water runoff
Total Suspended Solids (TSS)	19 mg/l	<12 mg/l	19 mg/l	<12 mg/l	1	Storm water runoff
Total Kjeldahl Nitrogen	1.6 mg/l	0.90 mg/l	1.6 mg/l	0.90 mg/l	1	Storm water runoff
Nitrate plus Nitrite Nitrogen	1.1 mg/l	2.2 mg/l	1.1 mg/l	2.2 mg/l	1	Storm water runoff
Total Phosphorus	0.23 mg/l	0.13 mg/l	0.23 mg/l	0.13 mg/l	1	Storm water runoff
pH	Minimum	7.7	Maximum	8.0		

ATTACHMENT D (cont.)

VII. Discharge Information

PART B

OUTFALL 001S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Cadmium	<.005 mg/l	<.005 mg/l	<.005 mg/l	<.005 mg/l	1	Storm water runoff
Chloride	36 mg/l	46 mg/l	36 mg/l	46 mg/l	1	Storm water runoff
Chlorine (total residual)	<0.02 ppm		<0.02 ppm		1	Storm water runoff
Copper	<.025 mg/l	<.025 mg/l	<.025 mg/l	<.025 mg/l	1	Storm water runoff
Sulfate	13 mg/l	16 mg/l	13 mg/l	16 mg/l	1	Storm water runoff
Total Dissolved Solids (TDS)	93 mg/l	160 mg/l	93 mg/l	160 mg/l	1	Storm water runoff
Zinc	0.31 mg/l	0.21 mg/l	0.31 mg/l	0.21 mg/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART B

OUTFALL 002S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Cadmium	<.005 mg/l	<.005 mg/l	<.005 mg/l	<.005 mg/l	1	Storm water runoff
Chloride	2.9 mg/l	3.4 mg/l	2.9 mg/l	3.4 mg/l	1	Storm water runoff
Chlorine (total residual)	<0.02 ppm		<0.02 ppm		1	Storm water runoff
Copper	0.029 mg/l	<.025 mg/l	0.029 mg/l	<.025 mg/l	1	Storm water runoff
Sulfate	18 mg/l	26 mg/l	18 mg/l	26 mg/l	1	Storm water runoff
Total Dissolved Solids (TDS)	83 mg/l	100 mg/l	83 mg/l	100 mg/l	1	Storm water runoff
Zinc	0.46 mg/l	0.22 mg/l	0.46 mg/l	0.22 mg/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART B

OUTFALL 003S (before mixing with groundwater)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Cadmium	<.005 mg/l	<.005 mg/l	<.005 mg/l	<.005 mg/l	1	Storm water runoff
Chloride	0.75 mg/l	0.86 mg/l	0.75 mg/l	0.86 mg/l	1	Storm water runoff
Chlorine (total residual)	<0.02 ppm		<0.02 ppm		1	Storm water runoff
Copper	<.025 mg/l	<.025 mg/l	<.025 mg/l	<.025 mg/l	1	Storm water runoff
Sulfate	3.4 mg/l	4.0 mg/l	3.4 mg/l	4.0 mg/l	1	Storm water runoff
Total Dissolved Solids (TDS)	88 mg/l	93 mg/l	88 mg/l	93 mg/l	1	Storm water runoff
Zinc	0.28 mg/l	0.29 mg/l	0.28 mg/l	0.29 mg/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART B

OUTFALL 003S (after mixing with ground water)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Cadmium	<.005 mg/l	<.005 mg/l	<.005 mg/l	<.005 mg/l	1	Storm water runoff
Chloride	1.5 mg/l	4.5 mg/l	1.5 mg/l	4.5 mg/l	1	Storm water runoff
Chlorine (total residual)	<0.02 ppm		<0.02 ppm		1	Storm water runoff
Copper	<.025 mg/l	<.025 mg/l	<.025 mg/l	<.025 mg/l	1	Storm water runoff
Sulfate	25 mg/l	120 mg/l	25 mg/l	120 mg/l	1	Storm water runoff
Total Dissolved Solids (TDS)	97 mg/l	370 mg/l	97 mg/l	370 mg/l	1	Storm water runoff
Zinc	0.25 mg/l	0.13 mg/l	0.25 mg/l	0.13 mg/l	1	Storm water runoff

ATTACHMENT D (cont.)

VII. Discharge Information

PART C

OUTFALL 001S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Aluminum	0.79 mg/l	0.41 mg/l	0.79 mg/l	0.41 mg/l	1	Storm water runoff
Barium	<.20 mg/l	<.20 mg/l	<.20 mg/l	<.20 mg/l	1	Storm water runoff
Boron	<.20 mg/l	<.20 mg/l	<.20 mg/l	<.20 mg/l	1	Storm water runoff
Cobalt	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	1	Storm water runoff
Iron	1.6 mg/l	0.7 mg/l	1.6 mg/l	0.7 mg/l	1	Storm water runoff
Lead	0.049 mg/l	0.016 mg/l	0.049 mg/l	0.016 mg/l	1	Storm water runoff
Magnesium	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	1	Storm water runoff
Molybdenum	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Surfactants	0.060 mg/l	0.029 mg/l	0.060 mg/l	0.029 mg/l	1	Storm water runoff
Sulfide	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	1	Storm water runoff
Tin	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Radioactivity (alpha)	2.1 pCi/l	0.69 pCi/l	2.1 pCi/l	0.69 pCi/l	1	Storm water runoff
Radioactivity (beta)	6.9 pCi/l	4.3 pCi/l	6.9 pCi/l	4.3 pCi/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART C

OUTFALL 002S

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Aluminum	0.26 mg/l	<0.20 mg/l	0.26 mg/l	<0.20 mg/l	1	Storm water runoff
Barium	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Boron	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Cobalt	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	1	Storm water runoff
Iron	0.73 mg/l	0.40 mg/l	0.73 mg/l	0.40 mg/l	1	Storm water runoff
Lead	0.0048 mg/l	0.0032 mg/l	0.0048 mg/l	0.0032 mg/l	1	Storm water runoff
Magnesium	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	1	Storm water runoff
Molybdenum	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Surfactants	0.029 mg/l	0.031 mg/l	0.029 mg/l	0.031 mg/l	1	Storm water runoff
Sulfide	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	1	Storm water runoff
Tin	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Radioactivity (alpha)	0.54 pCi/l	0.64 pCi/l	0.54 pCi/l	0.64 pCi/l	1	Storm water runoff
Radioactivity (beta)	7.0 pCi/l	4.7 pCi/l	7.0 pCi/l	4.7 pCi/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART C

OUTFALL 003S (before mixing with ground water)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Aluminum	1.2 mg/l	0.85 mg/l	1.2 mg/l	0.85 mg/l	1	Storm water runoff
Barium	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Boron	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Cobalt	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	1	Storm water runoff
Iron	2.5 mg/l	1.7 mg/l	2.5 mg/l	1.7 mg/l	1	Storm water runoff
Lead	0.0096 mg/l	0.0063 mg/l	0.0096 mg/l	0.0063 mg/l	1	Storm water runoff
Magnesium	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	<5.0 mg/l	1	Storm water runoff
Molybdenum	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Surfactants	0.043 mg/l	0.049 mg/l	0.043 mg/l	0.049 mg/l	1	Storm water runoff
Sulfide	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	1	Storm water runoff
Tin	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Radioactivity (alpha)	1.63 pCi/l	0.73 pCi/l	1.63 pCi/l	0.73 pCi/l	1	Storm water runoff
Radioactivity (beta)	5.2 pCi/l	3.1 pCi/l	5.2 pCi/l	3.1 pCi/l	1	Storm water runoff

ATTACHMENT D (cont.)

PART C

OUTFALL 003S (after mixing with ground water)

Pollutant and CAS Number (if available)	Maximum Values		Average Values		Number of Storm Events Sampled	Sources of Pollutants
	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-weighted Composite		
Aluminum	1.2 mg/l	0.46 mg/l	1.2 mg/l	0.46 mg/l	1	Storm water runoff
Barium	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Boron	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	<0.20 mg/l	1	Storm water runoff
Cobalt	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l	1	Storm water runoff
Iron	2.3 mg/l	0.94 mg/l	2.3 mg/l	0.94 mg/l	1	Storm water runoff
Lead	0.0082 mg/l	0.0031 mg/l	0.0082 mg/l	0.0031 mg/l	1	Storm water runoff
Magnesium	<5.0 mg/l	14.0 mg/l	<5.0 mg/l	14.0 mg/l	1	Storm water runoff
Molybdenum	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Surfactants	0.031 mg/l	0.031 mg/l	0.031 mg/l	0.031 mg/l	1	Storm water runoff
Sulfide	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	<3.0 mg/l	1	Storm water runoff
Tin	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	<0.2 mg/l	1	Storm water runoff
Radioactivity (alpha)	1.2 pCi/l	1.1 pCi/l	1.2 pCi/l	1.1 pCi/l	1	Storm water runoff
Radioactivity (beta)	5.0 pCi/l	4.3 pCi/l	5.0 pCi/l	4.3 pCi/l	1	Storm water runoff

ATTACHMENT E
(DRAWINGS)

SCHEDULE OF DRAWINGS

DRAWING NUMBER

DESCRIPTION

01	ENTIRE PROPERTY
02	PLANT WITH 001S & 002S
03	PLANT WITH 001S ONLY
04	PLANT WITH 002S ONLY
05	TRAINING CENTER AND ROAD AREA (OUTFALL 001S)
06	SOUTH AREA WITH 003S & 004S
07	ENERGY INFORMATION CENTER AREA
08	POST 1 GUARD HOUSE AREA
09	PERVIOUS/IMPERVIOUS DRAINAGE AREAS
10	HERBICIDE APPLICATION AREAS
11A	TOPO MAP (BRIDGMAN)
11B	TOPO MAP (COOK PLANT)

Indiana Michigan
Power Company
One Summit Square
PO Box 60
Fort Wayne IN 46801
219 425 2111



CERTIFIED MAIL # Z 756 046 675

Mr. William E. McCracken
Surface Water Quality Division
Permits Section
Department of Natural Resources
P. O. Box 30028
Lansing, MI 48909

March 31, 1994.

Dear Mr. McCracken:

Subject: Indiana Michigan Power Company
Donald C. Cook nuclear Plant
NPDES Permit No. MI 0005827
Renewal Application

Enclosed is the Industrial and Commercial Wastewater Discharge Application for renewal of the Cook Nuclear Plant NPDES Permit. Also enclosed, is for 2F for renewal of the Cook Nuclear Plant Storm Water Discharge Permit. These applications are being submitted 180 days prior to the expiration of the present permit. Cook Nuclear Plant also has submitted a separate groundwater permit application to the agency's groundwater division; the information is also enclosed with this application.

During the term of the present permit, several permit modifications were made to improve Cook Nuclear Plant operations. We appreciate your efforts in these permit modifications. Additional changes are under development which will affect Cook Nuclear plant operations. Information regarding these improvements is enclosed with the following attachments:

<u>Attachment</u>	<u>Description</u>
1	Makeup Demineralizer Regeneration Waste Neutralization System
2	Sequencing Batch Reactors
3	Zebra Mussel Control Strategy
4	Alum Replacement Program
5	Chemistry Corrosion Control Additives
6	Thermal Effluent

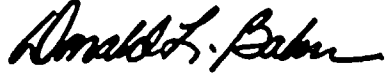
Should you have any questions regarding these renewal applications, please contact John Carlson, Cook Nuclear Plant

9412070157

March 31, 1994
Mr. William E. McCracken
Page 2

Environmental Supervisor, at (616)465-5901 ext. 1153, or me at (219)425-2118. We would be happy to meet with you at your convenience to discuss the application.

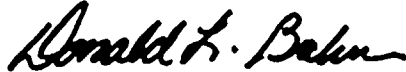
Very truly yours,



Donald L. Baker
Environmental Affairs Director

DLB/sdb/065,66
Attachments

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this and all attached documents; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted 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.



Donald L. Baker

March 31, 1994
Mr. William E. McCracken
Page 3

bc: W. N. D'Onofrio/M. A. Bailey/J. L. Hughey
A. A. Blind
S. J. Brewer
D. M. Fitzgerald/J. P. Carlson
E. E. Fitzpatrick
D. W. Kemp/K. D. Mack
T. E. Webb/J. P. Novotony



Attachment 1

Makeup Demineralizer Regeneration Waste Neutralization System

Cook Nuclear Plant is installing a system to collect and treat makeup demineralizer regeneration wastes to meet proposed pH permit limits. The current practice is to isolate the Turbine Room Sump (TRS), accumulate the wastes within the TRS, neutralize the waste with sulfuric acid or sodium hydroxide, and then discharge the neutralized contents of the TRS to the Absorption Pond. Because the regeneration wastes are not the only source of water being collected in the TRS, a high water level within the TRS may require the discharge of the sump contents prior to the wastes being completely neutralized.

The new system will allow collection and neutralization of the regeneration wastes apart from the TRS. The holding tank for the waste will also be the point of treatment with the capability to add and mix sulfuric acid or sodium hydroxide with the waste prior to metering the neutral mixture to the TRS. The total cost of the Makeup Demineralization Waste System is \$3,600,000.00. The system is targeted for completion by January of 1995, with system start-up to occur thereafter.

Attachment 2

Sequencing Batch Reactors

Cook Nuclear Plant is currently requesting quotations to install a pair of pre-engineered sequencing batch reactors (SBR) to meet the proposed groundwater effluent limits. The new system will operate at a design flow of 50,000 GPD with a maximum flow of 60,000 GPD. The South Extended Aeration Package Plant will be utilized as a retention tank to ensure efficient SBR operation. Effluent from the new system will continue to be discharged into one of the two seepage lagoons. The new system will be installed and operational by December of 1995.

Attachment 3

Zebra Mussel Control Strategy

Zebra mussels are a menace to any industrial or municipal process drawing water from Lake Michigan. Our current control plan is to chlorinate and perform periodic shock chemical treatments utilizing proprietary chemical formulations. This method of control was developed for short term relief from the effects of zebra mussel infestation. We have also changed our source water for our fire protection system to a potable supply from Lake Township. After four years of experience in dealing with zebra mussels at Cook Nuclear Plant and other Great Lake facilities, a new strategy is under consideration to protect all operations from infestation.

The new strategy incorporates intermittent oxidizing biocide treatments of the circulating water system beginning at the intake structures in Lake Michigan, continuous oxidizing biocide treatment of the essential service water and non-essential service water systems, addition of sodium bisulfate to reduce any residual oxidizing biocide prior to discharge to Lake Michigan, and if necessary, shock treatments utilizing proprietary chemical formulations. The goal of the program is to (1) eradicate existing populations and control further settlement of zebra mussels within plant systems that utilize lake water, (2) reduce the residual oxidant being discharged to non-detectable levels, and (3) reduce or eliminate the number of remedial shock treatments necessary to kill settled colonies of zebra mussels.

The proposed oxidizing biocide treatment uses sodium bromide and sodium hypochlorite, or a proprietary mixture such as Nalco Acti-Brom, to retard veliger settlement and maintain microbiological control. Should non-oxidizing biocides be required, we plan to use either Betz CT-2, Betz CT-4, Calgon H-130M, or Nalco 9210. We request the flexibility to use any FIFRA (Federal Insecticide, Fungicide, and Rodenticide Agency) approved non-oxidizing biocide. The concentration of any of the treatment chemicals will be brought to within the water quality based effluent limits, as required, using formulations of bentonite clay or other appropriate material. The resultant chemical changes will ultimately affect discharges to Lake Michigan via ESW, NESW, and the circulating water systems, and discharges to the groundwater through the turbine room sump, from pump seals and equipment drains of the treated systems.

We may begin portions of the plan, such as continuous oxidizing biocide treatments of the ESW and NESW systems, in 1994. Portions of the plan, where new systems require capital expenditures along with design and installation of the equipment, will take longer. Therefore, the plan may not be fully implemented for several years. We will continue to inform the MDNR of planned operational changes as they are finalized.

Attachment 4

Alum Replacement Program

A Chemistry Task Force is evaluating chemical flocculent replacements for alum (aluminum sulfate) to improve performance of the makeup water system. The replacements being reviewed are mainly polymeric flocculents which will enhance the removal of suspended solids in the pre-filters and meet manufacturer recommendations for the water entering the reverse osmosis system. The recommendations from the task force, once approved, will require additional time to test and implement. The environmental benefit of product substitution is the reduced amount of aluminum which will be discharged to the groundwater through the turbine room sump. The scheduled target implementation date to use a new flocculent is the fourth quarter of 1994.

Attachment 5

Chemistry Corrosion Control Additives

Cook Nuclear Plant is evaluating substitutes for the current corrosion control additives in the steam generators, plant heating boiler, feedwater and condensate systems, and closed heating/cooling systems. These substitutes will include carbohydrazide, and other available products from chemical companies such as Betz or Nalco. The environmental benefits of these additives include utilization of more benign corrosion control products or products requiring lower effective concentrations. Use of these products will necessitate discharge to Outfalls 001, 002, 003, 00A, 00B, 00C and 00D in concentrations to be determined upon effective optimization. Consequently, higher concentrations of iron and other system products may be seen temporarily.

Attachment 6

Thermal Effluent

The current thermal effluent limit for the circulating water system discharging to Lake Michigan is 15.5×10^9 BTU/hr. This is calculated from measurements taken at Outfalls 001 and 002 for Units 1 and 2, respectively. At this limit, the units are operating with calculated maximum temperature differentials of 22.3 and 18.3 degrees F for Units 1 and 2, respectively. The units are have been required to reduce load from 100% during the hottest summer months to maintain the thermal discharge within limits. In order to maintain 100% load throughout the entire year, including the hot summer months, we propose increasing the thermal discharge limit to 16.25×10^9 BTU/hr.

At the proposed thermal discharge, the temperature differentials are calculated to be approximately 1 degree F greater, or 23.4 and 19.3 degrees F for Units 1 and 2 respectively, using the same conditions as in the above calculations. The increase in heat load and discharge temperature to Lake Michigan are minimal and are not expected to result in adverse environmental harm in and around the plant discharges. As in the past, the maximum inlet temperature which the units can operate at full power is 87.5 degrees F, because of the limitations on the control room air conditioning system. The maximum effluent temperatures during 1993 were 98.7 and 89.7 degrees F for Units 1 and 2, respectively. Note that Unit 2 operated at 70% load during most of 1993 to increase the time between refueling outages of the two Cook Nuclear Plant Units.

Indiana Michigan Power Company funded one of the most extensive aquatic ecological research projects on the Great Lakes from 1973 through 1982 at the Cook Nuclear Plant. Indiana Michigan Power Company's contractor, The University of Michigan, Center for Great Lakes Research Center (then the Great Lakes Research Division), published a book in 1986 that was a compilation of the physical, chemical, and biological studies conducted under the direction of Dr. John C. Ayers. Among other conclusions, these studies documented the lack of adverse impacts from the thermal discharge. The title page, table of contents, and list of publications generated from the research were copied from the book and are attached to this permit application.

Thermal plume maps were made during different seasons of the year to determine the impact of the Cook Nuclear Plant thermal effluent on Lake Michigan. These maps showed the surface area of the plume was well within the 570 acre mixing zone specified in the NPDES Permit issued for Cook Nuclear Plant on December 27, 1974, and modified April 4, 1978. Even in the simplistic assumption that a 5% increase in the heat rejection rate resulted in a similar increase of the thermal plume surface area, the resulting plume would still be well within the mixing zone limit. The small increase in the maximum delta T will not measurably alter the thermal regime that already exists in the immediate vicinity of the high velocity discharge. The thermal discharge from Cook Nuclear Plant was granted a variance from meeting best available treatment technology under Section 316(a) of the Federal Water Pollution Control Act of 1972 by the Water Resources Commission in May, 1977.

GREAT LAKES RESEARCH DIVISION / PUBLICATION 22

SOUTHEASTERN NEARSHORE LAKE MICHIGAN:

IMPACT OF THE DONALD C. COOK NUCLEAR PLANT

Edited by

Ronald Rossmann

GREAT LAKES RESEARCH DIVISION
The University of Michigan
Ann Arbor, Michigan 48109

A FINAL REPORT TO INDIANA & MICHIGAN ELECTRIC COMPANY

1986

CONTENTS

INTRODUCTION	
<i>Ronald Rossmann</i>	1
SEDIMENTS OF SOUTHEASTERN NEARSHORE LAKE MICHIGAN	
<i>Ronald Rossmann, Kjell A. Johansen, and Erwin Seibel</i>	13
WATERS OF SOUTHEASTERN NEARSHORE LAKE MICHIGAN	
<i>Ronald Rossmann</i>	51
IMPACT OF THE DONALD C. COOK NUCLEAR PLANT ON PHYTOPLANKTON	
<i>Ronald Rossmann, William Y. B. Chang, James A. Bowers, Laurie Feldt, and James Barres</i>	87
PHYTOPLANKTON POPULATIONS OF SOUTHEAST LAKE MICHIGAN 1974-1982	
<i>James A. Bowers, Ronald Rossmann, James Barres, and William Y. B. Chang</i>	141
IMPACT OF THE DONALD C. COOK NUCLEAR PLANT ON ZOOPLANKTON IN SOUTHEASTERN LAKE MICHIGAN	
<i>Marlene S. Evans and Glenn J. Warren</i>	169
EFFECTS OF THE DONALD C. COOK NUCLEAR PLANT ON MACROZOOBENTHOS IN NEARSHORE SOUTHEASTERN LAKE MICHIGAN	
<i>David S. White, Michael Winnell, Catherine Zawacki, Roger LaDronka, Thomas Zdeba, and Samuel Mozley</i>	207
ECOLOGY OF THE MACROZOOBENTHOS IN THE VICINITY OF THE DONALD C. COOK NUCLEAR PLANT	
<i>David S. White, Michael Winnell, Catherine Zawacki, Roger LaDronka, Thomas Zdeba, and Samuel Mozley</i>	253
IMPACT OF THE DONALD C. COOK NUCLEAR PLANT ON FISH	
<i>David J. Jude, David Bimber, Nancy Thurber, Frank Tesar, Laura Noguchi, Pamela Mansfield, Heang Tin, Paul Rago</i>	285
ECOLOGY OF FISH IN NEARSHORE SOUTHEASTERN LAKE MICHIGAN, 1973-1982	
<i>Frank Tesar, David J. Jude, Heang Tin, Pamela Mansfield</i>	353
LAKE AND SHORE ICE CONDITIONS ON SOUTHEASTERN LAKE MICHIGAN	
<i>Erwin Seibel</i>	401

INTRODUCTION

Ronald Rossmann

The Laurentian Great Lakes serve as a source of cooling water for both fossil- and nuclear-fueled power plants. In the early 1960s, projected heavy utilization of this freshwater resource by power plants raised concerns about the environmental impact of power plants on the lakes. Such public, governmental, and industrial concerns led to the federal requirement that environmental impact studies be conducted at all proposed or newly constructed power plants, especially nuclear power plants. The Great Lakes Research Division of The University of Michigan was contracted by Indiana & Michigan Electric Company to conduct an environmental impact study of the Donald C. Cook Nuclear Plant, investigating the area through the pre-operational years of construction and into the period of plant operation.

DONALD C. COOK NUCLEAR PLANT

The Donald C. Cook Nuclear Plant is a 2,200 MW steam electric generating station situated in a belt of sand dunes on the southeastern shore of Lake Michigan about 18 km southwest of St. Joseph, Michigan (Indiana & Michigan Electric Company and Indiana & Michigan Power Company 1973) (Fig. 1). Preparation of the site for construction of the plant began in 1968. Unit 1 was operational in 1975 and Unit 2 in 1978. The plant was built at a time when public concern for the environment reached its zenith.

At full operation, the plant uses roughly 6,300 m³ of lake water per minute in once-through cooling of its condensers; the water returned to the lake is 9–12°C above the intake temperature. Water is withdrawn from the lake through three intake cribs located at a water depth of 7.3 m approximately 686 m offshore (Fig. 2). The intake structures extend 2 m above the lake bottom. Maximum water velocity is 1.8 m/s within the three 4.9-m diameter intake pipes. Condenser cooling water is returned to the lake through two discharge pipes located at a water depth of 5.5 m approximately 366 m offshore. Riprap beds of crushed limestone were deposited around the intake and discharge structures to prevent erosion and scour of the lake bottom. During winter, water is only drawn into the plant through the two outer intake cribs. Heated water is discharged through the center intake, which is turned into a discharge to prevent ice formation around the other intake structures.

Within the screenhouse, trash bars 6.6 cm apart prevent large pieces of debris from entering the intake forebay. Vertical traveling 9.5-mm bar mesh screens within the forebay impinge trash and fish too large to pass through the condensers.

HISTORY OF THE ENVIRONMENTAL IMPACT STUDY

Though the Great Lakes Research Division's environmental impact study included physical and chemical studies of nearshore southeastern Lake Michigan, it focused

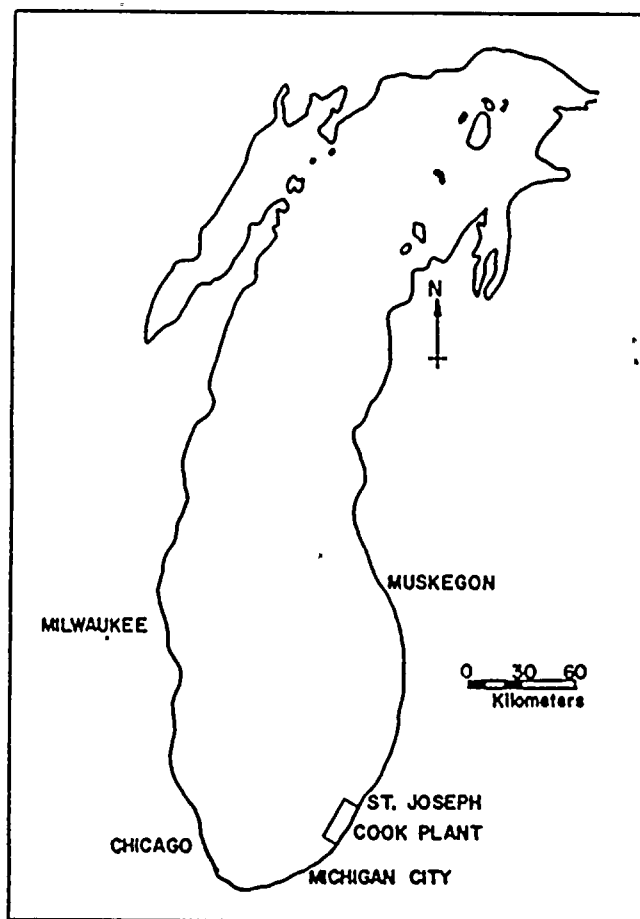


FIGURE 1. Location of the Donald C. Cook Nuclear Plant on the southeastern shoreline of Lake Michigan.

on major biological components of the ecosystem (benthos, phytoplankton, zooplankton, fish) and shoreline erosion. Preoperational surveys began in 1966. Until 1970, they were sporadic and consisted mainly of phytoplankton enumerations and some benthos and zooplankton enumerations. Between 1970 and 1972, seasonal surveys, primarily of phytoplankton and secondarily of zooplankton and benthos, were conducted. Beginning in 1972 and continuing into 1982, sampling frequency and intensity increased and equal effort was given to studies of phytoplankton, zooplankton, and benthos. Fishery studies began in 1972. They represented roughly 50% of the study effort between 1973 and 1982.

Until 1974, all studies were carried out on nearshore southeastern Lake Michigan. In 1974, preliminary studies of the entrainment of organisms through the plant and their impingement on the plant's traveling screens began. When unit 1 of the plant became operational in 1975, full-scale entrainment studies of phytoplankton, zoo-

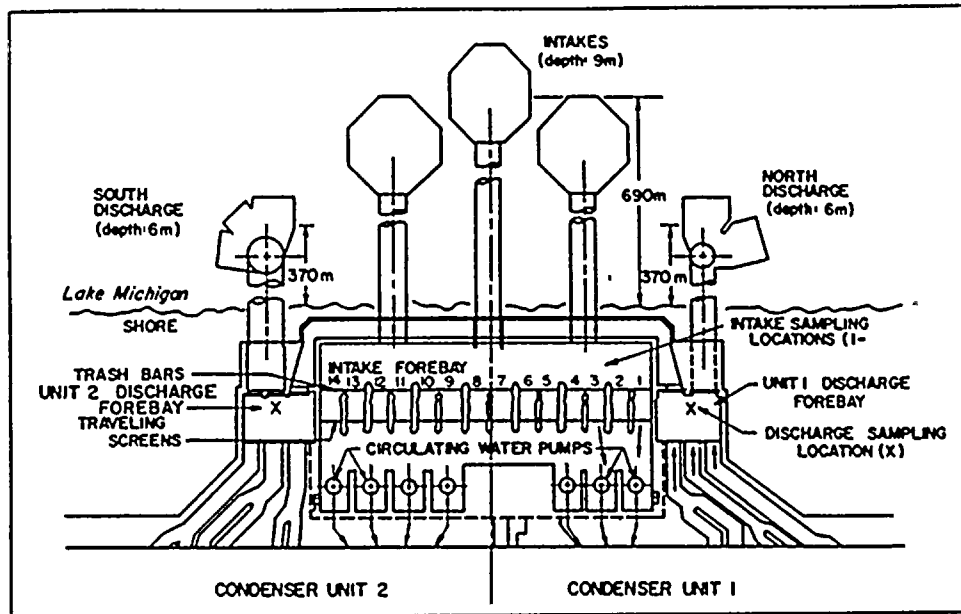


FIGURE 2. Schematic representation of the Donald C. Cook Nuclear Plant circulating water system.

plankton, benthos, fish eggs, and fish larvae began. At the same time, impingement of fish and benthos on the traveling screens was monitored. All field studies ceased in 1982. This book represents the highlights of the findings from the impact study. For details of each facet of the study, the reader is referred to the list of all project reports (Table 1). These are available upon request.

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This book has been structured so that each chapter dealing with a specific facet of the study will be complete in itself, and can be read as a separate entity by those who wish. To familiarize the reader with the region of southeastern Lake Michigan where the plant is situated, a description of the area's characteristics follows.

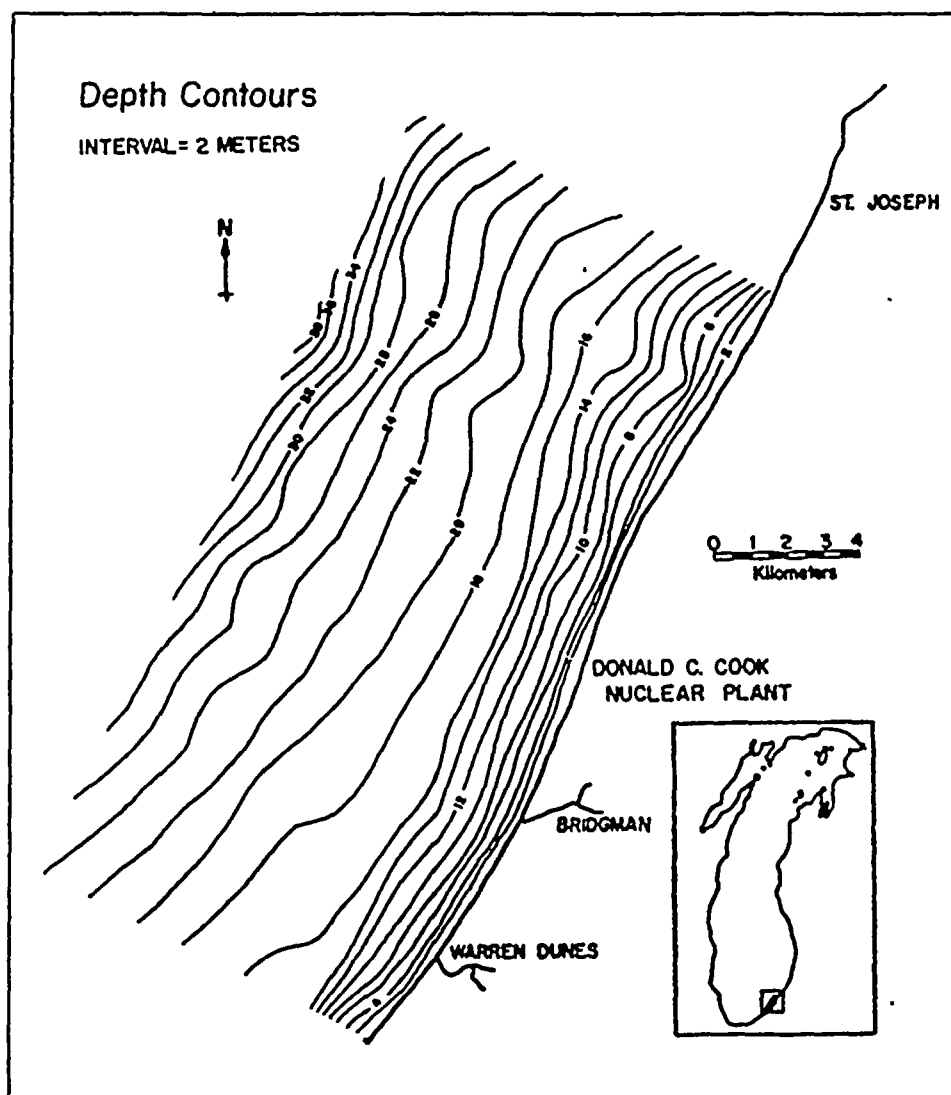


FIGURE 3. Bathymetry of nearshore southeastern Lake Michigan.

DESCRIPTION OF THE SOUTHEASTERN LAKE MICHIGAN REGION

LAKE BOTTOM TOPOGRAPHY

The topography of the lake bottom within the region of study slopes toward the northwest with greatest depths in excess of 38 m (Fig. 3). At depths greater than 20 m, a series of ridges and runnels perpendicular to shore occurs (Rossmann 1975).



The ridges consist of coarser sediments than the runnels (Rossmann and Seibel 1977).

Near the shoreline, one ephemeral and two permanent sand bars exist (Seibel et al. 1976). The ephemeral bar is located approximately 47 m from the shoreline. The inner and outer permanent bars are located 116 and 216 m from the shoreline, respectively. Water depths between the inner bar and shoreline and between the two permanent bars are 1.5 to 1.8 m and 3.7 to 4.0 m, respectively (Ayers and Huang 1967). The depth of water over the crest of the inner bar is 1.2 m and that over the outer bar is 2.6 m.

SEDIMENTS

Sediments vary from coarse to fine quartz sands at the shoreline to carbonate-rich very fine sands and silts offshore (Rossmann and Seibel 1977). The sediments are derived from sand dunes and unconsolidated bluffs along the shoreline (Hands 1970). The bluffs are clay-rich and contain carbonates (Rossmann 1975). During the early to mid-1970s, severe shoreline erosion occurred within the study area (Davis et al. 1973, Tanner 1975). Material derived from this erosion as well as from rain runoff and stream transport is resuspended and sorted by waves and currents (Sly and Thomas 1974). Materials are finally deposited offshore where waves and currents are incapable of transporting them farther.

CURRENTS

The major lake current within the region of Lake Michigan is called the Benton Harbor eddy. This eddy moves in a clockwise direction with currents moving southwestward along the shoreline (Ayers et al. 1958, Bellaire 1964). Inshore of this eddy, a counterclockwise eddy with currents moving northeastward adjacent to the shoreline was tentatively identified by Ayers et al. (1958).

Between May and November, current direction between the inner and outer sand bars is predominantly to the northwest. Direction was always to the north, northwest, or west between May and July regardless of wind direction (Ayers et al. 1967). Beginning in August when the wind was brisk from northerly directions, currents moving in a southward direction began to occur with increased frequency. Smaller velocity and frequency of northerly winds were required to produce southward currents later in the fall. For the months of May through October in 1967, over 86% of the time current direction between the two bars was northward. Monthly mean current velocities ranged between 31.7 and 69.8 cm/sec.

Inshore of the inner sand bar, current direction is controlled by wind direction. Water between the beach and inner bar is postulated to be water spilled over the inner bar during surf action. It is cut off from the main-lake circulation by the inner bar and is moved in a downwind direction (Ayers et al. 1967).

WAVES

Wave observations have been reported by Liu and Housley (1969) for St. Joseph, Michigan (Fig. 1). For the periods of 28 September 1966 to 16 December 1966 and 21

September 1967 to 30 December 1967, maximum observed wave height was between 3.6 and 3.0 m. Maximum wave period was between 7 and 8 seconds. The most frequent wave height and period were 0.6 to 1.3 m and 5 to 6 seconds, respectively. Waves most often approached the shoreline from the northwest or southwest.

LOCAL WINDS

Based upon observations during 1967, surface winds adjacent to the shoreline are greatly influenced by a bluff of sand dunes 61 m from the shoreline that parallel the shore and run in a north-northeast to south-southwest direction (Ayers et al. 1967). These dunes serve to protect nearshore waters from winds from north-northeast, around through east and south, to south-southwest. They also channel winds from northerly and southerly directions into a NNE-SSW direction. Between May and mid-November the most often recorded winds were from the NNE (14.2% of the time) and SSW (22.6% of the time). Average wind velocity ranged from 9 km/h in June to 16 km/h in November. General prevailing winds for the region are from westerly directions throughout the year.

THERMAL CYCLE OF WATER COLUMN

The exact time of occurrence of various events in the thermal cycle is dependent upon the rate at which the lake warms as well as the severity of a winter. Warming of nearshore waters begins in spring with snowmelt and spring rains. As lake waters warm, a nearshore thermal bar develops which is delineated by the 4°C isotherm. As the lake continues to warm, the thermal bar progresses farther offshore. The thermal bar was usually found within the study area during April.

Eventually, the thermal bar moves out of the study area and a thermally stratified water column develops. This usually occurs in May or very early June. Thermal stratification usually continues into and occasionally through November. For the calendar year, surface water temperatures range between 1.1 and 26.9°C, while those of the hypolimnion range between 5.0 and 6.5°C. During stratification, upwellings of hypolimnion water with temperatures as low as 6°C are common along the shoreline. Except during upwellings, water depths (<45 m) in the study area were only great enough to permit sampling hypolimnetic water at those stations farthest offshore.

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SECTION 1

EPA I.D. NUMBER

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PERMIT
NUMBER

M I 0 0 0 5 8 2 7

SEE INSTRUCTIONS
ON REVERSE SIDE

APPLICATION FOR DISCHARGE PERMIT IS:

MODIFICATION

EXISTING

NEW

INCREASED USE

REISSUANCE

☒ITEM
1PHYSICAL
LOCATION
ADDRESS
AND
INFORMATION

A. PARENT COMPANY/DEPT./OWNER		I N D I A N A M I C H I G A N P O W E R C O M P A N Y	
B. DIV./BUREAU		N A	
C. PLANT OR FACILITY		D C C O O K P L A N T	
D. TYPE OF FACILITY		S T M E L E C T R I C G E N	
E. STANDARD INDUSTRIAL CLASSIFICATION (REFER TO TABLE II)		4 9 1	
F. STREET NUMBER		G. STREET NAME	
1		C O O K P L A C E	
H. CITY NAME		I. ZIP CODE	
B R I D G M A N		M I 4 9 1 0 6	
J. TOWNSHIP		K. COUNTY (REFER TO TABLE I)	
L A K E		CO. NAME B E R R I E N CO. NUMBER 1 1 1	
L. NAME OF AUTHORIZED CONTACT PERSON		M. TITLE	
D O N A L D L B A K E R		E N V A F F A I R S D I R	
N. TELEPHONE NUMBER		O. ADDRESS (IF DIFFERENT FROM ABOVE)	
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P. CITY NAME		Q. STATE	
F O R T W A Y N E		I N	
R. ZIP CODE		4 6 8 0 1	
S. TYPE OF TREATMENT FACILITY (REFER TO TABLE II)		T. PROGRAM FOR EFFECTIVE RESIDUALS MANAGEMENT DATE SUBMITTED	
1 L 1 Z 2 K 3 A 4 G		<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 DATE SUBMITTED	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N.A.		11/18/92	
		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N.A. DATE IMPLEMENTED	
		11/15/92	
W. NUMBER OF EMPLOYEES		9 0 6	
X. TYPE OF DISCHARGE		Y. DO YOU HAVE A CERTIFIED OPERATOR?	
GROUNDWATER <input type="checkbox"/>		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
BOTH <input checked="" type="checkbox"/> SURFACE WATER <input type="checkbox"/>		OPERATOR'S NAME D.M. FITZGERALD S.S.# 3 0 9 7 0 4 8 0 2	
		FACILITY # 1 1 0 0 5 4 CERTIFICATION # 1 2 8 6 3	

ITEM
2MAILING
ADDRESS
OF
APPLICANT

A. NAME		R C M E N G E	
B. NAME		I N D I A N A M I C H I G A N P O W E R C O M P A N Y	
C. STREET ADDRESS OR POST OFFICE BOX		P O B O X 6 0	
D. CITY NAME		E. STATE	
F O R T W A Y N E		I N	
F. ZIP CODE		4 6 8 0 1	

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:

RC Menge

DATE: 3/30/94

NAME: R. C. MENGE

TITLE: PRESIDENT

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

SIGNATURE:

DATE:

NAME:

TITLE:

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 3, 4, AND 5

This form requires information about the water used at the facility, the facility's water usage, and critical materials and pollutants used, stored, or produced at this facility.

Enter the permit number in the box at the top of this form. The permit number can be found in the permit page of your existing permit. If this is a new or non-previously permitted facility, then leave blank and a number will be assigned.

ITEM 3

SOURCE OF WATER SUPPLY

List all water supplies used. The volume may be estimated from water supply meter readings or from billing statements from a water supply utility. If water is not metered, estimate from pump capacity. Where a name is not used, enter name of water supply body, such as lake, Huron River, or the City of Milford.

ITEM 4

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process water - see Glossary for definition (page 48).

