12-26-10

INTERNATIONAL
HYDRONICS CORPORATION
Box 910, R-4 PRINCETON, N.J. 08540 PHONE: (201) 329-2361

US EPA RECORDS CENTER REGION 5
462614

REPORT OF OPERATIONS

HYON WASTE MANAGEMENT SERVICES, INC.

For Year Ending December 31, 1972

Prepared For:

- State of Illinois
  Environmental Protection Agency
- Chicago Metropolitan Sanitary District
- City of Chicago
  Department of Environmental Controls

By: W. G. Cousins
W. G. Cousins
International Hydronics Corporation

REPORT OF OPERATIONS

HYON WASTE MANAGEMENT SERVICES, INC.
Year Ending December 31, 1972

Hyon Waste Management Services (HWMS) was active in the calendar year 1972, receiving and treating a wide variety of liquid industrial wastes, under contracts which were filed with regulatory agencies when made. All waste materials received were treated and contained on the plant site except for gaseous emissions from the incinerator stack and water evaporation. There were no discharges of liquid or solids except as separately noted in reports of accidental leaks and spills.

The following information is appended and constitutes a part of the report.

Appendix (1)

Records of gross volumes of daily waste receipts, totalled by month and for the year.

Appendix (2)

Copies of the daily operating log for the month of December 1972, including a breakdown of December receipts into types and treatment categories.

Appendix (3)

Records and results of analyses of weekly sampling of Lake Calumet for the purpose of environmental control monitoring.

Attachment

A copy of a letter from D. Gallay, City of Chicago, Department of Environmental Control, dated January 8, 1973, related to future reporting of operations.

This report is also related to and supported by a contemporary Engineering Report on the development of HWMS plant and facilities during the year 1972.

COMMENTARY ON OPERATIONS

Appended Data

The appended data are a part of the routine operating records from the plant, and are summaries of more detailed records, which are available if required.

The daily, monthly and gross receipt data (Appendix 1) for the year indicate the development of waste intake volume. The first large pickle liquor receipts commenced in May. The more detailed reporting for the month of December (Appendix 2) includes copies of the daily log which was originally intended to show the type and volume of waste receipts, material outputs and a running material balance. The form of reporting is slightly out of date with the operation but it presents a reasonable picture of the operating level at the end of 1972. It has been supplemented with a breakdown of waste receipts into treatment categories (Appendix 2) to support a more accurate description of operations.

Disposition of Wastes and Hydraulic Balance

The data on waste receipts was used to prepare a hydraulic balance for the plant tabulated on page number 4.

The disposition of wastes should be noted in review of the water balance. Wastes received into the biochemical section, together with the water fraction of some oil-water mixtures has been contained in the biological treatment system and auxiliary storage basins. To this volume has been added the site rainfall collected from process areas. This total has been reduced by evaporation, both natural, and in the small incinerator.

Receipts of pickle liquor were neutralized separately to a solid product and did not contribute to the accumulated wastewater volume. Some inorganic lime sludges and

some acid metal solutions were treated with the pickle liquor. In addition, some gritty oil sludges and one large oil-water spill (by a customer) were added into the pickle liquor system where the oil was adsorbed on to the neutral precipitate. It is estimated that the volume sludge from the pickle liquor operation on completion of neutralization of receipts to December 31, 1972 will be 51,000 cubic yards.

The volume of waste oils incinerated over the period of October through December was 60,000 gallons. At December 31, approximately 50,000 gallons of waste oil remained in storage in the tank farm and small incinerator feed tank.

TABULATED WATER BALANCE
START OF OPERATIONS TO DECEMBER 31/72

WASTEWATER IN STORAGE-DECEMBER 31/72

Receiving Tanks	(1/2 full)	50,000
Leachate Tanks	(1-1/2 tank)	50,000
Activated Sludge	(op.level)	185,000
Clarifier	(op.level)	35,000
Beds, Underdrains	(flooded)	230,000
Intermediate Basin	(over full)	1,700,000
Final Basins	(over full)	1,500,000
High Solids Underdrain	(full)	500,000
Fill Area	(full)	1,800,000
Auxiliary Basin #1	(3/4 full)	3,000,000
Auxiliary Basin #2	(2/3 full)	2,000,000
		11,050,000

Total Waste Receipts to December 31/72 -	20,210,000 gal.	20,210,000 gal.
Receipts of Waste Pickle Liquor -	6,260,000 gal.	
Receipts of Other waste to Pickle Liquor -	800,000 gal.	
Total Volume Handled in P.L. System	7,060,000 gal. -	7,060,000 gal.
Waste Volume Received in Water System -		13,150,000 gal.
Estimated Rainfall Runoff Collected -		12,900,000 gal.
Total Water Input -		26,050,000 gal.
Wastewater in Storage Dec. 31/72 (above)		11,050,000 gal.
Wastewater Discharged -		0
Wastewater Evaporated -		15,000,000 gal.
Wastewater Evaporated by Incinerator Heat -		600,000 gal.
Wastewater Evaporated from Site Surface -		14,400,000 gal.

System Performance

Comparison of operating performance with projected performance indicates two principal differences. First, the absence of substantial evaporation by the large incinerator, which has not been put on stream, has resulted in the accumulation of the quantity of water in storage. The second difference is in the quality of the accumulated wastewater which has higher content of organic material than projected. The wastewater has COD values ranging from 2000 - 6000 mg/l rather than 100 - 300 mg/l. The reason for this is principally the mixing of bed leachate, high solids area, leachate and effluents when transferring wastewater for the purpose of containing it during periods of heavy rainfall. Related problems of bed flooding, winter freezing, an operational backlog, and inflexibility due to hydraulic overload have all contributed to production of low quality water. However, the performance of process elements has been effective and generally shown capacity in line with operating projections.

There are no technical impediments to prevent the treatment of accumulated wastewater by the activated sludge process (or equivalent) to sufficiently good quality for evaporation in the large incinerator. There is a requirement to store, treat, or otherwise manage the continuously accumulating wastewater for a period of time until sufficient incinerator evaporation capacity is available to exceed receipts and net rainfall.

Monitoring of Lake Calumet

The appended results and notes (Appendix 3) indicate no apparent contamination of Lake Calumet related to HWMS operations.

Form of Reporting of Future Operations

A letter from the Chicago Department of Environmental Control of January 8/73 (Attachment 4) requests that monthly reports be submitted containing specific information. HWMS agrees to submit monthly reports as requested supplying the type of information requested from plant operating records.

It is proposed that the daily log sheet be the basis of the report. Examination of this form will indicate that it was intended as a daily record of waste receipts by types, their disposition, the outflow of materials, and a running inventory. It is proposed that the form be revised to reflect the additional plant elements. It will then contain the records requested. Specifically, waste materials will be classified by treatment categories, as follows:

(1) Biochemical System - aqueous degradable materials
   (a) Primarily soluble - to Bio Beds
   (b) Primarily sludge - to High Solids Area

(2) Incinerator System
   (a) Incinerable - To Tank Farm
   (b) Aqueous Output - To Biochemical System
   (c) Other - Possibly to Inorganic Sludge Binder

(3) Pickle Liquors Treatment
   (a) Pickle Liquors
   (b) Additives

(4) Chemical System
   (a) To Chemical Station for Treatment Wastes and Sludges.
   (b) To Pickle Liquor System

This record does not cover the range of possibilities in intra system transfer but should provide adequate description of receipts, operations, and outputs.

A record of incinerator operating periods, requested verbally by the City will be included in the revised form as in the present form.

A record of weather rainfall and evaporation will be supplied to support the materials balance.

A separate request by the City was for additional parameters to be added to routine Lake Analyses. We do not agree that these are warranted on a routine basis, and believe that with some modification continuation of our past practice in lake surveillance would be adequate. We therefore propose:

(1) To relocate some sample points to surround all the plant property and activities.

(2) To run a base survey with all (or most) of the requested parameters, to define lake conditions and note such sources of contamination as may be evident in the Lake Calumet drainage area.

(3) To add to our routine monitoring effort analyses for iron and zinc, which we believe will be effective indicators of the presence of any of the other metals resultant from our activities.

These analyses coupled with the established observations, and analyses for pH, conductivity, acidity and alkalinity, dissolved solids and ash, COD, and dissolved oxygen should pick up any contamination more surely than other analyses. We would then propose to conduct further analyses if there is evidence of lake contamination, as has been our practice to date.

The foregoing information, that is daily log sheets, lake analyses, covered by suitable summaries would then constitute our basic operating report, supplemented by reporting of unusual operating events, such as spills.

12-26-10

APPENDIX 2

TO

OPERATING REPORT OF
HYON WASTE MANAGEMENT SERVICES, INC.

FOR

YEAR ENDING DECEMBER 31, 1972

SUBJECTS:

(a) DAILY REPORT OF OPERATIONS (OPERATING LOGS) FOR MONTH OF DECEMBER 1972.

(b) BREAKDOWN OF DECEMBER RECEIPTS INTO TREATMENT CATEGORIES.

INTERNATIONAL HYDRONICS CORPORATION

HWMS RECEIPTS - APPROXIMATE BREAKDOWN
BY TREATMENT CATEGORIES
FOR DECEMBER 1972

Aqueous Wastes and Sludges to Bio Chemical Treatment	-	880,000 gal.
Oil and Oil-Water Mixture Total Volume - Incinerable Content (60,000 gal.) Water Content (315,000 gal.)	-	375,000 gal.
Pickle Liquor	-	725,000 gal.
Inorganic Wastes	-	95,000 gal.
Approx. Total Receipts	-	2,075,000 gal.
Actual Total Receipts	-	2,074,260 gal. + 236 Drums

DAILY REPORT OF OPERATIONS

Date 12-1-72 Prepared By [illegible] Approved By CDL

WEATHER

Temp. Max. 34 Min. 22 Wind Direction NW Max. Force 12 mph

Precipitation —

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	55975	13
3.	Gallons - Bio-Compost Filter		
4.	Drums	7	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	49875 (N-23475-L 26500
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 7 Drums 385	Gallons	56360
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			56360
Plant Balance			17863683
Drums Received			7
Drums ~~Burned~~ Treated			7
Net Change			0
Plant Balance			2376 728 [illegible]
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			

DAILY REPORT OF OPERATIONS

Date 12-2-72 Prepared By Ed Hackenrider Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	48993	11
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____ Heavy____	
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	37993 (H-18193-L- 19800
11.	-	Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	48993
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			48993
Plant Balance			17912676
Drums Received			-
Drums Burned			2376 728 cm
Net Change			[illegible]76
Plant Balance			
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			6 yds²

DAILY REPORT OF OPERATIONS

Date 16-3-72 Prepared By Ed Hakunder Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation -

RECEIPTS

		No. of Loads
1.	Gallons - Tank Farm	
2.	Gallons - Receiving Lagoons	8876 - 2
3.	Gallons - Bio-Compost Filter	
4.	Drums	
5.	Solids - Cubic Yards	

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	8876-(H 8876)
11.	-	Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons 8876
Liquids Out	6 + 9 + 13 + 15	Gallons
Net Change		8876
Plant Balance		17921542
Drums Received		
Drums Burned		
Net Change		2376 728 cons
Plant Balance		
Dry Comb. Received		
Dry Comb. Burned		
Net Change		
Plant Balance		oyds^3

DAILY REPORT OF OPERATIONS

Date 12-4-72 Prepared By Ed Nakamida Approved By CDL

WEATHER

Temp. Max. 30 Min. 20 Wind Direction NE Max. Force 16mph

Precipitation —

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	98146	24
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	106 220 (H-38720-L-50000)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 14 Drums (220)	Gallons	98364
Liquids Out	6 + 9 + 13 + 15	Gallons	-
Net Change			98362
Plant Balance			18 019 906
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2376 728 Cons
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			9 yds³

DAILY REPORT OF OPERATIONS

Date 12-5-72 Prepared By E.O. Hackenrider Approved By CDL

WEATHER

Temp. Max. 30 Min. 15 Wind Direction NW Max. Force 5

Precipitation 1/16"

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	92135	20
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	76835 (H-28835-L 48000)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 Drums (220)	Gallons	92355
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			92355
Plant Balance			18 112 241
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2376 728 CANS
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-6-72 Prepared By Ed Kaminsky Approved By CDL

WEATHER

Temp. Max. +13 Min. 0 Wind Direction NW Max. Force 15 mph

Precipitation –

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm	3100	1
2.	Gallons - Receiving Lagoons	76750	17
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	76740 (H-30740 L-45800)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 Drums (220)	Gallons	80070
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			80070
Plant Balance			18182311
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2776 728 Cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			cyds³

DAILY REPORT OF OPERATIONS

Date 12-7-72 Prepared By Ed Harkinrider Approved By CDL

WEATHER

Temp. Max. 18 Min. 14 Wind Direction SE Max. Force 12 mph

Precipitation —

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	72805	19
3.	Gallons - Bio-Compost Filter		
4.	Drums	19 4.5 Gal	2
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	82305 (34805 L 26700
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 8 DRUMS (440)	Gallons	73245
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			73245
Plant Balance			18165556
Drums Received			19
Drums ~~Burned~~ Treated			8
Net Change			11 4
Plant Balance			2387 732 [illegible]
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			cycls³