Noncontact Cooling water - see Glossary for definition (page 48).

Sanitary water - water used for domestic purposes: e.g., toilets, sinks, showers.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume for each of the last designated use before treatment and/or discharge. For example, if water is initially used as noncontact cooling water and then as process water, the quantity of water given should be indicated as process water.

The total of Item 4 should equal the total of Item 3. Any difference in these totals should be explained in an attached sheet of this application.

ITEM 5

CRITICAL MATERIALS AND PRIORITY POLLUTANTS USED, STORED, OR PRODUCED

List all chemical substances which are in Michigan's Critical Materials Register Table I (page 6) and/or U.S. EPA's Priority Pollutant List Table V (page 7) that are currently used, stored, or produced by this facility.

SECTION I

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

ITEM
3SOURCE
OF
WATER
SUPPLY

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

ITEM
4FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	
B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	
C. SANITARY WATER	QUANTITY (MAX.)	
D. OTHER	SPECIFY	
	QUANTITY (MAX.)	

ITEM
5CRITICAL
MATERIALS
&
PRIORITY
POLLUTANTS
USED
•
STORED
•
PRODUCEDREFER
TO
TABLES
IV & V

UNITS CODE

- 1 POUNDS
2 GALLONS
3 CUBIC
YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	Mercuric Nitrate
	PARAMETER NUMBER	C L A S S 0 2 1 1
	QUANTITY	2 8 UNITS / YEAR
MATERIAL 2	NAME OF SUBSTANCE	Cadmium
	PARAMETER NUMBER	C L A S S 0 1 1 3
	QUANTITY	2 0 1 UNITS / YEAR
MATERIAL 3	NAME OF SUBSTANCE	Ethylene Dichloride
	PARAMETER NUMBER	0 0 1 0 7 0 6 2
	QUANTITY	2 6 UNITS / YEAR
MATERIAL 4	NAME OF SUBSTANCE	Chloroform
	PARAMETER NUMBER	0 0 0 6 7 6 6 3
	QUANTITY	5 UNITS / YEAR
MATERIAL 5	NAME OF SUBSTANCE	Lead
	PARAMETER NUMBER	C L A S S 0 1 9
	QUANTITY	3 0 0 UNITS / YEAR
MATERIAL 6	NAME OF SUBSTANCE	Triaryl Phosphate Ester (EHC)*
	PARAMETER NUMBER	C L A S S 0 8 4
	QUANTITY	2 1 0 0 0 UNITS / YEAR
MATERIAL 7	NAME OF SUBSTANCE	Asbestos
	PARAMETER NUMBER	0 1 3 3 2 2 1 4
	QUANTITY	4 4 UNITS / YEAR

*Hydraulic Fluid

73 1 1 20 1

NOTES: THE REPORT NUMBER IN THE BOX AT THE TOP OF THIS FORM, THE REPORT NUMBER CAN BE FOUND ON THE REPORT PAGE IN YOUR EXISTING REPORT. IF THIS IS NOT THE PROVIDED 4-DIGIT REPORT NO., THEN HAVE TO GET THE NUMBER AND TO ASSIGN.

- 37 -

[illegible]

100

List amounts of water to be used for various purposes as:

Process order - the process for the 2000-2001 season.

Noncontact Cooling water - see Glossary for definition (page 49).

Sanitary water - water used for drinking, washing, etc., -ville-s, -ly-s, -ness.

[illegible]

THIS DOCUMENT CONTAINS NEITHER RECOMMENDATIONS NOR CONCLUSIONS OF THE NATIONAL BUREAU OF STANDARDS. IT IS THE PROPERTY OF THE NATIONAL BUREAU OF STANDARDS AND IS LOANED TO YOUR ORGANIZATION; IT AND ITS CONTENTS ARE NOT TO BE DISTRIBUTED OUTSIDE YOUR ORGANIZATION.

1734 E

UNITED STATES GOVERNMENT PRINTING OFFICE: 1975

List all chemical substances which are in Michigan's Chemical Hazardous Materials Table (page 5) and/or U.S. EPA's Priority Pollutant List Table (page 7) that are currently used, stored, or produced by this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE**ITEM
3**SOURCE
OF
WATER
SUPPLY

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

**ITEM
4**FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	
B. NONCONTACT COOLING WATER	QUANTITY (MAX.)	
C. SANITARY WATER	QUANTITY (MAX.)	
D. OTHER	SPECIFY	
	QUANTITY (MAX.)	

**ITEM
5**CRITICAL
MATERIALS
&
PRIORITY
POLLUTANTS
USED
•
STORED
•
PRODUCEDREFER
TO
TABLES
IV & V

UNITS CODE

- 1 POUNDS
2 GALLONS
3 CUBIC
YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	O-Dichlorobenzene
	PARAMETER NUMBER	0,0,0,9,5,5,0,1
	QUANTITY	UNITS 1/YEAR
MATERIAL 2	NAME OF SUBSTANCE	Antimony Potassium Tartrate
	PARAMETER NUMBER	C,L,A,S,S,0,1,0
	QUANTITY	UNITS 1/YEAR
MATERIAL 3	NAME OF SUBSTANCE	Pentachlorophenol
	PARAMETER NUMBER	C,L,A,S,S,0,6,4
	QUANTITY	UNITS 1/YEAR
MATERIAL 4	NAME OF SUBSTANCE	Polychlorinated Biphenyls (PCB)
	PARAMETER NUMBER	C,L,A,S,S,0,7,9
	QUANTITY	UNITS 1/YEAR
MATERIAL 5	NAME OF SUBSTANCE	Triphenylphosphate (EHC)*
	PARAMETER NUMBER	C,L,A,S,S,0,8,4
	QUANTITY	UNITS 1/YEAR
MATERIAL 6	NAME OF SUBSTANCE	Trixylenylphosphate (EHC)*
	PARAMETER NUMBER	C,L,A,S,S,0,8,4
	QUANTITY	UNITS 1/YEAR
MATERIAL 7	NAME OF SUBSTANCE	Zinc
	PARAMETER NUMBER	C,L,A,S,S,0,2,7
	QUANTITY	UNITS 1/YEAR

* Hydraulic Fluid

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 1, 2, AND 3

This form requires information about the water supply to the facility, the facility's water usage, and critical materials and priority pollutants used, stored, or produced at this facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

ITEM 1

SOURCE OF WATER SUPPLY

List all water supplies used. The volume may be estimated from water supply meter readings or from other statements from a water supply agency. If water is not metered, list date when data was obtained. Where a name is required, enter name of water body, e.g., Mud Lake, Huron River, or the City of Milford.

ITEM 2

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process Water - see Glossary for definition (page 48).

Noncontact Cooling Water - see Glossary for definition (page 48).

Sanitary Water - Water used for domestic purposes: e.g., toilets, sinks, showers.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume for each of the last designated use before treatment and/or discharge. For example, if water is initially used as noncontact cooling water and then as process water, the quantity of water given should be indicated as process water.

The total of Item 2 should equal the total of Item 3. Any difference in these totals should be explained in an attached sheet of this application.

ITEM 3

CRITICAL MATERIALS AND PRIORITY POLLUTANTS USED, STORED, PRODUCED

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) that are currently used, stored, or produced by this facility.

SECTION 1

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE**ITEM
3**SOURCE
OF
WATER
SUPPLY

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

**ITEM
4**FACILITY
WATER
USAGE

A. PROCESS WATER (INCLUDING CONTACT COOLING WATER)	QUANTITY (MAX.)	
	B. NONCONTACT COOLING WATER	
C. SANITARY WATER	QUANTITY (MAX.)	
	D. OTHER	
SPECIFY		
	QUANTITY (MAX.)	

**ITEM
5**CRITICAL
MATERIALS
&
PRIORITY
POLLUTANTS
USEDSTORED
PRODUCEDREFER
TO
TABLES
IV & V

UNITS CODE

- 1 POUNDS
2 GALLONS
3 CUBIC
YARDS
4 TONS

MATERIAL 1	NAME OF SUBSTANCE	Benzene (Gasoline)
	PARAMETER NUMBER	0,0,0,7,1,4,3,2
	QUANTITY	7,0,0,0 UNITS /YEAR
MATERIAL 2	NAME OF SUBSTANCE	Toluene (Gasoline)
	PARAMETER NUMBER	0,0,1,0,8,8,8,3
	QUANTITY	7,0,0,0 UNITS /YEAR
MATERIAL 3	NAME OF SUBSTANCE	Xylene (Gasoline)
	PARAMETER NUMBER	0,1,3,3,0,2,0,7
	QUANTITY	7,0,0,0 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

INSTRUCTIONS FOR COMPLETING SECTION I

ITEMS 3, 4, AND 5

This form requires information about the water supply to the facility, the facility's water usage, and critical materials and priority pollutants used, stored, or produced at this facility.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

ITEM 3

SOURCE OF WATER SUPPLY

List all water supplies used. The volume may be estimated from water supply meter readings or from billing statements from a water supply utility. If water is not metered, estimate from pump capacity. Where a name is required, enter name of water supply; e.g., Mud Lake, Huron River, or the City of Millpond.

ITEM 4

FACILITY WATER USAGE

List amounts of water to be used for various purposes as:

Process Water - see Glossary for definition (page 48).

Noncontact Cooling Water - see Glossary for definition (page 48).

Sanitary Water - Water used for domestic purposes; e.g., toilets, sinks, showers.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume per day of the last designated use before treatment and/or discharge. For example, if water is initially used as noncontact cooling water and then as process water, the quantity of water given should be indicated as process water.

The total of Item 4 should equal the total of Item 3. Any difference in these totals should be explained in an attached sheet of this application.

ITEM 5

CRITICAL MATERIALS AND PRIORITY POLLUTANTS USED, STORED, PRODUCED

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) that are currently used, stored, or produced by this facility.

SECTION I

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDETEM
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.

[SEE ATTACHED DESCRIPTION]

INSTRUCTIONS FOR COMPLETING SECTION 4

FEV 5

1. Enter the following information about the water flow through your facility from intake to discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXISTING PERMIT. IF THIS IS A NEW OR NOT PREVIOUSLY PERMITTED FACILITY, THEN LEAVE BLANK AND A NUMBER WILL BE ASSIGNED.

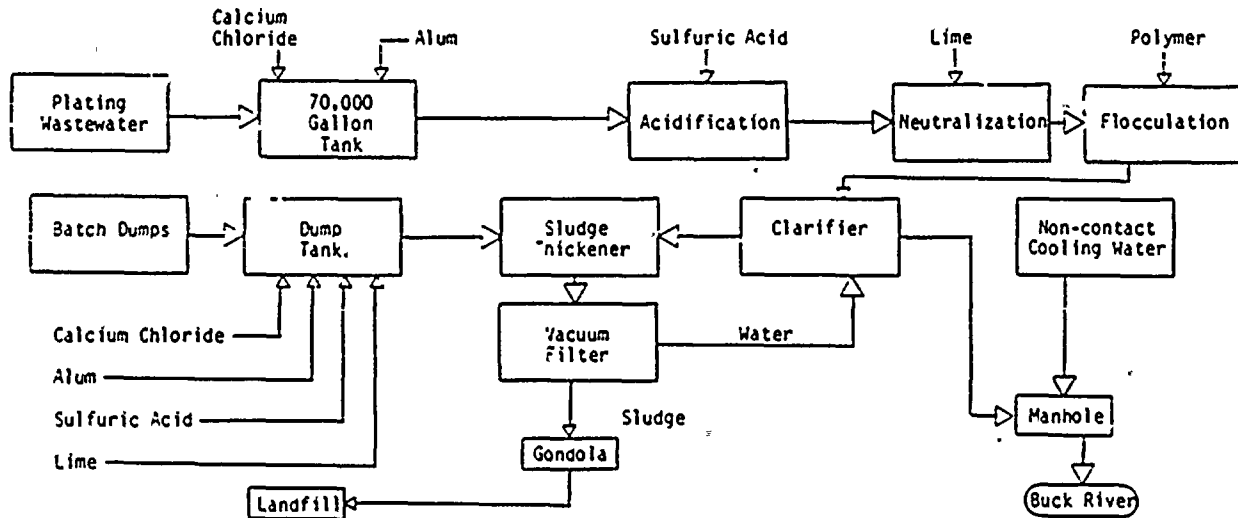
FEV 6

SECTION 4. FLOW AND TREATMENT DIAGRAM OF FACILITY'S PROCESSES AND TREATMENT SCHEME

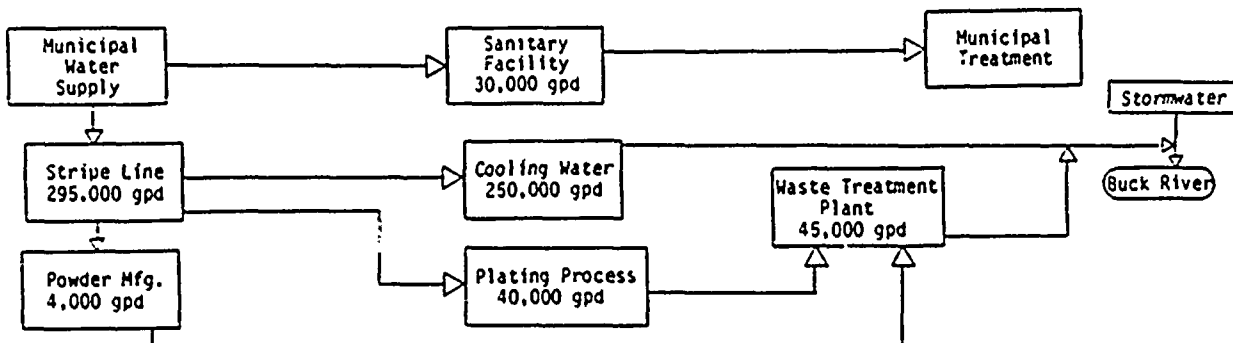
2. Enter & describe the route taken by water in your facility from the intake to the discharge and also provide a flow diagram.

Example Description and Diagram

Narrative: The rinse water from the various plating operations is collected in one of the two 35,000 gallon tanks. Calcium chloride and alum are added to assist in fluoride removal and aid in coagulation. The water is adjusted to a pH of about 8.5 using dilute sulfuric acid. The pH is then raised to a pH of about 10.5 using lime to precipitate the metals as hydroxides. Polymer is added to flocculate the metal hydroxides. The waste stream flows through a clarifier, the metal hydroxides settle to the bottom as "sludge". The treated water flows from the clarifier to a manhole where it combines with contact cooling water from the strip line. This combined water is discharged to the Buck River. The sludge from the clarifier goes to a vacuum filter where it is dewatered. The sludge is then taken to a landfill.



John Doe, Inc., Dierstown, manufactures sleeve bearings for automotive and truck engines. Production is divided into 3 phases. Metal powder is produced in the first phase. This is accomplished by melting copper, tin and lead into ingots in an electric furnace and pouring a jet of water to quench and solidify the melting metal into powder form. The second phase consists of adhering the fine metal powder to a coil of steel by passing the two slowly through furnaces. Water used to cool the strip constitutes the contact cooling water. Bearings are then formed and machined from the coated steel. In the third phase, most bearings receive a nickel strike and lead, tin copper electroplate. The remaining bearings are aluminum or babbit and receive a tin or lead plate. Rinse water before and after the various plating operations constitutes the process water.



SECTION I, ITEM 6, SUBPART A Cont'd
OUTFALL DESCRIPTIONS

OUTFALL 001 - Unit 1 Circulating Water Discharge

Outfall 001 is a non-contact cooling water discharge. Most of the non-contact cooling water is used to condense the steam exhausting from the steam driven turbines. The condenser cooling water is drawn from Lake Michigan, screened to remove large particles entrained in the water, routed through the Unit 1 condensers and then discharged to Lake Michigan. Outfall 001 also includes Steam Generator Blowdown, Plant Heating Boiler (described later as internal Outfalls 00A, 00B and 00C respectively), and the Reverse Osmosis (RO) system (described on page 10).

Outfall 001 also contains the effluent flow from the Essential Service Water (ESW) system, Non-Essential Service Water (NESW) system, and monitor tank releases. ESW (20,000 GPM maximum) is Lake Michigan water that is used to provide cooling to Nuclear Regulatory Commission (NRC) defined safety-related equipment and as an emergency backup water supply. NESW (9000 GPM maximum) is also Lake Michigan water used for non-contact cooling, as a source of water for the demineralized makeup system, and to supply water for NRC defined non-safety related equipment. Monitor tank releases (~20,000 gallons per event) are regulated by the NRC and consist of waste water generated within the Auxiliary Building that has been processed prior to batch discharge.

The non-contact cooling water for the circulating water system, the ESW system and the NESW system is treated for biological control using liquid sodium hypochlorite, with treatments usually beginning in May and terminating in November, depending on Lake Michigan temperatures. The biocide is added at the intake forebay and the average residual measured in the discharge is maintained at less than 0.2 mg/l at Outfall 001. The treatments last for no more than 160 minutes per day. If continuous chlorination is utilized, the residual measured in the discharge is maintained at less than 0.036 mg/l at Outfall 001.

This same water is periodically treated using a non-oxidizing biocide to eradicate the cooling systems of zebra mussels. The biocides we are considering (Betz CT-1, Betz CT-2, Betz CT-4, Calgon H-130M, and Nalco 9210) are all polyquats which will be detoxified, as required using bentonite clay to meet water quality based effluent limits. The treatments are directed to the critical plant systems from the intake structures located about one-half mile out in Lake Michigan through the entire plant cooling system, including the ESW and NESW systems. Systems are treated dependent upon zebra mussel infestation. Concentrations and chemical feed points are chosen to minimize the amount of biocide required and to maximize the treatment program. The systems may be treated at the same time or individually to allow more efficient use of chemicals. We plan to treat all systems within the plant a maximum of twice per year (six applications per year total) to assure safe operation of the nuclear generating units.

The current NPDES permit includes the use of sodium bromide and sodium hypochlorite solutions for treatment of the circulating water systems. These solutions, which are the major constituents of many proprietary mixtures such as Nalco Acti-Brom, are presently being considered as the basis of the Cook Nuclear Plant's strategic plan to control zebra mussels. Effective use of these oxidizing biocides are expected to reduce the frequency of non-oxidizing biocide treatments. See Attachment 3 of the cover letter for more details regarding our future zebra mussel control strategy.

The monitor tanks receive treated water from the radioactive waste removal system. One system handles the waste for Units 1 and 2 and the Auxiliary Building. This system treats wastes generated from the reactor coolant pump seal leakoffs, the refueling cavity water, equipment leaks, floor drains, valve stem leakoffs, waste sample solutions and laboratory wastes from the radiochemistry analysis in the hot chemical laboratory, system equipment drains, non-contact cooling water and decontamination processes. The wastes are collected in one of several tanks and treated when enough water is collected. The treatment utilizes either an evaporator system or a demineralizer system to remove radioactive contaminants.

The treated water is accumulated in the monitor tanks and sampled to ensure the waste meets the Nuclear Regulatory Commission radiological requirements prior to being discharged into the circulating water system.

Periodically, due to equipment leaks and/or system upsets, a waste stream is generated that contains radioactively contaminated ethylene glycol and water. This water is processed on-site prior to being released to Outfalls 001, 002 or 003.

Sulfur hexafluoride gas (SF₆) is utilized in the non-contact cooling water systems at the plant to detect leaks in various components such as the condensers. The gas is injected in the cooling water stream and discharged to Outfalls 001, 002 or 003 at less than 54 ul/L.

During upset conditions it is possible to overflow the contents of the Turbine Room Sump (see Outfall 00D) to Outfalls 001, 002 and/or 003 if the flow path to the on-site absorption pond cannot be used.

OUTFALL 002 - Unit 2 Circulating Water Discharge

Outfall 002 is a non-contact cooling water discharge. Most of the non-contact cooling water is used to condense the steam exhausting from the steam driven turbines. The condenser cooling water is drawn from Lake Michigan, screened to remove large particles entrained in the water, routed through the Unit 2 condensers and then discharged to Lake Michigan. Outfall 002 also includes Steam Generator Blowdown, Plant Heating Boiler (described later as internal Outfalls 00A, 00B and 00C respectively), and the Reverse Osmosis (RO) system (described on page 10).

Outfall 002 also contains the effluent flow from the Essential Service Water (ESW) system, Non-Essential Service Water (NESW) system, and monitor tank releases. ESW (20,000 GPM maximum) is Lake Michigan water that is used to provide cooling to Nuclear Regulatory Commission (NRC) defined safety-related equipment and as an emergency backup water supply.

NESW (9000 GPM maximum) is also Lake Michigan water used for non-contact cooling, as a source of water for the demineralized makeup system, and to supply water for NRC defined non-safety related equipment. Monitor tank releases (~20,000 gallons per event) are regulated by the NRC and consist of waste water generated within the Auxiliary Building that has been processed prior to the batch discharge.

The non-contact cooling water for the circulating water system, the ESW system and the NESW system is treated for biological control using liquid sodium hypochlorite, with treatments usually beginning in May and terminating in November, depending on Lake Michigan temperatures. The biocide is added at the intake forebay and the average residual measured in the discharge is maintained at less than 0.2 mg/l at Outfall 002. The treatments last for no more than 160 minutes per day. If continuous chlorination is utilized, the residual measured in the discharge is maintained at less than 0.036 mg/l at Outfall 002.

This same water is periodically treated using a non-oxidizing biocide to eradicate the cooling systems of zebra mussels. The biocides we are considering (Betz CT-1, Betz CT-2, Betz CT-4, Calgon H-130M, and Nalco 9210) are all polyquats which will be detoxified as required, using bentonite clay to meet water quality based effluent limits. The treatments are directed to the critical systems from the intake structures located about one-half mile out in Lake Michigan through the entire plant cooling system, including the ESW and NESW systems. Systems are treated dependent upon zebra mussel infestation. Concentrations and chemical feed points are chosen to minimize the amount of biocide required and to maximize the treatment program. The systems may be treated at the same time or individually to allow more efficient use of chemicals. We plan to treat all systems within the plant a maximum of twice per year (six applications per year total) to assure safe operation of the nuclear generating units.

The current NPDES permit includes the use of sodium bromide and sodium hypochlorite solutions for treatment of the circulating water systems.

These solutions, which are the major constituents of many proprietary mixtures such as Nalco Acti-Brom, are presently being considered as the basis of the Cook Nuclear Plant's strategic plan to control zebra mussels. Effective use of these oxidizing biocides are expected to reduce the frequency of non-oxidizing biocide treatments. See Attachment 3 of the cover letter for more details regarding our future zebra mussel control strategy.

The monitor tanks receive treated water from the radioactive waste removal system. One system handles the waste for Units 1 and 2 and the Auxiliary Building. This system treats wastes generated from the reactor coolant pump seal leakoffs, the refueling cavity water, equipment leaks, floor drains, valve stem leakoffs, waste sample solutions and laboratory wastes from the radiochemistry analysis in the hot chemical laboratory, system equipment drains, non-contact cooling water and decontamination processes. The waste is collected in one of several tanks and treated when enough water is collected. The treatment utilizes either an evaporator system or a demineralizer system to remove radioactive contaminants. The treated water is accumulated in the monitor tanks and sampled to ensure the waste meets the Nuclear Regulatory Commission radiological requirements prior to being discharged into the circulating water system.

Periodically, due to equipment leaks and/or system upsets, a waste stream is generated that contains radioactively contaminated ethylene glycol and water. This water is processed on-site prior to being released to Outfalls 001, 002 or 003.

Sulfur hexafluoride gas (SF₆) is utilized in the non-contact cooling water systems at the plant to detect leaks in various components such as the condensers. The gas is injected in the cooling water stream and discharged to Outfalls 001, 002 or 003 at less than 54 ul/L.

During upset conditions it is possible to overflow the contents of the Turbine Room Sump (see Outfall 00D) to Outfalls 001, 002 and/or 003 if the flow path to the on-site absorption pond cannot be used.

OUTFALL 003 - Deicing Discharge

Outfall 003 is a deicing discharge which is used on a limited basis. A portion of the flow from Outfall 001 and /or Outfall 002 is directed through the center intake tunnel to temper the intake water and prevent ice buildup on the intake structures which would restrict intake flow.

Use of this discharge is generally only required during the period from December through April depending on water temperatures and ice buildup along the shores of Lake Michigan. The chemical constituent of Outfall 003 is the same as Outfalls 001 and 002.

OUTFALL 00A - Unit 1 Steam Generator Blowdown

The steam generators require ultra high purity water for operation. Makeup water used in the steam generators is withdrawn from the intake forebay (or from Lake Township water supply) and essentially all natural impurities are removed through sedimentation, filtration, reverse osmosis, and demineralization. Periodically, impurities enter the steam generators through system corrosion transport mechanisms, the makeup water, or system upsets (such as condenser leakage) and must be removed to protect the steam turbines and heat transfer surfaces of the steam generators. The impurities are removed by draining a portion of the water from the steam generators.

In the steam generator, steam is separated from the water, further heated, and then routed to the turbines. When the steam separates from the water, the impurities remain in the water, concentrating in the steam generator. Blowdown consists of two forms, a liquid portion (700 GPM maximum) and a wet steam portion which is exhausted to the atmosphere. The liquid portion of the steam generator blowdown is discharged to the screenhouse forebay either directly, or after processing through mixed bed demineralizers. Impurities in this discharge may consist of insoluble iron and copper and at times, impurities from the cooling water (Lake Michigan) used to cool the condensers.

Steam generator additives consist of ammonia and/or monoethanolamine (ETA) for pH adjustment, hydrazine and/or carbohydrazide for oxygen scavenging, and boric acid for corrosion protection. Periodically, sodium nitrite is used as a tracer to determine the steam generator blowdown rate through each of its blowdown valves.

During unit outages, the steam generators are stored full of water, including treatment chemicals, to protect against corrosion during storage. This layup water is intermittently discharged (32,000 gallons per steam generator) through Outfall 00A to Lake Michigan. The layup water contains a maximum concentration of 400 ppm hydrazine and/or 40 ppm carbohydrazide, 50 ppm ammonia and/or ETA, and 20 ppm boron. The waste strength of this discharge is reduced through mixing with Outfalls 001, 002 or 003 by more than 40,000 times.

Demineralized water or secondary water is used to pressure clean the steam generators during outage periods. The water is recirculated through temporary filters to remove suspended solids. The major constituent of the suspended solids is iron oxide from the steam generators. The water is then returned to the steam generators and drained to Outfalls 00A, 00B, or 00D via the turbine room sump.

OUTFALL 00B - Unit 2 Steam Generator Blowdown

The steam generators require ultra high purity water for operation. Makeup water used in the steam generators is withdrawn from the intake forebay (or from Lake Township water supply) and essentially all natural impurities are removed through sedimentation, filtration, reverse osmosis, and demineralization. Periodically, impurities enter the steam generators through system corrosion transport mechanisms, the makeup water, or system upsets (such as condenser leakage) and must be removed to protect the steam turbines and heat transfer surfaces of the steam generators. The impurities are removed by draining a portion of the water from the steam generator.

In the steam generator steam is separated from the water, is further heated and then routed to the turbines. When the steam separates from the water, the impurities remain in the water, concentrating in the steam generator. Blowdown consists of two forms, a liquid portion (700 GPM maximum) and a wet steam portion which is exhausted to the atmosphere. The liquid portion of the steam generator blowdown is discharged to the screenhouse forebay either directly, or after processing through mixed bed demineralizers.

Impurities in this discharge may consist of insoluble iron and copper and at times, impurities from the cooling water (Lake Michigan) used to cool the condenser. Steam generator additives consist of ammonia and/or monoethanolamine (ETA) for pH adjustment, and hydrazine and/or carbohydrazide for oxygen scavenging. Periodically, sodium nitrite is used as a tracer to determine the steam generator blowdown rate through each of its blowdown valves.

During unit outages, the steam generators are stored full of water, including treatment chemicals, to protect against corrosion during storage. The layup water is intermittently discharged (32,000 gallons per steam generator) through Outfall 00B to Lake Michigan. The layup water contains a maximum concentration of 400 ppm hydrazine and/or 40 ppm carbohydrazide, and 50 ppm ammonia and/or ETA. The waste strength of this discharge is reduced through mixing with Outfalls 001, 002 or 003 by more than 40,000 times.

Demineralized water or secondary water is used to pressure clean the steam generators during outage periods. The water is recirculated through temporary filters to remove suspended solids. The major constituent of the suspended solids is iron oxide from the steam generators. The water is then returned to the steam generators and drained to Outfalls 00A, 00B, or 00D via the turbine room sump.

OUTFALL 00C - Plant Heating Boiler

A heating boiler (150,000 lb/hr capacity) operates to supply plant heating and auxiliary steam when Unit 1 and/or Unit 2 steam generators are out of service.



The boiler is also fired approximately once per month for testing purposes to ensure its availability.

Impurities from the boiler water consisting primarily of insoluble iron and copper, are discharged (30 GPM maximum) to the intake forebay. Boiler water treatment additives consist of ammonia and/or ETA for pH adjustment and hydrazine and/or carbohydrazide for oxygen scavenging. (See Outfall 00D for wet layup drains)

OUTFALL 00D - Utility Waste Waters

Utility waste water from within the plant is discharged via the turbine room sump (TRS) into an on-site absorption pond. The ultimate disposition of these waste waters is to the ground which vents to Lake Michigan. The waste waters include:

- Wastes from the makeup water treatment system. The main contributors to the waste stream are: the makeup plant demineralizer regeneration wastes (average 40,000 gallons per regeneration), degasifier pump seal water (108,000 GPD), carbon filter backwash water (average 45,000 GPD) and pre-filter backwash water (average 72,000 GPD). The retention tank periodically discharges a very small volume of solid material removed by settling. Alum (aluminum sulfate) is added to the pre-filter influent as a flocculent.

These pre-filters are backwashed to the TRS to remove the suspended matter captured on the filter media. The alum contained in the backwash is discharged to the TRS in the form of insoluble aluminum hydroxide. Carbon filters are also periodically backwashed to the TRS. These filters primarily remove organics, chlorine and small amounts of iron. Sulfuric acid and sodium hydroxide used by the makeup demineralizers to regenerate the resin, are rinsed to the TRS and generally neutralize each other in the sump to form sodium sulfate prior to discharge. Non-essential service water is used to supply vacuum degasifier pumps which utilize approximately 75 gpm total via two pumps to remove dissolved gases (primarily carbon dioxide and oxygen) from the vacuum degasifier and exhaust them to the atmosphere.

- ▶ A new component of the makeup plant, a reverse osmosis (RO) system, has been installed to remove the bulk of the dissolved solids from the lake water prior to demineralization. Normal reject water flow is to Lake Michigan. The RO system must maintain very clean membranes to assure efficient operation and purity of water. Several methods are used to maintain this level of cleanliness from scale and biofouling. Using hydrochloric acid or sulfuric acid, the feed water pH is lowered to reduce the scaling tendencies of the water. Approximately once per month, a flush is performed using approximately 0.5% hydrochloric acid and caustic to dissolve any scale that deposits on the membranes (average 5000 gallons per month). Chemical cleaning is performed when the above flushes are no longer are effective.

The chemical cleaning involves several steps and may contain citric acid, hydrochloric acid, phosphoric acid, sodium hydroxide and a neutral pH detergent (average 10,000 gallons per event). Also, to remove dead biological matter from the membranes, a soak using sodium bisulfite may be performed approximately once per year (average 5000 gallons per event).

- ▶ During periods when not in operation, the heating boiler is stored full of treated boiler water containing at most 400 ppm hydrazine or 40 ppm carbohydrazide for oxygen scavenging and 50 ppm ammonia or 50 ppm ethanolamine (ETA) (for corrosion protection). Prior to use, this "wet lay-up" water is drained to the TRS for discharge into the absorption pond. The volume drained is approximately 1600 gallons and may occur 30 times per year.
- ▶ During a unit outage, the condensers are checked for leaks by filling the steam side with condensate containing approximately 1000 grams of fluorescein disodium salt or Rhodamine B. These dyes, which are fluorescent under black light, aid in the detection of joint and tube leaks during visual inspection. The volume of water drained from the condensers ranges from 160,000 up to 1,000,000 gallons and may occur one time per year.

In addition, the cooling water side of the condensers are periodically drained to the TRS for general maintenance periodically (8 condenser halves per unit, approximately 25,000 gallons of lake water per half).

- ▶ The component cooling water system (CCW) is periodically drained to allow for equipment inspection, maintenance or repair. This system uses demineralized water from the makeup plant as its source of makeup water along with a maximum of 1200 ppm nitrite (from Calgon LCS 60) and 100 ppm glutaraldehyde as treatment chemicals. The infrequent drainings release approximately 60,000 gallons of treated water to the TRS per year.
- ▶ The diesel generator cooling jacket water system (DJW) employs the same chemical control for corrosion as in the component cooling water system with a maximum of 2000 ppm nitrites from Calgon LCS 60.

This system is drained through the floor drains to the TRS when maintenance is performed. The system volume is approximately 1000 gallons. Any minor system leaks would also be directed to the floor drain during normal operations.

- ▶ The essential service water systems (ESW) and non-essential service water systems (NESW) are also periodically drained to allow for equipment inspection, maintenance, or repair. These drains may discharge approximately 72,000 gallons of Lake Michigan water used for non-contact cooling into the TRS. This water is either chlorinated intermittently at a residual concentration of 0.2 mg/l TRC or continuously at 0.036 mg/l TRC. During some special treatment periods, this water may contain zebra mussel biocides, used as a molluscicide for zebra mussel control. Periodically, components of the ESW or NESW systems may be chemically cleaned to remove iron deposits using vendor supplied cleaning solution such as EDTA (ethylenediaminetetraacetic acid) or ascorbic acid, acetic acid and ammonia. These wastes could either be drained to the TRS or Lake Michigan.

- ▶ The steam generators (S/G) are drained for inspection and maintenance during scheduled unit outages (approximately every 18 months) and during an event where steam generator failure is detected that requires a unit shutdown. The steam generators utilize 150 ppb hydrazine (from either direct hydrazine feed or as a breakdown product of carbohydrazide), 20 ppm ammonia, and 2.5 ppm ETA to control the water and steam chemistry to be non-aggressive to cycle components. Unit 1 steam generators also utilize 10 ppm boron to control corrosion. A steam generator volume released during the draining is approximately 32,000 gallons each.

During wet lay-up, the S/Gs are stored full of water with up to 400 ppm of hydrazine or 40 ppm carbohydrazide and 50 ppm ammonia or ETA are added for corrosion control. This water is normally drained to surface water via NPDES Outfalls 00A or 00B, but may be drained to the TRS in some instances.

- ▶ The miscellaneous drain tanks can be aligned to discharge to the TRS. As much as 350,000 gallons per day may be directed to the TRS to control the chemistry limitations on the secondary water systems. Water chemistry is primarily the same as in the steam generators.
- ▶ Around the plant, miscellaneous sumps collect approximately 45,000 GPD of water from various equipment drains, leaks, pump seals, and steam jet air ejector drains. The frequency of discharge and types of chemicals used in this equipment have been described elsewhere in this description.
- ▶ Miscellaneous floor drains are located throughout the plant to provide a safe working environment by routing spilled or leaked water to the TRS. The major chemical influx into these drains are from the detergents and waxes used to maintain the floors. Also routed to the TRS through the floor drains are the chemical feed tank drains, fire protection water, drinking water, cooling water, and drains from bioboxes used to monitor the zebra mussel control measures and other chemical control monitors. The chemical feed tanks which may be drained contain hydrazine, ammonia, boron, ETA, carbohydrazide, and sodium hypochlorite. The bioboxes will discharge chlorine and zebra mussel biocides during treatments.

- ▶ Non-radiological chemical lab sink and floor drains are routed to the TRS for disposal. The drains carry water and the wastes generated while performing analyses and preparing laboratory standards including those on the attached list. Also discharged will be glassware and normal laboratory cleaning wastes. The average volume directed to the TRS is estimated to be 500-1000 GPD.
- ▶ Secondary (steam generator or condensate) sample water from continuous analyzers are routed to drains which discharge to the TRS and the miscellaneous drain tank. The analyzers are on the cycles which may contain as much as 10 ppm boron, 150 ppb hydrazine (from either a direct feed or as a breakdown product of carbohydrazide), 20 ppm ammonia, and 2.5 ppm ethanolamine. The analyzers measure corrosion transport at a average flow of 8500 gallons per day.
- ▶ Miscellaneous sealing and cooling water supplies cooling and sealing water to the TRS pumps, condensate booster pumps, circulating water pumps, vacuum priming pumps, drain seal reservoir tanks and drain sample coolers. The average flow per day is approximately 150,000 gallons.
- ▶ Non-essential service water supplies approximately 53,000 GPD of non-contact cooling water to various sample coolers throughout the plant's turbine building including the conductivity room and the steam jet air ejector sample points.
- ▶ Chemical spills that enter the TRS may be neutralized within the sump to prevent a discharge to the environment. The potential for spills to the TRS exists for the following chemicals with the proposed neutralizers listed:

<u>Chemical</u>	<u>Neutralizer</u>
Sulfuric acid	Sodium hydroxide
Sodium hydroxide	Sulfuric acid
Sodium hypochlorite	Sodium thiosulfate
Hydrazine	NESW (lake water), Hydrogen peroxide
Ethylene glycol	

OUTFALL 00E - Sanitary Waste Discharges

Sanitary wastes are presently segregated and routed to two extended aeration package treatment plants. The existing equipment is designed to treat 50,000 GPD and the effluent from the sewage treatment plants discharge into one of the two seepage lagoons. The lagoons discharge into the groundwater with the ultimate disposition being Lake Michigan. The sludge removed from the sedimentation tank basins is taken to a local POTW (public owned treatment works) for disposal or dewatered and stored as low level radioactive waste, as appropriate.

Plant sanitary waste consists of shower and rest room facilities, and janitor washbasins located throughout the Plant's non-radiological property. Kitchen wastes are generated from the plant cafeteria, the Cook Energy Information Center and Training buildings.

The chemistry training laboratory discharges to the sewage treatment plants through a limestone bed neutralization tank. The chemistry lab is used to train technicians on analyses performed in the plant. The discharge from the lab carries water and wastes generated while performing analyses and preparing laboratory standards including those on the attached list. A small photo lab, in the training building, uses (on a emergency basis) small quantities of hydroquinone to develop black and white pictures for plant use.

The training building HVAC system also drains to the limestone bed. A radiography lab in the plant also discharges small quantities of processing chemicals for non-destructive testing in the plant. None of the radiography products contain critical materials or priority pollutants.

All portable toilet wastes on the plant site are collected and discharged to the package plants. A biodegradable deodorant is used in the portable toilets. Sludge effluent waste may also be recycled through the plants to decrease the amount of sludge for processing when possible.

Miscellaneous rinsing of waste receptacles and possible cleaning operations waste, utilizing various detergents, may be rinsed to the sewage treatment plants.

Miscellaneous Outfalls

The main plant transformers on each unit are located within concrete berms. The berms are for spill containment should a catastrophic failure of a transformer occur. To protect against operational and safety concerns which stem from ponded water, these areas gravity drain to oil/water separators specific for each unit. Each separator is a below ground concrete basin designed to retain oil and release water to a series of drywells. Also discharging into the separators, are the emergency diesel generator pit sumps. These sumps collect limited water and fuel oil (less than 500 gallons per year) from the emergency diesel generator room. Periodically, the oil/water separators are pumped clean to remove the accumulated oil for proper off-site disposal.

The security diesel generator day tank has an overflow line that connects to the Unit One transformer deck catchbasin. Discharge to the catchbasin would only occur if the day tank were overfilled. Procedures and level indicators are used to prevent overfilling.



CHEMICAL LAB ANALYSIS

Additional Information

Section I

Item 6, Subpart A

Cook Nuclear Plant

Surface Water Permit Application

PLANT CHEMISTRY LAB (to Outfall OOD)

Chloride	ASTM D-512-81 (1986)
Fluoride	ASTM D-1179-80 (1986)
	Standard Methods 413 B (1985)
Hardness	ASTM D-1126-80
	EPA-600-4-79-020 Method 130.2 (1979)
Hydrazine	ASTM D-1385 (1983)
Silica	ASTM D Power Water Analysis Manual CH-41
Oil & Grease	EPA-600-4-79-020 Method 413.1 (1979)
pH	ASTM D-1293-84
	Standard Methods 423 (1985)
Free Mineral Acidity	ASTM D-1067-82 Method B
Total Phosphorus	EPA-600-4-79-020 Method 365.3 (1979)
Chemical Oxygen Demand	EPA-600-4-79-020 Method 410.2 (1979)
Sulfate	ASTM D-516-82 Method A (1985)
	EPA-600-4-79-020 Method 375.3 (1979)
	Standard Methods 426 A (1980)
Nitrites	Determination of Corrosion Inhibition by Calgon Corporation
Total Residual Chlorine	ASTM D-1253 (1986)
	Standard Methods (1980)

TRAINING BUILDING LAB (to Outfall OOE)

Boron	Westinghouse Chemical Analysis Procedure for PWR WCAD 7333 Rev. 1 (1973)
Chloride	ASTM D-512-81 (1986)
Fluoride	ASTM D-1179-80 (1986)
	Standard Methods 413 B (1985)
Hardness	ASTM D-1126-80
	EPA-600-4-79-020 Method 130.2 (1979)
Hydrazine	ASTM D-1385 (1983)
Silica	ASTM Power Water Analysis Manual CH-41
Oil & Grease	EPA-600-4-79-020 Method 413.1 (1979)
pH	ASTM D-1293-84
	Standard Methods 423 (1985)
Total Phosphorus	EPA-600-4-79-020 Method 365.3 (1979)
Atomic Absorption Metals	Standard Methods 302B, 303A (1985)
	EPA-600-4-79-020 Method 215.1, 220.1, 242.1, 249.1, 273.1 (1979)
Ion Chromatography	Dionex System Operators Manual

SECTION I

SEE INSTRUCTIONS
ON REVERSE SIDE

PERMIT
NUMBER

MI 00058 27

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.