DAILY REPORT OF OPERATIONS

Date 10-8-78 Prepared By [illegible] Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	47143	12
3.	Gallons - Bio-Compost Filter		
4.	Drums	8	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____	Heavy ~
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	40438 (H-26238 - L-7500)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 8 Drums (440)	Gallons	47143
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			47143
Plant Balance			18212699
Drums Received			8
Drums ~~Burned~~ Treated			8
Net Change			0
Plant Balance			2387 732 Cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			cyds^3

DAILY REPORT OF OPERATIONS

Date 16-9-72 Prepared By [illegible] Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	38787	9
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____ Heavy_____	
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	38787 (H38687
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	38787
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			38787
Plant Balance			18151786
Drums Received			0
Drums Burned			0
Net Change			0
Plant Balance			1387 732 cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			

DAILY REPORT OF OPERATIONS

Date 12-10-72 Prepared By Ed Hackenmeier Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	5131	1
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____ Heavy___	
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	5131 (Hi 5131)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons 5131
Liquids Out	6 + 9 + 13 + 15	Gallons
Net Change		5130
Plant Balance		18256617
Drums Received		0
Drums Burned		0
Net Change		0
Plant Balance		2387 732 Cons
Dry Comb. Received		
Dry Comb. Burned		
Net Change		
Plant Balance		0 yds^3

DAILY REPORT OF OPERATIONS

Date 12-11-72 Prepared By Ed Hackinnon Approved By CDL

WEATHER

Temp. Max. 14° Min. 10° Wind Direction South Max. Force 5 mph

Precipitation 1/4"

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	51644	12
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	41644 (H-25844-L-15800
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	51644
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			51644
Plant Balance			18 308 261
Drums Received			0
Drums Burned			0
Net Change			0
Plant Balance			2387 732 cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-12-72 Prepared By Ed Harkinrider Approved By CDL

WEATHER

Temp. Max. 28 Min. 16 Wind Direction NW Max. Force 10

Precipitation 1/2"

RECEIPTS

		No. of Loads
1.	Gallons - Tank Farm	
2.	Gallons - Receiving Lagoons	54710
3.	Gallons - Bio-Compost Filter	
4.	Drums	
5.	Solids - Cubic Yards	

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	59910 (H-9110-L-34100)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3+8 drums (440)	Gallons	55150
Liquids Out	6 + 9 + 13 + 15	Gallons	-
Net Change			55150
Plant Balance			18363411
Drums Received			8
Drums ~~Burned~~ Treated			8
Net Change			0
Plant Balance			2387 732 cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds^3

DAILY REPORT OF OPERATIONS

Date 12-13-72 Prepared By E.O. Nakamura Approved By C.DL

WEATHER

Temp. Max. 22 Min. 12 Wind Direction SW Max. Force 7mph

Precipitation

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	85924	19
3.	Gallons - Bio-Compost Filter		
4.	Drums	8	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	75424 (11-25624 - L 38800
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	18 drums (440)	Gallons 86324
Liquids Out	6 + 9 + 13 + 15		Gallons
Net Change			86324
Plant Balance			18449735
Drums Received			8
Drums ~~Burned~~ Treated			8
Net Change			0
Plant Balance			2387 732 cm
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-14-72 Prepared By Ed Hackenberg Approved By CDL

WEATHER

Temp. Max. 27 Min. 15 Wind Direction SW Max. Force 7mph

Precipitation -

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	96315	2324
3.	Gallons - Bio-Compost Filter		
4.	Drums	12	128 Can-1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	115315 (H 19575 = L 73800
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	96315
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			96315
Plant Balance			18546050
Drums Received			12 128 Cans
Drums Burned			0
Net Change			12 128 Cans
Plant Balance			2399 860 Cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-15-72 Prepared By E.O. Haberaider Approved By CDL

WEATHER

Temp. Max. 20 Min. 8 Wind Direction W Max. Force 18 mph

Precipitation -

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	90800	22
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ___ Heavy ___
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	84800 (11-7000-L-77800
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 DRUMS (220)	Gallons	910220
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			910220
Plant Balance			18 637 070
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2379 860 GALS.
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-16-72 Prepared By Ed Harkinrider Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	58825	14.
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____ Heavy___	
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	45700 (Lime 45700)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	58825
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			58825
Plant Balance			18 695 895
Drums Received			0
Drums Burned			0
Net Change			0
Plant Balance			2399 860 CANS
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds^3

DAILY REPORT OF OPERATIONS

Date 12-17-72 Prepared By Ed Harbaugh Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	32900	7.
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light____ Heavy____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	32900 (L 32900)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	32900
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			32900
Plant Balance			18728795
Drums Received			0
Drums Burned			0
Net Change			0
Plant Balance			2399 860 Drums
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-18-72 Prepared By Ed Harkinrider Approved By CDC

WEATHER

Temp. Max. 34 Min. 21 Wind Direction SW Max. Force 11

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	86208	
3.	Gallons - Bio-Compost Filter		
4.	Drums	24	3
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	76108 (H-20413-L-55695)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 16-Drums (880)	Gallons	87088
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			87088
Plant Balance			18 815 875
Drums Received			24
Drums ~~Burned~~ Treated			16
Net Change			8
Plant Balance			2407 860 CANS
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-19-72 Prepared By [illegible] Approved By CDL

WEATHER

Temp. Max. 39 Min. 33 Wind Direction SW Max. Force 5mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	70982	17
3.	Gallons - Bio-Compost Filter		
4.	Drums	23	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	P7107-CH 31382-L-29000
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	70982
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			70982
Plant Balance			18886857
Drums Received			23
Drums Burned			0
Net Change			23
Plant Balance			2430 860 cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-20-72 Prepared By Ed Harkinsider Approved By CDL

WEATHER

Temp. Max. 38 Min. 34 Wind Direction SW Max. Force 5 mph

Precipitation _____

RECEIPTS

		No. of Loads
1.	Gallons - Tank Farm	
2.	Gallons - Receiving Lagoons	104 027
3.	Gallons - Bio-Compost Filter	
4.	Drums	14 55 3
5.	Solids - Cubic Yards	

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	101727 (H-10027-L-91700)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 drums (220)	Gallons	104247
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			104247
Plant Balance			18 991 104
Drums Received			14
Drums ~~Burned~~ treated			4
Net Change			10 55
Plant Balance			2440 915 conv
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-21-72 Prepared By Ed Harkenrider Approved By CDL

WEATHER

Temp. Max. 37 Min. 32 Wind Direction NW Max. Force 5 mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	151 762	29
3.	Gallons - Bio-Compost Filter		
4.	Drums	68	2
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	146 762 (H-28662 - L 118100
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 DRUMS (220	Gallons	151982
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			151982
Plant Balance			19143086
Drums Received			68
Drums ~~Burned~~ Treated			8
Net Change			60
Plant Balance			2500 915 CANS
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds 3

DAILY REPORT OF OPERATIONS

Date 12-22-72 Prepared By Ed Hankinsider Approved By CDL

WEATHER

Temp. Max. 34 Min. 30 Wind Direction SW Max. Force 10 mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	153985	28
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	142985 (H-35085 - L-107900
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 Drums (220	Gallons	154205
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			154205
Plant Balance			19297291
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2500 915 cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-23-72 Prepared By Ed Hackenrider Approved By CDL

WEATHER

Temp. Max._____ Min._____ Wind Direction_____ Max. Force_____

Precipitation_____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	67691	15
3.	Gallons - Bio-Compost Filter		
4.	Drums		
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned_____ Light_____ Heavy___	
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	67691-(1453691 L-14000)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons 67691
Liquids Out	6 + 9 + 13 + 15	Gallons
Net Change		67691
Plant Balance		19364982
Drums Received		0
Drums Burned		0
Net Change		0
Plant Balance		2500 915 cans
Dry Comb. Received		
Dry Comb. Burned		
Net Change		
Plant Balance		cycls 3

DAILY REPORT OF OPERATIONS

Date 12-26-72 Prepared By Ed Harbinsider Approved By _____

WEATHER

Temp. Max. 35 Min. 21 Wind Direction SW Max. Force 7 mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	84752	17
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	84852 (H 18352 - L 60900
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 40 Drums (220	Gallons	84972
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			84972
Plant Balance			19449954
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2500 915 Con
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			yds³

DAILY REPORT OF OPERATIONS

Date 12-27-72 Prepared By Ed Lahinsky Approved By CDL

WEATHER

Temp. Max. 40 Min. 32 Wind Direction SW Max. Force 12 mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	70928	16
3.	Gallons - Bio-Compost Filter		
4.	Drums	4	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	71928 (H 26428 - L 37000)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 Drums (220)	Gallons	71148
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			71148
Plant Balance			19 521 102
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2500 915 Cans
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-28-72 Prepared By Ed Harkenrider Approved By CDL

WEATHER

Temp. Max. 40 Min. 32 Wind Direction NE Max. Force 8 mph

Precipitation _____

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		
2.	Gallons - Receiving Lagoons	105244	22
3.	Gallons - Bio-Compost Filter		
4.	Drums	8	1
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ____ Heavy ____
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	93244 (H-40144-L-53100)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 8 Drums (440)	Gallons	105684
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			105684
Plant Balance			19626786
Drums Received			8
Drums ~~Burned~~ Treated			8
Net Change			0
Plant Balance			2500 915 cu
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			cyds³

DAILY REPORT OF OPERATIONS

Date 13-29-72 Prepared By Ed Harkinson Approved By CDL

WEATHER

Temp. Max. 45 Min. 46 Wind Direction SW Max. Force 10

Precipitation 1/2"

RECEIPTS

			No. of Loads
1.	Gallons - Tank Farm		19
2.	Gallons - Receiving Lagoons	89692	[illegible]
3.	Gallons - Bio-Compost Filter		
4.	Drums	4 11 containers	2
5.	Solids - Cubic Yards		

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light Heavy
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	104692 (H-35992-L-43900)
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3 + 4 Drums (220	Gallons	89912
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			89912
Plant Balance			19716698
Drums Received			4
Drums ~~Burned~~ Treated			4
Net Change			0
Plant Balance			2500 926
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds³

DAILY REPORT OF OPERATIONS

Date 12-30 Prepared By Ed Hackinsley Approved By CDL

WEATHER

Temp. Max. 40 Min. 29 Wind Direction SW Max. Force 10 mph

Precipitation 1/2"

RECEIPTS

		No. of Loads
1.	Gallons - Tank Farm	
2.	Gallons - Receiving Lagoons	70 032
3.	Gallons - Bio-Compost Filter	
4.	Drums	
5.	Solids - Cubic Yards	

TREATMENT

6.	Incinerator Plant	Gallons Burned	Light ___ Heavy ___
7.		Drums Burned	
8.		Cubic Yards Burned	
9.	Chemical Plant	Gallons Treated	
10.	Bio-Compost Filters	Gallons Placed	67032 (H-51632-L-15400
11.		Cubic Yards Placed	

EFFLUENT

12.	Placed in Landfill	Cubic Yards	
13.	Makeup to scrub water basin	Gallons	
14.	Blowdown from Scrubwater Basin	Gallons	
15.	Released to Stream	Gallons	
16.	Well Water Pumped	Gallons	

MATERIAL BALANCE

Liquids Received	1 + 2 + 3	Gallons	70032
Liquids Out	6 + 9 + 13 + 15	Gallons	
Net Change			70032
Plant Balance			19786730
Drums Received			0
Drums Burned			0
Net Change			0
Plant Balance			2500 926
Dry Comb. Received			
Dry Comb. Burned			
Net Change			
Plant Balance			0 yds^3

12-26-10

APPENDIX 1

TO

OPERATING REPORT OF
HYON WASTE MANAGEMENT SERVICES, INC.

FOR

YEAR ENDING DECEMBER 31, 1972

SUBJECT:

VOLUMES OF WASTE RECEIPTS BY DAY, MONTH AND YEAR.