[SEE ATTACHED DRAWING]

1994

התקן זה אינו מיועד לשימוש כמכשיר מדידה או כמכשיר מדידה. הוא אינו מיועד לשימוש כמכשיר מדידה או כמכשיר מדידה. הוא אינו מיועד לשימוש כמכשיר מדידה או כמכשיר מדידה.

- 24 -

[illegible]

2. The water supply to the city of New York is derived from the Catskill and Delaware Aqueducts, which are operated by the New York State Thruway Authority. The water is pumped from the aqueducts to the city of New York, where it is distributed to the residents. The water is treated at the City of New York Water Treatment Plant, which is located in the Bronx. The water is then pumped to the city of New York, where it is distributed to the residents. The water is treated at the City of New York Water Treatment Plant, which is located in the Bronx. The water is then pumped to the city of New York, where it is distributed to the residents.

SECTION I

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

ITEM
8CONCENTRATED
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?	NA <input type="text"/> ACRES
C. IF THERE IS OPEN CONFINEMENT, HAS A RUNOFF DIVERSION AND CONTROL SYSTEM BEEN CONSTRUCTED? (IF NO, CONTINUE TO ITEM 9)	NA <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 <input type="text"/> INCHES <input type="checkbox"/> 25 YEAR, 24 HOUR STORM <input type="text"/> INCHES <input type="checkbox"/> OTHER (SPECIFY) <input type="text"/> INCHES
E. WHAT IS THE NUMBER OF ACRES OF CONTRIBUTING DRAINAGE?	NA <input type="text"/> ACRES
F. WHAT IS THE DESIGN SAFETY FACTOR FOR THIS CONTROL SYSTEM?	NA <input type="text"/>

ITEM
9TYPE
&
NUMBER
OF
ANIMALS
IN
OPEN
AND
HOUSED
CONFINEMENT

TYPE 1	A. LIST TYPE OF ANIMAL.	NA <input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 2	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 3	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 4	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 5	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 6	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 7	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>
TYPE 8	A. LIST TYPE OF ANIMAL.	<input type="text"/>
	B. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN OPEN CONFINEMENT.	<input type="text"/>
	C. GIVE THE NUMBER OF THIS TYPE OF ANIMAL IN HOUSED CONFINEMENT.	<input type="text"/>

INSTRUCTIONS FOR COMPLETING SECT. 21

ITEMS 8 AND 9

This form requires information about the design, size, and type and numbers of animals in a concentrated animal feeding operation.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

GENERAL INFORMATION

For all animal feeding operations are required to obtain NPDES permits. Exclusions are based on size and occurrence of discharge. In general, for animal feeding operations, the size criteria depend on whether or not pollutants are discharged through a stormwater device or by direct contact with the facility or animals. A facility for laying hens or broilers is not required to have a permit unless it has a liquid manure handling system or continuous overflow watering. Also, facilities which discharge only in the case of a 25 year, 24 hour storm event are not required to have a permit.

ITEM 9-B

Give an estimate of the area used for the animal confinement or feeding facility. Do not include any area used for growing or separating feed.

ITEM 9-C

Check "yes" if any system for collection of runoff has been constructed. Supply the information under D, E, and F to the best of your knowledge.

ITEM 10-B AND C

Give the maximum number of each type of animal in open confinement or housed under roof (either partially or totally) which are in your facility for a total of 35 days or more in any 12 month period.

Use the following categories for type of animals:

- | | |
|---------------------------------------|---------------|
| - Slaughter Cattle | - Lambs |
| - Feeder Cattle | - Turkeys |
| - Mature Dairy Cattle (milked or dry) | - Laying Hens |
| - Sows each weighing over 25 pounds | - Broilers |
| - Horses | - Ducks |
| - Pigs | |

A permit is not required unless the facility has a liquid manure handling system or continuous overflow watering.

ANIMAL FEEDING OPERATION means a farm or facility (other than an aquatic animal production facility) where the following conditions are met:

- (1) Animals, other than aquatic animals, have been, are, or will be stabled or confined and fed or maintained for a total of 35 days or more in any 12 month period; and
- (2) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the farm or facility.

Two or more animal feeding operations under common ownership are a single animal feeding operation if they adjoin each other or are separated by a common wall or fence and the adjacent animals.

Animal Units means a unit of measurement for any animal feeding operation calculated by adding the following numbers: The number of slaughter and feeder cattle multiplied by 1.0; plus the number of mature dairy cattle multiplied by 1.0; plus the number of sows each weighing over 25 pounds (approximately 25 pounds) multiplied by 1.0; plus the number of sheep multiplied by 0.25; plus the number of horses multiplied by 1.0.

SEPARATED ANIMAL FEEDING OPERATION means an animal feeding operation which meets the criteria set forth in either (1) or (2) above and which the Director designates as such on a case-by-case basis.

More than the numbers of animals specified in any of the following categories are confined REGARDLESS OF WHETHER A SURFACE WATER DISCHARGE EXISTS:

1. 1,000 slaughter or feeder cattle.
2. 1,000 mature dairy cattle (whether milked or dry cows).
3. 2,000 sows each weighing over 25 kilograms (approximately 55 pounds).
4. 300 horses.
5. 1,000 turkeys.
6. 22,000 laying hens or broilers (if the facility has a continuous overflow watering).
7. 1,000 ducks or geese (if the facility has a liquid manure handling system).
8. 1,000 pigs.
9. 1,000 sheep.
10. 1,000 goats.

ANIMAL FEEDING OPERATION means a farm or facility (other than an aquatic animal production facility) where the following conditions are met:

1. 1,000 slaughter or feeder cattle.

SECTION I

PERMIT
NUMBER

MI 0005827

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)		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
	B. INDICATE THE TOTAL NUMBER OF PONDS, RACEWAYS AND SIMILAR STRUCTURES AT YOUR FACILITY. NA		_____ POUNDS _____ RACEWAYS _____ OTHER		
	C. INDICATE THE MONTH CALENDAR MONTH MAXIMUM FEEDING OCCURS. NA		_____ _____ _____		
	D. ENTER THE TOTAL NUMBER OF POUNDS OF FOOD FED DURING THIS MONTH? NA		_____ POUNDS _____		
ITEM 11 SPECIES OF AQUATIC ANIMALS PRODUCED AT THIS FACILITY	SPECIES 1	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?	NA	<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		
	SPECIES 2	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?		<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		
	SPECIES 3	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?		<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		
	SPECIES 4	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?		<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		
	SPECIES 5	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?		<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		
	SPECIES 6	A. IS THIS SPECIE A WARM OR COLD WATER SPECIE?		<input type="checkbox"/> WARM	<input type="checkbox"/> 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 _____		

INSTRUCTIONS FOR COMPLETING SECTION A
ITEMS 10 AND 11

This form requires information about the design, size, and type and numbers of animals in an aquatic animal production facility. Enter the permit number in the box at the top of this form. The permit number can be found on the front page of your permit. If you are a new or not previously permitted facility, then leave blank and a number will be assigned.

GENERAL INFORMATION

Not all fish farms are required to obtain NPDES permits. Exemptions are based on size and occurrence of discharge. For aquatic animal production facilities, the size criteria are based on whether the species are warm water or cold water, on the production weight per year in harvestable pounds, and on the amount of feeding in pounds of food (for cold water species). Facilities which discharge less than 30 days per year, or only during periods of excess runoff (for warm water fish) are not required to have a permit.

INDENTIFIED AQUATIC ANIMAL PRODUCTION FACILITY means a hatchery, fish farm, or other facility which contains, grows or raises aquatic animals in either of the following categories, or which the Director designates as such on a case-by-case basis:

1. Cold water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family (e.g., trout and salmon) in ponds, raceways or other similar structures which discharge at least 30 days per year but does not include:
 - a. Facilities which produce less than 2,272 harvest weight kilograms (approximately 5,000 pounds) of aquatic animals per year.
 - b. Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.
2. Warm water fish species or other warm water aquatic animals including, but not limited to, the Anguillidae, Ictaluridae, and Cyprinidae families of fish (e.g., respectively, catfish, sunfish, and minnows) in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:
 - a. Closed ponds which discharge only during periods of excess runoff.
 - b. Facilities which produce less than 22,722 harvest weight kilograms (approximately 50,000 pounds) of aquatic animals per year.

ITEM 10-B

Give the total number of discrete ponds or raceways in your facility. Under "other" give a descriptive name of any structure which is not a pond or a raceway but which results in discharge to waters of the United States.

ITEM 10-D

The value given for maximum monthly pounds of food should be representative of your normal operation.

ITEM 11-B

The name of fish species should be species, common, or scientific names.

ITEM 11-C AND D

The values given for total weight produced by your facility per year and the maximum weight present at any one time should be representative of your normal operation.

Note: The permit application continues with Section B and addresses items 1, 2, 3, and 4 on pages 31, 33, and 35.

SECTION I

PERMIT
NUMBER

MI 0005827

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

[SEE ATTACHED LIST]

ITEM
12

MAILING

LIST

OF

ADJACENT

PROPERTY

OWNERS

Section I, Item 12
ADJACENT PROPERTY OWNERS

EAST

Interstate I-94 (Michigan Dept. of State Highways)

SOUTH

Lake Township
c/o Gerald Wasko
Township Supervisor
1410 Shawnee Road
Bridgman, MI 49106

WEST

Lake Michigan (State of Michigan and United States of America)

NORTH

Rosemary Beach

11-11-6800

0038-00-5 Tengerstrom, Eric H.; 3415 S. 59th;
Cicero, IL 60650

0037-02-5 Tengerstrom, Eric H.; 3415 S. 59th;
Cicero, IL 60650

0037-01-7 Merkel's Floor Covering, Inc.; 8314
Scottsdale Rd.; Berrien Springs, MI 49103

0037-00-9 Kraiss, Wilbur & Marilou; 5004 S. Long
Ave.; Chicago, IL 60638

0036-00-2 Temmel, Edward P. & Kathleen; 9617 E.
Shore Dr.; Oak Lawn, IL 60453

0033-00-3 Gilpin, Clark & Nancy; 1005 E. 60th St.;
Chicago, IL 60637

0032-01-5 Wittebort, Robert J., Jr. & Nancy H.;
3180 N. Lakeshore Dr.; Chicago, IL 60657

0030-02-1 Meier, Paul & Louise G.; 1357 Madison
Park; Chicago, IL 60615

0028-01-8 Balka, Ronald A. & Janet M.; 3334 Louise
Dr.; Lansing, IL 60438

Section I, Item 12
ADJACENT PROPERTY OWNERS
Page 2

11-110006

- 0002-03 Michigan Dept. of Natural Resources;
P.O. Box 30028; Lansing, MI 48909
- 0004-00 Franklin Real Estate Co.; P.O. Box 2000;
St. Joseph, MI 49085
- 0004-04 Temmel, Edward P.; 9617 E. Shore Dr.; Oak
Lawn, IL 60453
- 0004-01 Caparo, William E. & Oyler, Kathryn E.;
122 S. Ellsworth Pl.; South Bend, IN
46635
- 0004-02 Rosemary Beach Corp.; c/o Secretary; 3415
S. 59th St.; Cicero, IL 60650

11-11-0007

- 0013-00 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0013-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0006-01 Indiana Michigan Power Company
- 0001-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106
- 0004-01 Lake Charter Twp.; Shawnee Rd.; Bridgman,
MI 49106

11-11-0005

- 0029 Technisand, Inc.; 11833 Ravenna Rd.;
Chardon, OH 44024
- 0036-01 Ruff, Timothy W.; P.O. Box 504
Bridgman, MI 49106
- 0027-00 Technisand, Inc.; 11833 Ravenna Rd.;
Chardon, OH 44024
- 0036-00 Emery, Martin; Hopkins, Elwood J. & Mable
N.; 7499 Thornton Dr.; Stevensville, MI
49127
- 0036-02 Indiana Michigan Power Company

11-11-0005-0002

- 01-6 Bank of America Texas P.O. Box 650380
Dallas, TX 75265

11-11-0008

- 0041-00 Michigan Dept. of Transportation;
Lansing, MI 48900
- 0009-00 Franklin Real Estate Co.; P.O. Box 2000;
St. Joseph, MI 49085

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER		0001	
A. LOCATION OF DISCHARGE		S.W. 1/4, N.W. 1/4, SECTION 06, TOWN 06S, RANGE 19W	
B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		LAKE MICHIGAN	
C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
D. IF YES, LIST DISCHARGE PERIODS		NA	
E. LAND APPLICATION RATE		IN./HR. HR./DAY IN./WK. <input checked="" type="checkbox"/> NA	
F. TYPE OF WASTEWATER DISCHARGE		2 3 WASTEWATER TYPE CODE	
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY 24 DAY/YEAR 365	
H. DISCHARGE FLOW RATE		TOTAL YEARLY 525965 UNIT CODE 1 DAILY MINIMUM 0 2 DAILY MAXIMUM 1441 2	
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED 151010 UNIT CODE 2	
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN 1500 UNIT CODE 2	
A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME FUNCTION	
NA			
C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.		NA	
D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		NA	
ADDITIVE NAME		MINIMUM UNITS CODE AVERAGE UNITS CODE MAXIMUM UNITS CODE	
ADDITIVE NAME			
ADDITIVE NAME			
E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		<input type="checkbox"/> YES <input type="checkbox"/> NO	
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		NA	
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. NA			

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
3PROCESS
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

0101

PROCESS
1A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

U, I, C, O, O, L, I, N, G, , W, T, R, , 4, 9, 1, 1,

B. PROCESS SCHEDULE (YEARLY AVERAGE)

HOURS/DAY 214

DAYS/YEAR 365

C. PROCESS WASTEWATER FLOW RATE

Basis: 1993 actual data submitted
DMRs

TOTAL YEARLY

3, 8, 0, 2, 2, 7 UNIT CODE 5

DAILY MINIMUM

7, 6, 0 6

DAILY MAXIMUM

1, 3, 2, 3 6

D. PROCESS PRODUCTION RATE

NA

UNITS / TIME

PROCESS
2A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

NA

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
3A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

NA

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
4A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

NA

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
5A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE
THROUGH THIS OUTFALL AND SIC CODE

NA

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

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter facility number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

MI 0005827

**SEE INSTRUCTIONS
ON REVERSE SIDE**

DEM
4

GROUNDWATER DISCHARGE INFORMATION

OUTFALL NUMBER	10011
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 NA
C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER RULE R.323.2207 (10) (PAGE 45) 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 NA
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 NA
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 NA <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**

UNCLASS CODE

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

A. DISCHARGE CHARACTERISTICS		CONCENTRATION		UNITS	CODE	# ANALYSES	SAMPLE TYPE
		AVE	MAX				
*BOD ₅	(FIVE DAY BIOCHEMICAL OXYGEN DEMAND)	111	111	1	1	1	
*COD	(CHEMICAL OXYGEN DEMAND)	111	111	1	1	1	
*TOC	(TOTAL ORGANIC CARBON)	111	111	1	1	1	
*AMMONIA NITROGEN	(AS N)	111	111	1	1	1	
*TOTAL SUSPENDED SOLIDS		111	111	1	1	1	
TOTAL PHOSPHORUS	(AS P)	111	111	1	1	1	
TOTAL RESIDUAL CHLORINE		011	020	1	*	1	
DISSOLVED OXYGEN	MIN	111	111	1	1	1	
PH	70	82	4	1			
FECAL COLIFORM BACTERIA		111	111	3	1	1	
*TEMPERATURE (SUMMER)		813	987	5	*	1	
*TEMPERATURE (WINTER)		655	834	5	*	1	
B. OTHER WASTEWATER CHARACTERISTICS							
OIL & GREASE		111	111	1	1	1	
		111	111	1	1	1	
		111	111	1	1	1	
		111	111	1	1	1	
		111	111	1	1	1	
		111	111	1	1	1	
		111	111	1	1	1	

SEE ATTACHED SHEETS FOR ANALYSIS DATA

SEE ATTACHED SHEETS FOR ANALYSIS DATA

* Basis: 1993 actual data submitted on DMRs

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section 11. For each individual discharge point a separate set of lists in Forms Items 4 and 5 must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

1. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

2. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.

3. 24-hour composite samples shall be used to analyze for Total BODs, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

(a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)

(b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

(c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)

5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

OUTFALL NUMBER

0,0,1

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.)

S I T M I E L E C I P W R

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 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); 0, 0-DIMETHYL 0-(2, 4, 5-TRICHLOROPHENYL) PHOSPHOROTHIOATE (ROHNEL); 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 TABLE IV PAGE 9 AND IIA THROUGH IVA 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

* Pesticide data is not required; however, it is provided.

INSTRUCTIONS FOR COMPLETING SECTION 1A

ITEM 5

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section 1A. For each individual discharge point a separate set of Section 1A forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(2), Friday, April 1, 1993, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.
and
E.-I.

- D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1993, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gun and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

OUTFALL NUMBER

0, 0, 1

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. 8. 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	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	UNIT CODE	SAMPLE TYPE	# OF ANALYSES
MATERIAL 1	*Sodium Hypochlorite . C L A S S O 1 4	0 1 1	G	* *
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES	0 2 0	1 7 8	4
	C. MAXIMUM CONCENTRATION AND MASS			
MATERIAL 2	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT			
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES			
	C. MAXIMUM CONCENTRATION AND MASS			
MATERIAL 3	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT			
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES			
	C. MAXIMUM CONCENTRATION AND MASS			
MATERIAL 4	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT			
	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			

NITS CODE

Mg/l

Ug/l

MS/DAY

MS/DAY

SAMPLE TYPE

GRAB

24 HR.COMP

* Discharged as total residual chlorine.

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

** Basis: 1993 actual data submitted on DMRs. Average concentration based on data from May to December.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

Diane

GLEC

GREAT LAKES ENVIRONMENTAL CENTER

739 Hastings Street
Traverse City, Michigan 49684
Phone (616) 941-2235
Fax (616) 941-2240

1030 King Avenue
Columbus, Ohio 43212
Phone (614) 297-3801
Fax (614) 297-8666

October 12, 1993

Mr. John Carlson
Indiana Michigan Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106

Dear John:

TOXICITY TEST REPORT FOR SULFUR HEXAFLUORIDE GAS (SF₆)

We have completed our analyses of the 48-hour Ceriodaphnia dubia and 96-hour fathead minnow (Pimephales promelas) static renewal-acute toxicity tests performed with sulfur hexafluoride (SF₆) gas in Lake Michigan water. The Lake Michigan water sample was collected by Indiana Michigan Company personnel on September 28, 1993. The sample was transported overnight to Great Lakes Environmental Center (GLEC), and we received the sample in good condition on September 29, 1993.

The C. dubia and fathead minnow tests were conducted in accordance with GLEC Standard Operating Procedures, which are based on procedures developed by U.S. EPA (Peltier and Weber, 1990, Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition, EPA/600/4-90/027) and ASTM (Standard Guide for Conducting Acute Toxicity Tests with Fishes, Macroinvertebrates and Amphibians, E729-88a, 1993).

It is our understanding that the Cook Nuclear Plant currently injects SF₆ into approximately 690,000 gpm of noncontact cooling water at a rate of 5 cfm, which is equivalent to a rate of 54 μ L/L of SF₆ gas. The fathead minnow acute toxicity test was initiated on October 1, 1993, using an undiluted Lake Michigan water sample that was injected with sulfur hexafluoride gas at a rate of 108 μ L/L (twice the plant's injection rate). The gas was injected into a sealed airtight chamber using a gas injection syringe. After injection, the sample was shaken and thoroughly mixed for one minute. This sample was then used as the highest test concentration. A reconstituted laboratory water (Hardness = 172 mg/L CaCO₃) was used to prepare nominal test concentrations of 54, 27, 14, and 7 μ L/L SF₆ gas.

Twenty fathead minnows (3 days old at test initiation) were exposed for 96 hours in groups of ten, in 250 ml glass beakers, each containing 200 ml of test solution (65 x 60 mm of solution in the beakers). Each day the test solutions were carefully renewed by siphoning most of the old solutions from the beakers; freshly prepared solutions were added back to each test chamber daily and the number of surviving fish was recorded. The SF₆ concentrations in the test chambers were not measured analytically.

FAKED
10-13-93
to MDNR (Allyson Pearson)

Mr. John Carlson
Indiana Michigan Power Company

2

October 12, 1993

The Ceriodaphnia dubia acute toxicity test was initiated simultaneously with the fathead minnow test using identical exposure concentrations. In each C. dubia test concentration we exposed 20 animals (<24 hours old at test initiation) in groups of five in 30 ml glass beakers, each containing 25 mls of test solution (40 x 45 mm of solution in the beakers). After 24 hours the animals were transferred to fresh solutions using a wide bore pipet, and the number of surviving or dead animals was recorded.

The reconstituted water used in C. dubia and fathead minnow toxicity testing is prepared according to EPA methods (Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition, EPA/600/4-90/027). We used dechlorinated reverse osmosis (R/O) treated municipal water for the culture of fathead minnows, and Boardman River water (headwaters) for culturing our C. dubia. Deionized reverse-osmosis (R/O) treated municipal water is the base water, to which reagent-grade salts are added to prepare each batch of reconstituted water.

The results of the C. dubia and fathead minnow tests indicate that the sulfur hexafluoride gas injected into the Lake Michigan water sample was not acutely toxic. There was 100 percent survival of the C. dubia in the 7, 14, 27, and 108 $\mu\text{L/L}$ SF6 concentrations, and 95 percent survival in the laboratory water controls and the 54 $\mu\text{L/L}$ SF6 concentration (Table 1). Therefore, the 48-hour LC_{50} value was greater than 108 $\mu\text{L/L}$ SF6 gas. The water chemistry data for the C. dubia test are summarized in Table 2.

In the fathead minnow test there was 100 percent survival in the 7, 54, and 108 $\mu\text{L/L}$ SF6 concentrations and in the laboratory water controls (Table 3). There was 95 percent survival in the 14 and 27 $\mu\text{L/L}$ test concentrations. Because there was less than 50 percent mortality in the 108 $\mu\text{L/L}$ test concentration, the 96-hour LC_{50} for fathead minnows was also greater than 108 $\mu\text{L/L}$ SF6 gas. The water chemistry data for the fathead minnow test are summarized in Table 4.

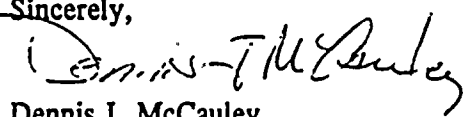
In summary, neither C. dubia nor fathead minnow survival was affected by any of the SF6 concentrations we tested, including the 108 $\mu\text{L/L}$ (highest test concentration) and 54 $\mu\text{L/L}$ (present application of SF6) test concentrations.

Copies of the raw data sheets and standard reference toxicant data for the acute effluent toxicity tests are included with this report in Appendices A and B.

If you have any questions or comments concerning the results of these toxicity tests, please contact either me or Mick DeGraeve at (616) 941-2230.

Thank you for the opportunity to provide this service to the Indiana Michigan Power Company. We appreciate your business and hope we can be of further service to you in the future. I will be in contact with you to arrange for the visit we have discussed.

Sincerely,


Dennis J. McCauley
Research Scientist

DJM:dm
Enclosures

TABLE 1. RESULTS OF A 48-HOUR CERIODAPHNIA DUBIA STATIC RENEWAL ACUTE TOXICITY TEST WITH SULFUR HEXAFLUORIDE GAS (SF₆) INJECTED INTO A SAMPLE OF LAKE MICHIGAN WATER (GLC# 1765) RECEIVED ON SEPTEMBER 28, 1993, FROM COOK NUCLEAR PLANT NEAR BRIDGMAN, MICHIGAN USING RECONSTITUTED LABORATORY WATER AS DILUTION WATER (TEST DATES: OCTOBER 1-3, 1993)

Test Concentration (μ l/L)	Percent Survival (N = 20)	
	24hr	48hr*
Laboratory Water Control	95	95
7 μ l/L	100	100
14 μ l/L	100	100
27 μ l/L	100	100
54 μ l/L	95	95
108 μ l/L	100	100

* 48-hour LC₅₀ value was not calculable (greater than 108 μ l/L).

TABLE 2. WATER CHEMISTRY SUMMARY FOR A 48-HOUR CERIODAPHNIA DUBIA STATIC RENEWAL-ACUTE TOXICITY TEST WITH SULFUR HEXAFLUORIDE GAS (SF₆) INJECTED INTO A SAMPLE OF LAKE MICHIGAN WATER (GLC# 1765) RECEIVED ON SEPTEMBER 28, 1993, FROM COOK NUCLEAR POWER PLANT NEAR BRIDGMAN, MICHIGAN USING RECONSTITUTED LABORATORY WATER AS DILUTION WATER (TEST DATES: OCTOBER 1-3, 1993)

Test Concentration (μ l/L)	pH ^a		Dissolved ^a Oxygen (mg/L)		Temperature ^a (°C)		Specific ^b Conductivity (μ mhos/cm)	Alkalinity ^c (mg/L CaCO ₃)	Hardness ^c (mg/L CaCO ₃)
	Mean	Range	Mean	Range	Mean	Range	Mean		
Laboratory Water Control	8.2 (8.1-8.4)		8.6 (8.0-9.0)		24.6 (24.1-25.0)		537	104	172
7 μ l/L	8.3 (8.2-8.4)		8.6 (8.0-9.0)		24.6 (24.1-25.0)		557		
14 μ l/L	8.3 (8.2-8.4)		8.6 (8.0-9.2)		24.6 (24.1-25.0)		543		
27 μ l/L	8.3 (8.3-8.4)		8.7 (8.0-9.4)		24.6 (24.1-25.0)		511		
54 μ l/L	8.3 (8.2-8.4)		8.7 (8.0-9.4)		24.7 (24.2-25.0)		445		
108 μ l/L	8.2 (8.1-8.4)		9.0 (8.0-9.8)		24.8 (24.3-25.0)		304	106	128

^a Measurements were made daily in each test chamber.

^b A single measurement was made at the beginning of the test on a composite sample before distribution to the test chambers and at the end of the test on a composite sample.

^c Alkalinity and hardness measurements were made upon preparation of the reconstituted laboratory water and upon arrival at the laboratory of the effluent.

TABLE 3.

RESULTS OF A 96-HOUR FATHEAD MINNOW STATIC RENEWAL ACUTE TOXICITY TEST WITH SULFUR HEXAFLUORIDE GAS (SF₆) INJECTED INTO A SAMPLE OF LAKE MICHIGAN WATER (GLC# 1765) RECEIVED ON SEPTEMBER 28, 1993, FROM COOK NUCLEAR POWER PLANT NEAR BRIDGMAN, MICHIGAN USING RECONSTITUTED LABORATORY WATER AS DILUTION WATER (TEST DATES: OCTOBER 1-5, 1993)

Test Concentration (μ l/L)	Percent Survival (N = 20)			
	24hr	48hr	72hr	96hr ^a
Laboratory Water Control	100	100	100	100
7 μ l/L	100	100	100	100
14 μ l/L	100	95	95	95
27 μ l/L	100	100	95	95
54 μ l/L	100	100	100	100
108 μ l/L	100	100	100	100

^a 96-hour LC₅₀ value was not calculable (greater than 108 μ l/L).

TABLE 4.

WATER CHEMISTRY SUMMARY FOR A 96-HOUR FATHEAD MINNOW STATIC RENEWAL ACUTE TOXICITY TEST WITH SULFUR HEXAFLUORIDE GAS INJECTED INTO A LAKE MICHIGAN WATER SAMPLE (GLEC# 1765) RECEIVED ON SEPTEMBER 28, 1993, FROM COOK NUCLEAR PLANT NEAR BRIDGMAN, MICHIGAN USING RECONSTITUTED LABORATORY WATER AS DILUTION WATER (TEST DATES: OCTOBER 1-5, 1993)

Test Concentration ($\mu\text{l/L}$)	pH ^a		Dissolved ^a Oxygen (mg/L)		Temperature ^a (°C)		Specific ^a Conductivity ($\mu\text{mhos/cm}$)		Alkalinity ^b (mg/L CaCO_3)	Hardness ^b (mg/L CaCO_3)
	New	Old	New	Old	New	Old	New	Old		
Laboratory Water Control	8.2 (8.2-8.4)	8.1 (7.9-8.2)	8.8 (8.8-8.9)	6.9 (6.2-7.5)	25.0 (25.0-25.0)	24.6 (24.2-25.3)	537 (494-566)	539 (539-539)	104 (104-104)	172 (172-172)
7 $\mu\text{l/L}$	8.3 (8.2-8.4)	8.1 (7.9-8.2)	8.9 (8.8-9.0)	7.5 (7.1-8.0)	25.0 (25.0-25.0)	24.6 (24.2-25.2)	556 (537-587)	547 (547-547)		
14 $\mu\text{l/L}$	8.3 (8.2-8.3)	8.2 (8.1-8.2)	9.0 (9.0-9.2)	7.4 (6.6-8.0)	25.0 (25.0-25.0)	24.6 (24.2-25.1)	539 (531-557)	531 (531-531)		
27 $\mu\text{l/L}$	8.3 (8.2-8.3)	8.1 (8.0-8.2)	9.1 (8.9-9.4)	7.1 (6.5-8.0)	25.0 (25.0-25.0)	24.6 (24.3-25.1)	514 (502-516)	502 (502-516)		
54 $\mu\text{l/L}$	8.2 (8.2-8.3)	8.1 (8.1-8.2)	9.2 (9.0-9.4)	7.2 (6.9-7.6)	25.0 (25.0-25.0)	24.6 (24.0-25.1)	444 (440-450)	438 (438-438)		
108 $\mu\text{l/L}$	8.1 (8.1-8.2)	8.0 (7.4-8.2)	9.8 (9.6-10.2)	7.5 (7.4-7.6)	25.0 (25.0-25.0)	24.6 (24.1-25.2)	311 (303-316)	304 (304-304)	106 (106-106)	128 (128-128)

^a Measurements were made on new test solutions and old test solutions. The numbers represent the mean and range (in parentheses) of measurements observed during the test.

^b Alkalinity and hardness measurements were made upon preparation of the reconstituted laboratory water and upon arrival of the sample.

APPENDIX A

RAW DATA SHEETS

DAILY RENEWAL *Lev. daphnia*

DAPHNID 48-HOUR STATIC ACUTE TOXICITY TEST

Test Material: COOK Nuclear
 Project No.: NO 36-00
 Test Species: D. magna
 Investigators: C. d. d. d.

Type of Test: SF Gas
 No. Daphnids/Chamber: 5/4
 No. of Chambers: 4
 Age of Daphnids: 24 hr

Dilution Water: H₂O # 499
 GLC and/or Batch No.: 1765
 Test Temperature: 25.1 °C
 Incubator #: 2 Photoperiod: 16:8

HA. 7 mL/L 14 mL/L 27 mL/L 54 mL/L 108 mL/L

Date	Test Day	Tech. Init.	Treatment Level	Control				A				B				C				D				E			
Time			Replicate Number	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
14/1/93 4:00 PM	0	BCL	Temperature	25.0				25.0				25.0				25.0				25.0				25.0			
			pH	8.35				8.35				8.33				8.30				8.24				8.08			
			DO (mg/L)	8.8				8.8				8.9				9.0				9.0				9.8			
			Sp. Cond. (umhos/cm)	494				537				530				516				450				303			
4:00 PM	1	DMM	No. Live	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5
			Observations (FS)	N	56	0		N	58	0		N	55	0		N	55	0		N	44	0		N	34	0	
			pH	8.17				8.07				8.20				8.31				8.24				8.40			
			DO (mg/L)	8.9				7.6				9.0				8.4				9.2				8.3			
			Temperature (°C)	25.0				24.2				25.0				24.1				25.0				24.1			
4:30 PM	2	BCL	No. Live	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5
			Observations (FS)	N	5			N	5			N	5			N	5			N	5			N	5		
			pH	8.14				8.26				8.25				8.30				8.28				8.20			
			DO (mg/L)	8.0				8.0				8.0				8.0				8.0				8.0			
			Sp. Cond. (umhos/cm)	550				548				541				501				444				276			
			Temperature (°C)	24.3				24.3				24.2				24.3				24.2				24.3			

Observation Key:
 DOB - Dried Out on Beaker
 ERR - Erratic Swimming
 F - Floater

PM - Particulate Matter
 FS - Film on Surface
 IMM - Immobile

Reviewed by: DMcAuley
 Date: 7 Oct 93

DAILY RENEWAL

FISH 96-HOUR STAT. ACUTE TOXICITY TEST

Test Material: COOK NUCLEAR

Type of Test: S.F. GAS

Dilution Water: H.R. #499

Project No.: NO 30-05

No. Fish/Chamber: 10

GLC and/or Batch No.: 1765

Test Species: FHM

No. of Chambers: 2

Test Temperature: 25 ± 1°C

Technicians: _____

Age of Fish: 5-8 hr 3 days

Incubator #: 2 Duration: 16.5

Date	Test Day	Tech. Init.	Treatment Level	H.R. Control		10% TMA		12% TMA		25% TMA		50% TMA		100% TMA	
Time			Replicate Number	1	2	1	2	1	2	1	2	1	2	1	2
10/1/83 4 pm	1	B-V	Temperature	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
			pH	8.35	8.35	8.35	8.35	8.35	8.35	8.35	8.35	8.35	8.35	8.35	8.35
			DO (mg/L)	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
			Sp. Cond. (umhos/cm)	494	537	530	530	530	530	530	530	530	530	530	530
5:00 pm	1	DMM	No. Live	10	10	10	10	10	10	10	10	10	10	10	10
			Observations	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6	N 5.6
			pH	8.17	8.17	8.20	8.20	8.24	8.24	8.27	8.27	8.25	8.25	8.15	8.15
			DO (mg/L)	8.9	8.9	9.0	9.0	9.2	9.2	9.4	9.4	9.4	9.4	9.7	9.7
10/3/83 3 pm	2	B-V	Temperature (°C)	25.0	24.2	25.0	24.2	25.0	24.2	25.0	24.2	25.0	24.0	25.0	24.1
			No. Live	10	10	10	10	10	9	10	10	10	10	10	10
			Observations	5.50	5.50	5.44	5.44	5.31	5.31	5.10	5.10	4.40	4.40	3.10	3.10
			pH	8.22	8.22	8.30	8.30	8.27	8.27	8.29	8.29	8.25	8.25	8.12	8.12
10/4/83 3 pm	3	P	DO (mg/L)	8.8	7.5	8.9	8.0	9.0	8.0	9.1	8.0	9.1	7.6	9.6	7.5
			Temperature (°C)	25.0	24.3	25.0	24.3	25.0	24.2	25.0	24.3	25.0	24.2	25.0	24.2
			No. Live	10	10	10	10	10	9	10	9	10	10	10	10
			Observations											15.0 min	
10/5/83 3:40	4	P	pH	8.17	7.93	8.19	8.08	8.24	8.08	8.24	8.08	8.21	8.08	8.14	8.10
			DO (mg/L)	8.8	6.2	8.8	7.1	9.0	7.0	8.9	6.5	9.2	7.1	10.2	7.6
			Temperature (°C)	25.0	25.3	25.0	25.2	25.0	25.1	25.0	25.1	25.0	25.1	25.0	25.3
			No. Live	10	10	10	10	10	9	10	9	10	10	10	10
			Observations												
			pH	8.13	8.23	8.15	8.15	8.15	8.15	8.15	8.15	8.20	8.20	8.24	8.24
			DO (mg/L)	6.5	7.1	6.6	6.6	6.6	6.6	6.6	6.6	6.9	6.9	7.4	7.4
			Sp. Cond. (umhos/cm)	539	547	531	531	531	531	502	502	438	438	304	304
			Temperature (°C)	24.4	24.8	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9

Observation Key:

DOB - Dried Out on Beaker

PM - Particulate Matter

ERR - Erratic Swimming

FS - Film on Surface

F - Floater

IMM - Immobile

Reviewed by: DM Canley

Date: 7 Oct 83



**EFFLUENT AND RECEIVING WATER
CHECK-IN FORM**

Client: Cock Nuclear Project No.: NC 36 - 00

Investigators: PL

INITIAL WATER CHEMISTRY (UPON RECEIPT)

Date:	Initials	Cock Nuclear (L. Mich)		
9-29-93	PL			
GLC No.		1765		
Collection Date (time interval)	PL	9-28-93		
Temperature	PL	13.4°C		

WATER CHEMISTRY AT TEST TEMPERATURES

Date:	Initials	Cock Nuclear		
9-29-93	PL			
GLC No.	PL	1765		
Temperature	PL	25.0		
pH	PL	8.13		
Dissolved Oxygen (mg/L)	PL	9.2		
Conductivity (umhos's/cm)	PL	281		
Hardness (mg/L)	PL	^{3.2} 128		
Alkalinity (mg/L)	PL	^{5.3} 106		
Total Chlorine (mg/L)*				
Total Ammonia (mg/L)*				

* Check with project manager to see if necessary

739 Hastings Street
Traverse City, MI 49684
Phone: (616) 941-2230
Fax: (616) 941-2240

CHAIN OF CUSTODY RECORD

(TO BE COMPLETED ON-SITE AND SUBMITTED WITH SAMPLES)

Facility: DC Cook Nuclear Plant, Ill. Mich Power
Location: Bridgman, Mich - Lake Michigan
Contact Person: John V. Carlson
Phone Number: 616 465 5901 ext 1153

Collector: J. Carlson
Date: 8-25-93 0910
Witness: Sam R. R. S.
Date: 8/25/93

SAMPLE ID	DATE/TIME OF SAMPLE	VOLUME COLLECTED	SAMPLE COLLECTOR	SAMPLE CONTAINER	DESCRIPTION (Type of sample, source, physical characteristics)	PRESERVATION	ANALYSES REQUIRED
1A-Z.C.R.C. Discharge	9-28-93/CA10	1 Gallon	J. Carlson	Cubetainer	Lake Michigan	---	For Test per contract
↓	↓	↓	↓	↓	↓	---	↓

TRANSFER OF SAMPLES:

(First signature is sampler, last signature is authorized laboratory representative.)

SHIPPER	RECEIVER	DATE	TIME
1. <u>J. Carlson</u>	<u>Ron Lee</u>	<u>9-28-93</u>	<u>710 Am</u>
2.			

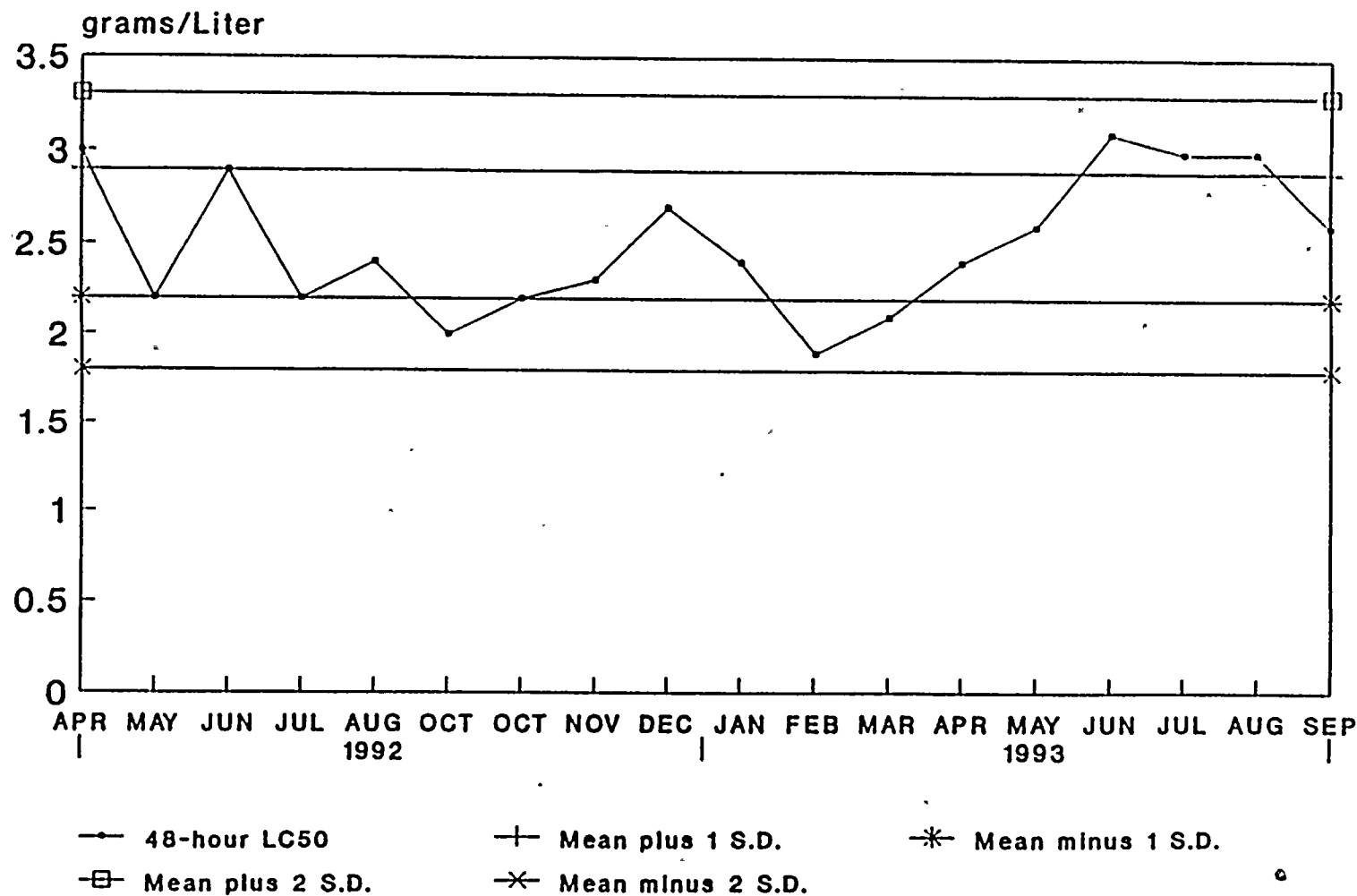
Condition of Sample Upon Receipt

13.4°C (cold packs)
(No ice.)

APPENDIX B

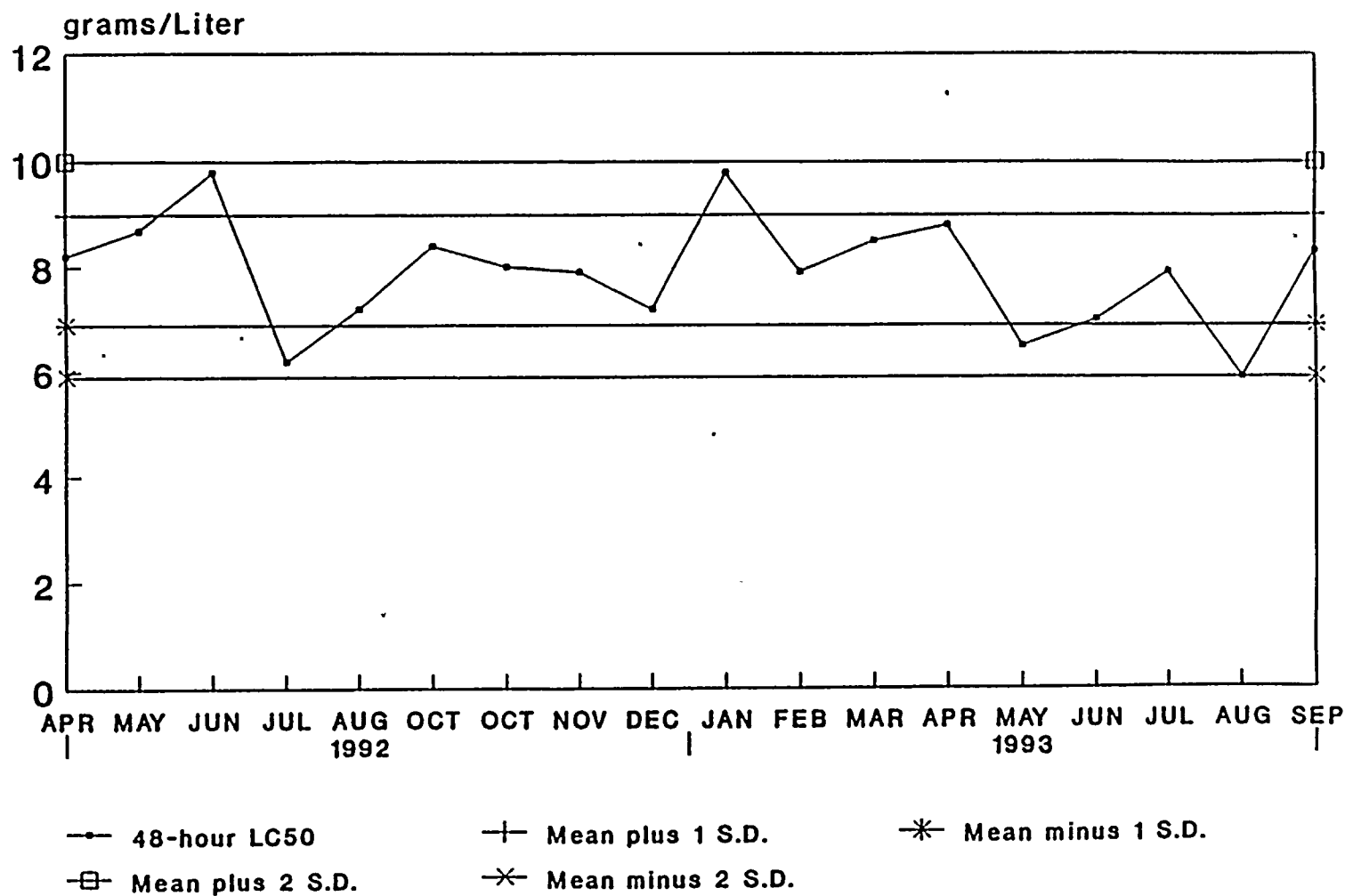
STANDARD REFERENCE TOXICANT DATA

GREAT LAKES ENVIRONMENTAL CENTER
Sodium Chloride (NaCl) Toxicity Data
1992 - 1993



Ceriodaphnia dubia Survival

GREAT LAKES ENVIRONMENTAL CENTER
Sodium Chloride (NaCl) Toxicity Data
1992 - 1993



Fathead Minnow Survival

REPORT ON THE WHOLE EFFLUENT
TOXICITY TEST FOR DETOXIFIED
CLAM-TROL EFFLUENT AT
DONALD C. COOK NUCLEAR PLANT

American Electric Power Service Corporation

and

Indiana Michigan Power Company

February 22, 1993

WHOLE EFFLUENT TOXICITY TEST

Introduction

The Michigan Department of Natural Resources (MDNR) issued a letter modification for the Donald C. Cook Nuclear Plant approving the use of the proprietary molluscicide Clam-Trol, CT-1 (Betz Industrial). The letter, dated April 24, 1992, from Mr. Fred Morley to Mr. Donald Baker, Indiana Michigan Power Company (I&M), allowed the use of Clam-Trol if the effluent contained Clam-Trol concentrations equal to or less than 0.05 mg/l. Since the detection limit for Clam-Trol is 0.2 mg/l, the MDNR required whole effluent toxicity (WET) testing to assure compliance with the state water quality standard provision prohibiting the discharge of toxic materials in toxic amounts.

The MDNR also required I&M to submit a study plan describing how the WET testing would be performed. Mr. Baker sent I&M's study plan to Mr. Morley by letter dated June 9, 1992. I&M's study plan described how and where the effluent streams would be sampled from Outfalls 001 and 002, and how the samples would be shipped, analyzed, and reported to the MDNR. This plan also described how the data would be evaluated and specified testing to be conducted should any single test produce an EC_{50} less than 100% effluent.

The letter modification of the Cook Plant NPDES Permit was conditional on the study plan being approved by the MDNR. MDNR notified I&M by letter dated July 16, 1992 that the study plan was acceptable.

Treatment of the Cook Plant for zebra mussel control has evolved from attempts to treat the entire plant in one operation to treating components of the plant in separate operations. The intake tunnels are treated individually, the circulating water system is treated as one system and components of the essential service water (ESW) and non-essential service water (NESW) systems are treated as needed.

Treatment Program Completed In 1992

The north and center intake water tunnels were treated with Clam-Trol on August 12 and 13 and September 11 and 12, 1992, respectively. The circulating water system was treated on September 16 with Clam-Trol. Water samples were collected during each of these three periods as described in the approved study plan. These samples of detoxified effluent were split and then shipped to a contract laboratory and to the MDNR toxicity testing laboratory for analyses. The contract laboratory conducted a 48-hour acute toxicity test using Daphnia pulex on each of the three water samples. At the same time the detoxified effluent samples were being analyzed, a series of bentonite clay solutions were being tested for impact on the test organisms. Daphnia sp. and other zooplankters can be adversely affected by mechanical (rather than chemically toxic) means when exposed to excessive amounts of suspended clay. These clay blank test series were conducted using Lake Michigan water and the same clay used to detoxify the Clam-Trol. Lake Michigan water used for dilution of the detoxified effluent tests and the clay blank tests was collected before the Clam-Trol treatments began.

Methods

Water samples were collected from the discharge tunnel manways using a submerged pump at the beginning of the treatment, at the fourth hour, at the eighth hour and at the twelfth hour of treatment. Samples were collected from Unit 2 discharge manway and composited in one container. At the end of the test, a sample was removed from the composited sample container and shipped to the contract laboratory. During treatments to the north and center intake tunnels on August 12-13 and September 11-12, 1992, there was no effluent from the Unit 1 discharge tunnel. During the circulating water system treatment on September 16, samples were collected from both the Unit 1 and Unit 2 discharge tunnel manways and composited into one container, from which the water for WET testing was taken.

The laboratory followed the procedure for conducting 48-hour EC_{50} acute toxicity tests according to the EPA protocol, "Method for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms," EPA/600/4-85/013. A dilution series of 100%, 50%, 25%, 12.5%, 6.25% and 0% (control) effluent was set up. Lake Michigan water filtered to remove native zooplankton was used for dilution. Four 30 ml beakers were set up for each test concentration and 25 ml of test solution was put in each beaker. Five Daphnia pulex juveniles (<24 hours old) were placed in each beaker. Temperature was maintained at $25^{\circ} \pm 1^{\circ}C$. Temperature, DO, and conductivity were measured every 24 hours. The effects were recorded every 24 hours. Organisms that failed to remain in the water column for five seconds after a gentle prod or swirling the beaker were considered effected. Results are reported as acute 48-hour EC_{50} values.

A test series of bentonite clay blanks was conducted the same as the detoxified Clam-Trol effluent. Filtered Lake Michigan water was mixed with the same concentration of bentonite clay used to detoxify the Clam-Trol. This concentration of bentonite clay was tested at 100%, 50%, 25%, 12.5%, 6.25% and 0% (control).

Results

Whole Effluent Toxicity tests were conducted August 15 through 17, September 13 through 15, and September 17 through 19, 1992. Table 1 shows the immobility percentages of the detoxified Clam-Trol effluent and the bentonite clay blank test concentrations. Immobility results exceeded the EC_{50} for 100% effluent at all detoxified effluent and clay blank test concentrations. The highest immobility result was 30% for the detoxified Clam-Trol effluent samples and 25% for the bentonite clay blanks at the 100% effluent concentration. One test series was technically invalid because the control (0% effluent) had >10% immobility. Except for the immobility observed at the control concentration in the detoxified effluent test conducted on September 13-15, toxicity was low and the immobilities that were observed followed a similar pattern as the clay blank test series. Immobility percentage differences between the detoxified Clam-Trol and clay blank test concentrations were usually 5% or less.

Discussion

The 70% immobility value obtained for the control test on September 13-15 would appear to be an anomalous value, since the bentonite clay blank control

using Lake Michigan water supplied to the contract laboratory in the same shipment showed 0% immobility. Three of the four control replicates showed all or nearly all test organisms were immobilized and in one of the four replicates none of the organisms were immobilized during the 48-hour test. An examination of the laboratory sheet for the treatment concentrations shows that the organisms in the replicates were immobilized in nearly equal numbers, e.g., the 50% and 100% effluent replicates had one or two immobilized organisms. None of the treatment replicates individually accounted for all of the immobilities, which would indicate a contaminated replicate. The immobilities were equally distributed among the replicates. There is no water quality parameter that was measured before, during, or after the toxicity test that indicates a problem for Daphnia pulex's well being.

Given the general lack of immobilization response of organisms in the different treatment concentrations tested on any given date and the similarity of test results from one test date to the next, there was little difference between the detoxified Clam-Trol effluent and the bentonite clay blanks effects on the test organisms. All tests were in compliance with the requirement that the 48-hour EC_{50} for Daphnia exceed 100% effluent, in other words the tests showed that effluent toxicity was less than the toxicity needed to produce an EC_{50} in 100% effluent. The lack of toxicity indicates the detoxified effluent had little impact on the Lake Michigan aquatic community.

TABLE 1

Daphnia pulex 48-hour Percent Immobility Values Obtained
 from Whole Effluent Toxicity Tests Conducted with
 Detoxified Clam-Trol in Lake Michigan Water and Bentonite
 Clay Blank Test Run in Lake Michigan Water
 (clay blank immobility percentages in parentheses)

<u>Test Date</u>	<u>Control</u> <u>(0Z)</u>	<u>6.25Z</u>	<u>12.5Z</u>	<u>25Z</u>	<u>50Z</u>	<u>100Z</u>
Aug 15-17	0Z (0Z)	0Z (0Z)	0Z (10Z)	15Z (0Z)	0Z (10Z)	25Z (5Z)
Sep. 13-15	70Z (0Z)	0Z (5Z)	15Z (10Z)	20Z (25Z)	30Z (20Z)	30Z (25Z)
Sep 17-19	0Z (5Z)	0Z (5Z)	10Z (5Z)	10Z (5Z)	5Z (0Z)	15Z (5Z)

ANALYTICAL REPORT

Cook Nuclear
Proj: Waste Water Analysis

Subm: Jan 26 Samples

Submittal Number: 29609- 3
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

	Outfall 001	Outfall 002	Circ. Intake	Detection Units Limit	
WWES Sample No:	78371	78372	78373		
BOD, (5-Day)	<1.0	<1.0	<1.0	1.0	mg/l
Sampled by:					
Date Sampled:	01/26/94	01/26/94	01/26/94		
Time Sampled:	00:00	00:00	00:00		
Date Received:	01/27/94	01/27/94	01/27/94		
Time Received:	13:30	13:30	13:30		

STATEMENT OF DATA QUALIFICATIONS

CLIENT: Cook Nuclear

SUBMITTAL: 29609-3

- X All analyses have been validated and comply with our Quality Control Program. No qualifications required.
- The following analyses have been qualified for the reasons cited.

KEY

1. Sample integrity suspect upon receipt (explain).
2. Analysis performed beyond EPA established maximum allowable holding time.
3. Detection limit elevated due to matrix interferences.
4. Laboratory control sample value outside established acceptable limits.
5. Matrix spike sample value outside established acceptable limits.
6. Duplicate analysis value outside established acceptable limits.
7. Surrogate/internal standard recoveries outside established acceptable limits.
8. Data point suspect due to potential laboratory contamination (explain).
9. Coelutes with the compound cited. Result may represent a combination of both compounds.
10. Other (explain).

Note: This document is included as part of the Analytical Report for the above referenced and should be retained as a permanent record thereof.

ANALYTICAL REPORT

Cook Nuclear
Proj: Waste Water Analysis
Subm: January Samples

Submittal Number: 29609- 4
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

	Outfall 001-Circ Water Dsch	Outfall 002-Circ Water Dsch	Circ Water Intake	Detection Limit	Units
WWES Sample No:	78532	78533	78534		
Surfactants, MBAS	<0.025	<0.025	<0.025	0.025	mg/l
Coliform, Fecal	2	<1	4	1	cl/100ml
Color (Apparent)	<5	<5	<5	5	@ pH _
Sampled by:	V. Shah	V. Shah	V. Shah		
Date Sampled:	01/26/94	01/26/94			
Time Sampled:	00:00	00:00			
Date Received:	01/28/94	01/28/94	01/28/94		
Time Received:	00:00	00:00	00:00		

STATEMENT OF DATA QUALIFICATIONS

CLIENT: Cook Nuclear

SUBMITTAL: 29609-4

☐ All analyses have been validated and comply with our Quality Control Program. No qualifications required.

☒ The following analyses have been qualified for the reasons cited.

Sample No.(s): 78532-78535 Parameter: Fecal Coliform Reason: 2

Explanation: _____

KEY

1. Sample integrity suspect upon receipt (explain).
2. Analysis performed beyond EPA established maximum allowable holding time.
3. Detection limit elevated due to matrix interferences.
4. Laboratory control sample value outside established acceptable limits.
5. Matrix spike sample value outside established acceptable limits.
6. Duplicate analysis value outside established acceptable limits.
7. Surrogate/internal standard recoveries outside established acceptable limits.
8. Data point suspect due to potential laboratory contamination (explain).
9. Coelutes with the compound cited. Result may represent a combination of both compounds.
10. Other (explain).

Note: This document is included as part of the Analytical Report for the above referenced and should be retained as a permanent record thereof.

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> – Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> – Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> – Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> – Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

Lockheed Analytical Services

DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 01/19/1994]

For Use On The Analytical Data Reporting Forms	
A	<i>For CLP analyses Only</i> -- The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. <i>[pesticide/PCB analyses only]</i>
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to <u>surrogates</u> being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	<i>Estimated value</i> -- (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs (<i>For CLP Reporting Only</i>).
N	<i>For CLP Reporting Only</i> -- Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	<i>For CLP Reporting Only</i> -- The percent difference between the concentrations detected on both GC columns was greater than 25 percent <i>[pesticide/PCB analyses only]</i> .
U	<i>For CLP Reporting Only</i> -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
N/A (% Moisture)	N/A in the % moisture cell indicates that data are reported on an "as received" basis. A value in the % moisture cell indicates that data are reported based on a "dry weight" basis. <i>For non-CLP work</i> , RDLs are not adjusted for % moisture even when data are reported on a "dry weight" basis.
For Use On The QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC Summary Form.

Lockheed Analytical Services
DATA QUALIFIERS FOR RADIOCHEMICAL ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL) and/or minimum detectable activity (MDA).
C	Presence of high TDS in sample required reduction of sample size which increased the MDA.
D	Constituent detected in the diluted sample.
E	Constituent concentration exceeded the calibration or attenuation curve range.
F	<i>For Alpha Spectrometry Only</i> -- FWHM exceeded acceptance limits.
H	Sample analysis performed outside of method-specified maximum holding time requirement.
Y	Chemical yield exceeded acceptance limits.
For Use on the QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for laboratory control standard and matrix spike; and RPD for replicate analyses) exceeded acceptance limits.
a¹	The spike recovery and/or RPD for matrix spike and duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the MDA.

¹ Used as foot note designations on the QC summary form.

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 001	Date Collected: 01-24-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 01-26-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		03-02-94	L1131-8
Bromide, in mg/L	300.0	<0.050	0.050		01-28-94	L1131-16
Nitrite-Nitrate-Nitrogen, in mg/L	353.2	0.35	0.050		02-11-94	L1131-21
Sulfate, in mg/L	300.0	22	0.059		01-27-94	L1131-16
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-27-94	L1131-25
Total Phenolics, in mg/L	420.1	<0.15	0.15		02-08-94	L1131-30
Sulfide, in mg/L	376.1	<1.0	1.0		01-27-94	L1131-11

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 001 CIRC WATER	Date Collected: 01-26-94	Matrix: water
LAL Batch ID(s): 126 im, 127 im	Date Received: 01-27-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Total Phosphorus, in mg/L	365.2	<0.030	0.030		02-08-94	L1142-5
Ammonia-Nitrogen, in mg/L	350.1	<0.050	0.050		02-01-94	L1142-5
Total Suspended Solids, in mg/L	160.2	<12	12		02-02-94	L1142-9
Total Organic Carbon, in mg/L	415.2	1.8	1.0		02-16-94	L1142-1
Chemical Oxygen Demand, in mg/L	410.2	<18	18		01-28-94	L1142-1
Total Kjeldahl Nitrogen, in mg/L	351.2	0.20	0.10		03-03-94	L1142-5

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 001	Date Collected: 01-27-94	Matrix: water
LAL Batch ID(s): 128 im	Date Received: 01-28-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Date Qualifier(s)	Date Analyzed	LAL Sample ID
Color	110.3	<5.0	5.0		01-28-94	L1151-1
Sulfite, in mg/L	377.1	<1.0	1.0		01-29-94	L1151-1

Comments:

METALS RESULTS

Client Sample ID: OUTFALL 001	Date Collected: 01-24-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 01-26-94	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		02-22-94	L1131-94
Antimony	6010	<0.060	0.060		02-22-94	L1131-94
Arsenic	7060	<0.010	0.010		02-20-94	L1131-94
Barium	6010	<0.20	0.20		02-22-94	L1131-94
Beryllium	6010	<0.005	0.005		02-22-94	L1131-94
Boron	6010	<0.20	0.20		02-22-94	L1131-94
Cadmium	6010	<0.005	0.005		02-22-94	L1131-94
Chromium	6010	<0.010	0.010		02-22-94	L1131-94
Cobalt	6010	<0.050	0.050		02-22-94	L1131-94
Copper	6010	<0.025	0.025		02-22-94	L1131-94
Iron	6010	<0.10	0.10		02-22-94	L1131-94
Lead	7421	<0.003	0.003		02-23-94	L1131-94
Magnesium	6010	12	5.0		02-22-94	L1131-94
Manganese	6010	<0.015	0.015		02-22-94	L1131-94
Mercury	7470	<0.0002	0.0002		02-09-94	L1131-94
Molybdenum	6010	<0.067	0.067		02-22-94	L1131-94
Nickel	6010	<0.040	0.040		02-22-94	L1131-94
Phosphorus	6010	<0.050	0.050		02-22-94	L1131-94
Selenium	7740	<0.005	0.005		02-25-94	L1131-94
Silver	6010	<0.010	0.010		02-22-94	L1131-94
Strontium	6010	0.13	0.10		02-22-94	L1131-94
Thallium	7841	<0.010	0.010	N	02-28-94	L1131-94
Tin	6010	<0.20	0.20		02-22-94	L1131-94
Titanium	6010	<0.10	0.10		02-22-94	L1131-94
Uranium	6020	<0.001	0.001		03-07-94	L1131-94
Vanadium	6010	<0.050	0.050		02-22-94	L1131-94
Zinc	6010	<0.020	0.020		02-22-94	L1131-94

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: OUTFALL 001	LAL Sample ID: L1131-41
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Matrix: WATER	Date Analyzed: 03-FEB-94
Analytical Batch #: 020394-8260-J-2	Dilution Factor: 1
QC Batch ID: 020394-8260	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	98	76-114
Toluene-d8	103	88-110
4-Bromofluorobenzene	97	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

101

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: OUTFALL 001

LAL Sample ID: L1131-41

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

102

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL 001	LAL Sample ID: L1131-41
Date Received: 26-JAN-94	Date Analyzed: 03-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 020394-8260-J-2	QC Batch ID: 020394-8260

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NO COMPOUNDS IDENTIFIED			

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL 001	LAL Sample ID: L1131-55
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 020394-8270-A	Date Extracted: 31-JAN-94
QC Batch ID: 8270-SEMIVOLATILE 4825	Date Analyzed: 03-FEB-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	27	21-100
Phenol-d ₆	22	10-94
Nitrobenzene-d ₅	64	35-114
2-Fluorobiphenyl	57	43-116
2,4,6-Tribromophenol	48	10-123
p-Terphenyl-d ₁₄	37	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

120

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL.001		LAL Sample ID: L1131-55	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Carbazole	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	

121

SEMI-VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL 001	LAL Sample ID: L1131-55
Date Received: 26-JAN-94	Date Analyzed: 03-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 020394-8270-A	QC Batch ID: 8270 SEMIVOLATILE_4825

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NO COMPOUNDS DETECTED			

**OIL AND GREASE
EXTRACTABLES ANALYSIS RESULTS
BY FT/IR USING METHOD 413.2**

Client Sample ID: OUTFALL 001	LAL Sample ID: L1131-75
Date Collected: 24-JAN-94	Date Analyzed: 07-FEB-94
Date Received: 26-JAN-94	Dilution Factor: 1
Matrix: WATER	Date Extracted: 02-FEB-94
Analytical Batch #: 020494-413.2	QC Batch ID: 020294-413.2

Constituent	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)
Oil and Grease	<1	1	

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080

Client Sample ID: OUTFALL-001	LAL Sample ID: L1131-65
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Date Extracted: 31-JAN-94	Date Analyzed: 01-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 013194-8080-E-4	QC Group ID: 8080 PEST/PCBS_4822

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	50*	60-150
DCB	39*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 001

LAL Sample ID: L1131-85

Date Collected: 24-JAN-94

Date Received: 26-JAN-94

Matrix: Water

Login Number: L1131

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
Gross Alpha	23-FEB-94	GR ALP/BETA LAL-0060_4756	0.4	1.1	2		pCi/L
Gross Beta	23-FEB-94	GR ALP/BETA LAL-0060_4756	3.2	1.5	2.2		pCi/L

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 001

LAL Sample ID: L1131-89

Date Collected: 24-JAN-94

Date Received: 26-JAN-94

Matrix: Water

Login Number: L1131

Constituent	Analyzed	Batch	Activity	Error	MOA	Data Qual	Units
Ra-226	22-FEB-94	RA-226 LAL-0073_4771	0.02	0.11	0.22		pCi/L
Ra-228	23-FEB-94	RA-228 LAL-0074_5503	3	0.44	0.59		pCi/L

PH Analysis (LAB.079)

PH Meter

CPC # 102

Cal date due 1/14/95

Outfall 001

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

U-1 Circ dish
0900
1/24/94

U-2 Circ dish
0930
1/24/94

Circ Intake
1430
1/25/94

Dr - Ice:
1500
1/25/94

6) Sample °C/ph
(prior to
correction)

7.78

7.95

8.02

7.79

5.3.5

7) NH₃ pH
correction

-

-

-

-

5.3.6

8) Sample results
C/pH (after
NH₃ Correction)

25/7.78

25/7.95

24/8.02

23/7.79

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

PH 8.5

U-1 F/T 300

U-2 F/T 300

1600

1530

1/28/94

1/31/94

6) Sample °C/ph
(prior to
correction)

24/6.86

25/7.05

5.3.5

7) NH₃ pH
correction

-

-

5.3.6

8) Sample results
°C/pH (after
Correction)

6.86

7.05

9) LAB.041 Specs Verified by: N/A

Supervisor Review/Date 1/27/94

Form prepared by/Date 1/23/93
Form approved by/Date 1/23/93
12 THP LAB.041.25s
Revision 1

Outfall 001

Determination of Total Chlorine
(Lab 170)

Instrument CPC# 505
Standard ICN-CID# 2310
Technician NB

Sample\Standard
Sample #
Date
Time
CDM Entered by

Circ Intake
3/7/94
1430
-

U-1 Circ dish U-2 Circ dish De Ice.
3/7/94 3/7/94 3/7/94
1430 1430 1430
- - -

PHB
3/7/94
1430
-

1) Absorbance

<

less than

less than

less than

less than

6.11

2) Results, ppm

<.05

<.05

<.05

<.05

<.05

3) Dilutions made

-

-

-

-

-

4) Results, ppm
(#2 * # 3)

<.05

<.05

<.05

<.05

<.05

5) LAB.041 Specs Verified by: N/A

Supervisor Review/Date YB 3/7/94

Form prepared by/Date Ray 4/9/93
Form approved by/Date SL 4-2-93
12 THP LAB.041-25j1
Revision 0

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 1 DISCHARGE LOCATION SCHEDULE FLOW RATE WASTEWATER TYPE CODE CONTACT COOLING NONCONTACT COOLING PROCESS SANITARY STORMWATER UNIT CODE 1 MGY 2 MGD 3 GPD	OUTFALL NUMBER	0, 0, 2						
	A. LOCATION OF DISCHARGE	[S, W] 1/2, [N, W] 1/2, SECTION 0, 6, TOWN 0, 6, S, RANGE 1, 9, W						
	B. NAME OF RECEIVING WATER (I.E. GROUNDWATER OR NAME OF SURFACE WATER)	L, A, K, E, , M, I, C, H, I, G, A, N, , , , , ,						
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
	D. IF YES, LIST DISCHARGE PERIODS	NA		MO. / DAY		MO. / DAY		
				THROUGH				
				THROUGH				
				THROUGH				
	E. LAND APPLICATION RATE	IN./HR.		HR./DAY		IN./WK.		
						<input checked="" type="checkbox"/> NA		
F. TYPE OF WASTEWATER DISCHARGE	[2]		[3]		WASTEWATER TYPE CODE			
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)	HOURS/DAY		DAY/YEAR					
	[2]		[4]		[3]			
H. DISCHARGE FLOW RATE	TOTAL YEARLY		[6]		[6]			
			[4]		[3]			
	DAILY MINIMUM		[0]		UNIT CODE [2]			
	DAILY MAXIMUM		[1]		[8]			
			[2]		[0]			
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.	AUTHORIZED		[1]		UNIT CODE [2]			
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.	DESIGN		[1]		UNIT CODE [2]			
			[8]		[2]			
			[0]					
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)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.	NA		NAME		FUNCTION		
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.	NA						
D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.	NA		MINIMUM	UNITS CODE	AVERAGE	UNITS CODE	MAXIMUM	UNITS CODE
ADDITIVE NAME			[]	[]	[]	[]	[]	[]
ADDITIVE NAME			[]	[]	[]	[]	[]	[]
ADDITIVE NAME			[]	[]	[]	[]	[]	[]
E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?	NA		<input type="checkbox"/> YES		<input type="checkbox"/> NO			
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?	NA		% REMOVAL		DISCHARGE FREQUENCY			
ADDITIVE NAME			[]		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.	NA							

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER		101012	
PROCESS 1 PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	U 21 C 0101 L I N I G W T R 49 1 1	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 24	DAYS/YEAR 363
	C. PROCESS WASTEWATER FLOW RATE Basis: 1993 actual data submitted on DMRs	TOTAL YEARLY 480844 UNIT CODE 5 DAILY MINIMUM 0 6 DAILY MAXIMUM 1743 6	
	D. PROCESS PRODUCTION RATE NA	UNITS / TIME	
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE NA		
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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 NA		
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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 NA		
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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 NA		
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section 11. For each individual discharge point a separate set of Section 11 forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- List name of receiving water (if surface water discharge).
- Indicate whether facility discharges on a seasonal basis.
- If yes, list discharge periods.
- Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to Item 3.
- Give name, function, and chemical composition of additives used.
- Give name and address of the manufacturer(s) of the additives used.
- Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

INSTRUCTORS FOR COMPLETING SECTION 3

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter permit number in space provided for each page of Section 3. For each individual discharge point a separate set of Section 3 forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION:

1. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
2. Indicate the yearly average process schedule in hours per day and days-per-year.
3. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
4. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Report your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER

010121

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.)

S I T M I E L E C I P I W R

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 IIA 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); 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

H. 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 *

I. 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 TO THIS APPLICATION.

☐ NOT APPLICABLE☒ APPLICABLE/SEE ATTACHED

J. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 9 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

* See whole effluent test data attached to Outfall 001.

** Pesticide data is not required; however, it is provided.

INSTRUCTIONS FOR COMPLETING SECTION 4

ITEM 5

Enter the permit number in the space provided for each page of Section 4. For each individual discharge point, a separate set of data is required. If you have more than one discharge point, then leave blank and a number will be assigned.

Enter the permit number in the space provided for each page of Section 4. For each individual discharge point, a separate set of data is required. If you have more than one discharge point, then leave blank and a number will be assigned.

Enter the permit number in the space provided for each page of Section 4. For each individual discharge point, a separate set of data is required. If you have more than one discharge point, then leave blank and a number will be assigned.

ITEM 6

REPORTING POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(7)(iii)(A), 40 CFR Part 122.21(g)(7)(iii)(A), provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(iii)(A) or 122.21(g)(7)(iii)(A).

NOTE: These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.

- Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS fractions. See 40 CFR Part 122.21(g)(7)(iii)(A), 40 CFR Part 122.21(g)(7)(iii)(A), Notes 1, 2, and 3.

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectrometry) fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Iron Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Bleink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart G.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

ITEM
7

CRITICAL
MATERIALS

TOXIC
POLLUTANTS

HAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

01012

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 55)
- ☒ 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
LBS/DAY
KG/DAY

SAMPLE TYPE
1 GRAB
2 24 HR.COMP

MATERIAL	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	UNIT CODE	SAMPLE TYPE	# OF ANALYSES
MATERIAL 1	*Sodium Hypochloride	1	G	14
MATERIAL 2				
MATERIAL 3				
MATERIAL 4				
MATERIAL 5				
MATERIAL 6				
MATERIAL 7				
MATERIAL 8				

* Discharged as total residual chlorine

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

** Basis: 1993 actual data submitted on DMRs. Average concentration based on data from May to December.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables A-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

ANALYTICAL REPORT

Cook Nuclear
Proj: Waste Water Analysis

Subm: Jan 26 Samples

Submittal Number: 29609- 3
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

	Outfall 001	Outfall 002	Circ. Intake	Detection Units Limit
WWES Sample No:	78371	78372	78373	
BOD, (5-Day)	<1.0	<1.0	<1.0	1.0 mg/l
Sampled by:				
Date Sampled:	01/26/94	01/26/94	01/26/94	
Time Sampled:	00:00	00:00	00:00	
Date Received:	01/27/94	01/27/94	01/27/94	
Time Received:	13:30	13:30	13:30	

STATEMENT OF DATA QUALIFICATIONS

CLIENT: Cook Nuclear

SUBMITTAL: 29609-3

- X All analyses have been validated and comply with our Quality Control Program. No qualifications required.
- The following analyses have been qualified for the reasons cited.

KEY

1. Sample integrity suspect upon receipt (explain).
2. Analysis performed beyond EPA established maximum allowable holding time.
3. Detection limit elevated due to matrix interferences.
4. Laboratory control sample value outside established acceptable limits.
5. Matrix spike sample value outside established acceptable limits.
6. Duplicate analysis value outside established acceptable limits.
7. Surrogate/internal standard recoveries outside established acceptable limits.
8. Data point suspect due to potential laboratory contamination (explain).
9. Coelutes with the compound cited. Result may represent a combination of both compounds.
10. Other (explain).

Note: This document is included as part of the Analytical Report for the above referenced and should be retained as a permanent record thereof.

ANALYTICAL REPORT

Cook Nuclear
Proj: Waste Water Analysis

Subm: January Samples

Submittal Number: 29609- 4
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

	Outfall 001-Circ Water Dsch	Outfall 002-Circ Water Dsch	Circ Water Intake	Detection Units Limit	
WWES Sample No:	78532	78533	78534		
Surfactants, MBAS	<0.025	<0.025	<0.025	0.025	mg/l
Coliform, Fecal	2	<1	4	1	cl/100ml
Color (Apparent)	<5	<5	<5	5	@ pH _
Sampled by:	V. Shah	V. Shah	V. Shah		
Date Sampled:	01/26/94	01/26/94			
Time Sampled:	00:00	00:00			
Date Received:	01/28/94	01/28/94	01/28/94		
Time Received:	00:00	00:00	00:00		

STATEMENT OF DATA QUALIFICATIONS

CLIENT: Cook Nuclear

SUBMITTAL: 29609-4

_____ All analyses have been validated and comply with our Quality Control Program. No qualifications required.

 X The following analyses have been qualified for the reasons cited.

Sample No.(s): 78532-78535 Parameter: Fecal Coliform Reason: 2

Explanation: _____

KEY

1. Sample integrity suspect upon receipt (explain).
2. Analysis performed beyond EPA established maximum allowable holding time.
3. Detection limit elevated due to matrix interferences.
4. Laboratory control sample value outside established acceptable limits.
5. Matrix spike sample value outside established acceptable limits.
6. Duplicate analysis value outside established acceptable limits.
7. Surrogate/internal standard recoveries outside established acceptable limits.
8. Data point suspect due to potential laboratory contamination (explain).
9. Coelutes with the compound cited. Result may represent a combination of both compounds.
10. Other (explain).

Note: This document is included as part of the Analytical Report for the above referenced and should be retained as a permanent record thereof.

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 002	Date Collected: 01-24-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 01-26-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		03-02-94	L1131-9
Bromide, in mg/L	300.0	<0.050	0.050		01-28-94	L1131-17
Nitrite-Nitrate-Nitrogen, in mg/L	353.2	0.34	0.050		02-11-94	L1131-22
Sulfate, in mg/L	300.0	23	0.059		01-27-94	L1131-17
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-27-94	L1131-26
Total Phenolics, in mg/L	420.1	<0.15	0.15		02-08-94	L1131-32
Sulfide, in mg/L	376.1	<1.0	1.0		01-27-94	L1131-12

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 002-CW DISCH	Date Collected: 01-26-94	Matrix: water
LAL Batch ID(s): 126 im, 127 im	Date Received: 01-27-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Total Phosphorus, in mg/L	365.2	<0.030	0.030		02-08-94	L1142-6
Ammonia-Nitrogen, in mg/L	350.1	<0.050	0.050		02-01-94	L1142-6
Total Suspended Solids, in mg/L	160.2	<12	12		02-02-94	L1142-10
Total Organic Carbon, in mg/L	415.2	2.0	1.0		02-16-94	L1142-2
Chemical Oxygen Demand, in mg/L	410.2	<18	18		01-28-94	L1142-2
Total Kjeldahl Nitrogen, in mg/L	351.2	<0.10	0.10		03-03-94	L1142-6

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 002	Date Collected: 01-27-94	Matrix: water
LAL Batch ID(s): 128 im	Date Received: 01-28-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Color	110.3	<5.0	5.0		01-28-94	L1151-2
Sulfite, in mg/L	377.1	<1.0	1.0		01-29-94	L1151-2

Comments:

METALS RESULTS

Client Sample ID: OUTFALL 002	Date Collected: 01-24-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 01-26-94	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		02-22-94	L1131-95
Antimony	6010	<0.060	0.060		02-22-94	L1131-95
Arsenic	7060	<0.010	0.010		02-20-94	L1131-95
Barium	6010	<0.20	0.20		02-22-94	L1131-95
Beryllium	6010	<0.005	0.005		02-22-94	L1131-95
Boron	6010	<0.20	0.20		02-22-94	L1131-95
Cadmium	6010	<0.005	0.005		02-22-94	L1131-95
Chromium	6010	<0.010	0.010		02-22-94	L1131-95
Cobalt	6010	<0.050	0.050		02-22-94	L1131-95
Copper	6010	<0.025	0.025		02-22-94	L1131-95
Iron	6010	<0.10	0.10		02-22-94	L1131-95
Lead	7421	<0.003	0.003		02-23-94	L1131-95
Magnesium	6010	12	5.0		02-22-94	L1131-95
Manganese	6010	<0.015	0.015		02-22-94	L1131-95
Mercury	7470	<0.0002	0.0002		02-09-94	L1131-95
Molybdenum	6010	<0.067	0.067		02-22-94	L1131-95
Nickel	6010	<0.040	0.040		02-22-94	L1131-95
Phosphorus	6010	<0.050	0.050		02-22-94	L1131-95
Selenium	7740	<0.005	0.005		02-25-94	L1131-95
Silver	6010	<0.010	0.010		02-22-94	L1131-95
Strontium	6010	0.13	0.10		02-22-94	L1131-95
Thallium	7841	<0.010	0.010	N	02-28-94	L1131-95
Tin	6010	<0.20	0.20		02-22-94	L1131-95
Titanium	6010	<0.10	0.10		02-22-94	L1131-95
Uranium	6020	<0.001	0.001		03-07-94	L1131-95
Vanadium	6010	<0.050	0.050		02-22-94	L1131-95
Zinc	6010	<0.020	0.020		02-22-94	L1131-95

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: OUTFALL 002	LAL Sample ID: L1131-44
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Matrix: WATER	Date Analyzed: 03-FEB-94
Analytical Batch #: 020394-8260-J-2	Dilution Factor: 1
QC Batch ID: 020394-8260	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	99	76-114
Toluene-d8	104	88-110
4-Bromofluorobenzene	97	86-115

Constituent	Concentration (μ g/L)	Reporting Detection Limit (μ g/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

10.4

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: OUTFALL 002

LAL Sample ID: L1131-44

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	< 5	5	
Chlorobenzene	< 5	5	
Ethylbenzene	< 5	5	
m,p-Xylene	< 5	5	
o-Xylene	< 5	5	
Styrene	< 5	5	
Bromoform	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
1,2-Dichlorobenzene	< 5	5	

105

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL 002	LAL Sample ID: L1131-44
Date Received: 26-JAN-94	Date Analyzed: 03-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 020394-8260-J-2	QC Batch ID: 020394-8260

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NO COMPOUNDS IDENTIFIED			

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL 002	LAL Sample ID: L1131-57
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 020394-8270-A	Date Extracted: 31-JAN-94
QC Batch ID: 8270-SEMIVOLATILE 4825	Date Analyzed: 03-FEB-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	27	21-100
Phenol-d ₆	20	10-94
Nitrobenzene-d ₅	67	35-114
2-Fluorobiphenyl	58	43-116
2,4,6-Tribromophenol	48	10-123
p-Terphenyl-d ₁₄	41	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

123

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL 002		LAL Sample ID: L1131-57	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	< 10	10	
2,4,5-Trichlorophenol	< 10	10	
2-Chloronaphthalene	< 10	10	
2-Nitroaniline	< 25	25	
Dimethylphthalate	< 10	10	
Acenaphthylene	< 10	10	
2,6-Dinitrotoluene	< 10	10	
3-Nitroaniline	< 25	25	
Acenaphthene	< 10	10	
2,4-Dinitrophenol	< 25	25	
4-Nitrophenol	< 25	25	
Dibenzofuran	< 10	10	
2,4-Dinitrotoluene	< 10	10	
Diethylphthalate	< 10	10	
4-Chlorophenyl-phenylether	< 10	10	
Fluorene	< 10	10	
4-Nitroaniline	< 25	25	
4,6-Dinitro-2-methylphenol	< 25	25	
N-Nitrosodiphenylamine	< 10	10	
4-Bromophenyl-phenylether	< 10	10	
Hexachlorobenzene	< 10	10	
Pentachlorophenol	< 25	25	
Phenanthrene	< 10	10	
Anthracene	< 10	10	
Carbazole	< 10	10	
Di-n-butylphthalate	2.2	10	J
Fluoranthene	< 10	10	
Pyrene	< 10	10	
Butylbenzylphthalate	< 10	10	
3,3'-Dichlorobenzidine	< 20	20	
Benzo(a)anthracene	< 10	10	
Chrysene	< 10	10	
bis(2-Ethylhexyl)phthalate	< 10	10	
Di-n-octylphthalate	< 10	10	
Benzo(b)fluoranthene	< 10	10	
Benzo(k)fluoranthene	< 10	10	
Benzo(a)pyrene	< 10	10	
Indeno(1,2,3-cd)pyrene	< 10	10	
Dibenz(a,h)anthracene	< 10	10	
Benzo(g,h,i)perylene	< 10	10	

124

SEMI-VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL 002	LAL Sample ID: L1131-57
Date Received: 26-JAN-94	Date Analyzed: 03-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 020394-8270-A	QC Batch ID: 8270 SEMIVOLATILE_4825

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
UNKNOWN KETONE	9.3	4.80	J

**OIL AND GREASE
EXTRACTABLES ANALYSIS RESULTS
BY FT/IR USING METHOD 413.2**

Client Sample ID: OUTFALL 002	LAL Sample ID: L1131-77
Date Collected: 24-JAN-94	Date Analyzed: 07-FEB-94
Date Received: 26-JAN-94	Dilution Factor: 1
Matrix: WATER	Date Extracted: 02-FEB-94
Analytical Batch #: 020494-413.2	QC Batch ID: 020294-413.2

Constituent	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)
Oil and Grease	<1	1	

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080

Client Sample ID: OUTFALL-002	LAL Sample ID: L1131-67
Date Collected: 24-JAN-94	Date Received: 26-JAN-94
Date Extracted: 31-JAN-94	Date Analyzed: 01-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 013194-8080-E-4	QC Group ID: 8080 PEST/PCBS_4822

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	63	60-150
DCB	45*	60-150

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 002

LAL Sample ID: L1131-86

Date Collected: 24-JAN-94

Date Received: 26-JAN-94

Matrix: Water

Login Number: L1131

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
Gross Alpha	23-FEB-94	GR ALP/BETA LAL-0060_4756	0.33	0.88	1.7		pCi/L
Gross Beta	23-FEB-94	GR ALP/BETA LAL-0060_4756	1.9	1.3	2.2		pCi/L

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 002

LAL Sample ID: L1131-90

Date Collected: 24-JAN-94

Date Received: 26-JAN-94

Matrix: Water

Login Number: L1131

Constituent	Analyzed	Batch	Activity	Error	MDA	DataQual	Units
Ra-226	22-FEB-94	RA-226 LAL-0073_4771	0.016	0.056	0.12		pCi/L
Ra-228	23-FEB-94	RA-228 LAL-0074_5503	0.52	0.34	0.55		pCi/L

PH Analysis (LAB.079)

PH Meter

CPC # 102

Cal date due 1/14/95

Outfall 002

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

U-1 Cinc dish
0900
1/24/94

U-2 Cinc dish
0930
1/24/94

Circ Intake
1430
1/25/94

De-Ice
1500
1/25/94

5.3.5	6) Sample °C/ph (prior to correction)	<u>7.78</u>	<u>7.95</u>	<u>8.02</u>	<u>7.79</u>
	7) NH ₃ pH correction	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
5.3.6	8) Sample results C/pH (after NH ₃ Correction)	<u>25/7.78</u>	<u>25/7.95</u>	<u>24/8.02</u>	<u>23/7.79</u>
	Sample	<u>PH 8.3</u>	<u>U-1 F/T 300</u>	<u>U-2 F/L 300</u>	
	Sample Time	<u>1600</u>	<u>1530</u>		
	Sample #				
	Sample Date	<u>1/28/94</u>	<u>1/31/94</u>		
	CDM Entered by				

	6) Sample °C/ph (prior to correction)		<u>24/6.86</u>	<u>25/7.05</u>	
5.3.5	7) NH ₃ pH correction		<u>-</u>	<u>-</u>	
5.3.6	8) Sample results °C/pH (after Correction)		<u>6.86</u>	<u>7.05</u>	

9) LAB.041 Specs Verified by: N/A

Supervisor Review/Date 2/27/94

Form prepared by/Date 6/2/11/23/93
Form approved by/Date 8/1/11/23/93
12 THP LAB.041.25s
Revision 1

Outfall 002

Determination of Total Chlorine
(Lab 170)

Instrument CPC# 505
Standard ICN-CID# 2310
Technician VB

Sample\Standard
Sample #
Date
Time
CDM Entered by

Circ Intake	U-1 Circ dish	U-2 Circ dish	De Ice.	PHB
3/7/94	3/7/94	3/7/94	3/7/94	3/7/94
1430	1430	1430	1430	1430

1) Absorbance

<	less than	less than	less than	less than
---	-----------	-----------	-----------	-----------

6.11

2) Results, ppm

<.05	<.05	<.05	<.05	<.05
------	------	------	------	------

3) Dilutions made

—	—	—	—	—
---	---	---	---	---

4) Results, ppm
(#2 * # 3)

<.05	<.05	<.05	<.05	<.05
------	------	------	------	------

5) LAB.041 Specs Verified by: N/A

Supervisor Review/Date VB / 3/7/94

Form prepared by/Date VB / 4/8/93
Form approved by/Date VB / 4-8-93
12 THP LAB.041-25j1
Revision 0

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

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		0, 0, 3					
	A. LOCATION OF DISCHARGE		S, W, E, N, W, E, SECTION 0, 6, TOWN 0, 6, S, RANGE 1, 9, W					
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		L, A, K, E, M, I, C, H, I, G, A, N					
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
	D. IF YES, LIST DISCHARGE PERIODS		MO. / DAY		THROUGH		MO. / DAY	
			1, 2 0, 1		THROUGH		0, 4 3, 0	
					THROUGH			
					THROUGH			
	E. LAND APPLICATION RATE		IN./HR.		HR./DAY		IN./WK.	
							<input checked="" type="checkbox"/> NA	
F. TYPE OF WASTEWATER DISCHARGE		2 3		WASTEWATER TYPE CODE				
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY		DAY/YEAR		1, 2, 1		
H. DISCHARGE FLOW RATE *		TOTAL YEARLY				UNIT CODE		
		DAILY MINIMUM						
		DAILY MAXIMUM						
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT. *		AUTHORIZED				UNIT CODE		
J. MAXIMUM DESIGN DISCHARGE FLOW RATE. *		DESIGN				UNIT CODE		
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)		<input type="checkbox"/> YES <input type="checkbox"/> NO					
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME		FUNCTION			
	NA							
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.		NA					
	D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		MINIMUM		UNITS CODE		AVERAGE	
						UNITS CODE		
						MAXIMUM		
						UNITS CODE		
E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		NA		<input type="checkbox"/> YES <input type="checkbox"/> NO				
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		NA		% REMOVAL		DISCHARGE FREQUENCY		
						HRS./DAY DAYS/WK.		
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.		NA						

* The flow for this outfall is not monitored separately from Outfalls 001 and 002

225 40 2

For each 100 sq. ft. of space provided for each acre of location. For each 100 sq. ft. of space provided for each acre of location.