INTERNATIONAL HYDRONICS CORPORATION

SUMMARY OF HWMS MONTHLY RECEIPTS VOLUMES FOR YEAR ENDING DECEMBER 31, 1972

	Bulk Receipts Gallons	Drums No.	Solids yd^3
January	468,505	140	128
February	469,265	83	28
March	985,390	217	273
April	1,077,855	115	91
May	1,517,379	183	45
June	1,628,871	349	90
July	1,943,129	290	[illegible]
August	1,808,637	185	20
September	1,895,318	192	20
October	1,735,150	204	55
November	2,417,194	355	50
December	2,074,260	236	--
Totals	18,020,953	2549 (140,195 gal)	830 (166,000 gal)

Total Waste Receipts - 1972 - 18,327,148

Copy sent EJM - 1-25-72
Copy sent EJM - 2-1-72

H. W. M. S.

WASTE RECEIPTS

ANUARY	GALLONS	DRUMS (TREATED)		SOLIDS (Yds.)
3	38,100	4	(4) ✓	20
4	18,000	7	(7) ✓	-
5	4,300	-		-
6	13,275	8	(57) ✓	10
7	31,860	-		15
8	4,700	3		20
ub-Total	110235	22		65
10	23,275	12	(12) ✓	-
11	42,300	8	(8) ✓	-
12	~~56,825~~ 50,825	4	(4) ✓	15
13	17,775	8		-
14	24,250	7		15
ub-Total	~~164,425~~ 158,425	39		30
17	9,875	8		3
18	31,825	12		12
19	24,975	8		-
20	19,300 *	4		-
21	14,045 *	7	(39)	-
22	—	—		15
ub-Total	100,020 *	39		30
24	19,650	8	(23)	—
25	15,200	8		-
26	12,075	8		-
27	30,400	4		-
28	12,200	4	(24)	-
ub-Total	89,525	32		—
31	10,300	8		3
			(178)	
Grand Total	468,505 ~~474,505~~	140		128

JAN., 1972

JAN. 20 } Adjust. + 4,580 } 14,735 THREE LOADS U.S. STEEL ACID.
21 } MENTS + 10,155 }

483,240

H. W. M. S.
Waste Receipts

February	Gallons	Drums	Solids (Yds.)
1	16,500	4	–
2	20,825	4	–
3	30,200	4	–
4	17,244	–	–
5	7,330	–	–
Sub Total	92,099	12	–
7	7600	16	–
8	28 500	4	–
9	35 636	4	–
10	17205	4	13
11	25 830	–	–
12	–	4	–
Sub. Total	114, 771	32	13
14	17, 483	–	15
15	28, 900	–	–
16	16, 310	–	–
17	24, 995	–	–
18	29, 035	8	–
Sub. Total	116, 723	8	15
21	20, 825	8	–
22	17, 795	4	–
23	23, 980	–	–
24	16, 662	8	–
25	14, 155	–	–
Sub. Total	93, 417	20	–
28	29, 870	7	–
29	22, 385	4	–
Sub. Total	52, 255	11	–
Grand Total	449, 265	83	28

February, 1972

87 drums

3-20
3-21
4-3

H. W. M. S.

WASTE RECEIPTS

MARCH	GALLONS	DRUMS	(Treated)	SOLIDS (Yds.)
1	40,997	–		15
2	22,830	8		–
3	68,365	4		–
ub-Total -	132,192	12		15
6	21,080	4	(16)	–
7	42,440	4	(4)	30
8	24,843	8		–
9	54,000	–	(8)	30
10	35,520	8	(8)	48
11	55,530	–		60
ub-Total -	233,413	24		168
13	37,695	4	(4)	–
14	34,820	4	(4)	–
15	78,655	8		30
16	67,915	4	(8)	–
17	26,465	61	(8)	–
18	16,575	–	(1)	–
ub-Total -	262,125	81		30
20	39,905	–		–
21	20,875	–		–
22	51,825	8		30
23	38,450	8	(16)	15
24	32,995	8	(8)	–
ub-Total -	184,050	24		45
27	56,270	–		–
28	41,120	12	(12)	–
29	35,155	–		–
30	41,065	60		–
31	–	4		15
SUB-TOTAL	173,610	76	(97)	15
GRAND TOTAL	985,390	217		273
March, 1972				

72
" " 4-17-72
" " " 4-24-72
" " " 5-1-72

HYON WASTE MANAGEMENT SERVICES, INC.
WASTE RECEIPTS

APRIL	GALLONS	DRUMS	(Pumped)	SOLIDS (YDS)
3	48,195	4		—
4	23,750	4	(20)	7
5	41,405	4		—
6	29,155	4	(8)	30
7	36,305	—		—
ub-Total	178,810	16		37
10	103,965	8	(8)	—
11	77,295	—		15
12	78,985	—		12
13	67,125	12	(12)	15
14	59,480	—		—
15	5,500	—		—
ub-Total	392,350	20		42
17	64,870	4	(4)	12
18	72,955	39	(4)	—
19	108,170	4		—
20	84,990	4	(8)	—
21	26,210	4		—
ub-Total	357,195	55		12
24	35,510	8	(12)	—
25	22,505	8		—
26	28,380	—	(8)	—
27	28,345	4	(4)	—
28	34,760	4	(4)	—
ub-Total	149,500	24		—
			(92)	
RAND Total	1,077,855	115		91
PRIL, 1972	6,325	55 gal/drum		
	1,084,180	6325		

5-22-72
5-30-72
6-1-72

HYON WASTE MANAGEMENT SERVICES, INC.

Waste Receipts

May	Gallons	(treated) Drums		Solids (yds
1	75,115		—	—
2	34,475	(4)	11	15
3	47,505	(7)	7	—
4	41,270		—	—
5	50,750		4	—
6	37,000		—	—
Sub-Total	286,115		22	15
8	56,040	(4)	—	15
9	54,585	(12)	12	—
10	50,565		59	—
11	94,365		6	[illegible]
12	83,730	(6)	—	—
Sub-Total	339,285		77	15
15	103,915		—	—
16	91,895	(8)	8	—
17	77,965	(22)	4	—
18	76,500		4	—
19	70,610	(4)	14 + 481 gal.	—
20	4,500		—	—
Sub-Total	425,385		30 + 481 gal	—
22	68,825		4	—
23	75,790	(8)	12	—
24	79,739		3 + 153 gal.	15
25	70,980		4	—
26	72,790	(4)	17 + 225 gal.	—
Sub-Total	368,124		40 + 378 gal.	15
30	30,100		- 219 gal.	—
31	68 370	(8)	14	—
Sub-Total.	98,470		14 + 219 gal	—
		(87)		
Grand Total	1,517,379		183 + 1078 gal.	45
May, 1972	11,143 (Drummer addition)			
	1,528,522			

HYON WASTE MANAGEMENT SERVICES, INC.

WASTE RECEIPTS

JUNE	GALLONS	DRUMS		SOLIDS (Yds.)
1	66,550	4		–
2	60,125	–	+ 177 gal.	15
SUB TOTAL	126,675	4	+ 177 gal.	15
5	66,570	4		–
6	61,000	52		–
7	55,075	–	+ 182 gal.	–
8	35,770	4		–
9	59,745	1	+ 110 gal.	–
SUB TOTAL	278,160	61	+ 292 gal.	–
12	29,250	4		15
13	65,990	54		–
14	57,210	11		
15	61,370		+ 191 gal.	–
16	76,795	4		–
SUB TOTAL	290,615	73	+ 191 gal.	15
19	46,800	12		20
20	63,885	–		–
21	80,905	5	+ 190 gal.	–
22	77,750	6		–
23	105,570	13	+ 10 gal.	–
SUB TOTAL	374,910	36	+ 200 gal.	20
26	57,100	45		–
27	89,195	–		–
28	77,625	26	+ 9-30 gal. drums (270) + 240 gal.	20
29	88,730	52		–
30	245,861	52		20
Sub-Total	558,511	175	+ 510 gal.	40

GRAND TOTAL

MONTH OF JUNE, 1972 1,628,871 349 + 1370 gal. 90

20,565 (drums + add'l gals.)

1,649,436

7-17-72
7-24-72
8-1-72

HYON WASTE MANAGEMENT SERVICES, INC.

WASTE RECEIPTS

JULY	GALLONS	DRUMS	SOLIDS (Yds.)
5	86,913	35 + 295 gal. (+8 misc boxes)	—
6	140,092	—	—
7	103,678	4	—
8	30,800	—	—
Sub-Total	361,483	39 + 295 gal.	—
10	90,601	8	20
11	86,675	—	—
12	49,971	15 + 190 gal	—
13	53,586	—	—
14	59,259	—	—
15	52,832	—	10
16	41,701	—	
Sub-Total	434,625	23 + 190 gal.	30
17	91,931	—	—
18	118,622	—	—
19	111,956	90 + 215	—
20	107,814	—	—
21	115,926	—	—
22	32,728	—	—
Sub-Total	578,077	90 + 215 gal.	—
24	52,726	—	—
25	50,554	34	—
26 83962	83,962 minus 6,000 gal. @ no chge.	53 + 5 gal	—
27	87,495	—	—
28	100,964	51 + 250 gal.	—
29	85,522	—	—
Sub-Total	461,223	138 + 255 gal.	—
31	107,721	—	—
Sub-TOTAL	107,721	— —	
GRAND TOTAL JULY, 1972	1,943,129	290 + 955 gal.	30
	15,950 Drums converted (55)		
	955		
	6,000 Solids " (200)		
	1,966,034 Total budget figure		

8-14-72
8-21-72
8-28-72
9-1-72

HWMS WASTE RECEIPTS

August	Gallons	Drums	Solids (Yds.
1	91,694	54	—
2	69,050	—	—
3	72,844	8 + 326	—
4	81,131	—	—
5	16,243	—	—
ub-Total	330,962	62 + 326 gal.	—
7	86,053	4	—
8	88,096	—	—
9	79,088	7 + 175 gal.	—
10	82,561	12	—
11	71,258	4	—
12	20,869	—	
ub-Total	427,925	27 + 175 gal.	—
14	55,902	4	20
15	87,367	6	—
16	61,313	4	—
17	70,681	12 + 365 gal.	—
18	35,635	—	—
19	50,650	—	—
ub-Total	361,548	26 + 365 gal	20
21	59,143	—	—
22	~~71,820~~ 71,625	56	—
23	74,349	3 + 179 gal.	—
24	92,667	—	—
25	76,400	4	—
26	48,242	—	—
ub-Total	~~422,629~~ 422426	63 + 179 gal.	—
28	94,715	—	—
29	75,830	—	—
30	104,193	7 + 306 gal.	—
31	63,038	—	—
	337,776	7 + 306 gal.	—
and Total.	1,880,637	185 + 1351 gal.	20

" 9-18-72
" 9-25-72
" 10-2-72

HWMS WASTE RECEIPTS

September	Gallons	Drums	Solids (Yds.)
1	76,880	-	-
2	35,045	-	-
Sub-Total	111,925	—	—
5	65,890	-	-
6	86,497	2 + 291	-
7	98,830	—	—
8	92,114	8	—
9	56,800	-	—
Sub-Total	400,131	10 + 291	—
11	68,823	—	—
12	53,944	63	—
13	98,242	6 + 269	—
14	78,015	—	—
15	66,400	—	—
16	41,785	—	—
Sub-Total	407,209	69 + 269	—
18	99,546	12	20
19	69,240	—	-
20	80,144	10 + 280	-
21	66,352	4	—
22	78028	66	—
23	78,482	—	—
Sub Total	471,792	92 + 280	20
25	78,698	—	—
26	110,466	-	—
27	92,435	4	—
28	41,130	13 + 525	-
29	87,742	4	—
30	93,790	—	—
Sub-Total	504,261	21 + 525	—
Grand Total	1,895,318	192 + 1365	20

1,911,248

10-16-72
10-23-72 HUMS WASTE RECEIPTS
10-30-72
11-2-72

October	Gallons	Drums	Solids (yds)
2	76,920	4	—
3	94,958	—	—
4	68,910	8	—
5	70,197	4 + 858* gal.	—
6	27,885	—	—
7	33,675	—	—
Sub-Total	372,545	16 + 858 gal.	—
9	68,003	4	—
10	42,150	4	—
11	82,924	13 + 264 gal.	—
12	93,897	4	15
13	90,515	4	—
Sub-Total	377,489	29 + 264 gal.	15
16	73020	—	—
17	80463	57	—
18	86310	14 + 180 gal.	—
19	79,300	—	—
20	99,869	4	—
21	53,979	—	—
Sub-Total	472,941	75 + 180 gal.	—
23	71,950	—	—
24	69,800	8	—
25	88,700	8 + 1154 gal.	20
26	52,420	8	—
27	78,300	—	—
28	19,200		
Sub-Total	380,370	24 + 1154 gal.	20
30	72,700	—	—
31	59,105	60	20
Sub-Total	131,805	60	20
Grand Total	1,735,150	204 + 2456 gal.	55

* Includes 5 drums - 3/4 full = 210 gal.

11-13-72
11-20-72 HWMS WASTE RECEIPTS
11-27-72
12-1-72

November	Gallons	Drums	Solids (Yds.)
1	107,000	9 + 445 gal.	—
2	112,650	11	—
3	121,700	16	—
4	27,300	—	—
Sub-Total	368,650	36 + 445 gal.	—
6	91,120	—	—
7	81,560	4	—
8	127,470	15 + 325 gal.	—
9	105,850	12 + 60 gal.	30
10	98,400	62 + 5 gal.	—
11	51,300	—	—
Sub-Total	555,700	93 + 390 gal.	30
13	68,600	—	—
14	84,680	—	—
15	115,800	87 + 320 gal.	—
16	104,425	—	—
17	73,400.	—	—
18	23,650	—	—
19	9,345	—	—
Sub-Total	479,900	87 + 320 gal	—
20	150,840	8	20
21	155,240	4	—
22	136,450	4	—
24	163,600	—	—
25	34,825	—	—
Sub-Total	640,955	16	20
27	91,250	43 + 242 gal.	—
28	79,184	10	—
29	106,255	66 + 85 gal	—
30	95,300	4	—
Sub-Total	371,989	123 + 327 gal.	—
Grand Total.	2,417,194	355 + 1482 gal.	50

" " " 12-16-72
" " " 12-26-72
" " " 1-2-73

HWMS WASTE RECEIPTS

December	Gallons	Drums	Solids (Yd
1	55,975	7	—
2	48,993	—	—
3	8,876	—	—
Sub-Total	113,844	7	—
4	98,144	4	—
5	92,135	4	—
6	79,850	4	—
7	72,805	19 + 20 gal.	—
8	47,143	8	—
9	38,787	—	—
10	5,131	—	—
Sub-Total	433,995	39 + 20 ~~gal.~~	
11	51,644	—	—
12	54,710	8	—
13	85,924	8	—
14	96,315	16 + 440 gal.	—
15	90,800	4	—
16	58,825	—	—
17	32,900	—	—
Sub-Total	471,118	36 + 440 gal.	—
18	86,208	47	—
19	70,982	—	—
20	104,027	15 + 238 gal.	
21	151,762	68	—
22	153,985	4	—
23	67,691	—	—
Sub-Total.	634,655	134 + 238 gal.	—
26	84,752	4	—
27	70,928	4	—
28	105,244	8	—
29	89,692	4 + 11 containers	—
30	70,032	—	—
Sub-Total	420,648	20 + 11 Containers	—
			—
Grand Total.	2,074,260	236 + 698 gal. + 11 Containe	

11-26-10

APPENDIX 3

TO

OPERATING REPORT OF
HYON WASTE MANAGEMENT SERVICES, INC.

FOR

YEAR ENDING DECEMBER 31, 1972

SUBJECT:

MONITORING OF LAKE CALUMET, WATER QUALITY
ADJACENT TO HYON WASTE MANAGEMENT SITE.

INTERNATIONAL HYDRONICS CORPORATION

LAKE CALUMET WATER QUALITY

A program of sampling and analyses of Lake Calumet water surrounding the site of HWMS activities was initiated in March 1972, and after some preliminary trials was formalized into a weekly procedure.

An attached sketch indicates the control sample points. Samples were taken from shore from March 7 through April 28, at a distance 4 - 8' from shore, 18" to 24" in depth. Thereafter, samples were taken from a boat 20 feet from shore at a depth of 16 inches.

The results of these analyses are attached.

SAMPLE LOCATION	DATE 1972	TIME	SAMPLE TEMP. (°C)	COLOR	ODOR	pH	ALK. OR ACIDITY (MEQ/L) TO TEMP	COND. (μ mhos/cm)	COD (mg/l)	BOD (mg/l)	TOTAL SOLIDS (mg/l)	TOTAL ASH (mg/l)	TOT VOLATILE (mg/l)
#1	3/7	~15:00	NOT TAKEN	V.V. PAINT WHITE SLUDGY	NONE	7.95	NOT DONE	475	97.2 T		374	311	63
#3	3/9	~9:30	4.0	"	"	8.34	"	530	35 T		530	440	90
#1	3/9	~9:30	4.0	"	"	8.49	"	530	23 T		—	—	—
END	3/9	~9:30	4.0	"	"	8.68	"	550	20 T		396	326	70
#3	3/10	~15:00	6.8	"	"	8.20	"	595	10 T	✓	—	—	—
#1	3/10	~15:00	6.8	"	"	8.25	"	605	4 T	✓	—	—	—
END	3/10	~15:00	6.8	"	"	8.31	"	675	16.7 T	✓	—	—	—
#5	3/15	~9:00	4.0	"	"	7.88	"	625	—		448	412	36
#3	3/15	~9:00	3.8	"	"	7.91	"	625	3.9 T		372	359	13
#1	3/15	~9:00	3.8	"	"	7.83	"	610	6.0 T		386	360	26
E_1	3/15	~9:00	4.0	"	"	7.92	1.5	625	0.6 T		380	379	1
E_2	3/15	~9:00	4.0	"	"	7.88	NOT DONE	625	1.5 T		361	361	0
E_3	3/15	~9:00	4.0	"	"	7.84	"	610	10.2 T		415	357	58
#5	3/17	~9:30	4.0°	"		7.82	0.88	725	114 T		562	473	89
#4	3/17	~9:30	3.5	"		7.73	NOT DONE	700	99 T		509	419	90
#3	3/17	~9:30	3.8	"		7.78	"	700	34 T		522	418	104
#2	"	~9:30	3.2	"		7.68	"	710	97 T		531	413	118
#1	"	~9:30	3.8	"		7.70	"	700	27 T		500	391	109
E_3	3/17	~9:30	4.0°	"		7.72	"	700	21 T		487	411	76

+ [illegible]

[illegible]ATION	DA 1972	TIME	[illegible] TEMP	COLOR	ODOR	Ph	[illegible] Acidit [illegible]	COND (μ m Hg/cm)	COD (mg/l)	[illegible]	[illegible] (mg/l)	[illegible]	[illegible]
E2	3-24	15:00	5.2	Cloudy	None	9.02	No [illegible]	750	34.3		551	46[illegible]	8[illegible]
1	3-24	15:00	5.0	"	"	9.0[illegible]		72[illegible]	16.3		574	513	61
2	3-24	15:00	5.2	"	"	9.05		710	18.2		533	463	70
3	3-24	15:00	5.0	"	"	9.10		710	18.0		518	480	38
4	3-24	15:00	5.0	"	"	9.1[illegible]		710	14.5		539	480	59
5	3-24	15:00	5.0	"	"	9.1[illegible]		810	11.9		664	591	73
E2	3-30	15:00	5.0	"		8.52		800	28.6		660	548	112
1	3-30	1500	5.0	"	"	8.4[illegible]		750	31.3		640	566	74
2	3-30	1500	4.6	"	"	8.41		720	22.3		692	555	137
3	3-30	1500	5.0	"	"	8.40		780	22.9		650	565	85
4	3-30	1500	5.0	"	"	8.43		750	12.5		727	628	99
5	3-30	1500	5.0	"	"	8.42		770	31.7		849	721	128
E2	4-5	1600	10.2	"	"	8.01		860	38.8		1037	744	293
1	4-5	1600	9.2	"	"	7.98		810	31.5		1002	737	265
2	4-5	1600	8.1	"	"	7.83		720	26.5		1294	1028	256
3	4-5	1600	9.1	"	"	8.0[illegible]		810	36.6		1811	1269	542
4	4-5	1600	10.9	"	"	8.01		720	19.8		1289	671	618
5	4-5	1600	10.1	"	"	7.91		[illegible]	22.0		1275	752	523

SAMPLE STATION	DATE 1972	TIME	SAMPLE TEMP (°C)	COLOR	ODOR	pH	ALKALINITY (MEQ/L) To 7.00 pH	COND. (μmhos/cm)	COD (mg/L O2)	BOD (mg/L)	TOTAL SOLIDS (mg/L)	TOTAL ASH (mg/L)	[illegible]
	4-13-72	14:00	14.5	clear	none	7.87	—	755	33.7		711	6[illegible]	91
1	4-13-72	14:00	14.0	"	"	7.80	—	750	31.1		647	5[illegible]	86
2	4-13-72	14:00	13.2	"	"	7.85	0.69	650	18.2		618	6[illegible]0	49
3	4-13-72	14:00	14.0	"	"	7.80	—	700	29.9		same	same	—
4	4-13-72	14:00	15.0°	"	"	7.82	—	625	24.9		856	757	99
5	4-13-72	14:00	13.8°	"	"	7.79	—	675	20.6		737	600	137
2	4-14-72	14:50	12.6			8.02		790	26.2		683	539	144
1	4-14-72	14:00	13.4			8.20		790	29.5		637	545	92
2	4-14-72	14:00	13.1			8.54		740	18.4		610	528	82
3	4-14-72	14:00	13.3			8.42		780	25.5		654	525	129
4	4-14-72	14:50	13.1			8.40		740	24.7		601	499	102
5	4-14-72	14:00	13.0			8.45		720	16.8		659	502	157
	4-28	10:00	12.0	cloudy	none	8.24	—	700	29.0		626	464	162
1	4-28	10:00	11.8	"	"	8.38	—	700	30.3		659	482	157
2	4-28	10:00	12.0	"	"	8.51	—	650	25.3		647	489	158
3	4-28	10:00	12.0	"	"	8.52	+	700	≥33		647	476	171
4	4-28	10:00	12.2	"	"	8.59	—	650	32.8		680	521	151
5	4-28	10:00	12.2	"	"	8.51	—	675	20.3		571	439	132

SAMPLE LOCATION	DATE 1972	TIME	SAMPLE TEMP (°C)	COLOR	ODOR	pH	[illegible] (MEQ/L) TO 7.00 pH	COND. (μmhos/cm)	COD (mg/L)	BOD (mg/L)	TOTAL SOLIDS (mg/L)	TOTAL ASH (mg/L)	[illegible]
E2	5-5-72	14:00	17.2	clear vvsl gray	odorless	8.49	ND	650	23.5		524	361	163
1	5-5-72	14:15	17.5	clear vvsl gray	odorless	8.55	ND	675	20.6		545	376	169
2	"	16:00	18.6	vvsl gray clear	odorless	8.43	ND	625	19.3		558	377	181
3	"	14:30	16.5	vvsl gray clear	odorless	8.53	ND	600	23.7		531	359	172
4	"	14:45	17.8	vvsl gray clear	odorless	8.53	ND	590	14.6		499	325	174
5	5-5-72	15:00	16.3	vvsl gray clear	odorless	8.50	ND	590	28.6		576	419	157
E2	5-11-72	14:30	9.6	"	"	7.50	ND	640	22.0		496	344	15[illegible]
1	5-11-72	14:35	15.0	"	"	7.93	ND	600	20		516	355	1[illegible]
2	5-11-72	15:20	15.9	"	"	7.92	ND	720	19.0		606	452	154
3	5-11-72	14:40	16.0	"	"	7.95	ND	610	22.0		442	347	95
4	5-11-72	16:00	16.0	"	"	8.02	18 to [illegible]	720	21.0		611	454	157
5	5-11-72	15:00	15.8	"	"	7.80	ND	640	18.0		542	368	174
E2	5-17-72	14:40	19.3	vvsl gray cloudy	vvsl fishy odor	7.90	ND	625	24		554	454	100
1	5-17-72	14:50	19.9	"	"	8.30	ND	610	25		505	406	99
2 [illegible]	5-18-72	0930		"	"	7.71	ND	790	26		673	541	132
3	5-17-72	15:00	20.6	vvsl gray cloudy	vvsl fishy odor	8.28	ND	625	20		491	396	95
4	5-17-72	15:20	18.2	"	"	8.20	ND	600	27		576	471	105
[illegible]	5-17-72	15:10	20.4	"	"	8.44	0.65	610	23		514	427	87
	5/21	15:35	22.7	sl gray v cloudy	none	7.72	ND	600	21.7		43	—	—

SAMPLE LOCATION	DATE 1972	TIME	SAMPLE TEMP (°C)	COLOR	ODOR	pH	(MEQ/L) TO 7.00 pH	COND. (µmhos/cm)	COD (mg/l)	BOD (mg/l)	TOTAL SOLIDS (mg/l)	TOTAL ASH (mg/l)	[illegible]
2	5/25	07:30	22.4	sl gray v cloudy	sl fishy	8.20	ND	660	23.8		541	47[illegible]	71
3	5/24	15:30	22.3	sl gray v cloud.	none	8.01	ND	600	25.0		497	383	114
4	5/24	15:00	23.3	"	"	8.10	ND	600	25.2		526	198	328
5	5/24	15:15	23.6	"	"	8.21	1.35 to 6.73, to 7.19 after	560	15.5		462	378	84
6	5/24	15:40	22.6	"	"	8.06	ND	590	24.3		523	395	128
1	6/2	16:45	20.0	sl gray v cloudy	none	7.56	ND	560	10.8		592	478	114
2	6/2	16:00	ND	"	sl fishy	7.62	ND	560	26.2		520	— +	—
3	6/2	16:40	20.3	"	none	7.80	ND	550	21.7		561	444	11
4	6/2	16:10	ND	"	sl fishy	7.86	ND	550	15.9		537	424	11
5	6/2	16:20	21.5	"	none	7.92	ND	530	10.8		518	399	11
	6/2	16:50	21.0	"	"	8.01	1.81 to 6.82	570	15.4		548	486	6[illegible]
	6/2	10:40	20.0	"	"	8.10	ND	520	17.4		464	375	89
2	6/2	09:50	20.3	"	none	8.08	ND	510	12.9		423	349	7
3	6/2	10:25	21.0	"	none	8.11	ND	510	13.7		471	358	11
4	[illegible]	09:55	21.0	"	none	8.09	ND	490	12.4		419	323	96
5	[illegible]	10:10	21.4	"	none	8.08	ND	~450	7.2		391	301	9
	[illegible]	10:50	20.5	"	none	8.09	ND	540	28.8		502	387	11

T [illegible]