-54-

● 中国 2000 年 10 月 1 日起，对 10 种进口货物征收特别关税，这 10 种货物是：小麦、玉米、大米、高粱、大麦、燕麦、棉花、油菜籽、大豆、花生。

1. Enter the station or discharge. This should include quarter-quarter section, quarter section, section, town, and range.
2. List name of receiving water (if surface water discharge).
3. Indicate whether facility discharges on a seasonal basis.
 1. If yes, list discharge periods.
4. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
5. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
6. Indicate the average number of hours per day in which the facility discharges treated wastewater and the total number of days in a year in which the discharge occurs.
7. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
8. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For WPOES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
9. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

DATE RECEIVED: 10/1/95

3. Indicate whether discharge is treated with conditioners, inhibitors, or microbicides. If not, continue to Item 5.
4. Give name, location, and chemical composition of additives used.
5. Give name and address of the manufacturer(s) of the additives used.
6. Indicate required minimum, average and maximum discharge concentrations of the additives for this discharge.
7. Indicate whether you treat the discharge to sample the effluent before discharge to wastewater.
8. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the receiving water or environment.
9. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

OUTFALL NUMBER		003	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	DIE-ILLINOIS 49111	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 24	DAYS/YEAR 156
	C. PROCESS WASTEWATER FLOW RATE *	TOTAL YEARLY _____ UNIT CODE _____ DAILY MINIMUM _____ DAILY MAXIMUM _____	
	D. PROCESS PRODUCTION RATE NA	UNITS/TIME _____	
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE NA	_____	
	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 NA	_____	
	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 NA	_____	
	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 NA	_____	
	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 _____	

* The flow for this outfall is not monitored separately from Outfalls 001 and 002

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This item requires information on the process streams which contribute to this discharge.

For the permit number in the box at the top of this form, the permit number can be found on the front page of your existing permit. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter this number in space provided for each page of Section II. For each individual discharge point a separate set of permit number must be set out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION.

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Report your production rates in the units and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

0,0,3

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.	NA <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 45) 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.	NA <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.	NA <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. THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.	<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT NA <input type="checkbox"/> PRESENT, DATA PROVIDED IN ITEM 7

ITEM
5EXPECTED
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		UNITS CODE	# ANALYSES	SAMPLE TYPE CODE
	AVE	MAX			
*BOD ₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)	_____	_____	1	___	___
*COD (CHEMICAL OXYGEN DEMAND)	_____	_____	1	___	___
*TOC (TOTAL ORGANIC CARBON)	_____	_____	1	___	___
*AMMONIA NITROGEN (AS N)	_____	_____	1	___	___
*TOTAL SUSPENDED SOLIDS	_____	_____	1	___	___
TOTAL PHOSPHORUS (AS P)	_____	_____	1	___	___
TOTAL RESIDUAL CHLORINE	_____	_____	1	___	___
DISSOLVED OXYGEN MIN	_____	_____	1	___	___
*PH _____	_____	_____	4	___	___
FECAL COLIFORM BACTERIA	_____	_____	3	___	___
*TEMPERATURE (SUMMER)	_____	_____	5	___	___
*TEMPERATURE (WINTER)	_____	_____	5	___	___
B. OTHER WASTEWATER CHARACTERISTICS					
OIL & GREASE	_____	_____	___	___	___
_____	_____	_____	___	___	___
_____	_____	_____	___	___	___
_____	_____	_____	___	___	___
_____	_____	_____	___	___	___
_____	_____	_____	___	___	___
_____	_____	_____	___	___	___

* SEE NOTE ON PAGE 37, Outfall 003

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXISTING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each code of Section 11. For each individual discharge point a separate set of forms (Forms 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

4-1. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

5. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District Office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

5. If data is available for other parameters not listed above in A, or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.

3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. **REPORTING OF INTAKE DATA.** You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. WDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

(a) a statement that the intake water is drawn from the body of water into which the discharge is made. Therefore, you are not eligible for net limitations.

(b) a statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

(c) when applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)

5. You have two or more substantially identical outfalls. You may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfall(s) which you did not test are substantially identical to the outfall which you did test.

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

ITEM 6

**PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY**

OUTFALL NUMBER	0, 0, 3
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)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
B. INDICATE TYPE OF PRIMARY INDUSTRY AS LISTED IN TABLE IA PAGE 41. (CONTINUE WITH C.)	S, T, M, E, L, E, C, P, W, R
C. DOES THIS OUTFALL DISCHARGE CONTAIN ANY PROCESS WASTEWATER? (IF NO, GO TO E) (IF YES, GO TO D)	<input type="checkbox"/> YES <input type="checkbox"/> 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 IIA PAGE 43. RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET. (CONTINUE WITH E-K BELOW)	<input checked="" type="checkbox"/> VOLATILE <input checked="" type="checkbox"/> BASE/NEUTRAL <input checked="" type="checkbox"/> ACID <input type="checkbox"/> 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.	<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input type="checkbox"/> PRESENT/DATA IS ATTACHED
G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO: USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHOXY ACETIC ACID (2, 4, 5-T); 2, 4, 5-TRICHLOROPHOXY PROPANOIC ACID (SILVEX, 2, 4, 5, TP); 2, 4, 5-TRICHLOROPHOXY 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.	<input checked="" type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> 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.	<input type="checkbox"/> NOT APPLICABLE <input checked="" type="checkbox"/> APPLICABLE/SEE ATTACHED
L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 9 AND IIA THROUGH IVA 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.	<input checked="" type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> APPLICABLE/SEE ATTACHED

* Water discharged for De-Icing is the same as Outfalls 001 and 002.
Indiana Michigan Power requests permission to use the screening data for Outfall 001 and 002 to characterize this discharge.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
7CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

01013

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										
	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					

* SEE NOTE ON PAGE 37, OUTFALL 003.

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

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
1DISCHARGE
LOCATION

SCHEDULE

FLOW
RATEWASTEWATER
TYPE CODE

1 CONTACT

2 NONCONTACT
COOLING

3 PROCESS

4 SANITARY

5 STORMWATER

UNIT CODE

1 MGY

2 MGD

3 GPD

ITEM
2WATER
TREATMENT
ADDITIVES

UNITS CODE

1 Mg/l

2 Ug/l

OUTFALL NUMBER

0,0,A

A. LOCATION OF DISCHARGE

S.W. 1/4, N.W. 1/4, SECTION 06, TOWN 06S, RANGE 19W

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

LAKELAND MICHIGAN

C. DO YOU DISCHARGE SEASONALLY?
(IF NO, CONTINUE TO E)☐

YES

☒

NO

D. IF YES, LIST DISCHARGE PERIODS

NA

MO. / DAY

MO. / DAY

THROUGH

THROUGH

THROUGH

THROUGH

THROUGH

THROUGH

E. LAND APPLICATION RATE

IN./HR.

HR./DAY

IN./WK.

NA

F. TYPE OF WASTEWATER DISCHARGE

3

WASTEWATER TYPE CODE

G. DISCHARGE SCHEDULE (YEARLY AVERAGE)

HOURS/DAY

24

DAY/YEAR

365

H. DISCHARGE FLOW RATE

TOTAL YEARLY

121,545

UNIT CODE

1

DAILY MINIMUM

0

2

DAILY MAXIMUM

0,333

2

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

AUTHORIZED

1

UNIT CODE

2

J. MAXIMUM DESIGN DISCHARGE FLOW RATE.

DESIGN

1

UNIT CODE

2

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

NA

C. NAME AND ADDRESS OF MANUFACTURERS
OF THESE ADDITIVES.

NA

D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.

NA

MINIMUM

UNITS CODE

AVERAGE

UNITS CODE

MAXIMUM

UNITS CODE

ADDITIVE NAME

ADDITIVE NAME

ADDITIVE NAME

E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?

NA

☐

YES

☐

NO

F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?

NA

% REMOVAL

DISCHARGE FREQUENCY

HRS./DAY

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. NA

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

ITEM
3PROCESS
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		[0,0,1A]	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	U, 1, B, L, O, W, D, O, W, N, 4, 9, 1, 1	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY [2, 4]	DAYS/YEAR [3, 6, 1, 2]
	C. PROCESS WASTEWATER FLOW RATE Basis: 1993 actual data submitted on DMRs	TOTAL YEARLY [3, 6, 1, 1, 7]	UNIT CODE [5]
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME [0, 6]
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY []	DAYS/YEAR []
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY []	UNIT CODE []
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME []
PROCESS 3	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY []	DAYS/YEAR []
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY []	UNIT CODE []
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME []
PROCESS 4	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY []	DAYS/YEAR []
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY []	UNIT CODE []
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME []
PROCESS 5	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY []	DAYS/YEAR []
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY []	UNIT CODE []
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME []

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section 11. For each individual discharge point a separate set of Section 11 forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicides. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additive(s) used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

010A

- A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)
- 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.
- C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER RULE R.323.2207 (10) (PAGE 45) 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.
- 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.
- 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.

☐ YES ☒ NO☐ YES ☐ NO

NA

☐ YES ☐ NO

NA

☐ YES ☐ NO

NA

☐ NOT APPLICABLE/BELIEVED ABSENT

NA

☐ PRESENT, DATA PROVIDED IN ITEM 7ITEM
5EXPECTED
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	CONCENTRATION		UNITS	CODE	# ANALYSES	SAMPLE TYPE
	AVE	MAX				
*BOD ₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)	_____	_____	1			
*COD (CHEMICAL OXYGEN DEMAND)	_____	_____	1			
*TOC (TOTAL ORGANIC CARBON)	_____	_____	1			
*AMMONIA NITROGEN (AS N)	_____	_____	1			
*TOTAL SUSPENDED SOLIDS	< 4	< 4	1	*		1
TOTAL PHOSPHORUS (AS P)	_____	_____	1			
TOTAL RESIDUAL CHLORINE	_____	_____	1			
DISSOLVED OXYGEN MIN	_____	_____	1			
*pH	_____	_____	4			
FECAL COLIFORM BACTERIA	_____	_____	3			
*TEMPERATURE (SUMMER)	_____	_____	5			
*TEMPERATURE (WINTER)	_____	_____	5			
B. OTHER WASTEWATER CHARACTERISTICS						
OIL & GREASE	_____	_____				
_____	_____	_____				
_____	_____	_____				
_____	_____	_____				
_____	_____	_____				
_____	_____	_____				

SEE ATTACHED SHEETS FOR ANALYSIS DATA

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

* Basis: 1993 actual data submitted on DMRs

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter unitary number in space provided for each page of Section 11. For each individual discharge point a separate set of Section 11 forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

1. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
2. Indicate the yearly average process schedule in hours per day and days-per-year.
3. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
4. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

**ITEM
6**

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER

0,0,A

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.)

S, T, M, E, L, E, C, P, W, R

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 IIA 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

G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO:

USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHOXY ACETIC ACID (2, 4, 5-T);
2, 4, 5-TRICHLOROPHOXY PROPANOIC ACID (SILVEX, 2, 4, 5, TP);
2-(2, 4, 5-TRICHLOROPHOXY) 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 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 9 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

* Pesticide data is not required; however, it is provided.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

- A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

- B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.

3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

(a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)

(b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

(c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)

If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
7CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

001A

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

LBS/DAY

KG/DAY

SAMPLE TYPE

1 GRAB

2 24 HR. COMP.

MATERIAL 1	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	*Hydrazine 001302012		
	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	

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

* Hydrazine is not expected to be present in discharge but small quantities may be found in the steam generators but would not be expected to be found in the actual discharge flow to Outfalls 001 or 002.

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section 11. For each individual discharge point a separate set of Section 11, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. and E.-J. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.

D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 00A-U/I-BLOWDOWN	Date Collected: 01-26-94	Matrix: water
LAL Batch ID(s): 126 im, 127 im, 128 im	Date Received: 01-28-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		03-02-94	L1150-3
Bromide, in mg/L	300.0	<0.050	0.050		02-17-94	L1150-12
Nitrite-Nitrate-Nitrogen, in mg/L	353.2	<0.050	0.050		02-11-94	L1150-15
Sulfate, in mg/L	300.0	<0.059	0.059		03-05-94	L1150-12
Total Cyanide, in mg/L	335.2	<0.020	0.020		02-07-94	L1150-18
Color	110.3	<5.0	5.0		01-28-94	L1150-3
Total Phenolics, in mg/L	420.1	<0.15	0.15		02-08-94	L1150-24
Sulfide, in mg/L	376.1	<1.0	1.0		01-29-94	L1150-9
Sulfite, in mg/L	377.1	<1.0	1.0		01-29-94	L1150-6

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 00A BLOWDOWN	Date Collected: 01-26-94	Matrix: water
LAL Batch ID(s): 126 im, 127 im	Date Received: 01-27-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Total Phosphorus, in mg/L	365.2	<0.030	0.030		02-08-94	L1142-8
Ammonia-Nitrogen, in mg/L	350.1	<0.050	0.050		02-01-94	L1142-8
Total Suspended Solids, in mg/L	160.2	<12	12		02-02-94	L1142-12
Total Organic Carbon, in mg/L	415.2	1.8	1.0		02-16-94	L1142-4
Chemical Oxygen Demand, in mg/L	410.2	<18	18		01-28-94	L1142-4
Total Kjeldahl Nitrogen, in mg/L	351.2	2.4	0.10		03-03-94	L1142-8

Comments:

METALS RESULTS

Client Sample ID: OUTFALL 00A-U/I-BLOWDOWN	Date Collected: 01-26-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 01-28-94	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		02-22-94	L1150-52
Antimony	6010	<0.060	0.060		02-22-94	L1150-52
Arsenic	7060	<0.010	0.010		02-20-94	L1150-52
Barium	6010	<0.20	0.20		02-22-94	L1150-52
Beryllium	6010	<0.005	0.005		02-22-94	L1150-52
Boron	6010	11	0.20		02-22-94	L1150-52
Cadmium	6010	<0.005	0.005		02-22-94	L1150-52
Chromium	6010	<0.010	0.010		02-22-94	L1150-52
Cobalt	6010	<0.050	0.050		02-22-94	L1150-52
Copper	6010	<0.025	0.025		02-22-94	L1150-52
Iron	6010	<0.10	0.10		02-22-94	L1150-52
Lead	7421	<0.003	0.003		02-23-94	L1150-52
Magnesium	6010	<5.0	5.0		02-22-94	L1150-52
Manganese	6010	<0.015	0.015		02-22-94	L1150-52
Mercury	7470	<0.0002	0.0002		02-09-94	L1150-52
Molybdenum	6010	<0.067	0.067		02-22-94	L1150-52
Nickel	6010	<0.040	0.040		02-22-94	L1150-52
Phosphorus	6010	<0.050	0.050		02-22-94	L1150-52
Selenium	7740	<0.005	0.005		02-25-94	L1150-52
Silver	6010	<0.010	0.010		02-22-94	L1150-52
Strontium	6010	<0.10	0.10		02-22-94	L1150-52
Thallium	7841	<0.010	0.010	N	02-28-94	L1150-52
Tin	6010	<0.20	0.20		02-22-94	L1150-52
Titanium	6010	<0.10	0.10		02-22-94	L1150-52
Uranium	6020	<0.001	0.001		03-07-94	L1150-52
Vanadium	6010	<0.050	0.050		02-22-94	L1150-52
Zinc	6010	<0.020	0.020		02-22-94	L1150-52

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN	LAL Sample ID: L1175-23
Date Collected: 31-JAN-94	Date Received: 01-FEB-94
Matrix: WATER	Date Analyzed: 04-FEB-94
Analytical Batch #: 020494-8260-C1	Dilution Factor: 1
QC Batch ID: 020494-8260-C1	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	106	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	110	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN	LAL Sample ID: L1175-23
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL 00A-U/I BLOWDOWN	LAL Sample ID: L1150-30
Date Collected: 26-JAN-94	Date Received: 28-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 020394-8270-A	Date Extracted: 31-JAN-94
QC Batch ID: 8270 SEMIVOLATILES_4825	Date Analyzed: 04-FEB-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	42	21-100
Phenol-d ₆	30	10-94
Nitrobenzene-d ₅	84	35-114
2-Fluorobiphenyl	66	43-116
2,4,6-Tribromophenol	67	10-123
p-Terphenyl-d ₁₄	38	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

156

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN LAL Sample ID: L1150-30			
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Carbazole	<10	10	
Di-n-butylphthalate	4.3	10	J
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	

SEMI-VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN	LAL Sample ID: L1150-30
Date Received: 28-JAN-94	Date Analyzed: 04-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 020394-8270-A	QC Batch ID: 8270 SEMIVOLATILES_4825

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
Unknown Organic Acid	6	25.24	J



**OIL AND GREASE
EXTRACTABLES ANALYSIS RESULTS
BY FT/IR USING METHOD 413.2**

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN	LAL Sample ID: L1150.42
Date Collected: 26-JAN-94	Date Analyzed: 07-FEB-94
Date Received: N/A	Dilution Factor: 1
Matrix: WATER	Date Extracted: 02-FEB-94
Analytical Batch #: 020494-413.2	QC Batch ID: 020294-413.2

Constituent	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)
Oil and Grease	<1	1	

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080

Client Sample ID: OUTFALL 00A-U/I BLOWDOWN	LAL Sample ID: L1150-36
Date Collected: 26-JAN-94	Date Received: 28-JAN-94
Date Extracted: 31-JAN-94	Date Analyzed: 01-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 013194-8080-E-4	QC Group ID: 8080-PEST/PCBS_4822

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	69	60-150
DCB	27*	60-150

Constituent	Concentration (μ g/L)	Reporting Detection Limit (μ g/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

170

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL OOA-U/I BLOWDOWN

LAL Sample ID: L1150-46

Date Collected: 26-JAN-94

Date Received: 28-JAN-94

Matrix: Water

Login Number: L1150

Constituent	Analyzed	Batch	Activity	Error	MOA	DataQual	Units
Gross Alpha	23-FEB-94	GR ALP/BETA LAL-0060_4756	0	0.69	1.5		pCi/L
Gross Beta	23-FEB-94	GR ALP/BETA LAL-0060_4756	30.2	3.2	3.1		pCi/L

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 00A-U/I BLOWDOWN

LAL Sample ID: L1150-49

Date Collected: 26-JAN-94

Date Received: 28-JAN-94

Matrix: Water

Login Number: L1150

Constituent	Analyzed	Batch	Activity	Error	MOA	DataQual	Units
Ra-226	22-FEB-94	RA-226 LAL-0073_4771	0	0.14	0.34		pCi/L
Ra-228	23-FEB-94	RA-228 LAL-0074_5503	0.62	0.56	0.91		pCi/L

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PH Analysis (LAB.079)

Outfall 00A

PH Meter

CPC # 102Cal date due 1/14/95

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

U-1 Circ dish

09001/24/94

U-2 Circ dish

09301/24/94

Circ Intake

14301/25/94

De-Ice.

15001/25/94

6) Sample °C/ph
(prior to
correction)

7.787.958.027.79

5.3.5

7) NH₃ pH
correction

5.3.6

8) Sample results
C/pH (after
NH₃ Correction)

25/7.7825/7.9524/8.0223/7.79

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

PHBU-1 F/T 300U-2 F/T 300160015301/28/941/31/94

6) Sample °C/ph
(prior to
correction)

24/6.8625/7.05

5.3.5

7) NH₃ pH
correction

--

5.3.6

8) Sample results
°C/pH (after
Correction)

6.867.059) LAB.041 Specs Verified by: N/ASupervisor Review/Date 1/27/94

Form prepared by/Date 1/23/93
Form approved by/Date 1/23/93
12 THP LAB.041.25s
Revision 1

Determination of Total Chlorine
(Lab 170)

Instrument CPC# 505
Standard ICN-CID# 2310
Technician N

Outfall 00A

Sample\Standard
Sample #
Date
Time
CDM Entered by

4-1 B/D	4-2 B/D	Ro Reject	#1 MT	
3-7-94	3-7-94	3-7-94	3-7-94	
1430	1430	1430	1430	

1) Absorbance

less than	less than	less than	less than	less than
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6.11

2) Results, ppm

<.05	<.05	<.05	<.05	
------	------	------	------	--

3) Dilutions made

—	—	—	—	
---	---	---	---	--

4) Results, ppm
(#2 * # 3)

<.05	<.05	<.05	<.05	
------	------	------	------	--

5) LAB.041 Specs Verified by: N/A

Supervisor Review/Date gl / 3/7/94

Form prepared by/Date leg / 4/9/93
Form approved by/Date gl / 4-2-93
12 THP LAB.041-25j1
Revision 0

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 1 DISCHARGE LOCATION SCHEDULE FLOW RATE WASTEWATER TYPE CODE CONTACT COOLING NONCONTACT COOLING PROCESS SANITARY STORMWATER UNIT CODE 1 MGY 2 MGD 3 GPD	OUTFALL NUMBER		I O I O B I																				
	A. LOCATION OF DISCHARGE		[S.W.] & [N.W.] & SECTION [0,6], TOWN [0,6,S], RANGE [1,9,W]																				
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		[L,A,K,E,] [M,I,C,H,I,G,A,N,]																				
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO																				
	D. IF YES, LIST DISCHARGE PERIODS		NA		MO. / DAY		MO. / DAY																
					THROUGH																		
					THROUGH																		
					THROUGH																		
	E. LAND APPLICATION RATE		NA		IN./HR.		HR./DAY		IN./WK.		<input type="checkbox"/> NA												
	F. TYPE OF WASTEWATER DISCHARGE		[3]		WASTEWATER TYPE CODE																		
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY		[2,4]		DAY/YEAR		[3,6,5]															
H. DISCHARGE FLOW RATE		TOTAL YEARLY		[1,5,7,6,8]		UNIT CODE		[1]															
		DAILY MINIMUM		[0]		UNIT CODE		[2]															
		DAILY MAXIMUM		[0,4,3,2]		UNIT CODE		[2]															
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED		[1]		UNIT CODE		[2]															
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN		[1]		UNIT CODE		[2]															
ITEM 2 WATER TREATMENT ADDITIVES UNITS CODE 1 Mg/l 2 Uq/l	A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3)											<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO											
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.											NAME		FUNCTION									
	NA																						
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.																						
	NA																						
	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?											NA		<input type="checkbox"/> YES <input type="checkbox"/> NO									
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?											NA		% REMOVAL		DISCHARGE FREQUENCY		HRS./DAY		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.											NA												

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

SECTION II

SEE INSTRUCTIONS
ON REVERSE SIDEPERMIT
NUMBER

MI 0005827

EM
3PROCESS
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		[O I O I B]	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	U 2 B L O W D O W N 4 9 1 1 1	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 2 1 4	DAYS/YEAR 3 6 0
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY 3 5 1 1 2 2 5 UNIT CODE DAILY MINIMUM 0 6 DAILY MAXIMUM 0 2 3 4 6	
	D. PROCESS PRODUCTION RATE	NA	UNITS / TIME
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM	
	D. PROCESS PRODUCTION RATE		UNITS / TIME

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

MI 0005827

**SEE INSTRUCTIONS
ON REVERSE SIDE**

ITEM 4

GROUNDWATER DISCHARGE INFORMATION

OUTFALL NUMBER		O, O, B	
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	NA	
C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER RULE R.323.2207 (10) (PAGE 45) 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	NA	
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	NA	
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	NA	
THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.	<input type="checkbox"/> PRESENT, DATA PROVIDED IN ITEM 7		

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

[illegible]

SEE ATTACHED SHEETS FOR ANALYSIS DATA

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

* Basis: 1993 actual data submitted on DMRs

INSTRUCTIONS FOR COMPLETING SECTION II
ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

- A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

- B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.
3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.
4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:
 - (a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
 - (b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
 - (c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)
5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
6PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER	Q1Q1B1
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 1A PAGE 41) (IF NO, GO TO E) (IF YES, GO TO B)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
B. INDICATE TYPE OF PRIMARY INDUSTRY AS LISTED IN TABLE 1A PAGE 41. (CONTINUE WITH C.)	S I T M I E L E C I P W I R
C. DOES THIS OUTFALL DISCHARGE CONTAIN ANY PROCESS WASTEWATER? (IF NO, GO TO E) (IF YES, GO TO D)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
D. INDICATE WHICH GC/MS FRACTIONS MUST BE TESTED FOR. (REFER TO TABLE 1A PAGE 41) NOTE! FOR EACH GC/MS FRACTION CHECKED, EACH SPECIFIC ORGANIC TOXIC POLLUTANT WITHIN EACH FRACTION MUST BE ANALYZED FOR (SEE TABLE 11A PAGE 42). IN ADDITION, ALL PRIMARY INDUSTRY APPLICANTS WITH A PROCESS WASTEWATER DISCHARGE MUST PROVIDE QUANTITATIVE DATA FOR EACH TOXIC POLLUTANT IN TABLE 111A PAGE 43. RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET. (CONTINUE WITH E-K BELOW)	<input checked="" type="checkbox"/> VOLATILE <input checked="" type="checkbox"/> BASE/NEUTRAL <input checked="" type="checkbox"/> ACID <input type="checkbox"/> 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 11A AND 11A 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.	<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input checked="" type="checkbox"/> 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 11A PAGE 42 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.	<input checked="" type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input type="checkbox"/> 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, 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.	<input checked="" type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> 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.	<input type="checkbox"/> NOT APPLICABLE <input checked="" type="checkbox"/> APPLICABLE/SEE ATTACHED
L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 9 AND 11A THROUGH 11A 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.	<input checked="" type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> APPLICABLE/SEE ATTACHED

* Pesticide data is not required; however, it is provided.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This item requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(3), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. These parts are self-explanatory and do not require further instructions. Simply go through each part, and do as indicated.
and
E.-..

- D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions 40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart M, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER

001B

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	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	UNIT CODE	SAMPLE TYPE	# OF ANALYSES
MATERIAL 1	* Hydrazine	0013012	0112	
MATERIAL 2				
MATERIAL 3				
MATERIAL 4				
MATERIAL 5				
MATERIAL 6				
MATERIAL 7				
MATERIAL 8				

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

* Hydrazine is expected to be present in discharge but small quantities may be found in the steam generators but would not be expected to found in the actual discharge flow to Outfalls 001 or 002.

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	Date Collected: 01-31-94	Matrix: water
LAL Batch ID(s): 126 im, 128 im, 201 im	Date Received: 02-01-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		03-02-94	L1175-1
Bromide, in mg/L	300.0	<0.050	0.050		02-17-94	L1175-4
Nitrite-Nitrate-Nitrogen, in mg/L	353.2	<0.050	0.050		02-11-94	L1175-5
Sulfate, in mg/L	300.0	0.12	0.059		03-05-94	L1175-4
Total Cyanide, in mg/L	335.2	<0.020	0.020		02-07-94	L1175-6
Color	110.3	<5.0	5.0		02-01-94	L1175-1
Total Phenolics, in mg/L	420.1	<0.15	0.15		02-08-94	L1175-7
Sulfide, in mg/L	376.1	<1.0	1.0		02-03-94	L1175-1
Sulfite, in mg/L	377.1	1.2	1.0		02-01-94	L1175-2

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	Date Collected: 02-01-94	Matrix: water
LAL Batch ID(s): 126 im, 127, 128, 201 and 202 im	Date Received: 02-02-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Total Phosphorus, in mg/L	365.2	<0.030	0.030		02-08-94	L1179-23
Total Kjeldahl Nitrogen, in mg/L	351.2	0.61	0.10	*	03-03-94	L1179-23
Chemical Oxygen Demand, in mg/L	410.1	<18	18		02-08-94	L1179-22
Total Organic Carbon, in mg/L	415.2	<1.0	1.0		02-16-94	L1179-22
Ammonia-Nitrogen, in mg/L	350.1	0.79	0.050		02-26-94	L1179-23
Total Suspended Solids, in mg/L	160.2	<12	12		02-08-94	L1179-21

Comments:

086A

METALS RESULTS

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	Date Collected: 01-31-94	Matrix: water
LAL Batch ID(s): 126 im	Date Received: 02-01-94	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		02-22-94	L1175-17
Antimony	6010	<0.060	0.060		02-22-94	L1175-17
Arsenic	7060	<0.010	0.010		02-20-94	L1175-17
Barium	6010	<0.20	0.20		02-22-94	L1175-17
Beryllium	6010	<0.005	0.005		02-22-94	L1175-17
Boron	6010	<0.20	0.20		02-22-94	L1175-17
Cadmium	6010	<0.005	0.005		02-22-94	L1175-17
Chromium	6010	<0.010	0.010		02-22-94	L1175-17
Cobalt	6010	<0.050	0.050		02-22-94	L1175-17
Copper	6010	<0.025	0.025		02-22-94	L1175-17
Iron	6010	0.15	0.10		02-22-94	L1175-17
Lead	7421	<0.003	0.003		02-23-94	L1175-17
Magnesium	6010	<5.0	5.0		02-22-94	L1175-17
Manganese	6010	<0.015	0.015		02-22-94	L1175-17
Mercury	7470	<0.0002	0.0002		02-09-94	L1175-17
Molybdenum	6010	<0.067	0.067		02-22-94	L1175-17
Nickel	6010	<0.040	0.040		02-22-94	L1175-17
Phosphorus	6010	<0.050	0.050		02-22-94	L1175-17
Selenium	7740	<0.005	0.005		02-25-94	L1175-17
Silver	6010	<0.010	0.010		02-22-94	L1175-17
Strontium	6010	<0.10	0.10		02-22-94	L1175-17
Thallium	7841	<0.010	0.010	N	02-28-94	L1175-17
Tin	6010	<0.20	0.20		02-22-94	L1175-17
Titanium	6010	<0.10	0.10		02-22-94	L1175-17
Uranium	6020	<0.001	0.001		03-07-94	L1175-17
Vanadium	6010	<0.050	0.050		02-22-94	L1175-17
Zinc	6010	<0.020	0.020		02-22-94	L1175-17

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: OUTFALL OOB-U/2 BLOWDOWN	LAL Sample ID: L1175-20
Date Collected: 31-JAN-94	Date Received: 01-FEB-94
Matrix: WATER	Date Analyzed: 04-FEB-94
Analytical Batch #: 020494-8260-C1	Dilution Factor: 1
QC Batch ID: 020494-8260-C1	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	104	76-114
Toluene-d8	98	88-110
4-Bromofluorobenzene	106	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: OUTFALL OOB-U/2 BLOWDOWN

LAL Sample ID: L1175-20

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: OUTFALL OOB-U/2 BLOWDOWN	LAL Sample ID: L1175-20
Date Collected: 31-JAN-94	Date Analyzed: 04-FEB-94
Date Received: 01-FEB-94	Dilution Factor: 1
Matrix: WATER	Sample Weight: N/A
Analytical Batch: 020494-8260-C1	No. of TICs: 0
QC Batch ID: 020494-8260-C1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)

175

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	LAL Sample ID: L1175-9
Date Collected: 31-JAN-94	Date Received: 01-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 021094-8270-A	Date Extracted: 03-FEB-94
QC Batch ID: 8270-SVOA-4903	Date Analyzed: 10-FEB-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	30	21-100
Phenol-d ₆	22	10-94
Nitrobenzene-d ₅	70	35-114
2-Fluorobiphenyl	67	43-116
2,4,6-Tribromophenol	60	10-123
p-Terphenyl-d ₁₄	41	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

163

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN		LAL Sample ID: L1175-9	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Carbazole	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	

184

SEMI-VOLATILE ORGANIC ANALYSIS RESULTS

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	LAL Sample ID: L1175-9
Date Received: 01-FEB-94	Date Analyzed: 10-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 021094-8270-A	QC Batch ID: 8270-SVOA-4903

[illegible]

**OIL AND GREASE
EXTRACTABLES ANALYSIS RESULTS
BY FT/IR USING METHOD 413.2**

Client Sample ID: OUTFALL OOB-U/2 BLOWDOWN	LAL Sample ID: L1175-13
Date Collected: 31-JAN-94	Date Analyzed: 09-FEB-94
Date Received: 01-FEB-94	Dilution Factor: 1
Matrix: WATER	Date Extracted: 08-FEB-94
Analytical Batch #: 020994-413.2	QC Batch ID: 020894-413.2

Constituent	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)
Oil and Grease	<1	1	

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080

Client Sample ID: OUTFALL 00B-U/2 BLOWDOWN	LAL Sample ID: L1175-11
Date Collected: 31-JAN-94	Date Received: 01-FEB-94
Date Extracted: 07-JAN-94	Date Analyzed: 14-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 021294-8080-E-3	QC Group ID: 8080 PEST/PCB_5054

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	64	60-150
DCB	86	60-150

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 008-U/2 BLOWDOWN

LAL Sample ID: L1175-15

Date Collected: 31-JAN-94

Date Received: 01-FEB-94

Matrix: Water

Login Number: L1175

Constituent	Analyzed	Batch	Activity	Error	MDA	Data Qual	Units
Gross Alpha	23-FEB-94	GR ALP/BETA LAL-0060_4756	-0.08	0.38	0.92		pCi/L
Gross Beta	23-FEB-94	GR ALP/BETA LAL-0060_4756	0.4	1.2	2.1		pCi/L

RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman,MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL 008-U/2 BLOW

LAL Sample ID: L1175-16

Date Collected: 31-JAN-94

Date Received: 01-FEB-94

Matrix: Water

Login Number: L1175

Constituent	Analyzed	Batch	Activity	Error	MOA	DataQual	Units
Ra-226	10-MAR-94	RA-226 LAL-0073_5201	0.62	0.28	0.31		pCi/L
Ra-228	25-FEB-94	RA-228 LAL-0074_5199	0.03	0.37	0.65		pCi/L

PH Analysis (LAB.079)

PH Meter

CPC # 102Cal date due 1/14/95

Outfall 00B

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

U-1 Cinc dish	U-2 Cinc dish	Cinc Intake	Dr - Ice
<u>0900</u>	<u>0930</u>	<u>1430</u>	<u>1500</u>
<u>1/24/94</u>	<u>1/24/94</u>	<u>1/25/94</u>	<u>1/25/94</u>

6) Sample °C/ph
(prior to
correction)

<u>7.78</u>	<u>7.95</u>	<u>8.02</u>	<u>7.79</u>
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5.3.5

7) NH₃ pH
correction

<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
----------	----------	----------	----------

5.3.6

8) Sample results
°C/pH (after
NH₃ Correction)

<u>25/7.78</u>	<u>25/7.95</u>	<u>24/8.02</u>	<u>23/7.79</u>
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Sample
Sample Time
Sample #
Sample Date
CDM Entered by

PHB ²	U-1 F/T 300	U-2 F/L 300	
<u>1600</u>	<u>1530</u>		
<u>1/28/94</u>	<u>1/31/94</u>		

6) Sample °C/ph
(prior to
correction)

	<u>24/6.86</u>	<u>25/7.05</u>	
--	----------------	----------------	--

5.3.5

7) NH₃ pH
correction

	<u>-</u>	<u>-</u>	
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5.3.6

8) Sample results
°C/pH (after
Correction)

	<u>6.86</u>	<u>7.05</u>	
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9) LAB.041 Specs Verified by: N/A

Supervisor Review/Date PL / 1/27/94

Form prepared by/Date SL / 11/23/93
Form approved by/Date SL / 11/23/93
12 THP LAB.041.25s
Revision 1

Outfall 00B

Determination of Total Chlorine
(Lab 170)

Instrument CPC# 505
Standard ICN-CID# 2310
Technician VJ

Sample\Standard
Sample #
Date
Time
CDM Entered by

U-1 B/D	U-2 B/D	Ro Reject	#1 MT
3-7-94	3-7-94	3-7-94	3-7-94
1430	1430	1430	1430

1) Absorbance

less than	less than	less than	less than	less than
-----------	-----------	-----------	-----------	-----------

2) Results, ppm

<.05	<.05	<.05	<.05	
------	------	------	------	--

3) Dilutions made

—	—	—	—	
---	---	---	---	--

4) Results, ppm
(#2 * # 3)

<.05	<.05	<.05	<.05	
------	------	------	------	--

5) LAB.041 Specs Verified by: N/A

Supervisor Review/Date OK / 3/7/94

Form prepared by/Date Rep / 4/9/93
Form approved by/Date OK / 4-8-93
12 THP LAB.041-25j1
Revision 0

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 1 DISCHARGE LOCATION SCHEDULE FLOW RATE WASTEWATER TYPE CODE CONTACT COOLING NONCONTACT COOLING PROCESS SANITARY STORMWATER UNIT CODE 1 MGY 2 MGD 3 GPD	OUTFALL NUMBER		000C					
	A. LOCATION OF DISCHARGE		[S.W.] & [N.W.] & SECTION 06, TOWN 06 S, RANGE 19 W					
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		LAKE MICHAEL					
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
	D. IF YES, LIST DISCHARGE PERIODS		NA					
			MO. / DAY					
			THROUGH					
			THROUGH					
			THROUGH					
	E. LAND APPLICATION RATE		IN./HR. HR./DAY IN./WK. <input checked="" type="checkbox"/> NA					
F. TYPE OF WASTEWATER DISCHARGE		3 WASTEWATER TYPE CODE						
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY 24 DAY/YEAR 365						
H. DISCHARGE FLOW RATE		TOTAL YEARLY * 5.11 UNIT CODE 1						
*Based on all-time daily maximum times 365		DAILY MINIMUM 0 2						
		DAILY MAXIMUM 0.014 2						
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED 0.043 UNIT CODE 2						
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN 0.043 UNIT CODE 2						
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)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME FUNCTION					
	NA							
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.							
	NA							
	D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		NA					
	ADDITIVE NAME		MINIMUM	UNITS CODE	AVERAGE	UNITS CODE	MAXIMUM	UNITS CODE
	ADDITIVE NAME							
	ADDITIVE NAME							
	E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		<input type="checkbox"/> YES <input type="checkbox"/> NO					
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		NA						
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. NA								

INSTRUCTIONS FOR COMPLETING SECTION 1

ITEMS AND 1

This form may be used for information on the type of discharge, location, discharge schedule, volume flow rate and water treatment system used.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If you have a new or not previously permitted facility, then leave a blank and a number will be assigned.