[illegible]LE [illegible]ATION	DATE 1972	TIME	SAMPLE TEMP (°C)	COLOR	ODOR	pH	[illegible] (MEQ/L) To 7.00 pH	COND. (μmhos/cm)	COD (mg/l)	BOD (mg/l)	TOTAL SOLIDS (mg/l)	TOTAL ASH (mg/l)	[illegible]
1	6-16	15:50	21.7	SL. GREY V. CLOUDY	LAKE MICH. SL. FISHY	7.91	N.D.	490	54.6		319	223	9
2	"	15:10	21.4	"	"	8.11	ND	480	52.4		368	294	7
3	"	15:40	20.2	"	"	7.93	ND	480	48.4		437	359	7
4	"	15:20	21.1	"	"	8.14	ND	480	54.8		467	334	3
5	"	15:30	21.2	"	NONE	8.21	1.5 to pH = 6.32	470	52.8		268	172	9
E_2	"	16:00	21.5	"	NONE	8.30	ND	500	47.2		402	318	8
1	6-23	11:50	15.7	SL. GREY V. CLOUDY	SLIGHT FISHY	8.26	ND	550	20.5		455	333	122
2	"	11:20	15.6	"	"	8.30	ND	560	23.8		423	342	76
3	"	11:45	15.3	"	"	8.22	ND	550	15.7		422	352	70
4	"	11:25	15.7	"	"	8.32	ND	560	23.0		424	343	81
5	"	11:35	14.7	"	NONE	8.30	ND	540	19.9		450	364	86
E_2	"	12:00	N.D.	"	SL. FISHY	8.10	1.5 to 6.22 pH	540	23.3		446	367	89
1	6/30	11:55	22.3	SL GRAY V CLOUDY	NONE	8.05	ND	480	27.2		414	301	113
2	"	11:15	24.0	"	"	8.11	ND	460	37.8		356	230	126
3	"	11:45	22.0	"	"	8.12	ND	560	26.4		447	276	141
	"	[illegible]	23.5	"	"	8.14	ND	52[illegible]	25.8		416	321	95
		11:30	23.0	"	"	8.12	ND	440	25.0		424	339	125
		12:[illegible]	24.4	"	"	8.17	ND	550	25.7		438	324	114

SAMPLE LOCATION	DATE 1972	TIME	SAMPLE TEMP (°C)	COLOR	ODOR	pH	(MEQ/L) To 7.00 pH	(µmhos/cm)	COD (mg/l)	BOD (mg/l)	TOTAL SOLIDS (mg/l)	ASH (mg/l)	[illegible]
	7/7	10:55	20.4	[illegible]	NONE	8.19	ND	520	31.9		320	218	[illegible]
	7/7	[illegible]	20.9	"	"	8.13	ND	<20	350		365	255	[illegible]
	7/7	10:45	20.3	"	"	8.20	ND	520	22.6		343	230	[illegible]
	7/7	10:21	20.9	"	"	8.22	0.4	674	40.5		358	221	[illegible]
	7/7	10:23	20.4	"	[illegible]	8.13	ND	515	31.2		363	239	134
	7/7	11:00	20.5	"	NONE	8.20	ND	520	32.4		394	32	[illegible]
	7/11	[illegible]	26.2	"	NONE	8.17	0.73	480	28.8	2.83 meq/l HCO_3^-	448	252	19
	7/14	"	27.9	SLIGHTLY [illegible]	"	8.17	ND	480	29.8		491	272	21
	7/14	"	26.8	"	"	8.20	ND	490	30.9		519	244	25
	7/14	"	26.8	"	"	8.20	ND	480	20.2		507	268	25
	7/14	"	26.7	"	"	8.13	ND	500	25.3		486	260	22
	7/21	"	27.6	"	"	8.19	ND	490	21.4		481	211	24
	7/21	[illegible]	28.1	[illegible]	NONE	8.22	ND	490	50.4		575	372	[illegible]
2	7/21	"	28.7	"	[illegible]	8.21	ND	520	24.4		416	280	1[illegible]
3	7/21	"	[illegible]	"	"	8.21	ND	[illegible]	21.3		>338 407	187 239	15 16
[illegible]			[illegible]			[illegible]	ND	[illegible]	25.2		[illegible]	[illegible]	[illegible]
[illegible]			28.0			8.20	[illegible]	[illegible]	[illegible]		[illegible]	190	[illegible]
			28.0			[illegible]	[illegible]	[illegible]	30.0		>336 709	243 144	9 56
										settled 3 days			

...ATION	1972	SAMPLE TEMP. (°C)	COLOR	ODOR	CONDUCTIVITY (µmhos/cm)	pH	...OR ACIDITY (MEQ/L)	COD (mg/l)	BOD	RESIDUE (mg/l)	ASH (mg/l)	VOLATILE (mg/l)
1	7-28	21.5	VIVID GREY	ODORLESS	395	8.43	[illegible]	28.2	[illegible]	307	193	109
2	7-28	20.6	"	"	440	8.10	"	27.8	"	362	236	76
3	7-28	21.8	"	"	455	8.33	"	42.5	"	327	228	99
4	7-28	21.4	"	"	425	8.01	"	29.7	"	344	219	125
5	7-28	20.9	"	"	385	8.00	"	19.0	"	254	114	140
E_2	7-28	21.8	"	"	455	8.33	"	23.0	"	349	225	124

See error analyses under [illegible] work for expected errors [illegible]

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		(°C)	(ppm)		(mg/L) (mmol/L)	(mmol/L)	(mmol/L)	(mg/L)	(µmhos/cm)	(subjective)	(subjective)	(JTU)	RESIDUE	ASH	VOL.
[illegible]		[illegible]	[illegible]	[illegible]	-0-	2.37	Trace	32.0	[illegible]	None	Sl Gray Cloudy	36	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	2.37	-0-	2.40	Trace	45.2	440	None	Sl Gray Cloudy	58	214	[illegible]	[illegible]
2/14		[illegible]	[illegible]	2.49	ND	—	—	34.4	500	Sl Fishy	Sl Gray Cloudy	50	[illegible]	[illegible]	42
8/21		[illegible]	[illegible]	[illegible]	ND	—	—	33.0	430	Sl Fishy	Sl Gray Cloudy	25	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	2.47	-0-	2.34	Trace	34.2	420	None	Sl Gray Cloudy	30	325	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	2.37	ND	—	—	35.8	410	None	Sl Gray Cloudy	50	317	[illegible]	[illegible]
8/11		[illegible]	[illegible]	[illegible]	-0-	2.44	-0-	45.6	475	Sl Fishy	Sl Gray Cloudy	54	354	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	2.14	-0-	2.44	-0-	33.2	[illegible]	Sl Fishy	Sl Gray Cloudy	53	303	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	33.6	[illegible]	Sl Fishy	Sl Gray Cloudy	50	503	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	2.77	ND	—	—	39.1	42[illegible]	Sl Fishy	Sl Gray Cloudy	52	398	[illegible]	103
[illegible]		[illegible]	[illegible]	[illegible]	-0-	[illegible]	-0-	25.8	[illegible]	Sl Fishy	Sl Gray Cloudy	54	407	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	39.4	46[illegible]	Sl Fishy	Sl Gray Cloudy	47	210		
8/17	[illegible]	↑	↑	8.50	1.50	—	0.0179	49.7	360	None	Sl gray cloudy	78	33[illegible]	[illegible]	152
[illegible]				8.32	2.12	—	0.0127	52.1	370	Sl Fishy	Sl gray cloudy	47	[illegible]	[illegible]	105
[illegible]				[illegible]	ND	—	—	59.2	37[illegible]	None	Sl gray cloudy	31	[illegible]	[illegible]	170
[illegible]				8.50	ND	—	—	[illegible]	3[illegible]0	None	[illegible]	40	[illegible]	[illegible]	154
[illegible]				[illegible]	[illegible]	—	[illegible]	[illegible]	37[illegible]	None	[illegible]	50	358	[illegible]	155
[illegible]				[illegible]	[illegible]	—	—	[illegible]	430	None	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH (mg/L) (mmol/L)	HCO_3 (mmol/L)	CO_3 (mmol/L)	COD OF FILTRATE (mg/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURB. (JTU)	RESIDUE	ASH	VOLA
	8/25		[illegible]	[illegible]	[illegible]	-0-	2.08	-0-	27.6	470	NONE	Sl gray v cloudy	56	290	6	224
	8/25		25.1	[illegible]	8.10	-0-	2.12	-0-	63.1	450	NONE	Sl gray v cloudy	42	316	168	148
	8/25		25.3	8.4	8.29	ND	—	—	54.3	470	NONE	Sl gray v cloudy	49	296	228	68
	8/25		25.8		8.00	ND	—	—	54.7	450	NONE	Sl gray v cloudy	56	283	8	272
	8/25		25.3	8.4	7.65	-0-	2.16	-0-	46.8	420	NONE	Sl gray v cloudy	49	280	56	224
	8/25		26.1		8.00	ND	—	—	57.4	470	NONE	Sl gray v cloudy	59	278	30	248
1	9/5	[illegible]	[illegible]	[illegible]	[illegible]	-0-	2.49	Trace	32.8	520	NONE	brownish v cloudy	83	338	314	24
2	9/5		18.2	1.5	[illegible]	-0-	2.19	0.048	23.0	470	NONE	brownish v cloudy	60	318	224	94
3	9/5		19.3	[illegible]	7.67	ND	—	—	35.8	500	NONE	brownish v cloudy	78	340	120	220
4	9/5		[illegible]	2.6	[illegible]	ND	—	—	24.5	470	NONE	brownish v cloudy	60	276	92	184
5	9/5		[illegible]	[illegible]	[illegible]	-0-	2.29	-0-	49.2	450	NONE	Sl gray v cloudy	50	440	378	62
6	9/5		12.6	2.4	[illegible]	-0-	2.14	0.068	38.0	470	NONE	brownish v cloudy	72	472	386	96
S_2	9/5		18.7	[illegible]	[illegible]	ND	—	—	47.3	520	NONE	Sl gray v cloudy	84	314	228	26
1	9/8	[illegible]	[illegible]	7.7	8.67	-0-	2.32	0.079	38.6	490	LAKE MICHIGAN	Sl gray v cloudy	85	430	392	38
2	9/8		20.0	8.0	[illegible]	-0-	2.37	0.040	33.3	450	LAKE MICHIGAN	Sl gray v cloudy	79	278	202	76
3	[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	[illegible]	480	SLIGHT	Sl gray v cloudy	[illegible]	328	244	74
4			[illegible]	[illegible]	[illegible]	ND	—	—	37.4	470	LAKE MICHIGAN	Sl gray v cloudy	[illegible]	[illegible]	272	34
5			[illegible]		[illegible]	-0-	[illegible]	[illegible]	[illegible]	450	SLIGHT	Sl gray v cloudy	[illegible]	[illegible]	270	34
			[illegible]	[illegible]	[illegible]	-0-	[illegible]	[illegible]	[illegible]	480	LAKE MICHIGAN	Sl gray v cloudy		[illegible]	[illegible]	[illegible]
				[illegible]	[illegible]	[illegible]					SLIGHT	Sl gray		[illegible]	[illegible]	[illegible]

DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (mmol/L)	HCO_3^- (mmol/L)	$CO_3^=$ (mmol/L)	COD OF FILTRATE (mg/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	[illegible] (JTU)	RESIDUE	ASH	VOL
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0-	2.40	trace	[illegible]	460	None	sl gray v cloudy	94	[illegible]	[illegible]	[illegible]
[illegible]	"	[illegible]	[illegible]	8.52	-0-	2.37	trace	[illegible]	[illegible]	None	sl gray v cloudy	75	360	256	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	[illegible]	440	None	sl gray v cloudy	90	372	118	254
[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	[illegible]	440	None	sl gray v cloudy	67	[illegible]	242	[illegible]
[illegible]	"	[illegible]	[illegible]	8.56	-0-	2.32	0.013	32.0	450	None	sl gray v cloudy	53	366	10	356
[illegible]	"	[illegible]	[illegible]	[illegible]	-0-	2.22	0.071	33.1	460	None	sl gray v cloudy	62	390	206	184
[illegible]	"	[illegible]	[illegible]	[illegible]	ND	—	—	42.3	470	None	sl gray v cloudy	91	374	[illegible]	108
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0-	2.37	0.089	55.8	401 *	None	sl gray v cloudy	73	330	224	106
[illegible]	"	[illegible]	[illegible]	[illegible]	-0-	2.44	0.069	46.8	342	None	sl gray v cloudy	[illegible]	318	170	148
[illegible]		[illegible]	[illegible]	[illegible]	ND	—	—	47.8	386	None	sl gray v cloudy	70	356	278	78
[illegible]	"	[illegible]	[illegible]	[illegible]	ND	—	—	66.1	351	None	sl gray v cloudy	69	368	242	126
[illegible]	"	[illegible]	[illegible]	8.43	-0-	2.4[illegible]	0.061	44.7	400	None	sl gray v cloudy	59	336	224	[illegible]
[illegible]		17.9	[illegible]	8.40	-0-	2.40	[illegible]	49.0	357	None	sl gray v cloudy	[illegible]	332	198	164
[illegible]		[illegible]	[illegible]	8.58	ND	—	—	64.2	[illegible]	None	sl gray v cloudy	77	436	270	166