ENTER THE FACILITY NUMBER IN SPACE PROVIDED FOR EACH PAGE OF SECTION 1. For each individual discharge point a separate set of Section 1 forms must be filled out.

ITEM 1

1.1. NAME, LOCATION, SCHEDULE AND FLOW RATES

1. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
2. List name of receiving water (if surface water discharge).
3. Indicate whether facility discharges on a seasonal basis.
4. If yes, list discharge periods.
5. Provide the discharge application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
6. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
7. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days in a year that the discharge occurs.
8. Provide current flow rate and expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
9. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For TDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
10. Provide the design flow for this specific outfall discharge (e.g., catch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

2.1. WATER TREATMENT ADDITIVES

1. Indicate whether discharge is treated with conditioners, inhibitors, or microbicides. If not, continue on Item 3.
2. Give name, function, and chemical composition of additives used.
3. Give name and address of the manufacturer(s) of the additives used.
4. Indicate expected minimum, average and maximum discharge concentration of the additive(s) for this discharge.
5. Indicate the average flow rate of the discharge to remove the additive(s) through discharge to wastewater.
6. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
7. NOTE: The responsibility of the user is to provide the product information as requested in this Item 2. Information requested but not supplied may result in the application being returned to the applicant for completion.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER		10101C	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	HEATING BOILER BUILDING 49111	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 24	DAYS/YEAR 12
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY 0.003 UNIT CODE 5* DAILY MINIMUM 0 6 DAILY MAXIMUM 0.002 6*	
	D. PROCESS PRODUCTION RATE	NA	UNITS/TIME
PROCESS 2	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	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	NA	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY	DAYS/YEAR
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM	
	D. PROCESS PRODUCTION RATE	UNITS/TIME	

* Heating boiler was out of service
for maintenance during most of 1993.

INSTRUCTIONS FOR COMPLETING SECTION 1

ITEM 1

Enter permit number and information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter facility number in space provided for each page of Section 1. For each individual discharge point a separate set of Section 1 forms must be filled out.

ITEM 2

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS FILL IN THE FOLLOWING INFORMATION.

1. Enter the name of the process which contributes to this discharge. Also provide the process ID code.
2. Indicate the yearly average process schedule in hours per day and days-per-year.
3. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
4. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the 12th month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in 300 USC 404, C.B.R.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

When data is not available for rates in the forms and as to rates in the 300 USC 404, C.B.R.A. categorical rules and regulations for the 12th month of the previous year.

MI 0005827

**SEE INSTRUCTIONS
ON REVERSE SIDE**

ITEM 14

GROUNDWATER DISCHARGE INFORMATION

OUTFALL NUMBER

0,0,C

- A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)
 - 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.
 - 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.
 - 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.
 - 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.

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

**ITEM
5**

**EXPECTED
WASTEWATER
CHARAC-
TERISTICS**

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

B. OTHER WASTEWATER CHARACTERISTICS

O I L & G R E A S E

SEE ATTACHED SHEETS FOR ANALYSIS DATA

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

* Basis: 1993 actual data submitted on DMRs

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk (*). The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

B. If data is available for other parameters not listed above in A, or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total anionics, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 46) for definition of grab sample.

3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. APPLICANT'S INTAKE DATA. An applicant is not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water. If your water is treated before use, treat the water after it is treated, and attach a separate sheet substantiating the treatment process used.

(a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Example: "Intake water is drawn from the body of water into which the discharge is made.")

(b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

(c) A statement of the extent to which the pollutant represents a class or compound. A demonstration of the extent to which the pollutants in the intake water are reduced, removed, or eliminated from the pollutants class. As an example, if you discharge a pollutant which is a class of compounds, you must demonstrate that the intake pollutants do not vary from the discharged pollutants.

5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample only one outfall and report the results for all the outfalls for other substantially identical outfalls. If you are permitted to sample only one outfall, you must submit a separate sheet attached to the Section II form identifying which outfall you did sample, and listing the outfalls for which you did not test are substantially identical to the outfall which you did sample.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

ITEM
6

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER

000C

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.)

S, T, M, E, L, E, C, P, W, R

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 IIAA 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

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 (ROHNEP);
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

H. 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

I. 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

J. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN
TABLES IV PAGE 9 AND IIA THROUGH IVA 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

* pesticide data is not required; however, it is provided.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 22.21(c)(2), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 22.21(q)(7)(iii)(A) or 22.21(q)(7)(iii)(A).

A.-C. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.
and
E.-J.

D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 22, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Grace Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Ore Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

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

OUTFALL NUMBER

0,0,C

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		LBS/DAY		KG/DAY	
1	Mg/l				
2	Ug/l				
MATERIAL 1	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT	* Hydrazine 0,0,3,0,2,0,1,2			
	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		

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

* Hydrazine is not expected to be present in discharge but small quantities may be found in the steam generators but would not be expected to be found in the actual discharge flow to Outfalls 001 or 002.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3, above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3, and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

ANALYTICAL REPORT

Cook Nuclear
Proj: Waste Water Analysis

Subm: Feb 21 Samples

Submittal Number: 29609- 7
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

	Outfall 00C Htng Boiler	Detection Units Limit
WWES Sample No:	79691	
Surfactants, MBAS	<0.025	0.025 mg/l
Coliform, Fecal	<1	1 cl/100ml
BOD, (5-Day)	<31	1.0 mg/l
Sampled by:		
Date Sampled:	02/21/94	
Time Sampled:	00:00	
Date Received:	02/22/94	
Time Received:	09:00	

Page 1 - End of Analytical Report

*BOD sample is being reanalyzed and will be submitted after the results are received.

STATEMENT OF DATA QUALIFICATIONS

CLIENT: Cook Nuclear

SUBMITTAL: 29609-7

_____ All analyses have been validated and comply with our Quality Control Program. No qualifications required.

 X The following analyses have been qualified for the reasons cited.

Sample No.(s): 79691 Parameter: Fecal Coliform Reason: 2

Explanation: _____

KEY

1. Sample integrity suspect upon receipt (explain).
2. Analysis performed beyond EPA established maximum allowable holding time.
3. Detection limit elevated due to matrix interferences.
4. Laboratory control sample value outside established acceptable limits.
5. Matrix spike sample value outside established acceptable limits.
6. Duplicate analysis value outside established acceptable limits.
7. Surrogate/internal standard recoveries outside established acceptable limits.
8. Data point suspect due to potential laboratory contamination (explain).
9. Coelutes with the compound cited. Result may represent a combination of both compounds.
10. Other (explain).

Note: This document is included as part of the Analytical Report for the above referenced and should be retained as a permanent record thereof.



GENERAL CHEMISTRY RESULTS

Client Sample ID: OUTFALL 00C- HEATING BOILER	Date Collected: 02-21-94	Matrix: water
LAL Batch ID(s): 222 im	Date Received: 02-22-94	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		03-08-94	L1304-22
Bromide, in mg/L	300.0	<0.050	0.050		03-14-94	L1304-22
Nitrate-Nitrogen, in mg/L	300.0	<0.017	0.017		03-11-94	L1304-17
Sulfate, in mg/L	300.0	<0.059	0.059		03-10-94	L1304-22
Total Phosphorus, in mg/L	365.2	0.049	0.030		02-24-94	L1304-16
Total Kjeldahl Nitrogen, in mg/L	351.2	8.0	0.10		03-17-94	L1304-16
Total Cyanide, in mg/L	335.2	<0.020	0.020		03-01-94	L1304-13
Total Suspended Solids, in mg/L	160.3	12	12		02-28-94	L1304-21
Chemical Oxygen Demand, in mg/L	410.2	23	18		02-26-94	L1304-23
Total Organic Carbon, in mg/L	415.2	9.5	1.0		03-10-94	L1304-23
Ammonia-Nitrogen, in mg/L	350.1	3.7	0.050		03-21-94	L1304-16
Color	110.3	<5.0	5.0		02-24-94	L1304-18
Total Phenolics, in mg/L	420.1	<0.15	0.15		03-08-94	L1304-14
Sulfide, in mg/L	376.1	<1.0	1.0		02-25-94	L1304-19
Sulfite, in mg/L	377.1	1.6	1.0	*	02-23-94	L1304-20

Comments: Nitrite-Nitrogen is not present in preserved samples.

METALS RESULTS

Client Sample ID: OUTFALL 00C- HEATING BOILER	Date Collected: 02-21-94	Matrix: water
LAL Batch ID(s): 222 im	Date Received: 02-22-94	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		03-12-94	L1304-12
Antimony	6010	<0.060	0.060		03-12-94	L1304-12
Arsenic	7060	<0.010	0.010		03-14-94	L1304-12
Barium	6010	<0.20	0.20		03-12-94	L1304-12
Beryllium	6010	<0.005	0.005		03-12-94	L1304-12
Boron	6010	<0.20	0.20		03-12-94	L1304-12
Cadmium	6010	<0.005	0.005		03-12-94	L1304-12
Chromium	6010	<0.010	0.010		03-12-94	L1304-12
Cobalt	6010	<0.050	0.050		03-12-94	L1304-12
Copper	6010	0.026	0.025		03-12-94	L1304-12
Iron	6010	3.6	0.10		03-12-94	L1304-12
Lead	7421	<0.003	0.003		03-22-94	L1304-12
Magnesium	6010	<5.0	5.0		03-12-94	L1304-12
Manganese	6010	0.017	0.015		03-12-94	L1304-12
Mercury	7470	<0.0002	0.0002		03-04-94	L1304-12
Molybdenum	6010	<0.067	0.067		03-12-94	L1304-12
Nickel	6010	<0.040	0.040		03-12-94	L1304-12
Phosphorus	6010	<0.050	0.050		03-12-94	L1304-12
Selenium	7740	<0.005	0.005		03-22-94	L1304-12
Silver	6010	<0.010	0.010		03-12-94	L1304-12
Strontium	6010	<0.10	0.10		03-12-94	L1304-12
Thallium	7841	<0.010	0.010		03-22-94	L1304-12
Tin	6010	<0.20	0.20		03-12-94	L1304-12
Titanium	6010	<0.10	0.10		03-12-94	L1304-12
Uranium	6020	<0.001	0.001		03-11-94	L1304-12
Vanadium	6010	<0.050	0.050		03-12-94	L1304-12
Zinc	6010	<0.020	0.020		03-12-94	L1304-12

Comments:

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER	LAL Sample ID: L1304-1
Date Collected: 21-FEB-94	Date Received: 22-FEB-94
Matrix: WATER	Date Analyzed: 25-FEB-94
Analytical Batch #: 022594-8260F1	Dilution Factor: 1
QC Batch ID: 022594-8260F1	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	103	76-114
Toluene-d8	105	88-110
4-Bromofluorobenzene	109	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER	LAL Sample ID: L1304-1
--	------------------------

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER	LAL Sample ID: L1304-4
Date Collected: 21-FEB-94	Date Received: 22-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 030494-8270-K	Date Extracted: 25-FEB-94
QC Batch ID: 8270-SEMIVOLATILES-5616	Date Analyzed: 04-MAR-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	24	21-100
Phenol-d ₆	21	10-94
Nitrobenzene-d ₅	67	35-114
2-Fluorobiphenyl	62	43-116
2,4,6-Tribromophenol	33	10-123
p-Terphenyl-d ₁₄	21*	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER		LAL Sample ID: L1304-4	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Carbazole	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER	LAL Sample ID: L1304-4RE
Date Collected: 21-FEB-94	Date Received: 22-FEB-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 030694-8270-K	Date Extracted: 25-FEB-94
QC Batch ID: 8270-SEMIVOLATILES-5616	Date Analyzed: 06-MAR-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	21	21-100
Phenol-d ₆	19	10-94
Nitrobenzene-d ₅	61	35-114
2-Fluorobiphenyl	50	43-116
2,4,6-Tribromophenol	29	10-123
p-Terphenyl-d ₁₄	21*	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: OUTFALL OOC-HEATING BOILER		LAL Sample ID: L1304-4RE	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Carbazole	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	<10	10	
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	

LOCKHEED ANALYTICAL SERVICES

OIL AND GREASE BY FTIR
413.2 OIL AND GREASE

Indiana Michigan Power Co. * Bridgman, MI

Attn:

Client Reference: (Project COOK-JENI)

Client Sample ID:	OUTFALL OOC-HEATING BOILER	LAL Sample ID:	L1304-8
Date Collected:	21-FEB-94	Date Analyzed:	08-MAR-94
Date Received:	22-FEB-94	Date Extracted:	02-MAR-94
Matrix:	Water	Dilution Factor:	1
Analytical Batch #:	030894-418.1	QC Batch ID:	413.2 OIL AND 1

CONSTITUENT	RESULT (mg/l)	PRACTICAL QUANTITATION LIMIT (mg/l)	DATA QUALIFIER(S)
Total Oil and Grease	<1.0	1.0	

PESTICIDE ANALYSES RESULTS

BY GC/ECD USING METHOD 8080

Client Sample ID: OUTFALL OOC-HEATING BOILER	LAL Sample ID: L1304-6
Date Collected: 21-FEB-94	Date Received: 22-FEB-94
Date Extracted: 28-FEB-94	Date Analyzed: 03-MAR-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 030390-8080-E-1	QC Group ID: 8080 PEST/PCB 5666

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	50*	60-150
DCB	97	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl



RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman, MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL OOC-HEATING BOILER

LAL Sample ID: L1304-10

Date Collected: 21-FEB-94

Date Received: 22-FEB-94

Matrix: Water

Login Number: L1304

Constituent	Analyzed	Batch	Activity	Error	MOA	DataQual	Units
Gross Alpha	13-MAR-94	GR ALP/BETA LAL-0060_5902	0.24	0.5	0.92		pCi/L
Gross Beta	13-MAR-94	GR ALP/BETA LAL-0060_5902	0.1	1.2	2.1		pCi/L



RAD DATA REPORT (ra01)

Indiana Michigan Power Co. * Bridgman,MI

Organic and Inorganic Contaminants (Project COOK-JENI)

Client Sample ID: OUTFALL OOC-HEATING BOILER

LAL Sample ID: L1304-11

Date Collected: 21-FEB-94

Date Received: 22-FEB-94

Matrix: Water

Login Number: L1304

Constituent	Analyzed	Batch	Activity	Error	MOA	DataQual	Units
Ra-226	21-MAR-94	RA-226 LAL-0073_5874	0.049	0.055	0.044		pCi/L
Ra-228	14-MAR-94	RA-228 LAL-0074_5873	7.39	0.5	0.5		pCi/L

PH Analysis (LAB.079)

PH Meter

CPC # 102Cal date due 11/14/95

Outfall 00C

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

Plant Htz Brice15302/20/94

6) Sample °C/pH
(prior to
correction)

7.86

5.3.5

7) NH₃ pH
correction

.02

5.3.6

8) Sample results
°C/pH (after
NH₃ Correction)

27°C / 7.86

Sample
Sample Time
Sample #
Sample Date
CDM Entered by

6) Sample °C/pH
(prior to
correction)

5.3.5

7) NH₃ pH
correction

5.3.6

8) Sample results
°C/pH (after
Correction)

9) LAB.041 Specs Verified by: N/A

Supervisor Review/Date YEL / 3/7/94

Form prepared by/Date YEL / 11/23/93
Form approved by/Date YEL / 11/23/93
12 THP LAB.041.25s
Revision 1

Outfall 00C

Determination of Total Chlorine
(Lab 170)

Instrument CPC# 505
Standard ICN-CID# 2310
Technician NZ

Sample\Standard
Sample #
Date
Time
CDM Entered by

Cine Intake
3/7/94
1430

U-1 Cine dish
3/7/94
1430

U-2 Cine dish
3/7/94
1430

De Ice
3/7/94
1430

PHB
3/7/94
1430

1) Absorbance

<

less than

less than

less than

less than

6.11

2) Results, ppm

<.05

<.05

<.05

<.05

<.05

3) Dilutions made

—

—

—

—

—

4) Results, ppm
(#2 * # 3)

<.05

<.05

<.05

<.05

<.05

5) LAB.041 Specs Verified by: N/A

Supervisor Review/Date 3/7/94

Form prepared by/Date 3/7/94
Form approved by/Date 3/7/94
12 THP LAB.041-25j1
Revision 0

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

ITEM 1 DISCHARGE LOCATION SCHEDULE FLOW RATE WASTEWATER TYPE CODE	OUTFALL NUMBER		O, O, D	
	A. LOCATION OF DISCHARGE S, W & S, E, SECTION 0, 6, TOWN 0, 6, S, RANGE 1, 9, W			
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		A, B, S, O, R, P, T, I, O, N, P, O, N, D, , , ,	
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
	D. IF YES, LIST DISCHARGE PERIODS N/A		MO. / DAY MO. / DAY	
ITEM 2 WATER TREATMENT ADDITIVES	E. LAND APPLICATION RATE N/A		IN./HR. HR./DAY IN./WK. <input checked="" type="checkbox"/> NA	
	F. TYPE OF WASTEWATER DISCHARGE		WASTEWATER TYPE CODE	
	G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY DAY/YEAR	
	H. DISCHARGE FLOW RATE		TOTAL YEARLY DAILY MINIMUM DAILY MAXIMUM	
	I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED	
	J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN	
	A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME FUNCTION	
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.		NAME ADDRESS	
	D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		MINIMUM UNITS CODE AVERAGE UNITS CODE MAXIMUM UNITS CODE	
E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		% REMOVAL DISCHARGE FREQUENCY		
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.		MSDS attached.		

* Approximately instantaneous neutralization upon mixing - (New tank to be completed January of 1995 will ensure complete neutralization prior to discharge.)

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

SECTION I - IDENTIFICATION

MANUFACTURER'S NAME..... Haviland Products Company
ADDRESS (STREET,CITY,STATE,ZIP) 421 Ann St., N.W., Grand Rapids, MI 49504
PHONE NUMBER..... (616) 361-6691
EMERGENCY PHONE NUMBER..... CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 6/18/91
TRADE NAME..... SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE
CHEMICAL FAMILY..... Alkali, Base

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	OSHA/PEL	ACGIH/TLV (Units)	PROD. CAS #
Sodium Hydroxide (Caustic Soda) (48.5-51.0% by wt)	2 mg/m ³ TWA	2 mg/m ³ TWA	1310-73-2
Sodium Chloride (0.8-1.3% by wt)	Not Established	Not Established	7647-14-5
Water (Balance)	Not Established	Not Established	7732-18-5

SECTION III - PHYSICAL DATA

BOILING POINT..... 293°F (145°C)
FREEZING POINT 60°F (15.6°C)
VAPOR PRESSURE (mm Hg)..... 1.5 @ 20°C
VAPOR DENSITY (Air=1)..... No Information Available
SOLUBILITY IN H₂O..... Completely
APPEARANCE/ODOR..... Clear, Colorless Liquid; Odorless
SPECIFIC GRAVITY (H₂O=1)..... 1.52
PH..... Not Established

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... Not Flammable
LOWER EXPLOSIVE LIMIT (% by Volume) Not Applicable
UPPER EXPLOSIVE LIMIT (% by Volume) Not Applicable
EXTINGUISH MEDIA..... As for Surrounding Fires

MATERIAL SAFETY DATA SHEET

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

SPECIAL FIRE FIGHTING PROCEDURES... Wear NIOSH/MSHA approved self contained breathing apparatus and full protective equipment when this material is involved in a fire.

UNUSUAL FIRE HAZARD..... In solution caustic can react with amphoteric metals generating hydrogen which is flammable and/or explosive if ignited.

SECTION V - HEALTH HAZARD DATA

CARCINOGENICITY..... None

NTP..... No

IARC..... no

OVER EXPOSURE EFFECTS..... Redness of Exposed Tissues with possible burns resulting in deep ulceration.

PRIMARY ROUTE(S) OF ENTRY..... Skin Contact

FIRST AID PROCEDURES..... If inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

In case of contact: Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If conscious, dilute by giving several glasses of water. Call a Physician Immediately.

EXPOSURE AGGRAVATED MEDICAL CONDITIONS None Currently Known

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Stable

CONDITIONS TO AVOID..... Not Applicable

INCOMPATIBLE MATERIALS..... Acids

DECOMPOSITION PRODUCTS..... None Currently Known

HAZARDOUS POLYMERIZATION..... Will Not Occur

POLYMERIZATION AVOID..... Not Applicable

SECTION VII - SPILL OR LEAK PROCEDURE

MATERIAL SAFETY DATA SHEET

SODIUM HYDROXIDE 50%
INDUSTRIAL GRADE

FOR SPILL Add non-reactive dry, absorbent such as diatomaceous earth. Shovel or sweep up and place in an approved DOT container and seal. Flush contaminated area and neutralize with dilute acid.

WASTE DISPOSAL METHOD..... Dispose of spilled or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION..... Supplied air or self contained breathing apparatus with full face piece.

VENTILATION..... To maintain vapors below limits.

PROTECTIVE GLOVES..... Rubber or other impervious materials.

EYE PROTECTION..... Chemical splash proof goggles.

OTHER PROTECTIVE EQUIPMENT.... A safety shower and eye bath should be available. For operations where spills or splashing may occur, use an impervious body covering and boots.

HANDLING AND STORAGE..... Store in cool, dry, well ventilated area. Keep containers closed when not in use.

SECTION IX - SPECIAL PRECAUTIONS

HAZARD CLASS..... Corrosive Material

DOT SHIPPING NAME..... SODIUM HYDROXIDE, LIQUID

UN NUMBER..... UN1824

REPORTABLE QUANTITY (RQ)..... 2000 lbs.

REFERENCES HMIS: H-3,F-0,R-1

SODHYDOX

Sulfuric Acid

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sulfuric Acid Formula: H_2SO_4 Molecular Weight: 98.08
 Chemical Name: Sulfuric Acid Chemical Family: Inorganic Acid CAS# 7664-93-9
 Synonyms: Sulphuric Acid, Oil of Vitriol, Battery Acid
 Product Use: Used in manufacture of fertilizers, explosives, other acids, metal pickling and petroleum processing.

MARSULEX Inc.
 111 Gordon Baker Road
 Suite 300
 North York, ONT
 M2H 3R1
 (416) 496-9655

MARSULEX Inc.
 40 Richards Avenue
 P.O. Box 5453
 Norwalk, CT
 06856-5453
 (203) 854-0300

EMERGENCY TELEPHONE NUMBER
 (800) 263-9502

▲ Prepared by MARSULEX Technical Section (416) 496-4164.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	% by Wt.	CAS Number
✓ Sulfuric Acid	70-100%	7664-93-9
<u>Non-Hazardous Ingredients</u>		
✓ Water	0-30%	7732-18-5

3. HAZARD INFORMATION

EMERGENCY OVERVIEW:

✓ Danger! Extremely corrosive. Causes severe burns. Reacts violently with water. Highly reactive and capable of igniting combustible materials on contact. Not flammable, but reacts with most metals to form explosive hydrogen gas.

✓ Sulfuric Acid is a colorless to amber, clear to slightly cloudy, oily liquid.

▲ National Fire Protection Association (NFPA) Rating
 Hazardous Materials Identification System (HMIS) Rating

	NFPA	HMIS
HEALTH	3	3
✓ FIRE	0	0
REACTIVITY	2	2
SPECIAL	W	

4 = Extreme/Severe
 3 = High/Serious
 2 = Moderate
 1 = Slight
 0 = Minimum
 W = Water Reactive

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

3. HAZARD INFORMATION (continued)

POTENTIAL HEALTH EFFECTS:

Exposure Limits:

ACGIH (TLV)

OSHA (PEL)

✓ Sulfuric Acid

1 mg/m³ (TWA)

1 mg/m³ (TWA)

3 mg/m³ (STEL)

✓ In contact with the skin: Concentrated solution may cause pain and severe burns to the skin and brownish or yellow stains. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

✓ In contact with the eyes: Immediate pain, severe burns and corneal damage which may result in blindness.

✓ Inhaled: Mists and vapors may cause irritation of the eyes, nose and respiratory tract. May cause increased pulmonary resistance, transient cough and bronchoconstriction. Severe overexposure may result in lung collapse and pulmonary edema which can be fatal.

✓ Ingested: Severe burning and pain in the mouth, throat and abdomen. Vomiting, diarrhea and perforation of the esophagus and stomach lining may occur.

Long Term Exposure:

✓ Repeated exposure may produce erosion and discoloration of teeth.

△ Although no direct link has been established between exposure to sulfuric acid, itself, and cancer in man, the World Health Organization (WHO) International Agency for Research on Cancer (IARC) have concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box) and, to a lesser extent, the lung. Exposure to any mist or aerosol during the use of this product should be avoided and, in any case, keep exposures below the occupational exposure limit for sulfuric acid.

✓ Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Repeated overexposure may lead to contact dermatitis, may cause bronchitis with cough, phlegm, shortness of breath and emphysema, can cause chronic runny nose, tearing of the eyes, nosebleeds and stomach upsets. Strict adherence to first aid measures following any exposure is essential.

✓ Existing Medical Conditions Possibly Aggravated By Exposure: Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

✓ Carcinogenicity Data: Although there are reports linking exposure to sulfuric acid to cancer, this product is not classified by NTP (National Toxicology Program), not regulated as carcinogenic by OSHA (Occupational Safety and Health Administration), and has not been evaluated by IARC (International Agency for Research on Cancer) or ACGIH (American Conference of Governmental Industrial Hygienists). (See also, Long Term Exposure).

4. FIRST AID MEASURES

Prompt removal of this material from contact with the body is of utmost importance.

START FIRST AID AT ONCE.

- △ **Precaution:** Persons attending the victim should avoid direct contact with heavily contaminated clothing and vomitus. Wear impervious gloves while decontaminating skin and hair.

△ **In contact with the skin:** Flush skin with running water for a minimum of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport.

- △ **While the patient is being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues.**

- △ **Discard heavily contaminated clothing and shoes in a manner which limits further exposure. Otherwise, wash clothing separately before reuse.**

△ **In contact with the eyes:** Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

△ **Inhaled:** Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

△ **Ingested:** If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control center. IMMEDIATELY transport victim to an emergency facility.

- △ **Note to Physician:** All treatments should be based on observed signs and symptoms of distress in the patient. Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. Severity of the burn is generally determined by the concentration of the solution and the duration of exposure. In the event of skin or eye contact, immediate and thorough flushing is essential. Continued washing of the effected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Cream or ointments should not be applied before or during the washing phase of the treatment.

5. FIRE FIGHTING MEASURES

Flash Point (method): Not applicable, product is non-flammable

Autoignition Temperature: Not combustible

Flammability Limits in air(%): UEL: Not applicable LEL: Not applicable

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

5. FIRE FIGHTING MEASURES (continued)

Fire Extinguishing Media: For small fires use dry chemical or carbon dioxide. For large fires, flood fire area with water from a distance. Expect violent reaction with water. Do not get solid stream of water on spilled material.

Special Fire Fighting Procedures: Wear a NIOSH/MSHA approved self-contained breathing apparatus if vapors or mists are present and full protective clothing. For fighting fires in close proximity to spill or vapors, use acid-resistant personal protective equipment. Evacuate residents who are downwind of fire. Prevent unauthorized entry to fire area. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents (see Deactivating Chemicals, Section 6). Cool containers that are exposed to flame with streams of water until fire is out.

Other Fire or Explosion Hazards: Not flammable but highly reactive. Capable of igniting finely divided combustible materials on contact. Reacts violently with water and organic materials with evolution of heat. Extremely hazardous in contact with many materials, particularly carbides, chlorates, fulminates, nitrates and picrates. Sulfuric acid reacts with most metals, especially when dilute to give flammable, potentially explosive hydrogen gas. Hydrogen gas can accumulate to explosive concentrations inside confined spaces. Follow appropriate NFPA codes.

6. ACCIDENTAL RELEASE MEASURES

- ▲ **Steps to be taken in the event of a spill or leak:** Remove all ignition sources. Ventilate area. Use appropriate Personal Protection Equipment. Prevent liquid from entering sewers or waterways. Dike with inert material (sand, earth, etc.). Stop or reduce leak if safe to do so. Collect into containers for reclamation or disposal only if container is suitable to withstand the material. Consider insitu neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases.

Deactivating Chemicals: Lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, dilute sodium hydroxide, dilute aqua ammonia.

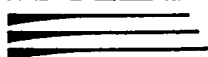
Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

- ▲ **Note -** Clean-up material may be a RCRA Hazardous Waste on disposal.
Spills are subject to CERCLA reporting requirements: RQ = 1000 lbs.

7. HANDLING AND STORAGE

Precautions: Wear appropriate Personal Protection Equipment. Do not breath sprays or mists. Do not ingest. Do not get in eyes, on skin or on clothing. Keep ignition sources away from sulfuric acid storage, handling and transportation equipment.

Handling Procedures and Equipment: Carbon steel or stainless steel materials are suitable for use for acid concentrations equal to or greater than 93%. However, the effect of lower concentrations on the materials of construction can be very complex. Contact product supplier for specific recommendations when handling sulfuric acid at strengths less than 77%.

**Sulfuric Acid**

7. HANDLING AND STORAGE (continued)

Storage Temperature: Store above freezing point (Section 9). Elevated temperatures will increase the corrosion / rate of most metals.

Storage Requirements: Store packaged acid in a dry, well, ventilated location away from combustibles, oxidizers, bases, or metallic powders. Storage tanks should be protected from water ingress, be well ventilated, and maintained structurally in a safe and reliable condition.

Other Precautions: Sulfuric acid will attack some forms of plastics and coatings. Always add acid to water - not / water to acid. If kept in upper floors of building, floors should be acid proof with drains to a recovery tank.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

✓ Recommendations listed in this section indicate the type of equipment which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

✓ **Engineering Controls:** Local exhaust ventilation required.

✓ **Respiratory Protection:** A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, mist cartridges for concentrations up to 10 mg/m³. An air-supplied respirator if concentrations are higher or unknown.

✓ **Skin Protection:** Impervious (i.e., neoprene, PVC) gloves, coveralls, boots and/or other acid resistant protective clothing.

✓ **Eye Protection:** Tight-fitting chemical goggles and face shield.

✓ **Other Personal Protective Equipment:** Where there is a danger of spilling or splashing, acid resistant aprons or suits should be worn. Trouser legs should be worn outside (not tucked in) rubber boots. Safety showers and eyewash fountains should be installed in storage and handling areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance and Odor: Sulfuric acid is a clear to amber, heavy, oily liquid which may have a sharp penetrating odor.

Odor Threshold: No data

- △ **Boiling Point:** 77.67%: 193°C (380°F); 93.19%: 276°C (529°F); 98%: 330°C (626°F)
- △ **Melting/Freezing Point:** 77.67%: -11.2°C (+11.6°F); 93.19%: -29.5°C (-21.1°F); 98%: -1.1°C (30°F)
- ✓ △ **Vapor Pressure at 40°C (102°F):** 77.67%: 1.2 mmHg; 93.19%: 0.0016 mmHg; 98%: 0.002 mmHg
- △ **Specific Gravity at 15°C (60°F):** 77.67%: 1.7059; 93.19%: 1.8354; 98%: 1.8437
- △ **Vapor Density: (Air=1):** 3.4 sulfuric acid component
- △ **Bulk Density:** Not applicable (see specific gravity)

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

9. PHYSICAL AND CHEMICAL PROPERTIES (continued)

Evaporation Rate: Not applicable

Solubility: Miscible in all proportions in water. Also soluble in alcohol.

pH: 0.3 (1N solution at 25°C/78°F)

10. STABILITY AND REACTIVITY

Stability:

Under Normal Conditions: Stable, but reacts violently with water and organic materials with evolution of heat.

Under Fire Conditions: Decomposes to form sulfur oxides(SO_x).

Conditions to Avoid: Temperatures which may have a negative effect on the materials of construction used in equipment.

Materials to Avoid: Contact with organic materials (such as chlorates, carbides, fulminates and picrates) may cause fire and explosions. Contact with metals may produce flammable hydrogen gas. When diluting, add acid to water. Do NOT add water to the acid.

Hazardous Decomposition or Combustion Products: Toxic gases and vapors (e.g. sulfur dioxide, sulfuric acid vapors/mists and sulfur trioxide) may be released when sulfuric acid decomposes.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Toxicological Data: LD₅₀ (oral, rat) = 2140 mg/kg
LC₅₀ (inhalation, rat) = 510 mg/m³ for 2 hrs
Skin effects (rabbit): Severe Irritation
Eye effects (rabbit): Severe Irritation

Carcinogenicity Data: Although there are reports linking exposure to sulfuric acid to cancer, this product is not classified by NTP (National Toxicology Program), not regulated as carcinogenic by OSHA (Occupational Safety and Health Administration), and has not been evaluated by IARC (International Agency for Research on Cancer) or ACGIH (American Conference of Governmental Industrial Hygienists). See Section 3. Hazard Information, regarding Potential Health Effects (Long Term Exposure) for further discussion.

Reproductive Effects: No information is available and no adverse reproductive effects are anticipated.

Mutagenicity Data: No information is available and no adverse mutagenic effects are anticipated.

Teratogenicity Data: No information is available and no adverse teratogenic effects are anticipated.

Synergistic Materials: None known

Sulfuric Acid
12. ECOLOGICAL INFORMATION

Ecotoxic Effects: Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intake; Fish toxicity critical concentration = 10 mg/L; 7.34 mg/L/48 hrs - Lymnaea Palustris - 0-100% mortality.

13. DISPOSAL CONSIDERATIONS

- Responsibility for proper waste disposal is with the owner of the waste. Work with the appropriate regulatory bodies to ensure compliance with regulations.
- Consider the collection of residual sulfuric acid into containers for reclamation or disposal only if the container is suitable to withstand the material.
- Consider Insitu neutralization and disposal.
- Clean-up material may be a RCRA Hazardous Waste on disposal.
- Provincial/State or local regulations or restrictions are complex and may differ from Federal regulations.
- The information applies to the material as manufactured; processing, neutralizing, use or contamination may make the information inappropriate, inaccurate or incomplete.

14. TRANSPORT INFORMATION
U.S. (Under DOT)
Canada (Under TC)

Shipping Name: RQ Sulfuric acid
 Hazard Class or Division: 8
 Product Identification No. (PIN): UN1830
 Packing Group: II

Shipping Name: Sulphuric acid
 Classification(s): Class 8 (9.2)
 Product Identification No. (PIN): UN1830
 Packing Group: II

15. REGULATORY INFORMATION
U.S.A.
SARA Title III HAZARD CATEGORIES AND LISTS
Product Hazard Categories

Acute (Immediate) Health:	Yes
Chronic (Delayed) Health:	Yes
Fire:	No
Reactivity:	Yes
Sudden Release of Pressure:	No

Lists

Extremely Hazardous Substance (40 CFR 355, SARA Title III Section 302)	Yes
CERCLA Hazardous Substance (40 CFR 302.4)	Yes
Toxic Chemical (40 CFR 372.65, SARA Title III Section 313)	Yes

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

15. REGULATORY INFORMATION (continued)

Reportable Quantity (RQ) under U.S. EPA CERCLA: RQ=1000 lb

TSCA Inventory Status: Reported/Included

✓ CANADA

Workplace Hazardous Materials Information System (WHMIS)

WHMIS Classification(s): Class E - Corrosive
Class D1A - Very Toxic

WHMIS Health Effects Index: Acute Lethality - very toxic - immediate
Corrosive to animal skin

WHMIS Ingredient Disclosure List: Confirmed A; Meets criteria for disclosure at 1% or greater.

Reportable Quantity (RQ) under Transport Canada - TDG:
RQ=5 litres (or Kg) if it represents a danger to health, life, property or the environment.

16. OTHER INFORMATION

Additional Information and References

1. Enviro-TIPS Manual, "Sulphuric Acid and Oleum", Environment Canada, February 1984.
- ✓ 2. Weast, R.C. (Ed.), "CRC Handbook of Chemistry and Physics", 60th Edition (1980)
3. Sax, N.I., "Dangerous Properties of Industrial Materials", 7th Edition (1989)
4. ACGIH, "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices", 1991-92
5. Sittig, Marshall, "Handbook of Toxic and Hazardous Chemicals and Carcinogens", 2nd Edition, 1985

Revision Indicators:

✓ Δ In the left margin indicates a revision or addition of information since the previous issue.

16. OTHER INFORMATION (continued)

Legend:

CAS #	- Chemical Abstracts Service Registry Number
✓ CERCLA	- Comprehensive Environmental Response, Compensation, and Liability Act
CFR	- Code of Federal Regulations
DOT	- Department of Transportation
EPA	- Environmental Protection Agency
LC ₅₀	- The concentration of material in air expected to kill 50% of a group of test animals
LD ₅₀	- Lethal Dose expected to kill 50% of a group of test animals
LEL	- Lower Explosive Limit
MSHA	- Mine Safety and Health Administration
NIOSH	- National Institute for Occupational Safety and Health
✓ PEL	- Permissible Exposure Limit
PVC	- Polyvinyl chloride
RCRA	- Resource Conservation and Recovery Act
SARA	- Superfund Amendments and Reauthorization Act of the U.S. EPA
STEL	- Short Term Exposure Limit
TC	- Transport Canada
TDG	- Transportation of Dangerous Goods Act/Regulations
TLV	- Threshold Limit Value
TSCA	- Toxic Substances Control Act
TWA	- Time-Weighted Average
UEL	- Upper Explosive Limit

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SECTION II

PERMIT
NUMBER

MI 00005827

SEE INSTRUCTIONS
ON REVERSE SIDE

OUTFALL NUMBER		O O D	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	S T M E L E C T 4 9 1 1	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 2 4	DAYS/YEAR 3 6 5
	C. PROCESS WASTEWATER FLOW RATE See various contributing waste streams in Section I.6.A	TOTAL YEARLY 1 1 1 . 3 5 4	UNIT CODE 5
	D. PROCESS PRODUCTION RATE	N/A	
PROCESS 2	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
	D. PROCESS PRODUCTION RATE	UNITS / TIME	
PROCESS 3	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
	D. PROCESS PRODUCTION RATE	UNITS / TIME	
PROCESS 4	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
	D. PROCESS PRODUCTION RATE	UNITS / TIME	
PROCESS 5	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
	D. PROCESS PRODUCTION RATE	UNITS / TIME	

EM
3PROCESS
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

INSTRUCTIONS FOR COMPLETING SECTION 11

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section 11. For each individual discharge point a separate set of Section 11 forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. **Process Production Rate** - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDED:M
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

000D

A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR
GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)☒

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.☒

YES

☐

NO

Report Submitted 12/6/91

C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER
RULE R.323.2207 (10) (PAGE 45) 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

☒

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

☒

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.☒

NOT APPLICABLE/BELIEVED ABSENT

☐

PRESENT, DATA PROVIDED IN ITEM 7

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

ITEM
5EXPECTED
WASTEWATER
CHARAC-
TERISTICS

UNITS CODE

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

A. DISCHARGE CHARACTERISTICS

CONCENTRATION

UNITS CODE # ANALYSES SAMPLE TYPE

AVE

MAX

CODE

*BOD₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*COD (CHEMICAL OXYGEN DEMAND)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*TOC (TOTAL ORGANIC CARBON)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*AMMONIA NITROGEN (AS N)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*TOTAL SUSPENDED SOLIDS

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

TOTAL PHOSPHORUS (AS P)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

TOTAL RESIDUAL CHLORINE

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

DISSOLVED OXYGEN

MIN

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*PH

1	5	0	1	8	0
---	---	---	---	---	---

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

FECAL COLIFORM BACTERIA

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*TEMPERATURE (SUMMER)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*TEMPERATURE (WINTER)

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

CHLORIDE

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

SULFATE

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

TOTAL DISSOLVED SOLIDS

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

1	5	0	1	8	0
---	---	---	---	---	---

1 5 2

2

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

Analysis per J. B. Beauboeuf, Target Permit Effluent
Limits List.

INSTRUCTIONS FOR COMPLETING SECTION II
ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (Items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.
3. 24-hour composite samples shall be used to analyze for Total BODs, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. REPORTING OF INTAKE DATA. You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

- (a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
 - (b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
 - (c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)
5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

OUTFALL NUMBER

0,0,D

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.)

S, T, M, E, L, E, C, P, W, R,

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 IIA PAGE 43.

RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.

(CONTINUE WITH E-K BELOW)

☐ VOLATILE Analysis per
☐ BASE/NEUTRAL J.B. Beauboeuf
☐ ACID Target Permit
☐ PESTICIDE Effluent Limits

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
N/A
☐ 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
N/A
☐ PRESENT/DATA IS ATTACHED

G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO:

USES OR MANUFACTURES 2, 4, 5 - TRICHLOROPHENOX ACETIC ACID (2, 4, 5-T);
2, 4, 5-TRICHLOROPHENOX PROPANOIC ACID (SILVEX, 2, 4, 5, TP);
2, 4, 5-TRICHLOROPHENOX 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 TOCD 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
N/A
☐ 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 TABLE IV PAGE 5 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

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. and E.-J. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.

D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

Iron Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart A.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEITEM
7CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

O O D

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	A. NAME OF CRITICAL MATERIAL OR PRIORITY POLLUTANT		UNIT CODE SAMPLE TYPE # OF ANALYSES											
MATERIAL 1	* Hydrazine		10 10 13 10 12 10 11 12											
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 2	* Chlorine (Sodium Hypochl)		10 17 17 18 12 15 10 15											
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 3	* Antimony Potassium Tartrate		C I L I A I S I S I O 1 1 0											
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 4	* Mercuric Nitrate		C I L I A I S I S I O 1 2 1											
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 5														
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 6														
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 7														
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													
MATERIAL 8														
	B. AVERAGE CONCENTRATION; SAMPLE TYPE; # OF ANALYSES													
	C. MAXIMUM CONCENTRATION AND MASS													

UNITS CODE

1 Mg/l

2 UG/l

LBS/DAY
KG/DAY

SAMPLE TYPE

1 GRAB

2 24 HR. COMB

* Hydrazine or Sodium Hypochlorite are not expected to be present in discharge but
 ADDITIONAL PAGES OF THIS ITEM 7 ARE ATTACHED FOR THE REST OF THE CRITICAL ☐ YES
 MATERIALS AND/OR PRIORITY POLLUTANTS REQUIRED TO BE REPORTED. ☒ NO

small quantities may be found in the Turbine Room Sump but would not be expected
 to be found in the actual discharge flow to the absorption pond.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.



Lockheed Analytical Services

INDIANA MICHIGAN POWER COMPANY

**SAMPLE ANALYSIS
SUMMARY PACKAGE**

FOR

**VOLATILE AND SEMI-VOLATILE ORGANICS,
- PESTICIDE/PCBS, CHLORIDE,
NITRATE/NITRITE, SULFATE,
FLUORIDE, CYANIDE, METALS, AND MERCURY**

LOG-IN NUMBER: L1009
QUOTATION NUMBER: Q331620
DOCUMENT FILE NUMBER: 1229485



Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 361-0220
Fax: (702) 361-6434

February 4, 1994

Mr. Rocky Beem
Cook Nuclear Plant
1 Cook Place
Bridgeman, MI 49106

RE: Log-in No.: L1009
 Quotation No.: Q331620
 Document File No.: 1229485

The attached data package contains the results of analyses on samples that were submitted to Lockheed Analytical Services on December 29, 1993. The samples were received at 5°C.

SUMMARY ANALYSIS STATEMENT:

Inorganics

All ground water samples were received in good condition on December 29, 1993. All samples were analyzed within the method-specific holding times. The method blanks were free of contamination.

All Internal Quality Control were within acceptance limits with the following exception: The matrix spike recoveries for barium and selenium were slightly outside of acceptance limits. The acceptable recovery of the Laboratory Control Samples supports that the analytical systems were operating within control limits.

The reporting detection limit for nitrite was raised to 0.50 mg/L for sample S. Sewage Plant Eff. (L1009-4) due to interferences from chloride.

Organics

Method 8260

All calibrations and quality control criteria were met with the following exceptions:

All samples were analyzed initially within holding times but failed surrogate recovery QC limits. The samples were reanalyzed one day beyond the method specified holding time and all samples met surrogate recovery QC limits. Tentatively identified compound searches were performed on all submitted samples. Only the reanalyses are reported.

Method 8010/8020

All calibrations and quality control criteria were met with the following exceptions:

The matrix spike and matrix spike duplicate precision for 1,1-dichloroethene exceeded the QC criteria although all percent recovery criteria were met. Data quality is not effected.

Method 8270

All samples were extracted and analyzed within the method specified holding time. All initial and continuing calibration criteria were met. Bis(2-ethylhexyl)phthalate was detected in the method blank at 1.3 ug/L. There was no other contamination detected in the method blank. Percent recoveries for all surrogate compounds was within QC limits for all samples analyzed. A laboratory control sample (LCS) and laboratory control sample duplicate (LCS DUP) was prepared and analyzed with this set of samples. The percent recovery criteria for all spiked compounds was within the QC limits as was the relative percent difference between the two. The response for bis(2-ethylhexyl)phthalate in sample TRANS. CATCHBASIN exceeded the calibration range in the initial analysis. The sample was reanalyzed at a dilution of 1:4 and all compounds fell within the calibration range. Both sets of results are reported.

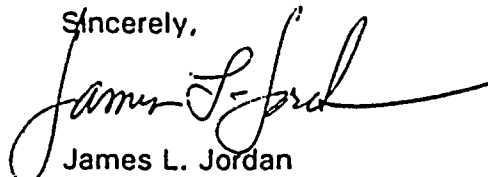
Method 8080

All samples were extracted and analyzed within the method specified holding time. All initial and continuing calibration criteria were met. No contamination was found in the method blank. Few of the surrogate spike recoveries were within the QC limits due to an apparent spiking solution problem. Data quality is not effected since all percent recovery criteria were met for the laboratory control sample and laboratory control sample duplicate. No target compounds were detected above the reporting detection limit and there was no dilution or reanalysis performed.

If you have any questions concerning the analysis or the data please do not hesitate to contact James L. Jordan, (702) 361-3955, ext. 289.

Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

Sincerely,



James L. Jordan
Client Services Representative

JLJ/at

cc: Client Services
Document Control Department



Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 582-7605
Fax: (702) 361-8146

February 17, 1994

Mr. Rocky Beem
Cook Nuclear Plant
1 Cook Place
Bridgman, MI 49106

Dear Rocky,

Per your request during our phone conversation this morning, the following is an explanation of the procedure used for the determination of the non-standard organic compounds in your groundwater samples.

The samples were analyzed using instruments that were set up for standard methods 8260 and 8270. A few of the compounds on your lists of analytes are not standard method 8260 or 8270 compounds. Once the samples are analyzed and a chromatogram was obtained for the samples, all peaks that were present in the samples that did not correspond to one of the calibrated compounds were investigated further. This involved taking the mass spectra obtained from these peaks and comparing the spectra to an NIST library of spectra. This library contains approximately 52,000 known mass spectra. The mass spectra of the additional analytes of interest to you are contained within this library. None of the non-standard analytes were detected in any of your samples.

For the next quarters round of sampling, we are endeavoring to obtain the standards for these compounds so that they will be calibrated for in the analyses of those samples. If you have any further questions or if I can be of any further assistance, please do not hesitate to call me at (702) 361-1626 ex. 289.

Sincerely,

James L. Jordan
Project Manager

cc: M. Butler

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> – Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> – Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> – Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> – Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

Lockheed Analytical Services
DATA QUALIFIERS FOR ORGANIC ANALYSES
[Revised 04/20/93]

For Use on the Analytical Data Reporting Forms	
A	<i>For CLP analyses Only</i> -- The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. <i>[pesticide/PCB analyses only]</i>
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to <u>surrogates</u> being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	<i>Estimated value</i> -- (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs (<i>For CLP Reporting Only</i>).
N	<i>For CLP Reporting Only</i> -- Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	<i>For CLP Reporting Only</i> -- The percent difference between the concentrations detected on both GC columns was greater than 25 percent <i>[pesticide/PCB analyses only]</i> .
U	<i>For CLP Reporting Only</i> -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
For Use on the QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

Used as footnote designations on the QC summary form.

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: TRS	LAL Sample ID: L1009-33
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	114	65-125
BFB	92	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS

GC/PID ANALYSES USING METHOD 8020

Client Sample ID: TRS	LAL Sample ID: L1009-33
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	94	70-120
BFB	95	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	0.52	0.5	
Toluene	0.57	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: TRS-QA	LAL Sample ID: L1009-35
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	120	65-125
BFB	86	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS

GC/PID ANALYSES USING METHOD 8020

Client Sample ID: TRS-QA	LAL Sample ID: L1009-35
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	97	70-120
BFB	97	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	0.53	0.5	
Toluene	1.8	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: TRS	LAL Sample ID: L1009-41
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	84	76-114
Toluene-d8	97	88-110
4-Bromofluorobenzene	88	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: TRS

LAL Sample ID: L1009-41

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	< 5	5	
Chlorobenzene	< 5	5	
Ethylbenzene	< 5	5	
m,p-Xylene	< 5	5	
o-Xylene	< 5	5	
Styrene	< 5	5	
Bromoform	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
1,2-Dichlorobenzene	< 5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS	LAL Sample ID: L1009-41
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE	< 10	0.00	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: TRS-QA	LAL Sample ID: L1009-43
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	85	76-114
Toluene-d8	96	88-110
4-Bromofluorobenzene	89	86-115

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: TRS-QA	LAL Sample ID: L1009-43
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	<5	5	
Chlorobenzene	<5	5	
Ethylbenzene	<5	5	
m,p-Xylene	<5	5	
o-Xylene	<5	5	
Styrene	<5	5	
Bromoform	<5	5	
1,1,2,2-Tetrachloroethane	<5	5	
1,3-Dichlorobenzene	<5	5	
1,4-Dichlorobenzene	<5	5	
1,2-Dichlorobenzene	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS-QA	LAL Sample ID: L1009-43
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE	<10	0.00	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRS	LAL Sample ID: L1009-25
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	41	21-100
Phenol-d ₆	26	10-94
Nitrobenzene-d ₅	59	35-114
2-Fluorobiphenyl	55	43-116
2,4,6-Tribromophenol	85	10-123
p-Terphenyl-d ₁₄	99	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRS		LAL Sample ID: L1009-25	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	1.4	10	J
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.5	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS	LAL Sample ID: L1009-25
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
Unknown	100	6.44	J
Unknown	20	30.26	J

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: TRS-QA	LAL Sample ID: L1009-27
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: Q11194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	38	21-100
Phenol-d ₆	26	10-94
Nitrobenzene-d ₅	61	35-114
2-Fluorobiphenyl	56	43-116
2,4,6-Tribromophenol	89	10-123
p-Terphenyl-d ₁₄	97	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: TRS-QA		LAL Sample ID: L1009-27	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	1.5	10	J
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.9	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: TRS-QA	LAL Sample ID: L1009-27
Date Received: 29-DEC-93	Date Analyzed: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
Unknown	4	5.28	J
Unknown	100	6.44	J
Hydrocarbon	4	29.97	J
Unknown	20	30.26	J
Hydrocarbon	5	31.98	J
Hydrocarbon	4	32.94	J
Hydrocarbon	6	33.86	J

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: TRS	LAL Sample ID: L1009-17
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	65	60-150
DCB	52*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene

DCB - Deca-chloro-biphenyl

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: TRS-QA	LAL Sample ID: L1009-19
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	65	60-150
DCB	46*	60-150

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

METALS RESULTS

Client Sample ID: TRS	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-13
Antimony	6020	<0.060	0.060		01-27-94	L1009-13
Arsenic	6020	<0.010	0.010		01-27-94	L1009-13
Barium	6020	<0.20	0.20	N	01-27-94	L1009-13
Beryllium	6020	<0.005	0.005		01-27-94	L1009-13
Boron	6010	0.28	0.20		01-20-94	L1009-13
Cadmium	6020	<0.005	0.005		01-27-94	L1009-13
Chromium	6020	<0.010	0.010		01-27-94	L1009-13
Cobalt	6020	<0.050	0.050		01-27-94	L1009-13
Copper	6020	<0.025	0.025		01-27-94	L1009-13
Iron	6010	<0.10	0.10		01-20-94	L1009-13
Lead	6020	<0.003	0.003		01-27-94	L1009-13
Magnesium	6010	18	5.0		01-20-94	L1009-13
Manganese	6020	0.026	0.015		01-27-94	L1009-13
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-13
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-13
Nickel	6020	<0.040	0.040		01-27-94	L1009-13
Selenium	6020	0.0055	0.005	N	01-27-94	L1009-13
Silver	6020	<0.010	0.010		01-27-94	L1009-13
Sodium	6010	900	5.0		01-20-94	L1009-13
Thallium	6020	<0.010	0.010		01-27-94	L1009-13
Tin	6020	<0.20	0.20		01-27-94	L1009-13
Titanium	6010	<0.10	0.10		01-20-94	L1009-13
Vanadium	6010	<0.050	0.050		01-20-94	L1009-13
Zinc	6020	<0.020	0.020		01-27-94	L1009-13

Comments:

METALS RESULTS

Client Sample ID: TRS-QA	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO#69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-14
Antimony	6020	<0.060	0.060		01-27-94	L1009-14
Arsenic	6020	<0.010	0.010		01-27-94	L1009-14
Barium	6020	<0.20	0.20	N	01-27-94	L1009-14
Beryllium	6020	<0.005	0.005		01-27-94	L1009-14
Boron	6010	0.27	0.20		01-20-94	L1009-14
Cadmium	6020	<0.005	0.005		01-27-94	L1009-14
Chromium	6020	<0.010	0.010		01-27-94	L1009-14
Cobalt	6020	<0.050	0.050		01-27-94	L1009-14
Copper	6020	<0.025	0.025		01-27-94	L1009-14
Iron	6010	<0.10	0.10		01-20-94	L1009-14
Lead	6020	<0.003	0.003		01-27-94	L1009-14
Magnesium	6010	17	5.0		01-20-94	L1009-14
Manganese	6020	0.027	0.015		01-27-94	L1009-14
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-14
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-14
Nickel	6020	<0.040	0.040		01-27-94	L1009-14
Selenium	6020	0.0078	0.005	N	01-27-94	L1009-14
Silver	6020	<0.010	0.010		01-27-94	L1009-14
Sodium	6010	890	5.0		01-20-94	L1009-14
Thallium	6020	<0.010	0.010		01-27-94	L1009-14
Tin	6020	<0.20	0.20		01-27-94	L1009-14
Titanium	6010	<0.10	0.10		01-20-94	L1009-14
Vanadium	6010	<0.050	0.050		01-20-94	L1009-14
Zinc	6020	0.022	0.020		01-27-94	L1009-14

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: TRS	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	0.29	0.15		01-24-94	L1009-1
Chloride, in mg/L	300.0	19	0.016		12-29-93	L1009-1
Nitrate-Nitrogen, in mg/L	300.0	0.91	0.017		12-29-93	L1009-1
Nitrite-Nitrogen, in mg/L	300.0	<0.012	0.012		12-29-93	L1009-1
Sulfate, in mg/L	300.0	2000	0.59	D(1:10)	12-29-93	L1009-1
Ammonia-Nitrogen, in mg/L	350.1	3.4	0.050		01-05-94	L1009-5
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-9

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: TRS-QA	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	0.31	0.15		01-24-94	L1009-2
Chloride, in mg/L	300.0	20	0.016		12-29-93	L1009-2
Nitrate-Nitrogen, in mg/L	300.0	0.90	0.017		12-29-93	L1009-2
Nitrite-Nitrogen, in mg/L	300.0	<0.012	0.012		12-29-93	L1009-2
Sulfate, in mg/L	300.0	2200	0.59	D(1:10)	12-29-93	L1009-2
Ammonia-Nitrogen, in mg/L	350.1	3.4	0.050		01-05-94	L1009-6
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-10

Comments:

GENERAL CHEMISTRY QC DATA SUMMARY

LAL Batch ID(s): 1229 im

Constituent	Client Sample ID	LAL Sample ID	Date Analyzed	QC Sample Analyses		
				Reagent Blank	Duplicate Precision (% RPD)	Matrix Spike Recovery (%)
Fluoride, in mg/L	TRS	L1009-1	01-24-94	<0.15	4	107
Chloride, in mg/L	TRS	L1009-1	12-29-93	<0.016	0.2	91
Nitrate-Nitrogen, in mg/L	TRS	L1009-1	12-29-93	<0.017	1	93
Nitrite-Nitrogen, in mg/L	TRS	L1009-1	12-29-93	<0.012	b	96
Sulfate, in mg/L	TRS	L1009-1	12-29-93	<0.059	0.1	96
Ammonia-Nitrogen, in mg/L	TRS	L1009-5	01-05-94	<0.050	0	122
Total Cyanide, in mg/L	TRS	L1009-9	01-03-94	<0.020	b	94

"b" - The RPD cannot be computed, because the sample or the duplicate concentration was below the Detection Limit.

Comments:



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January 18, 1994
Report No.: 00018939
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27476
NUS SAMPLE NO: P0259284
P.O. NO.: 69034-040-3N

DATE SAMPLED: 30-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNIT

1	1730	Sulfate, Turbidimetric (as SO ₄)	51	mg/L
2	ANAW	Sodium, Total (Na)	6.3	mg/L
3	1130	Chloride (as Cl)	11	mg/L
4	1590	Solids, Dissolved at 180C	140	mg/L
5	AALW	Aluminum, Total (Al)	0.97	mg/L

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27476 / FILTERED
NUS SAMPLE NO: P0259285
P.O. NO.: 69034-040-3N

DATE SAMPLED: 30-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al).	0.3	mg/L

COMMENTS:



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Report No.: 00018939
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27503
NUS SAMPLE NO: P0259286
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kleda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	I730	Sulfate, Turbidimetric (as SO ₄)	53	mg/L
2	ANAW	Sodium, Total (Na)	6.0	mg/L
3	I130	Chloride (as Cl)	10	mg/L
4	I590	Solids, Dissolved at 180C	130	mg/L
5	AALW	Aluminum, Total (Al)	0.98	mg/L

COMMENTS:



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Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27503 / FILTERED
NUS SAMPLE NO: P0259287
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LH	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.3	mg/L

COMMENTS:



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Report No.: 00018939
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27506
NUS SAMPLE NO: P0259288
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	52	mg/L
2	ANAW	Sodium, Total (Na)	5.6	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	130	mg/L
5	AALW	Aluminum, Total (Al)	1.6	mg/L

COMMENTS:



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Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27506 / FILTERED
NUS SAMPLE NO: P0259289
P.O. NO.: 69034-040-3H

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.2	mg/L

COMMENTS:



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Report No.: 00018939
Section A Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27509
NUS SAMPLE NO: P0259290
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	51	mg/L
2	ANAW	Sodium, Total (Na)	5.9	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	140	mg/L
5	AALW	Aluminum, Total (Al)	1.5	mg/L
6	1490	pH	7.6	
7	1700	Specific Conductance at 25C	300	umhos/cm

COMMENTS:



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Report No.: 00018939
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: TURBINE ROOM SUMP 27509 / FILTERED
NUS SAMPLE NO: P0259291
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.3	mg/L

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259292
P.O. NO.: 69034-040-3H

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	28	mg/L
3	1130	Chloride (as Cl)	9	mg/L
4	1590	Solids, Dissolved at 180C	210	mg/L
5	AALW	Aluminum, Total (Al)	0.33	mg/L

COMMENTS:



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Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259293
P.O. NO.: 69034-040-3N

DATE SAMPLED: 31-DEC-93
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.099	mg/L

COMMENTS:



Halliburton NUS CORPORATION

NUS LABORATORY
Two Marquis Office Plaza, Suite 200
5313 Campbells Run Road
Pittsburgh, Pennsylvania 15205

(412) 747-2580
FAX: (412) 747-2684
January 18, 1994
Report No.: 00018939
Section A Page 11

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259294
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	I730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	30	mg/L
3	I130	Chloride (as Cl)	10	mg/L
4	I590	Solids, Dissolved at 180C	210	mg/L
5	AALW	Aluminum, Total (Al)	0.35	mg/L

COMMENTS:



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Report No.: 00018939
Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259295
P.O. NO.: 69034-040-3N

DATE SAMPLED: 01-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al).	0.10	mg/L

COMMENTS:



Halliburton NUS CORPORATION

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January 18, 1994
Report No.: 00018939
Section A Page 13

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP.
NUS SAMPLE NO: P0259296
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	100	mg/L
2	ANAW	Sodium, Total (Na)	31	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	190	mg/L
5	AALW	Aluminum, Total (Al)	0.5	mg/L
6	1700	Specific Conductance at 25C	400	umhos/cm

COMMENTS:



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January 18, 1994
Report No.: 00018939
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP. / FILTERED
NUS SAMPLE NO: P0259297
P.O. NO.: 69034-040-3N

DATE SAMPLED: 02-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.072	mg/L

COMMENTS:



Halliburton NUS CORPORATION

NUS LABORATORY
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FAX: (412) 747-2684

January 18, 1994
Report No.: 00018939
Section A Page 15

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP 66998
NUS SAMPLE NO: P0259298
P.O. NO.: 69034-040-3N

DATE SAMPLED: 03-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LN	CODE			
1	1730	Sulfate, Turbidimetric (as SO ₄)	110	mg/L
2	ANAW	Sodium, Total (Na)	28	mg/L
3	1130	Chloride (as Cl)	10	mg/L
4	1590	Solids, Dissolved at 180C	190	mg/L
5	AALW	Aluminum, Total (Al)	0.5	mg/L
8	1700	Specific Conductance at 25C	410	umhos/cm

COMMENTS:



Halliburton NUS CORPORATION

NUS LABORATORY
Two Marquis Office Plaza, Suite 200
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Pittsburgh, Pennsylvania 15205

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FAX: (412) 747-2684
January 18, 1994
Report No.: 00018939
Section A Page 16

LABORATORY ANALYSIS REPORT

CLIENT NAME: INDIANA MICHIGAN POWER COMPANY
ADDRESS: ONE COOK PLACE
BRIDGMAN, MI 49106-0000
ATTENTION: MS. JENI LEWIS - CHEMISTRY DEPT.

NUS CLIENT NO: 0663 0020
WORK ORDER NO: 55830
VENDOR NO: 05411000

Carbon Copy:

SAMPLE ID: ABS POND COMP 66998 / FILTERED
NUS SAMPLE NO: P0259299
P.O. NO.: 69034-040-3N

DATE SAMPLED: 03-JAN-94
DATE RECEIVED: 05-JAN-94
APPROVED BY: Kieda, Chuck

TEST		DETERMINATION	RESULT	UNITS
LH	CODE			
1	AALF	Aluminum, Dissolved (Al)	0.088	mg/L

COMMENTS:

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

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		O, O, E	
	A. LOCATION OF DISCHARGE		S, W & S, E, SECTION 0, 6, TOWN 0, 6, 5, RANGE 1, 9, W	
	B. NAME OF RECEIVING WATER (IE. GROUNDWATER OR NAME OF SURFACE WATER)		S, A, N, I, T, A, R, Y, A, B, S, P, O, N, D,	
	C. DO YOU DISCHARGE SEASONALLY? (IF NO, CONTINUE TO E)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
	D. IF YES, LIST DISCHARGE PERIODS		MO. / DAY	
			THROUGH	
			THROUGH	
			THROUGH	
	E. LAND APPLICATION RATE.		NA	
	F. TYPE OF WASTEWATER DISCHARGE		4, 3 WASTEWATER TYPE CODE	
G. DISCHARGE SCHEDULE (YEARLY AVERAGE)		HOURS/DAY 2, 4 DAY/YEAR 3, 6, 5		
H. DISCHARGE FLOW RATE		* Based on all-time dly max flow		
		TOTAL YEARLY * 1, 3, 5, 0, 5 UNIT CODE 1		
		DAILY MINIMUM 0 2		
		DAILY MAXIMUM 0, 3, 7 2		
I. THE MAXIMUM DISCHARGE FLOW RATE TO BE AUTHORIZED IN PERMIT.		AUTHORIZED 0, 0, 6, 0 UNIT CODE 2		
J. MAXIMUM DESIGN DISCHARGE FLOW RATE.		DESIGN 0, 0, 6, 0 UNIT CODE 2		
ITEM 2 WATER TREATMENT ADDITIVES UNITS CODE 1 Mg/l 2 Uq/l	A. DO YOU USE WATER TREATMENT ADDITIVES TO TREAT YOUR DISCHARGE? (IF NO, CONTINUE TO ITEM 3)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
	B. NAME, FUNCTION, AND CHEMICAL COMPOSITION OF THESE ADDITIVES.		NAME FUNCTION Calcium Hypochlorite for Filamentous Algae control	
	C. NAME AND ADDRESS OF MANUFACTURERS OF THESE ADDITIVES.		VAN WATERS AND ROGERS, INC. 1600 NORTON BUILDING SEATTLE, WASHINGTON 98104-1564	
	D. EXPECTED DISCHARGE CONCENTRATION OF ADDITIVES.		MINIMUM UNITS CODE AVERAGE UNITS CODE MAXIMUM UNITS CODE	
	ADDITIVE NAME* Total Residual Chlorine		0, 0, 0	
	ADDITIVE NAME			
	ADDITIVE NAME			
	E. DO YOU TREAT THE DISCHARGE TO REMOVE ADDITIVES?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
	F. WHAT IS THE REMOVAL EFFICIENCY AND DISCHARGE FREQUENCY?		% REMOVAL DISCHARGE FREQUENCY	
	ADDITIVE NAME		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.		MSDS Attached		

Calcium Hypochlorite is added to the mixed liquor and is used up prior to discharge.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 1 AND 2

This form requires information on the facility's discharge location, discharge schedule, volume flow rate and water treatment additives.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 1

DISCHARGE LOCATION, SCHEDULE AND FLOW RATES

- A. Enter the location of discharge, this should include quarter-quarter section, quarter section, section, town, and range.
- B. List name of receiving water (if surface water discharge).
- C. Indicate whether facility discharges on a seasonal basis.
- D. If yes, list discharge periods.
- E. Provide the land application rates used or expected to be used in terms of inches per hour, hours per day, and inches per week.
- F. Indicate the type of wastewater to be discharged from this outfall. Refer to the wastewater type code given in the left margin. More than one code may be applicable.
- G. Provide the average number of hours per day in which the facility discharges treated wastewater and the total number of days per year in which the discharge occurs.
- H. Provide current (from the last 12 months) or expected flow rates as requested. Refer to unit code given in the left margin for the appropriate flow units. MGY - million gallons per year; MGD - million gallons per day; GPD - gallons per day.
- I. Provide the maximum discharge flow rate which you want to have authorized within the permit. NOTE: For NPDES permits only, the use of such a flow rate will not place an actual limit restriction on the flow but will be the flow rate used to develop effluent limits. Also, when the Monthly Operating Reports are reviewed by Compliance staff it will help them to determine if any new or increased uses might have occurred at the facility.
- J. Provide the design flow for this specific outfall discharge (e.g. batch treatment system flow, packaged treatment system flow, or some other finite treatment system flow).

ITEM 2

WATER TREATMENT ADDITIVES

- A. Indicate whether discharge is treated with conditioners, inhibitors, or microbicide. If not, continue to Item 3.
- B. Give name, function, and chemical composition of additives used.
- C. Give name and address of the manufacturer(s) of the additives used.
- D. Indicate expected minimum, average and maximum discharge concentrations of the additive(s) for this discharge.
- E. Indicate whether you treat the discharge to remove the additive(s) before discharge of wastewater.
- F. Indicate the removal efficiency of each additive from the wastewater and the discharge frequency of each additive to the surface water or groundwater.
- G. NOTE: It is the responsibility of the applicant to supply the product information as requested in this Item 4. Information requested but not supplied may result in the application being returned to the applicant for completion.

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 001
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

FAXED
2/17

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)889-3400
6100 CARILLON POINT , KIRKLAND , WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

----- FOR PRODUCT AND SALES INFORMATION -----

CONTACT YOUR LOCAL VAN WATERS & ROGERS BRANCH OFFICE AT
VW&R SOUTH BEND 219-289-0321 SOUTH BEND , IN

PRODUCT NAME:
CALCIUM HYPOCHLORITE GRANULAR

MSDS #: PG0310

- - - CALCIUM HYPOCHLORITE GRANULAR

DATE: 06/16/93
EDITION: 004
TRADE NAME: CALCIUM HYPOCHLORITE GRANULAR
CHEM NAME/SYN: CAL HYPO, PITTCOLOR, INDOCLOR, REPAK, ZAPPIT

CHEMICAL FAMILY: HYPOCHLORITE
FORMULA: CA(OCL)2
CAS NUMBER: 007778-54-3
U.S. DOT SHIPPING NAME: CALCIUM HYPOCHLORITE, HYDRATED
U.S. DOT HAZARD CLASS: 5.1 (OXIDIZER)
SUBSIDIARY RISK: N/A
I.D. NUMBER: UN2880
PACKING GROUP: II
REPORTABLE QUANTITY: 10 LBS/4.5 KG
HND DESCRIPTION: CALCIUM HYPOCHLORITE, HYDRATED, CLASS 5.1, UN2880,
PACKING GROUP II, RQ, INOG CODE PAGE 5138.

REPORT NUMBER: 971
PROD NO: P60310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

SECTION 1 - PHYSICAL DATA

BOILING POINT @ 760 MM HG: DECOMPOSES @ 180 C
VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY (H2O=1): N/A
PH OF SOLUTIONS: ALKALINE
FREEZING/MELTING POINT: N/A
SOLUBILITY (WEIGHT % IN WATER): 217 G/L @ 27 C

BULK DENSITY: 65-67 LBS/CU.FT.
VOLUME % VOLATILE: N/A
VAPOR PRESSURE: N/A
EVAPORATION RATE: N/A
HEAT OF SOLUTION: SLIGHTLY EXOTHERMIC
APPEARANCE AND ODOR:
WHITE POWDER WITH SLIGHT CHLORINE ODOR

SECTION 2 - INGREDIENTS

MATERIAL	PERCENT
CALCIUM HYPOCHLORITE (65% AVAILABLE CHLORINE)	65
INERT (INCLUDES 5.5 - 10% MOISTURE)	35

SECTION 3 - FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED):
NONE

FLAMMABLE LIMITS IN AIR (% BY VOLUME)
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
WATER ONLY! SMOTHERING INEFFECTIVE-PRODUCT SUPPLIES OWN OXYGEN

SPECIAL FIRE FIGHTING PROCEDURES:
FIRE FIGHTERS MUST WEAR NIOSH/MSHA APPROVED, PRESSURE DEMAND SELF-CONTAINED
BREATHING APPARATUS WITH FULL FACE PIECE FOR POSSIBLE EXPOSURE TO
HAZARDOUS GASES.

POTENTIAL FIRE AND EXPLOSION HAZARDS:
DECOMPOSES AT 180 C RELEASING OXYGEN GAS; CONTAINERS MAY RUPTURE.

REPORT NUMBER: 971
MSDS NO: PG0310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 003
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

SECTION 4 - HEALTH HAZARD DATA

TOXICITY DATA:

LC50 INHALATION: (RAT) NO MORTALITY @ 3.5 MG/L (1 HR)
LD50 DERMAL: (RABBIT) >1000 MG/KG
SKIN/EYE IRRITATION: SEE SECTION 5
LD50 INGESTION: SEE SECTION 5
FISH, LC50 (LETHAL CONCENTRATION): TLM 96 HR.: 10-1 PPM

CLASSIFICATION:

INHALATION: IRRITATING
SKIN: SLIGHTLY TOXIC
SKIN/EYE: CORROSIVE
INGESTION: SLIGHTLY TOXIC
AQUATIC: HIGHLY TOXIC

SECTION 5 - EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?

NTP - NO IARC - NO OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

NONE KNOWN

PERMISSIBLE EXPOSURE LIMITS:

NONE ESTABLISHED BY OSHA OR ACGIH FOR THIS PRODUCT.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 1 MG/CU.M., 8-HOUR TWA
(TIME WEIGHTED AVERAGE); 2 MG/CU.M. STEL (SHORT-TERM EXPOSURE LIMIT).

ACUTE:

INHALATION: INHALATION OF CALCIUM HYPOCHLORITE DUST AND DEPOSITION OF PARTICLES IN THE RESPIRATORY TRACT CAN LEAD TO IRRITATION OF THE TISSUE AND CAUSE A VARIETY OF EFFECTS. THESE EFFECTS ARE DEPENDENT ON CONCENTRATION AND INCLUDE: UPPER RESPIRATORY TRACT IRRITATION, NASAL CONGESTION, COUGHING, SORE THROAT, LARYNGITIS AND SHORTNESS OF BREATH. IN OPERATIONS WHERE THERE ARE HIGH CONCENTRATIONS OF RESPIRABLE PARTICULATES, PULMONARY EDEMA (FLUID IN THE LUNG) MAY BE PRODUCED. IF NOT TREATED IMMEDIATELY, PULMONARY EDEMA CAN BE LIFE THREATENING. SINCE THIS PRODUCT IS IN GRANULAR FORM, PARTICLES OF RESPIRABLE SIZE ARE NOT THERALLY ENCOUNTERED.

IDENTIFICATION: CALCIUM HYPOCHLORITE (PA-CLAP)

ORDER NO:
REGD NO

NOTE: CALCIUM HYPOCHLORITE IS CORROSIVE TO THE EYES. CONTACT OF CALCIUM HYPOCHLORITE DUST WITH THE EYES. EVEN A MINUTE AMOUNT FOR A SHORT DURATION, CAN CAUSE SEVERE IRRITATION AND EVEN BLINDNESS. CONTACT WITH THE SKIN MAY CAUSE SEVERE IRRITATION, BURNS, OR TISSUE DESTRUCTION.

IN STUDIES UTILIZING RABBITS. THE SKIN IRRITATION SCORE WAS 8/8 AND THE EYE IRRITATION SCORE WAS 78.5/110. THE CLASSIFICATION FOR BOTH OF THESE IS CORROSIVE

INGESTION: CALCIUM HYPOCHLORITE, IF SWALLOWED, CAUSES SEVERE BURNS TO THE DIGESTIVE TRACT AND CAN BE FATAL.

CHRONIC:

GENOTOXICITY: CALCIUM HYPOCHLORITE PRODUCED POSITIVE RESPONSES IN IN-VITRO ASSAYS USING BACTERIAL SYSTEMS (THE AMES TEST) AND CHROMOSOMAL ABERRATIONS IN CHINESE HAMSTER FIBROBLASTS. IN A WHOLE ANIMAL EXPERIMENT (MOUSE MICRONUCLEUS TEST), EXPOSURES RANGING FROM 20 TO 160 MG/KG PRODUCED NO COMPOUND RELATED CHROMOSOMAL ABNORMALITIES.

CARCINOGENESIS: ALTHOUGH NO STUDY HAS BEEN CONDUCTED WITH CALCIUM HYPOCHLORITE, THE CARCINOGENIC POTENTIAL OF SODIUM HYPOCHLORITE WAS STUDIED IN F344 RATS. AFTER 104 WEEKS OF DRINKING WATER CONTAINING UP TO 2000 PPM SODIUM HYPOCHLORITE. THERE WAS NO EVIDENCE THAT THIS CHEMICAL PRODUCED ANY CARCINOGENIC RESPONSE. IN ADDITION THIS EXPOSURE DID NOT RESULT IN ANY ADVERSE EFFECTS IN BLOOD, CLINICAL CHEMISTRY, OR OTHER TARGET ORGANS.

ONE OF THE MAJOR USES OF CALCIUM HYPOCHLORITE IS AS A SOURCE OF CHLORINE FOR WATER SANITIZATION IN DRINKING AND RECREATIONAL WATER. STUDIES HAVE BEEN CONDUCTED TO DETERMINE THE LONG-TERM EFFECTS OF CHLORINATED DRINKING WATER. SEVEN GENERATIONS OF RATS WERE GIVEN 100 PPM CHLORINE IN THEIR DRINKING WATER. NO DIFFERENCE IN FERTILITY, GROWTH, BLOOD PARAMETERS, OR SPECIFIC ORGAN TOXICITY WAS OBSERVED BETWEEN CONTROL AND EXPOSED ANIMALS. TWO SEPARATE ANIMAL STUDIES CONDUCTED BY DIFFERENT GOVERNMENT AGENCIES DETERMINED THAT THE CHLORINATION OF MUNICIPAL DRINKING WATER DID NOT RESULT IN TOXICITY TO THE DEVELOPING MOUSE FETUS.

SAFE HANDLING OF THIS MATERIAL ON A LONG-TERM BASIS SHOULD EMPHASIZE MINIMIZING REPEATED ACUTE EXPOSURES

EMERGENCY AND FIRST AID PROCEDURES

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION.



REPORT NUMBER: 271
EHS NO: 260310
EFFECTIVE DATE: 06/21/80

VAN MATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 005
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
CALL A PHYSICIAN.

EYE OR SKIN CONTACT:

FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING
CONTAMINATED CLOTHING AND SHOES. FOR EYE CONTACT, GET IMMEDIATE
MEDICAL ATTENTION. IF SKIN IRRITATION OCCURS, GET MEDICAL ATTENTION.

INGESTION:

IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER AND ANY COMMON COOKING
(VEGETABLE) OIL. IF AVAILABLE. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY
TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE
IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO INDUCE VOMITING OR GIVE
ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):
TREAT SYMPTOMATICALLY.

SECTION 6 - REACTIVITY DATA

STABILITY:

UNSTABLE
CONDITIONS TO AVOID:
CONTAMINATION OR EXCESSIVE HEAT ABOVE 177 C

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE--WILL NOT POLYMERIZE

INCOMPATIBILITY (MATERIALS TO AVOID):

ACIDS, COMBUSTIBLE MATERIALS, ORGANICS, REDUCING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS:

ACIDS OR AMMONIA CONTAMINATION WILL RELEASE TOXIC GASES. EXCESSIVE
HEAT WILL CAUSE DECOMPOSITION RESULTING IN THE RELEASE OF OXYGEN AND
CHLORINE GAS.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:

NOTE: USE EXTREME CAUTION IN HANDLING SPILLED MATERIAL. CONTAMINATION WITH
ORGANIC OR COMBUSTIBLE MATERIAL MAY CAUSE FIRE OR VIOLENT DECOMPOSITION. IF
FIRE OR DECOMPOSITION OCCURS IN AREA OF SPILL, IMMEDIATELY COUSE WITH PLENTY
OF WATER. OTHERWISE, DUMP OR SIFT ALL SOLID MATERIAL USING A CLEAN, DRY SHOVEL
AND BROOM AND DISSOLVE MATERIAL IN WATER. DISPOSE OF WASTE MATERIAL AS

REPORT NUMBER: 271
ISSA NO: 950310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 006
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO :

OUTLINED BELOW.

WASTE DISPOSAL METHOD:

SPIILLED MATERIAL THAT HAS BEEN SWEEPED UP AND DISSOLVED IN WATER SHOULD BE USED IMMEDIATELY IN THE NORMAL APPLICATION FOR WHICH CALCIUM HYPOCHLORITE IS BEING CONSUMED. IF THIS IS NOT POSSIBLE, CAREFULLY NEUTRALIZE DISSOLVED MATERIAL BY ADDING HYDROGEN PEROXIDE (ONE PINT OF 35% HYDROGEN PEROXIDE SOLUTION PER POUND OF CALCIUM HYPOCHLORITE TO BE NEUTRALIZED) THEN DILUTE THE NEUTRALIZED MATERIAL WITH PLENTY OF WATER AND FLUSH TO SEWER. NOTE: ONLY PROPERLY NEUTRALIZED MATERIAL SHOULD BE FLUSHED TO SEWER. UNNEUTRALIZED MATERIAL CAN CAUSE ENVIRONMENTAL DAMAGE TO RECEIVING WATER OR CAN INTERFERE WITH TREATMENT PLANT OPERATION. FOR ON-SITE NEUTRALIZATION, CAREFULLY AND SLOWLY POUR THE APPROPRIATE QUANTITY OF 35% HYDROGEN PEROXIDE SOLUTION OVER ALL SPILLED MATERIAL THEN FLUSH AREA WITH PLENTY OF WATER.

COMMENTS: CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, FIFRA, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

IF DUSTY CONDITIONS ARE ENCOUNTERED, USE NIOSH/MSHA APPROVED RESPIRATOR WITH ACID GAS CARTRIDGE AND DUST PREFILTER. THE RESPIRATOR USE LIMITATIONS CERTIFIED BY NIOSH/MSHA OR THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 CFR 1910.134.

VENTILATION(TYPE):

NONE UNLESS DUSTY CONDITIONS ARE ENCOUNTERED.