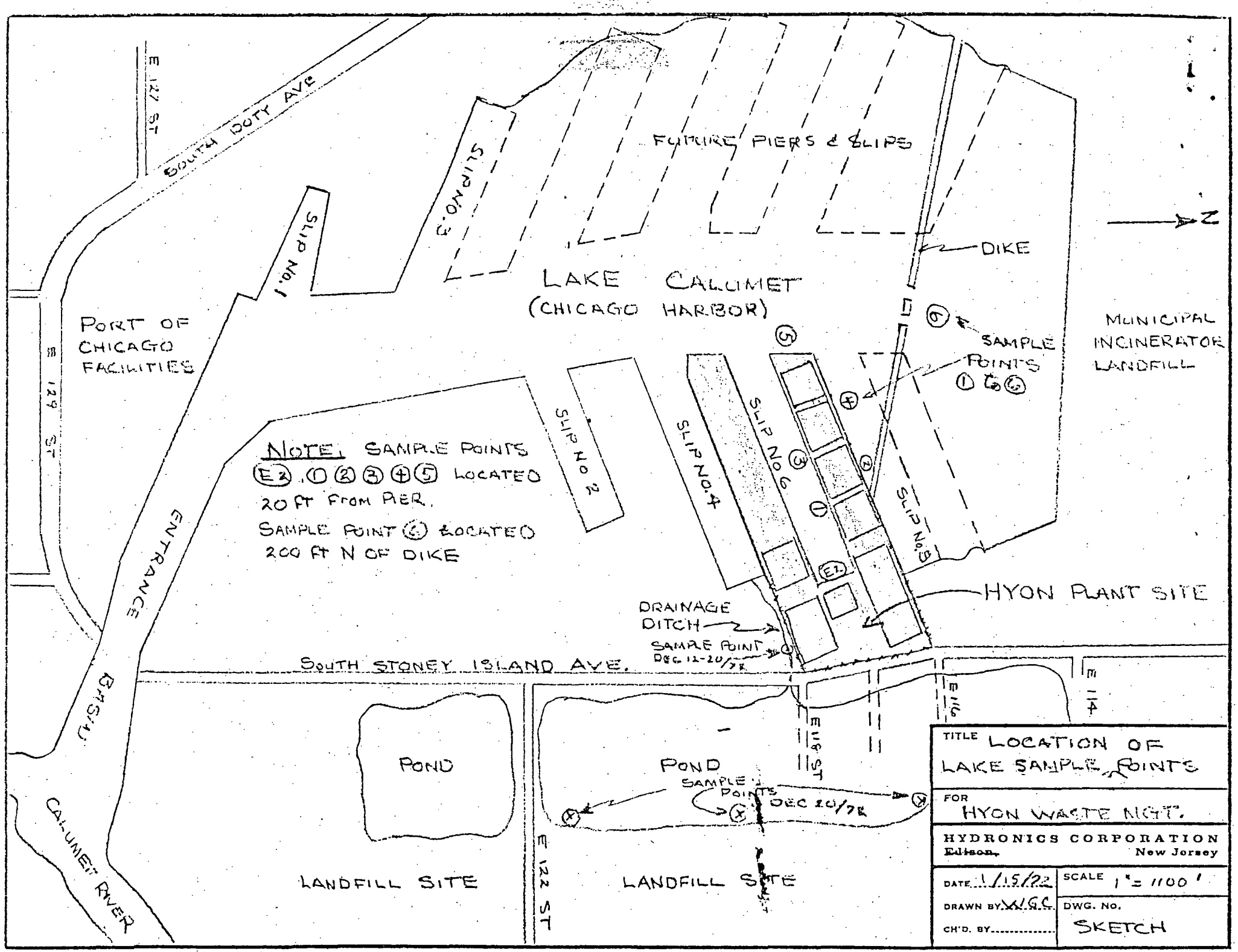
DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (meq/L) (mmol/L)	HCO_3^- (mmol/L)	$CO_3^=$ (mmol/L)	COD OF FILTRATE (mg/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURBIDITY (JTU)	DISSOLVED RESIDUE	DISSOLVED ASH	DIS VOL
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0-	2.35	-0-	30.5	354	NONE	sl gray v cloudy	80	432	340	92
[illegible]		[illegible]	[illegible]	[illegible]	-0-	2.28	0.073	21.8	350	NONE	sl gray v cloudy	68	372	220	92
[illegible]	"	[illegible]	8.7	[illegible]	ND	—	—	20.5	370	NONE	sl gray v cloudy	60	606	536	70
[illegible]	"	[illegible]	[illegible]	[illegible]	ND	—	—	24.4	346	NONE	sl gray v cloudy	63	414	382	30
[illegible]		[illegible]	[illegible]	[illegible]	-0-	2.31	0.054	[illegible]	347	NONE	sl gray v cloudy	85	337	302	36
[illegible]		11.7	[illegible]	[illegible]	ND	—	—	21.8	355	NONE	sl gray v cloudy	73	350	326	24
[illegible]		[illegible]	[illegible]	8.40	-0-	2.2[illegible]	0.043	24.2	373	NONE	sl gray v cloudy	78	380	285	[illegible]
13/5	10:30-11:30	16.7		8.20	-0-	3.15	-0-	53.5	371	NONE	sl gray v cloudy	56	446	100	346
13/5	"	16.7		8.29	-0-	2.74	-0-	52.0	368	NONE	sl gray v cloudy	48	348	216	132
[illegible]	"	17.0		8.30	ND	—	—	43.3	357	NONE	sl gray v cloudy	56	322	90	232
[illegible]	"	17.0		8.29	ND	—	—	39.8	375	NONE	sl gray v cloudy	57	316	218	72
13/5	"	17.7		8.17	-0-	2.56	-0-	42.1	362	NONE	sl gray v cloudy	57	260	104	156
[illegible]	"	16.7		[illegible]	-0-	3.08	-0-	55.2	369	NONE	sl gray v cloudy	69	272	20	202
[illegible]	"	16.6		8.27	ND	—	—	30.2	380	NONE	sl gray v cloudy	58	277	226	50

DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (mg/L) (mmol/L)	HCO_3^- (mg/L) (mmol/L)	$CO_3^=$ (mg/L) (mmol/L)	COD OF FILTRATE (mg/L)	CONDUCT. (μmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURBIDITY (JTU)	DISSOLVED RESIDUE mg/L	DISSOLVED ASH mg/L	DIS VOL mg/L
[illegible]		[illegible]	[illegible]	[illegible]	-0-	2.43	-0-	43.3	351	None	sl gray v cloudy	107	258	252	4
10/12		[illegible]	[illegible]	[illegible]	-0-	2.39	-0-	22.8	303	None	sl gray v cloudy	87	274	252	22
10/12		[illegible]	5.5	8.16	ND	—	—	25.2	300	None	sl gray v cloudy	94	312	296	16
[illegible]		[illegible]	[illegible]	8.10	ND	—	—	18.7	358	None	sl gray v cloudy	72	270	266	4
10/12		[illegible]	[illegible]	8.20	-0-	2.44	-0-	24	360	None	sl gray v cloudy	87	286	278	8
[illegible]		[illegible]	[illegible]	8.21	-0-	2.39	trace	15.6	349	None	sl gray v cloudy	80	250	248	2
[illegible]		14	[illegible]	8.06	ND	—	—	29.6	372	None	sl gray v cloudy	100	338	322	16
10/13	[illegible]	7.3	11.0	8.44	-0-	2.47	trace	30.2	390	None	sl gray v cloudy	62	412	226	186
10/13		12.3	[illegible]	8.41	-0-	2.16	trace	58.4	365	Slight	sl gray v cloudy	47	234	14	214
10/13		7.5	12.3	8.42	ND	—	—	43.8	377	None	sl gray v cloudy	50	310	210	84
10/13		8.8	12.4	8.40	ND	—	—	31.0	352	None	sl gray v cloudy	49	312	100	212
10/13		9.6	11.0	8.31	-0-	2.40	trace	32.8	373	slight	sl gray v cloudy	44	400	320	80
[illegible]		7.3	11.5	8.56	-0-	2.49	trace	43.3	368	None	sl gray v cloudy	57	432	218	214
[illegible]		7.7	[illegible]	8.51	ND	—	—	31.2	305	None	sl gray v cloudy	63	320	152	168

DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (mEq/L) (mmol/L)	HCO_3^- (mmol/L)	$CO_3^=$ (mmol/L)	COD OF FILTRATE (mg/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURBIDITY (JTU)	RESIDUE mg/l	ASH mg/l	VOL.
10/27	[illegible]	9.1	10.6	8.13	-0-	2.42	-0-	42.5	360	None	sl gray v cloudy	61	290	258	2
10/27		9.2	10.4	8.30 ~~8.30~~	-0-	2.43	-0-	40.5	379	slight	sl gray v cloudy	61	312	292	20
10/27	"	9.1	10.2	8.20 ~~8.22~~	-0-	—	—	41.2	395	Slight	sl gray v cloudy	61	304	298	6
10/27	"	10.1	10.0	8.20 ~~8.22~~	-0-	—	—	46.3	390	None	sl gray v cloudy	52	362	348	14
10/27	"	9.9	9.8	8.18 ~~8.25~~	-0-	1.87	-0-	41.2	390	None	sl gray v cloudy	48	428	406	32
10/27	"	9.3	10.8	8.28 ~~8.23~~	-0-	2.46	-0-	41.8	372	Slight	sl gray v cloudy	44	412	384	28
10/27		9.4	10.4	8.13	-0-	—	—	56.2	382	slight	sl gray v cloudy	52	428	352	76
11/3	11:45-12:[illegible]	9.4	9.1	8.26	-0-	1.97	-0-	64.5	413	slight	sl gray v cloudy	79	484	370	114
11/3	"	10.0	[illegible]	8.22	-0-	2.33	-0-	50.4	417	Slight	sl gray v cloudy	39	464	400	64
11/3	"	9.8	1.2	8.24	-0-	—	—	74.6	419	slight	sl gray v cloudy	65	398	308	[illegible]
11/3	"	10.3	[illegible]	8.22	-0-	—	—	60.3	421	slight	sl gray v cloudy	50	742	634	[illegible]
11/3	"	11.2	[illegible]	8.22	-0-	2.36	-0-	49.1	410	None	sl gray v cloudy	31	362	240	122
11/3	"	8.8	1.9	8.25	-0-	2.30	-0-	52.0	402	None	sl gray v cloudy	48	722	630	92
11/3	"	9.2	9.2	8.18	-0-	—	—	65.4	425	slight	sl gray v cloudy	63	[illegible]	752	142

DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (mEq/L) (mmol/L)	HCO_3^- (mmol/L)	$CO_3^=$ (mmol/L)	COD OF FILTRATE (mE/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURBIDITY (JTU)	DISSOLVED RESIDUE mg/l	DISSOLVED ASH mg/l	DIS VO mg/l
[illegible]	[illegible]	8.1	5.0	[illegible]	— 0 —	2.38	~ 0 ~	33.9	[illegible]	None	Sl Gray very Cloud	52 (JTU)	3[illegible]	312	70
11/9	"	7.0	8.1	[illegible]	— 0 —	2.46	Trace	21.4	460	Musty	Sl Gray very Cloud	60 "	402	308	94
11/9	"	7.6	4.2	[illegible]	ND	—	—	28.6	460	Slight	"	62	408	316	92
11/9	"	8.0	7.4	[illegible]	ND	—	—	42.[illegible]	458	None	"	58	398	282	105
11/9	"	7.1	8.4	[illegible]	~ 0 ~	2.36	Trace	43.6	438	Musty	"	55	392	2[illegible]	94
11/9	"	10.2	9.0	[illegible]	~ 0 ~	2.38	~ 0 ~	23.0	428	None		61	374	262	112
11/9	"	7.6	7.1	8.35	ND	—	—	25.6	455	Slight	"	70	420	312	1[illegible]
11/[illegible]	[illegible]	4.3	10.5	8.30	— 0 —	— 0 —	1.74	29.1	473	None	sl gray v cloudy	77	352	344	8
[illegible]	"	4.0	10.9	7.37	— 0 —	— 0 —	1.52	35.4	430	None	sl gray v cloudy	68	34[illegible]	304	3[illegible]
[illegible]	"	4.[illegible]	10.4	8.23	ND	—	—	33.[illegible]	46[illegible]	slight	sl gray v cloudy	76	332	1[illegible]	[illegible]
[illegible]	"	4.0	11.[illegible]	8.28	ND	—	—	32.[illegible]	442	Slight	sl gray v cloudy	79	34[illegible]	[illegible]	38
[illegible]		5.0	10.[illegible]	[illegible].25	— 0 —	— 0 —	2.20	3[illegible].2	44[illegible]	None	sl gray v cloudy	70	34[illegible]	[illegible]	2[illegible]
[illegible]		3.7	12.1	8.23	— 0 —	— 0 —	2.32	[illegible]	460	None	sl gray v cloudy	70	[illegible]	154	272
[illegible]		4.2	10.[illegible]	[illegible]	ND	—	—	[illegible]	451	slight	sl gray v cloudy	81	3[illegible]	58	330