EYE PROTECTION:

CHEMICAL SAFETY GOGGLES

GLOVES:

NATURAL OR SYNTHETIC RUBBER

OTHER PROTECTIVE EQUIPMENT:

HAATS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:

PROD NO:

SECTION 2 - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

- DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.
- KEEP IN ORIGINAL CONTAINER IN A COOL, DRY PLACE.
- KEEP CONTAINER CLOSED WHEN NOT IN USE.
- KEEP AWAY FROM HEAT SOURCES, SPARKS, OPEN FLAMES AND LIGHTED TOBACCO PRODUCTS.
- USE ONLY A CLEAN, DRY SCOOP MADE OF METAL OR PLASTIC EACH TIME THIS PRODUCT IS TAKEN FROM CONTAINER.
- DO NOT ADD THIS PRODUCT TO ANY DISPENSING DEVICE CONTAINING REMNANTS OF ANY OTHER PRODUCT. SUCH USE MAY CAUSE VIOLENT REACTION LEADING TO FIRE OR EXPLOSION.
- ADD THIS PRODUCT ONLY TO WATER.
- MAY CAUSE FIRE OR EXPLOSION IF MIXED WITH OTHER CHEMICALS.
- FIRE MAY RESULT IF CONTAMINATED WITH ACIDS OR EASILY COMBUSTIBLE MATERIAL SUCH AS OIL, KEROSENE, GASOLINE, PAINT PRODUCTS AND MOST OTHER ORGANIC MATERIALS.
- WASH HANDS AFTER HANDLING.
- DO NOT REUSE CONTAINER. RESIDUAL MATERIAL REMAINING IN EMPTY DRUM CAN REACT TO CAUSE FIRE. THOROUGHLY FLUSH EMPTY CONTAINER WITH WATER THEN DESTROY BY PLACING IN TRASH COLLECTION. DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.

OTHER PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- STRONG OXIDIZER - FIRE MAY RESULT FROM CONTACT WITH HEAT, ACIDS, ORGANIC OR COMBUSTIBLE MATTER.
- MAY BE FATAL OR HARMFUL IF SWALLOWED.
- MAY CAUSE CHEMICAL BURNS.
- IRRITATING TO NOSE AND THROAT - AVOID BREATHING DUST

COMMENTS:

TSCA - CALCIUM HYPOCHLORITE IS ON THE TSCA INVENTORY UNDER CAS #7773-54-3.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE AND REACTIVITY, B) NOT LISTED IN SECTION 313. C) NOT LISTED AS AN "EXTREMELY HAZARDOUS SUBSTANCE" IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 10 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

RCRA - WASTE CALCIUM HYPOCHLORITE AND CONTAMINATED SOILS/MATERIALS FROM THE WASTE ARE CLASSIFIED AS HAZARDOUS WASTE AS PER 40 CFR 311.21(a)(1) AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA.

REPORT NUMBER: 771
MSDS NO: 260310
EFFECTIVE DATE: 06/21/93

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 008
VERSION: 004

PRODUCT: CALCIUM HYPOCHLORITE GRANULAR

ORDER NO:
PROD NO

NOTE: CALCIUM HYPOCHLORITE IS REGISTERED WITH EPA AS A PESTICIDE.

NSF - PPG CALCIUM HYPOCHLORITE IS CERTIFIED FOR MAXIMUM USE AT 46 MG/L
UNDER ANSI/NSF STANDARD 60.

REVISIONS MADE TO 7/28/92. 3RD EDITION: DATE, EDITION, ADDITION OF NSF
STATEMENT,

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR VW&R SOUTH BEND
DURING BUSINESS HOURS, PACIFIC TIME (206)889-4400

02/17/94 12:21 PRODUCT: CUST NO: ORDER NO:

----- NOTICE -----

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WITH RESPECT TO THE PRODUCT OR INFORMATION PROVIDED HEREIN. **

ALL INFORMATION APPEARING HEREIN IS BASED UPON DATA OBTAINED FROM THE
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BELIEVED TO BE ACCURATE, VW&R MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR
SUFFICIENCY. CONDITIONS OF USE ARE BEYOND VW&R'S CONTROL AND THEREFORE USERS
ARE RESPONSIBLE TO VERIFY THIS DATA UNDER THEIR OWN OPERATING CONDITIONS TO
DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THE
ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM
THE PUBLICATION OR USE OF, OR RELIANCE UPON, INFORMATION CONTAINED HEREIN.
THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT
RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER
PROCESS.

*** END OF MSDS ***

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDEEM
3PROCESS
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		O, O, E	
PROCESS 1	A. NAME OF PROCESS CONTRIBUTING TO THE DISCHARGE THROUGH THIS OUTFALL AND SIC CODE	S, A, N, I, T, A, R, Y, W, A, T, E, R, 4, 9, 1, 1	
	B. PROCESS SCHEDULE (YEARLY AVERAGE)	HOURS/DAY 2, 4	DAYS/YEAR 3, 6, 5
	C. PROCESS WASTEWATER FLOW RATE	TOTAL YEARLY 8, 5, 7, 7 UNIT CODE 5 DAILY MINIMUM 0, 1, 1 6 DAILY MAXIMUM 0, 3, 7 6	
	D. PROCESS PRODUCTION RATE	N/A	UNITS / TIME
PROCESS 2	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 3	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 4	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 5	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	

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 3

This form requires information on the process streams which contribute to this discharge.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter outfall number in space provided for each page of Section II. For each individual discharge point a separate set of Section II forms must be filled out.

ITEM 3

PROCESS STREAMS CONTRIBUTING TO DISCHARGE: FOR EACH SEPARATE PROCESS PROVIDE THE FOLLOWING INFORMATION

- A. Enter the name of the process which contributes to this discharge. Also provide the proper SIC code.
- B. Indicate the yearly average process schedule in hours per day and days-per-year.
- C. Provide the process wastewater flow rate information as requested based on your last 12 months of operations. Refer to unit code given in the left margin for the appropriate flow units.
- D. Process Production Rate - Certain permit limitations may be based on production rates. The production rates used to determine permit limits shall be represented by a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous five years, or other reasonable measure as stated in applicable U.S.E.P.A. categorical rules and regulations.

For new sources or new dischargers, actual production shall be estimated using projected production.

Record your production rates in the terms and units used in the applicable U.S.E.P.A. categorical rules and regulations for your type of facility.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS.
ON REVERSE SIDEITEM
4GROUNDWATER
DISCHARGE
INFORMATION

OUTFALL NUMBER

O.O.E.

A. IS THE DISCHARGE FROM THIS OUTFALL DIRECTED TO THE GROUND OR
GROUNDWATERS? (IF NO, CONTINUE TO ITEM 5)☒ YES☐ NOB. 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.☒ YES☐ NO

Submitted 12/6/91

C. ARE YOU REQUESTING AN EXEMPTION FROM SUBMITTING A HYDROGEOLOGICAL REPORT UNDER
RULE R.323.2207 (10) (PAGE 45) 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☒ NOD. 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☒ NOE. 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.☐

NOT APPLICABLE/BELIEVED ABSENT

☒

PRESENT, DATA PROVIDED IN ITEM 7

THE APPLICANT MAY BE REQUIRED TO DO ADDITIONAL WASTE ANALYSES.

ITEM
5EXPECTED
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

CONCENTRATION

UNITS CODE # ANALYSES SAMPLE TYPE

AVE

MAX

CODE

*BOD₅ (FIVE DAY BIOCHEMICAL OXYGEN DEMAND)

14.0 10.5 9.9 6

1 15.7 1

*COD (CHEMICAL OXYGEN DEMAND)

1 1

1 1

*TOC (TOTAL ORGANIC CARBON)

1 1

1 1

*AMMONIA NITROGEN (AS N)

13.8 13.5 17.9 10

1 16.5 1

*TOTAL SUSPENDED SOLIDS

2.5 5.5 11.6 0

1 26.0 1

TOTAL PHOSPHORUS (AS P)

1.7 0.3 6 1.2 0.5

1 6.5 1

TOTAL RESIDUAL CHLORINE

1 1

1 1

DISSOLVED OXYGEN

MIN

1 1

1 1

*PH

6 4

7 8

4 1 1 3 1

FECAL COLIFORM BACTERIA

1 1

3 1 1

*TEMPERATURE (SUMMER)

1 1

5 1 1

*TEMPERATURE (WINTER)

1 1

5 1 1

B. OTHER WASTEWATER CHARACTERISTICS

OIL & GREASE

1 1

1 1

Total Inorganic Nitro.

6.5 5.6 20.8 0

1 6.5 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

1 1

*REQUIRED INFORMATION FOR SURFACE WATER DISCHARGES.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEMS 4 AND 5

This form requires information on a specific outfall discharging to either the groundwaters or the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. This is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II forms (items 4 and 5) must be filled out.

ITEM 4

GROUNDWATER DISCHARGE INFORMATION (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS ITEM)

A.-D. The applicant shall address each of these parts if the discharge from this outfall is to the groundwater.

ITEM 5

EXISTING OR EXPECTED (FOR A NEW DISCHARGE) WASTEWATER CHARACTERISTICS OF GROUNDWATER OR SURFACE WATER DISCHARGE (DO NOT INCLUDE DEEP WELL INJECTION INFORMATION IN THIS FORM)

A. The applicant shall report available discharge data (real data for existing discharge or expected data for a proposed discharge) for the parameters as listed. These parameters shall be addressed for either a surface water discharge or as appropriate for a groundwater discharge. For assistance in determining appropriate parameters a groundwater discharge applicant may contact the Groundwater Quality Division, Permits Section or the appropriate Groundwater Quality Division's District office.

The applicant shall report the sample type code best describing each reported piece of data. See coding on the left margin of this form.

If this outfall is a surface water discharge, the applicant must report quantitative data for each parameter identified by an asterisk. The applicant may, however, request that the reporting of data for one or more of these required parameters be waived. Such request must be supported by adequate rationale. Make such a request an attachment to this application.

B. If data is available for other parameters not listed above in A. or other parts of this application the applicant should report that data in the blank spaces provided in this part.

NOTES: 1. Unit codes for parameters reported in parts A and B can be found on the left hand side of this form.

2. Grab sample shall be used to analyze for pH, temperature, total phenols, residual chlorine, oil and grease, and fecal coliform in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of grab sample.

3. 24-hour composite samples shall be used to analyze for Total BOD₅, COD, TOC, Ammonia Nitrogen, and Total Suspended Solids in a surface water discharge unless other frequency-sample type analyses are available. See Glossary (page 48) for definition of composite sample.

4. **REPORTING OF INTAKE DATA.** You are not required to report unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

(a) A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)

(b) A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)

(c) When applicable (for example, when the pollutant represents a class of compounds), a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. (Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.)

5. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

SEE INSTRUCTIONS
ON REVERSE SIDE

SECTION II

PERMIT
NUMBER

MI 0005827

D.M.
6

PRIORITY
POLLUTANTS
AND
ADDITIONAL
INFORMATION
FOR
SURFACE
WATER
DISCHARGE
ONLY

OUTFALL NUMBER		O, O, E	
<p>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.</p>			
A. IS THIS FACILITY A PRIMARY INDUSTRY? (REFER TO TABLE 1A PAGE 41) (IF NO, GO TO E) (IF YES, GO TO B)		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
B. INDICATE TYPE OF PRIMARY INDUSTRY AS LISTED IN TABLE 1A PAGE 41. (CONTINUE WITH C.)		S, T, M, E, L, E, C, P, W, R	
C. DOES THIS OUTFALL DISCHARGE CONTAIN ANY PROCESS WASTEWATER? (IF NO, GO TO E) (IF YES, GO TO D)		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
<p>D. INDICATE WHICH GC/MS FRACTIONS MUST BE TESTED FOR. (REFER TO TABLE 1A PAGE 41)</p> <p>NOTE! FOR EACH GC/MS FRACTION CHECKED, EACH SPECIFIC ORGANIC TOXIC POLLUTANT WITHIN EACH FRACTION MUST BE ANALYZED FOR (SEE TABLE 11A PAGE 42). IN ADDITION, ALL PRIMARY INDUSTRY APPLICANTS WITH A PROCESS WASTEWATER DISCHARGE MUST PROVIDE QUANTITATIVE DATA FOR EACH TOXIC POLLUTANT IN TABLE 111A PAGE 43.</p> <p>RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET. (CONTINUE WITH E-K BELOW)</p>		<input type="checkbox"/> VOLATILE <input type="checkbox"/> BASE/NEUTRAL <input type="checkbox"/> ACID <input type="checkbox"/> PESTICIDE <p>Analysis per J.B. Beauboeuf Groundwater Division</p>	
<p>E. IF ANY SURFACE WATER DISCHARGE APPLICANT (PRIMARY OR SECONDARY INDUSTRY), REGARDLESS OF TYPE OF DISCHARGE, KNOWS OR HAS REASON TO BELIEVE THAT ANY POLLUTANT LISTED IN TABLE 11A AND 11A PAGES 42-43 IS DISCHARGED FROM ANY OUTFALL, THE QUANTITATIVE DATA MUST BE PROVIDED.</p> <p>RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.</p>		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <p>N/A</p> <input type="checkbox"/> PRESENT/DATA IS ATTACHED	
<p>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 11A PAGE 42 ARE DISCHARGED FROM ANY OUTFALL THE APPLICANT MUST DESCRIBE REASONS FOR THE POLLUTANT BEING PRESENT AND PROVIDE ANY AVAILABLE QUANTITATIVE DATA.</p> <p>RECORD ALL DATA ON FORMS PROVIDED (ITEM 7) IN THIS BOOKLET.</p>		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <p>N/A</p> <input type="checkbox"/> PRESENT/DATA IS ATTACHED	
<p>G. ALL SURFACE WATER DISCHARGE APPLICANTS (PRIMARY AND SECONDARY INDUSTRIES) WHO:</p> <p>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</p> <p>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.</p>		<input type="checkbox"/> NOT APPLICABLE/BELIEVED ABSENT <p>N/A</p> <input type="checkbox"/> PRESENT/DATA IS ATTACHED	
<p>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.</p>		<input type="checkbox"/> NOT APPLICABLE <p>N/A</p> <input type="checkbox"/> APPLICABLE/SEE ATTACHED	
<p>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.</p>		<input type="checkbox"/> NOT APPLICABLE <input checked="" type="checkbox"/> APPLICABLE/SEE ATTACHED	
<p>L. DO YOU DISCHARGE ANY OTHER TOXIC OR INJURIOUS CHEMICAL SUBSTANCES NOT LISTED IN TABLES IV PAGE 9 AND 11A THROUGH 11A 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.</p>		<input type="checkbox"/> NOT APPLICABLE <p>N/A</p> <input type="checkbox"/> APPLICABLE/SEE ATTACHED	

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 6

This form requires information on a specific outfall discharging to the surface waters.

ENTER THE PERMIT NUMBER IN THE BOX AT THE TOP OF THIS FORM. THE PERMIT NUMBER CAN BE FOUND ON THE FRONT PAGE OF YOUR EXPIRING PERMIT. If this is a new or not previously permitted facility, then leave blank and a number will be assigned.

Enter the outfall number in the space provided for each page of Section II. For each individual discharge point a separate set of Section II, Item 6 forms must be filled out.

ITEM 6

PRIORITY POLLUTANTS AND ADDITIONAL INFORMATION

NOTE: If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

NOTE: 40 CFR Part 122.21(g)(8), Friday, April 1, 1983, provides for a Small Business Exemption from the reporting of quantitative data for organic toxic pollutants and toxic pollutants as required by Part 122.21(g)(7)(ii)(A) or 122.21(g)(7)(iii)(A).

A.-C. These parts are self-explanatory and do not require further instructions. Simply go through each part and do as indicated.
and
E.-J.

- D. Several industrial categories and subcategories have been exempted from submitting data on certain GC/MS Fractions (40 CFR Part 122, Vol. 48, No. 64, Friday, April 1, 1983, Notes 1, 2, and 3).

Review the following list to determine whether your facility qualifies to be exempt from reporting GC/MS (Gas Chromatography/Mass Spectroscopy) Fractions.

GC/MS Fraction

Testing and Reporting Exemptions

Textile Mills Industry

- All four GC/MS organic fractions in the Greige Mills Subcategory.
- Pesticide fraction in all other subparts of this industry.

One Mining and Dressing Industry

- Volatile, base/neutral, and pesticide fractions in the Base and Precious Metals Subcategory.
- All four GC/MS organic fractions in all other subcategories of this industry.

Gum and Wood Chemicals Industry

- Pesticide fraction in the Tall Oil Rosin Subcategory and the Rosin Based Derivatives Subcategory.
- Pesticide and base/neutral fractions in all other subcategories of this industry.

Pulp and Paper Industry

- Pesticide fraction in Papergrade Sulfite subcategories (subparts J and U).
- Base/neutral and pesticide fractions in Deink Subpart Q, Dissolving Kraft Subpart F, and Paperboard from Waste Paper Subpart E.
- Volatile, base/neutral, pesticide fractions in the BCT Bleached Kraft Subpart H, Semi-chemical Subparts B and C, and Nonintegrated-Fine Papers Subpart R.
- Acid, base/neutral, and pesticide fractions in Fine Bleached Kraft Subpart I, Dissolving Sulfite Pulp Subpart K, Groundwood Fine Papers Subpart O, Market Bleached Kraft Subpart G, Tissue from Wastepaper Subpart T, and Nonintegrated Tissue Papers Subpart S.

Steam Electric Power Plant Industry

- Base/neutral fraction in the Once-Through Cooling Water, Fly Ash, and Bottom Ash Transport Water process wastestreams.

SECTION II

PERMIT
NUMBER

MI 0005827

SEE INSTRUCTIONS
ON REVERSE SIDE

7

CRITICAL
MATERIALSTOXIC
POLLUTANTSHAZARDOUS
SUBSTANCES
IN
DISCHARGE

OUTFALL NUMBER

O, O, E

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

UNITS CODE

1 Mg/l

2 Ug/l

LBS/DAY
G/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

* Small quantities of Hydroquinone may be used in black and white film developing in emergency situations only. No film was developed in 1993 and no hydroquinone was discharged. Approximately one liter would be used when processing is necessary.

INSTRUCTIONS FOR COMPLETING SECTION II

ITEM 7

This form is to be used by both surface and groundwater applicants to record information on any Michigan critical material, E.P.A. priority pollutant, or hazardous substance in which this application requires data to be provided. This would include any chemical substance from the Michigan Critical Materials Register (Table IV), the E.P.A. Priority Pollutant Listing (Table V), or Tables IIA-VA which lists Organic Toxic Pollutants, Other Toxic Pollutants, Conventional and Nonconventional Pollutants and Hazardous Substances.

ITEM 7

CRITICAL MATERIALS, PRIORITY POLLUTANTS, AND/OR HAZARDOUS SUBSTANCES IN THE DISCHARGE

Material 1, 2, 3 . . . 8

- A. List the name of the chemical substance (critical material, priority pollutant, or hazardous substance) from Tables IV, V and IIA-VA as required in the box which you checked in A.1-3. above. Enter each chemical substance's parameter number as listed in Tables IV, V and IIA-VA if provided.
- B. Provide the average concentration of the chemical substance named in A. Indicate the sample type used and the number of analyses made to provide the concentration data for the chemical substance named in A.
- C. Provide the maximum concentration and determine the mass loading of the chemical substance named in A.

- NOTES:
1. If only one analysis was made for a chemical substance then record that data as a maximum value. If more than one analysis has been made for a chemical substance then provide an average value of those analyses and the maximum value.
 2. This Section II, Item 7, Data Sheet provides space for recording data for 8 chemical substances (Materials). Additional space for recording of data for more than 8 Materials can be made by making copies of this Item 7 Data Sheet as needed. It is also important to use a separate set of Data Sheets for each applicable reporting requirement as listed in A.1-3. and for each outfall.
 3. Refer to the left margin for the code number representing the sample type used and the appropriate unit codes.

VOLATILE ORGANIC ANALYSIS RESULTS
GC/HALL ANALYSES USING EPA METHOD 8010

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-39
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 05-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
BCM	108	65-125
BFB	85	60-120

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Dichlorodifluoromethane	<1	1	
Chloromethane	<1	1	
Vinyl chloride	<0.50	0.5	
Bromomethane	<1	1	
Chloroethane	<1	1	
Trichlorofluoromethane	<1	1	
1,1-Dichloroethene	<3	3	
Methylene chloride	<6	6	
trans-1,2-Dichloroethene	<3	3	
1,1-Dichloroethane	<3	3	
Chloroform	<1	1	
1,1,1-Trichloroethane	<4	4	
Carbon tetrachloride	<0.5	0.5	
1,2-Dichloroethane	<0.5	0.5	
Trichloroethene (TCE)	<1	1	
1,2-Dichloropropane	<0.5	0.5	
Bromodichloromethane	<1	1	
2-Chloroethylvinyl ether	<3	3	
cis-1,3-Dichloropropene	<1	1	
trans-1,3-Dichloropropene	<1	1	
1,1,2-Trichloroethane	<1	1	
Tetrachloroethene (PCE)	<0.5	0.5	
Dibromochloromethane	<1	1	
Chlorobenzene	<0.5	0.5	
Bromoform	<1	1	
1,1,2,2-Tetrachloroethane	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<1	1	

VOLATILE ORGANIC ANALYSIS RESULTS
GC/PID ANALYSES USING METHOD 8020

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-39
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Date Analyzed: 04-JAN-94	Dilution Factor: 1
Matrix: WATER	QC Batch ID: 122093-801020-O-3
Analytical Batch #: 122093-801020-O-3	

Surrogate Recovery (%)		
		QC Limits
TFT	93	70-120
BFB	101	75-120

Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Benzene	<0.5	0.5	
Toluene	<0.5	0.5	
Chlorobenzene	<1	1	
Ethyl Benzene	<1	1	
m,p-Xylene	<2	2	
o-Xylene	<1	1	
1,3-Dichlorobenzene	<2	2	
1,4-Dichlorobenzene	<1	1	
1,2-Dichlorobenzene	<2	2	

VOLATILE ORGANIC ANALYSIS RESULTS

FOR ANALYSES USING METHOD 8260

Page 1 of 2

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-47
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Date Analyzed: 11-JAN-94
Analytical Batch #: 011094-8260-F2	Dilution Factor: 1
QC Batch ID: 011094-8260-F2	

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	82	76-114
Toluene-d8	94	88-110
4-Bromofluorobenzene	86	86-115

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Chloromethane	<5	5	
Vinyl Chloride	<5	5	
Bromomethane	<5	5	
Chloroethane	<5	5	
Trichlorofluoromethane	<5	5	
Acetone	<10	10	
1,1-Dichloroethene	<5	5	
Carbon Disulfide	<5	5	
Methylene Chloride	<5	5	
trans-1,2-Dichloroethene	<5	5	
Vinyl Acetate	<10	10	
1,1-Dichloroethane	<5	5	
2-Butanone	<10	10	
cis-1,2-Dichloroethene	<5	5	
Chloroform	<5	5	
1,1,1-Trichloroethane	<5	5	
Carbon Tetrachloride	<5	5	
1,2-Dichloroethane	<5	5	
Benzene	<5	5	
Trichloroethene (TCE)	<5	5	
1,2-Dichloropropane	<5	5	
Bromodichloromethane	<5	5	
2-Chloroethyl Vinyl Ether	<20	20	
4-Methyl-2-pentanone	<10	10	
cis-1,3-Dichloropropene	<5	5	
Toluene	<5	5	
trans-1,3-Dichloropropene	<5	5	
2-Hexanone	<10	10	
1,1,2-Trichloroethane	<5	5	
Tetrachloroethene (PCE)	<5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260

Page 2 of 2

Client Sample ID: S. SEWAGE PLANT EFFL.	LAL Sample ID: L1009-47
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Constituent	Concentration ($\mu\text{g/L}$)	Reporting Detection Limit ($\mu\text{g/L}$)	Data Qualifier(s)
Dibromochloromethane	< 5	5	
Chlorobenzene	< 5	5	
Ethylbenzene	< 5	5	
m,p-Xylene	< 5	5	
o-Xylene	< 5	5	
Styrene	< 5	5	
Bromoform	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
1,2-Dichlorobenzene	< 5	5	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8260
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-47
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011094-8260-F2	QC Batch ID: 011094-8260-F2

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
UNKNOWN SULFUR COMPOUND	37	4.47	J
UNKNOWN	28	9.70	J

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 1 of 2

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-31
Date Collected: 28-DEC-93	Date Received: 29-DEC-93
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 011194-8270-B	Date Extracted: 04-JAN-94
QC Batch ID: 8270-SEMIVOLATILES-3964	Date Analyzed: 11-JAN-94

SURROGATE RECOVERY (%)		
		QC Limits
2-Fluorophenol	26	21-100
Phenol-d ₆	18	10-94
Nitrobenzene-d ₅	61	35-114
2-Fluorobiphenyl	54	43-116
2,4,6-Tribromophenol	70	10-123
p-Terphenyl-d ₁₄	76	33-141

Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
Phenol	<10	10	
bis(2-Chloroethyl)ether	<10	10	
2-Chlorophenol	<10	10	
1,3-Dichlorobenzene	<10	10	
1,4-Dichlorobenzene	<10	10	
Benzyl alcohol	<10	10	
1,2-Dichlorobenzene	<10	10	
2-Methylphenol	<10	10	
bis(2-Chloroisopropyl)ether	<10	10	
4-Methylphenol	<10	10	
N-Nitroso-Di-n-propylamine	<10	10	
Hexachloroethane	<10	10	
Nitrobenzene	<10	10	
Isophorone	<10	10	
2-Nitrophenol	<10	10	
2,4-Dimethylphenol	<10	10	
Benzoic acid	<50	50	
bis(2-Chloroethoxy)methane	<10	10	
2,4-Dichlorophenol	<10	10	
1,2,4-Trichlorobenzene	<10	10	
Naphthalene	<10	10	
4-Chloroaniline	<10	10	
Hexachlorobutadiene	<10	10	
4-Chloro-3-methylphenol	<10	10	
2-Methylnaphthalene	<10	10	
Hexachlorocyclopentadiene	<10	10	

SEMIVOLATILE ORGANIC ANALYSIS RESULTS

FOR GC/MS ANALYSES USING METHOD 8270

Page 2 of 2

Client Sample ID: S. SEWAGE PLANT EFFL		LAL Sample ID: L1009-31	
Constituent	Concentration (µg/L)	Reporting Detection Limit (µg/L)	Data Qualifier(s)
2,4,6-Trichlorophenol	<10	10	
2,4,5-Trichlorophenol	<10	10	
2-Chloronaphthalene	<10	10	
2-Nitroaniline	<25	25	
Dimethylphthalate	<10	10	
Acenaphthylene	<10	10	
2,6-Dinitrotoluene	<10	10	
3-Nitroaniline	<25	25	
Acenaphthene	<10	10	
2,4-Dinitrophenol	<25	25	
4-Nitrophenol	<25	25	
Dibenzofuran	<10	10	
2,4-Dinitrotoluene	<10	10	
Diethylphthalate	<10	10	
4-Chlorophenyl-phenylether	<10	10	
Fluorene	<10	10	
4-Nitroaniline	<25	25	
4,6-Dinitro-2-methylphenol	<25	25	
N-Nitrosodiphenylamine	<10	10	
4-Bromophenyl-phenylether	<10	10	
Hexachlorobenzene	<10	10	
Pentachlorophenol	<25	25	
Phenanthrene	<10	10	
Anthracene	<10	10	
Di-n-butylphthalate	<10	10	
Fluoranthene	<10	10	
Pyrene	<10	10	
Butylbenzylphthalate	<10	10	
3,3'-Dichlorobenzidine	<20	20	
Benzo(a)anthracene	<10	10	
Chrysene	<10	10	
bis(2-Ethylhexyl)phthalate	1.3	10	J B
Di-n-octylphthalate	<10	10	
Benzo(b)fluoranthene	<10	10	
Benzo(k)fluoranthene	<10	10	
Benzo(a)pyrene	<10	10	
Indeno(1,2,3-cd)pyrene	<10	10	
Dibenz(a,h)anthracene	<10	10	
Benzo(g,h,i)perylene	<10	10	
Carbazole	<10	10	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8270
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-31
Date Received: 29-DEC-93	Date Analyzed: 11-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch: 011194-8270-B	QC Batch ID: 8270-SEMIVOLATILES-3964

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
Benzaldehyde	8	7.85	J
Unknown	8	25.05	J
Unknown	10	27.46	J
Unknown	4	30.25	J
Hydrocarbon	4	31.99	J
Hydrocarbon	4	33.87	J

PESTICIDE ANALYSES RESULTS
BY GC/ECD USING METHOD 8080
FOR COOK NUCLEAR PLANT

Client Sample ID: S. SEWAGE PLANT EFFL	LAL Sample ID: L1009-23
Date Collected: 28-DEC-93	Date Received: 29-JAN-94
Date Extracted: 04-JAN-94	Date Analyzed: 21-JAN-94
Matrix: WATER	Dilution Factor: 1
Analytical Batch #: 012094-8080-A-1	QC Group ID: 8080 PEST/PCBS 3965

SURROGATE RECOVERY (%)		
		QC Limits
TCMX	70	60-150
DCB	50*	60-150

Constituent	Concentration (μ g/L)	Reporting Detection Limit (μ g/L)	Data Qualifier(s)
A-BHC	<0.05	0.05	
B-BHC	<0.05	0.05	
G-BHC	<0.05	0.05	
D-BHC	<0.05	0.05	
HEPTACHLOR	<0.05	0.05	
ALDRIN	<0.05	0.05	
HEPTACHLOR EPOXIDE	<0.05	0.05	
G-CHLORDANE	<0.05	0.05	
ENDOSULFAN I	<0.05	0.05	
A-CHLORDANE	<0.05	0.05	
4,4'-DDE	<0.1	0.1	
4,4'-DDT	<0.1	0.1	
DIELDRIN	<0.1	0.1	
ENDRIN	<0.1	0.1	
ENDOSULFAN II	<0.1	0.1	
4,4'-DDD	<0.1	0.1	
ENDRIN ALDEHYDE	<0.1	0.1	
ENDOSULFAN SULFATE	<0.1	0.1	
METHOXYCHLOR	<0.5	0.5	
TOXAPHENE	<5	5	
PCB-1016	<1	1	
PCB-1221	<2	2	
PCB-1232	<1	1	
PCB-1242	<1	1	
PCB-1248	<1	1	
PCB-1254	<1	1	
PCB-1260	<1	1	
(TECHNICAL) CHLORDANE	<1	1	
MIREX	<0.1	<0.1	

TCMX - tetra-chloro-meta-xylene
DCB - Deca-chloro-biphenyl

METALS RESULTS

Client Sample ID: S SEWAGE PLANT EFF	Date Collected: 12-28-93	Matrix: ground water
LAL Batch ID(s): 1220 im	Date Received: 12-29-93	PO #69095-040-3N

Constituents	Method	Concentration (mg/L)	Reporting Detection Limit (mg/L)	Data Qualifier(s)	Date Analyzed	LAL Sample ID
Aluminum	6010	<0.20	0.20		01-20-94	L1009-16
Antimony	6020	<0.060	0.060		01-27-94	L1009-16
Arsenic	6020	<0.010	0.010		01-27-94	L1009-16
Barium	6020	<0.20	0.20	N	01-27-94	L1009-16
Beryllium	6020	<0.005	0.005		01-27-94	L1009-16
Boron	6010	<0.20	0.20		01-20-94	L1009-16
Cadmium	6020	<0.005	0.005		01-27-94	L1009-16
Chromium	6020	<0.010	0.010		01-27-94	L1009-16
Cobalt	6020	<0.050	0.050		01-27-94	L1009-16
Copper	6020	<0.025	0.025		01-27-94	L1009-16
Iron	6010	<0.10	0.10		01-20-94	L1009-16
Lead	6020	<0.003	0.003		01-27-94	L1009-16
Magnesium	6010	14	5.0		01-20-94	L1009-16
Manganese	6020	0.025	0.015		01-27-94	L1009-16
Mercury	7470	<0.0002	0.0002		01-07-94	L1009-16
Molybdenum	6020	<0.20	0.20		01-27-94	L1009-16
Nickel	6020	<0.040	0.040		01-27-94	L1009-16
Selenium	6020	<0.005	0.005	N	01-27-94	L1009-16
Silver	6020	<0.010	0.010		01-27-94	L1009-16
Sodium	6010	34	5.0		01-20-94	L1009-16
Thallium	6020	<0.010	0.010		01-27-94	L1009-16
Tin	6020	<0.20	0.20		01-27-94	L1009-16
Titanium	6010	<0.10	0.10		01-20-94	L1009-16
Vanadium	6010	<0.050	0.050		01-20-94	L1009-16
Zinc	6020	0.047	0.020		01-27-94	L1009-16

Comments:

GENERAL CHEMISTRY RESULTS

Client Sample ID: S. SEWAGE PLANT EFFL	Date Collected: 12-28-93	Matrix: ground water.
LAL Batch ID(s): 1229 im	Date Received: 12-29-93	PO#69095-040-3N

Constituent	Method	Result	Reporting Detection Limit	Date: Qualifier(s)	Date Analyzed	LAL Sample ID
Fluoride, in mg/L	340.2	<0.15	0.15		01-24-94	L1009-4
Chloride, in mg/L	300.0	120	0.016		12-29-93	L1009-4
Nitrate-Nitrogen, in mg/L	300.0	24	0.017		12-29-93	L1009-4
Nitrite-Nitrogen, in mg/L	300.0	<0.50	0.50		12-29-93	L1009-4
Sulfate, in mg/L	300.0	39	0.059		12-29-93	L1009-4
Ammonia-Nitrogen, in mg/L	350.1	24	0.50	D(1:10)	01-05-94	L1009-8
Total Cyanide, in mg/L	335.2	<0.020	0.020		01-03-94	L1009-12

Comments:

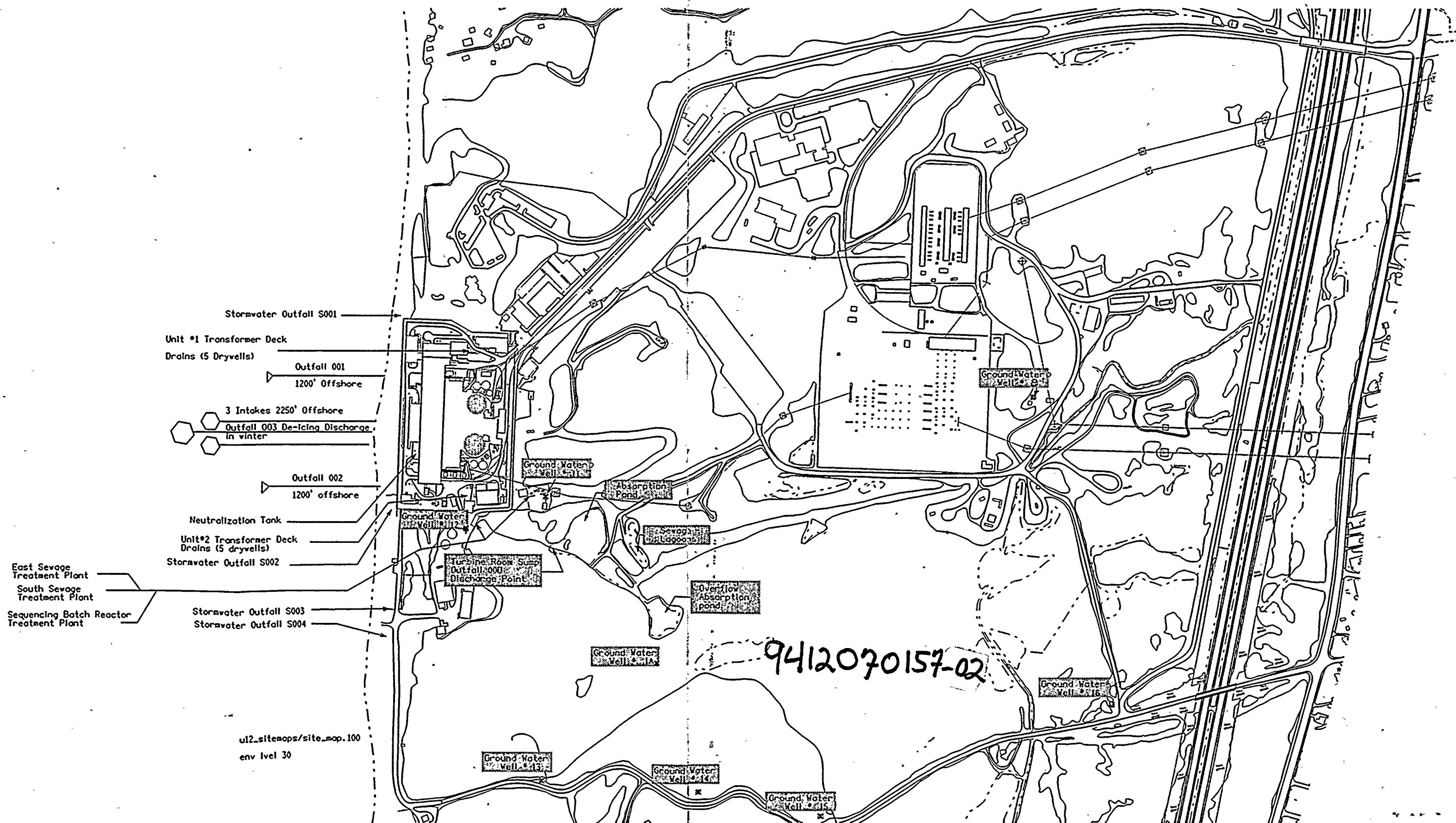


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4	5	6
7	8	
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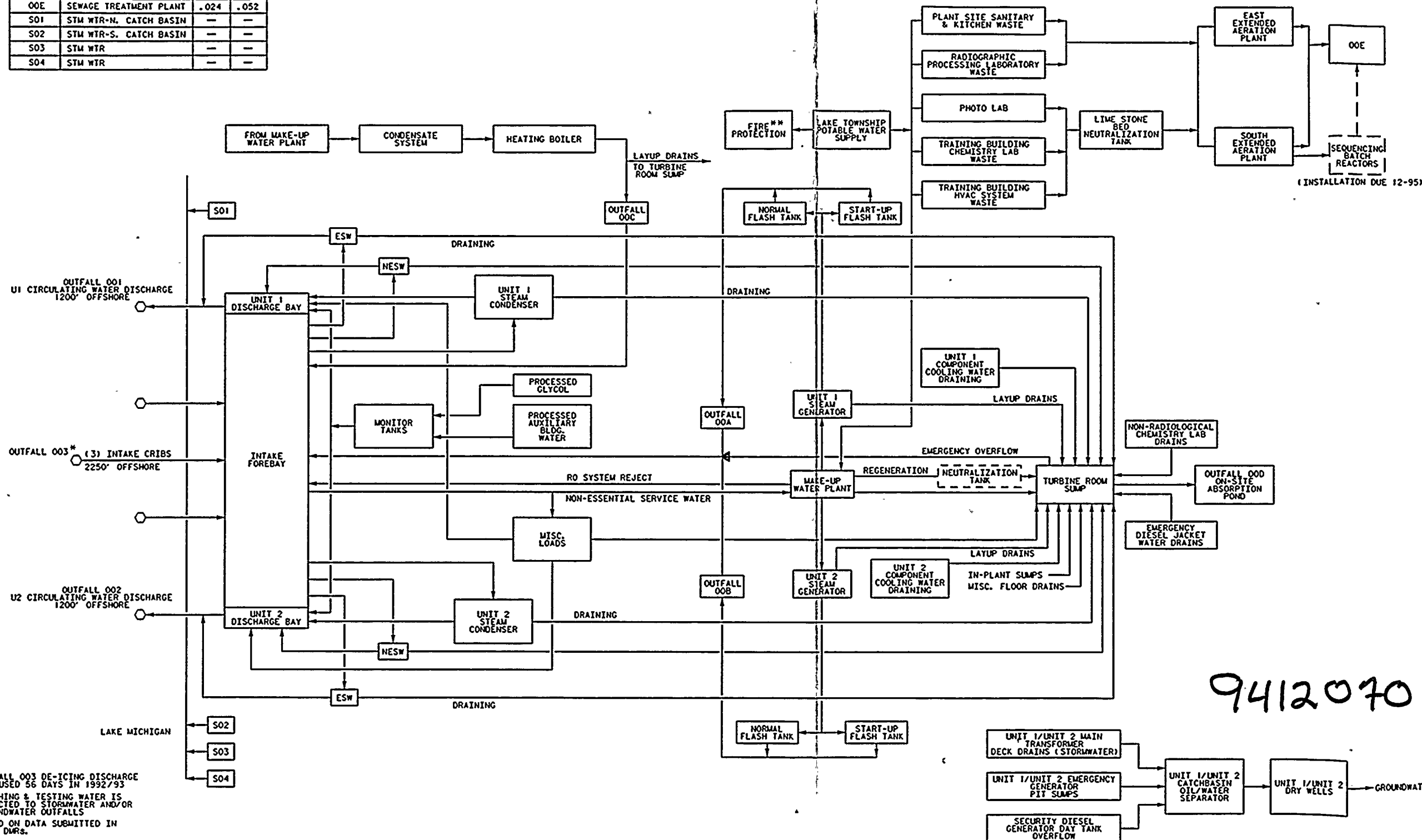
ANSTEC APERTURE CARD

Also Available on
Aperture Card



WASTEWATER FLOW DIAGRAM DONALD C. COOK NUCLEAR PLANT

OUTFALL	DESCRIPTION	AVG FLOW (IN MGD)***	MAX FLOW
001	U-1 CIRC WTR	1042	1393
002	U-2 CIRC WTR	1317	1743
003	DE ICE	—	—
00A	U-1 SG BLOWDOWN	.100	.333
00B	U-2 SG BLOWDOWN	.098	.234
00C	HTG BLR BLOWDOWN	.002	.014
00D	TRS DISCHARGE	.305	.667
00E	SEWAGE TREATMENT PLANT	.024	.052
S01	STM WTR-N. CATCH BASIN	—	—
S02	STM WTR-S. CATCH BASIN	—	—
S03	STM WTR	—	—
S04	STM WTR	—	—



ANSTEC
APERTURE
CARD

Also Available on
Aperture Card

9412070157-03

INDIANA MICHIGAN POWER CO.	
WASTEWATER FLOW DIAGRAM	
SKS/RFZ 2-24-94	U12 /WASTWTR.DGN