	DATE	TIME	TEMP (°C)	DO (ppm)	pH	OH^- (mEq/L) (mmol/L)	HCO_3^- (mmol/L)	$CO_3^=$ (mmol/L)	COD OF FILTRATE (mG/L)	CONDUCT. (µmhos/cm)	ODOR (subjective)	COLOR (subjective)	TURBIDITY (JTU)	DISSOLVED RESIDUE	DISSOLVED ASH	DIS VOL
	11/24	[illegible]	2.9		8.43	-0-	3.65	trace	55.7	525	None	sl gray v cloudy	48	312	209	104
	11/24	"	2.8		8.35	-0-	3.65	trace	[illegible]	480	None	sl gray v cloudy	53	420	362	58
*	11/24	"	2.9	out	8.41	ND	—	—	33.3	490	None	sl gray v cloudy	49	424	364	60
*	11/24	"	2.9	shaking	8.38	ND	—	—	41.3	477	None	sl gray v cloudy	53	434	376	58
*	11/24	"	4.0	shaking	8.33	-0-	3.91	trace	48.6	490	None	sl gray v cloudy	46	500	422	78
	11/24	"	1.5	WIEK at conn	8.34	-0-	3.75	trace	43.3	445	None	G Gray v cloudy	43	610	604	6
	11/24	"	3.0	WIEK at conn	8.40	ND	—	—	49.5	525	None	sl gray v cloudy	53	752	706	46
†	11/30	1145-1215	1.1	readings	8.7[illegible]	-0-	3.83	0.19	31.9	505	Slight	sl gray v cloudy	21	652	434	218
†	11/30	"	1.0		8.8[illegible]	-0-	3.74	0.25	38.9	490	Slight	sl gray v cloudy	35	645	471	174
†	11/30	"	1.3	DO	8.70	ND	—	—	38.0	508	Slight	sl gray v cloudy	31	558	468	90
†	11/30	"	1.1		8.8[illegible]	ND	—	—	32.0	500	Slight	sl gray v cloudy	31	562	378	184
†	11/30	"	1.0	erratic	8.85	-0-	3.87	0.20	33.4	510	Slight	sl gray v cloudy	37	610	346	264
†	11/30	"	0.7		8.4[illegible]	-0-	3.48	0.27	33.0	460	None	sl gray v cloudy	20	57[illegible]	46[illegible]	110
†	11/30	"	0.9		8.0[illegible]	ND	—	—	31.0	48[illegible]	Slight	sl gray v cloudy	30	51[illegible]	446	72



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INTERNATIONAL
HYDRONICS CORPORATION
Box 910, R-4 PRINCETON, N.J. 08540 PHONE: (201) 329-2361

HYON WASTE MANAGEMENT CORP.

January 17, 1973

RECEIVED
JAN 23 1973
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

State of Illinois E.P.A.
Bureau of Water Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

Attention: Mr. William Pye

Gentlemen:

Enclosed are the following:

Engineering Report - Development of Hyon Waste Management Services Facility to December 31, 1972.

Operating Report - Hyon Waste Management Services, Inc. for Year Ending December 31, 1972.

Report - Leak of Wastewater from Pickle Liquor Neutralization Operations
Hyon Waste Management Services Facility
December 12, 1972.

We will be prepared to review these with you and thereafter pursue the appropriate course of action.

Very truly yours,

International
HYDRONICS CORPORATION

W. G. Cousins

W. G. Cousins

WGC/vgh

Enclosures

cc: City of Chicago, Dept. of Envir. Control, 320 N. Clarke St., Chicago, Ill.-Mr. D. G
Metropolitan Sanitary District of Greater Chicago, 100 E. Erie St., Chicago, Ill. (Mr. Earl Knight)
State of Illinois, EPA, 2121 W. Taylor St., Chicago, Illinois 60612 - Mr. G. Harm
Mr. John Be

INTERNATIONAL
HYDRONICS CORPORATION
Box 910, R-4 PRINCETON, N.J. 08540 PHONE: (201) 329-2361

REPORT

OF

LEAK OF WASTEWATER FROM PICKLE LIQUOR NEUTRALIZATION OPERATIONS

AT

HYON WASTE MANAGEMENT SERVICES, INC.

OCCURRING DECEMBER 12, 1972

January 16, 1973

W. G. Cousins

International Hydronics Corporation

Discovery of Leak

On December 11, 1972 Mr. H. W. Poston, Commissioner of Department of Environmental Control for the City of Chicago, noticed a brown stain in a pond in the Port District, east of the property of Hyon Waste Management Services, Inc. (HWMS) and traced it to it's source, a small surface drainage washed by rainfall into a ditch joining the pond to Lake Calumet (Chicago Harbor). Mr. Poston did not report his observation to HWMS. On December 12 an inspector, Mr. R.J. Kearney, was dispatched by the Department of Environmental Control to confirm the observation. He brought the matter to the attention of the Plant Manager, Mr. Charles Larson, and issued the company a citation under section 17-5-2 of the City of Chicago Building Code and Contractors Register. The surface leakage was stopped within twenty minutes and no further discharge to the lake occurred.

A sample of the discharge was taken, and samples of the receiving ditch water were taken for analyses in the HWMS laboratory. Additional samples of the ditch water and the connected pond were taken over the period December 11 to December 20. The results of these analyses are tabulated in the report with operate description and notes.

WATER ANALYSES RELATED TO LEAK OF WASTEWATER
OF DECEMBER 12, 1972
ANALYSES UNITS MG/L EXCEPT AS NOTED

Sample Location	Road	Drainage Ditch									Pond	Det
Date (Dec.)	12	12	13	14	15	18	19	20	21	22	20	Limit (1)
pH (units)	6.1	6.6	7.5	7.4	7.84	7.78	8.17	8.23	7.90	7.88	8.08	
Cond. (umhos/cm)	4,460	2,000	2,200	1,500	620	2,260	540	760	1,530	2,000	1,510	
CO_3 (meq/l)	0	0	0	0	0	0	0	0	0	0	0	
OH (meq/l)	0	0	0	0	0	0	0	0	0	0	0	
HCO_3 (meq/l)	1.96	4.72	12.3	14.6	4.36	15.8	4.46	4.44	11.8	14.1	12.4	
BOD_5 (Total)	400	90	72	60	52	45	27	18	17	20	24	
Filt.	360	75	60	55	30	16	17	17	12	18	17	
Total	581	174	114	94	99	166	64	32	86	62	84	
COD Filt.	461	121	102	85	32	117	52	28	72	49	67	
Total Solids	11,436	3,240	1,702	1,824	1,792	718	738	614	1,484	1,640	1,186	
- Vol.	2,996	544	386	362	1,584	480	508	472	1,006	544	188	
- Ash	18,440	2,696	1,316	1,462	208	238	230	142	478	1,096	998	
Diss. Solids	10,600	3,046	1,605	1,698	1,676	580	616	556	1,442	1,474	1,160	
- Vol.	1,874	406	366	302	1,524	468	458	480	1,034	252	116	
- Ash	8,726	2,604	1,485	1,396	152	112	158	76	408	1,222	1,044	
Color	Grn	Org	Org	Sl Org	Tint Org	Tint Org	Sl Grn	Tint Red	Tint Red	Tint Red	Tint Br	
Zn	10	8	-	0.2	-	0.2	-	0.2	-	-	0.3	0.4
Cu	0.12	0.12	-	0.05	-	0.12	-	0.06	-	-	0.1	0.08
Pb	1.6	0.8	-	0.4	-	0.7	-	0.7	-	-	0.18	0.3
Fe	3,110	673	-	11.4	-	7.5	-	6.8	-	-	8.9	1.0
Cr	0.18	0.10	-	<0.05	-	<0.1	-	<0.05	-	-	0.08	0.2
Ni	0.6	0.4	-	<0.02	-	<0.04	-	<0.02	-	-	0.26	0.1
Hg (ppb)	<0.5	1.0	-	0.3	-	<0.5	-	<0.25	-	-	0.8	1.0 (ppb)
Sample (1) Conc.	2	2	-	4	-	2	-	4	-	-	4	

Notes Pertinent to Water Analyses, Pickle Liquor Leak of December 12, 1972

Sample Locations (See also location drawing)

The "Road" sample was liquid draining from the pickle liquor neutralization area across the roadway into the drainage ditch south of the plant property. A grab sample was taken from a tire track depression when the leakage was discovered December 12, 1972. The leak was stopped and no further samples were taken.

"Drainage Ditch" samples were taken opposite HWMS property. The drainage ditch is a channel several feet in width in which surface water flows back and forth between Lake Calumet and a pond south of the lake and HWMS property. The direction of flow is dependent on the level of Lake Calumet, controlled by a downstream dam. The most prevalent flow is toward the lake, and the net movement of water is surface run-off from the pond, and adjacent land areas and landfill sites to the lake. On December 12 it was flowing from the lake to the pond.

The "Pond" sample was a composite of three samples taken from the east side of the pond as shown on the accompanying drawing.

Notes on Analyses, Methods & Reporting

The methods of analyses for metals were as follows:

for Zinc (Zn), Copper (Cu), Lead (Pb)	- Atomic Adsorption Technique
for Iron (Fe), Chrome (Cr), Nickle (Ni)	- Flame Emission Technique
for Mercury (Hg)	- Flameless Atomic Adsorption Technique

Note (1) The "detection limits" listed in the tabulated results for metals are the lower limits of detection by the methods used for analyses. The "sample concentrations" listed in the tabulated results are the volume reductions made before analyses in order to reach detectable limits for analyses. The detection limits may be divided by the sample concentration factors to indicate the limits of detection for each of the metals analyses and thus to judge the accuracy and significance of the results.

Background & Source of the Leak

Hyon operates a facility on the Lake Calumet site, in which concentrated liquid industrial wastes of wide variety and sources are treated prior to final disposal. A part of this operation involves the treatment of sulfuric acid pickle liquor.

This liquid is a water solution of "spent" sulfuric acid used for the "pickling" or removal of rust and scale from steel. It consists of a water solution of 5 to 6% sulfuric acid and 8-12% ferrous sulfate.

The method of treatment in practice at the time of the wastewater leak was a temporary one which was as follows. A series of long narrow basins were constructed within plant roadways and below road grade. There basins were lined to a depth of one or two feet with lime. Waste pickle liquor was received by truck into the basins, contained therein and partially neutralized by the surface of the lime causing the basins to seal to liquid passage. Additional lime was then added by front end loader into the basins to complete the neutralization and produce a solid sludge consisting of calcium sulfate, iron oxide and calcium carbonate, all common relatively insoluble, widely distributed earth constituents.

The leak occurred from one of these basins which had been filled and neutralized with lime to the extent that it was accessible, leaving pockets of surface liquid, which were raised by the filling to above road grade. The operation of removing the neutralized sludge by front end loader had been started from the south side roadway, but work was stopped December 10 because heavy rain and sleet made the vehicle traction difficult. It appears that the continued heavy rain on December 11 and December 12 caused some liquid pockets to break out and trickle across the south roadway into the adjacent drainage ditch. The run-off stream was an inch or two wide and trickled through tire tracks on the road, without washing them out, for an indeterminate period of time, December 11 and 12 until it was brought to the attention of HWMS personnel.

Commentary on Spill and Water Analyses

It is apparent that the wastewater leakage was caused by a breach of good operating practice in allowing liquid to stand over road level, leaving a working site in a condition which could drain, and a lack of adequate site surveillance, as well as the related bad weather.

The analyses indicate that the wastewater was very nearly neutralized. The raw pickle liquor pH of 1.0 was changed to 6.1. Each unit of pH change represents 90% reduction in acidity, and therefore a 99.999% reduction in acidity is indicated between a pH 1 to pH 6. The iron content of 3,110 mg/l is also greatly reduced from 10% (100,000 mg/l). However, iron is not fully precipitated until the water is made more alkaline. It was the precipitation of the iron and the oxidation of the iron which produced the visible orange (rusty) color of the pond. The iron which is in a reduced state in pickle liquor is also partially responsible for the BOD and COD values of the waste.

The other metal present in significant quantities was zinc which is a normal constituent of pickle liquor used for pickling galvanized steel.

The wastewater volume discharged is not accurately known but was probably in the order of several thousand gallons, based on a flow rate of one or two gal per minute, for a period of one or two days (1500-3000 minutes). It should be noted in review of the results that the pond and drainage ditch water quality are effected by the fact that the pond bounded is by two landfills on it's east bank, and carries the run-off and leachate from these areas.

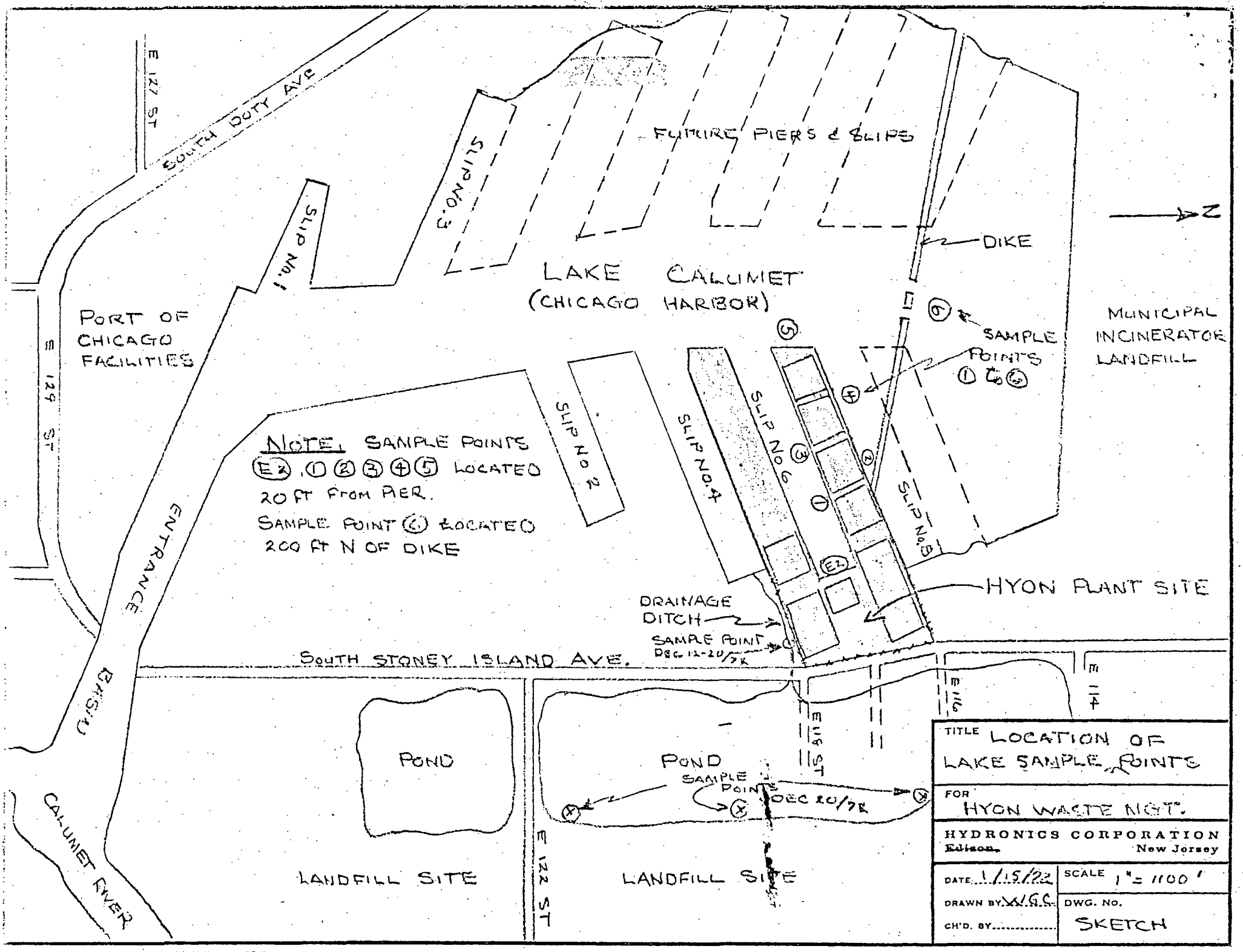
It has been the practice of HWMS to take and analyze samples from Lake Calumet on a weekly basis to monitor the lake for signs of pollution from the company's activities. These routine sample points are shown on the accompanying drawing. The results of November 31, 1972 are attached to indicate normal Lake Water Quality. No samples were collected the week of December 12 because ice cover was forming on the lake, and it was unsafe to take samples either through the ice or by boat.

The extent of pollution caused by the wastewater leak is a matter of judgement. However, it seems likely that the averse affect was principally the discolorization of the water by the precipitated oxidized iron oxide. There was no evidence of other adverse affects and there should be no continuing effects.

Corrective Action

The following changes in practice will be adopted as a result of the leak. A facility for handling, and mechanical mixing of lime and pickle liquor, which has been designed, will be installed as soon as possible. In the intervening

time the neutralizing basin area will be worked off, excavated, and thereafter operated below road level. The routine Lake Calumet sampling stations will be relocated to include surveillance of the pickle liquor neutralization area, and the operating area will be given more frequent supervisory inspection.



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CC - Records Unit, DWPC 12-26-10
- J. Bernbom, Enforcement Services Section, DWPC 12/12/73

OPERATIONAL VISIT NOTES

HYON WASTE MANAGEMENT -
11700 South Stony Island
Chicago

INDUSTRIAL WASTE TREATMENT

DATE - December 12, 1973

WEATHER - Sunny, Temp. at Freezing Point

INTERVIEWED - R. A. Ackerson
R. B. Bruns
Dave Holland

RECEIVED
SURVEILLANCE SECTION
JAN 14 1974
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

At 11:30 A.M. an inspection was conducted to determine current operating practices and also to determine the status of facility compliance with recently issued Operating Permits (November 14 and 27, 1973). During the course of the inspection the following information was obtained:

BIO-CHEMICAL TREATMENT SYSTEM

1. Receiving Station: Tank trucks were unloading liquid wastes into the alkaline and neutral basins. The unloading operation was adequate to prevent spillage from reaching the adjacent road. Greater than 2 foot freeboard in the basins (sloped from road grade) was present.

2. Bio-Chemical Beds: Were not being dosed during the visit; however, Ackerson stated that four beds had been dosed at a total average rate of 20,000 gallons per day during the past week. Moderate ponding of surface waters was present on at least two of the beds. Collected leachate from the bio-chemical bed underdrains was not being pumped due to problems with a recently frozen transfer line attributed by operator neglect to purge the line prior to freezing weather. Ackerson stated that this line could be opened shortly.

   a) Recent dumpings of solids were evident on several beds in order to accomplish Hyon's intent of converting all beds to a "deep bed" composting operation. Ackerson stated that these solids were acquired from the High Solid Area cleaning operation.

   b) Ackerson stated that equipment on hand, consisting of a front end loader and a tractor with a back hoe, should suffice to adequately work the beds into satisfactory windrows.

   c) There was no immediate threat of surface runoff, from the observed ponded beds, to the adjacent perimeter roads.

3. Activated Sludge System: There was no flow into or out of the system during the inspection. The two mechanical surface aerators were in place, but not operating, in the larger of the three compartments of the aeration basin (same as during the previous inspection when they were operating). Semi-frozen foam covered this larger compartment to a level coinciding with the basin walls. The southmost aerator was cantered at about a 10 degree angle, however, the guy wires used to stabilize the aerator were still in place. One of the two smaller compartments was full to about a one foot freeboard with liquid; the other was empty. Ackerson stated that foaming has been a problem, as in the past, and the only way to adequately control it would be utilization of diffused air for aeration. Plans for intended installation of air spargers along the basin periphery were presented; however, funds for their purchase have not been acquired. Hyon has a 430 cfm rotary blower on-site.

   a) When questioned about the operational capability of the aerators, Ackerson was able to start-up the southmost aerator which proceeded to release small amounts of foam to the immediately adjacent ground; this aerator remained operating during the balance of the inspection.

   b) The clarifier was not receiving any flow from the aeration basin. The liquid level was up to the level of the in-board weirs. The surface skimmer and bottom sludge rake were rotating, apparently in an effort to prohibit freezing of contents.

4. High Solids Area: Additional progress in removing of solids has been made since the last visit. These solids had been disposed of around the activated sludge system and on the bio-chemical beds. Pools of liquids were still present; however, the clay dike, above adjacent perimeter road grade, was containing all liquids.

5. Wastewater Basins:

   a) The Intermediate Basin was at a 1 ft. 6 in. freeboard as indicated by the level marker.

   b) The western and eastern final basins were at 2 ft. and 1 ft. 6 in. freeboard levels, respectively, as indicated by level markers. The eastern basin receives storm water from the incinerator and tank farm area.

   c) Auxiliary Basin #1 was at a 1 ft. 6 in. freeboard as indicated by the level marker. Recent transfers of contents had been directed to the eastern Final Basin according to Ackerson.

   d) Auxiliary Basin #2 was at a 2 ft. freeboard below adjacent roadgrade.

   e) Auxiliary Basin #3 was at a 1 ft. 8 in. freeboard below adjacent roadgrade.

PICKLE LIQUOR TREATMENT SYSTEM

1. The system was non-operational during the visit. No receipts, no reacting of stored acid with baghouse lime, and no dosing of drying beds or removal of dried, reacted sludge.

2. Ackerson stated that receipts had been averaging about 15,000 gallons per day during the past week.

3. The northern and southern pickle liquor holding basins were at a 1 ft.6 in. & 1 ft. freeboard below adjacent roadgrade respectively.

4. Several of the observed sludge drying beds were filled with reacted lime-acid sludge to varying levels above adjacent roadgrade (maximum level about 2 feet). A diked lime perimeter was containing the bed contents from the adjacent (sloped inward) perimeter roads.

5. There was no immediate threat of associated runoff.

ADDITIONAL INFORMATION

1. The dual furnace incinerator has been non-operational since last week and is expected to be down for the rest of the year due to refractory problems.

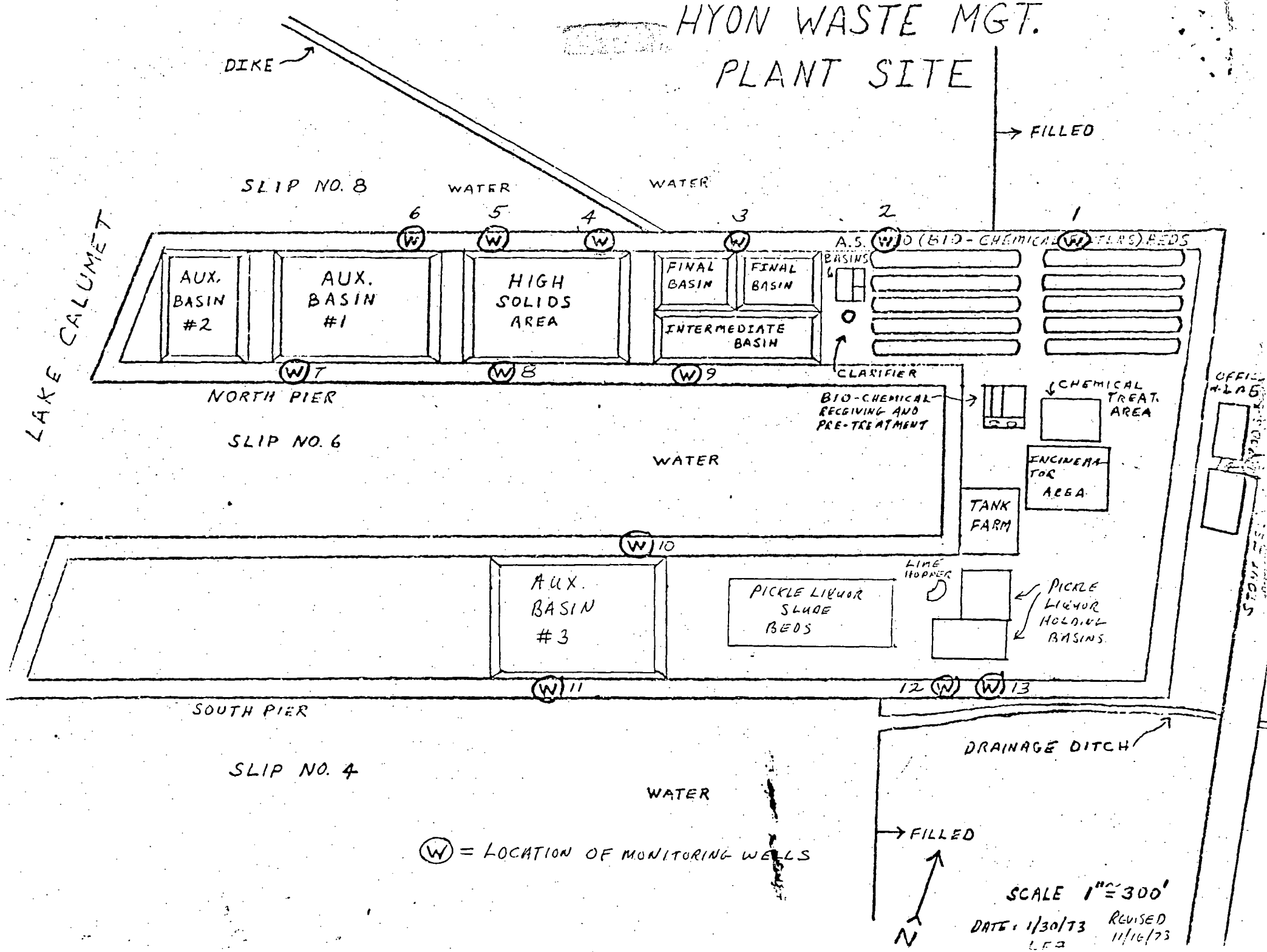
2. Of the 14 monitoring wells installed only a half dozen were specifically observed. The annular area surrounding the PVC pipes had been sealed at the surface with clay and gravel. Most had been capped, but some of the caps had been dislodged. Hyon has purchased a battery operated (12 volt) sample pump. I requested to be informed when samples will be obtained in order to be on site to observe procedures used and obtain samples for IEPA analyses.

Lawrence E. Ziemba

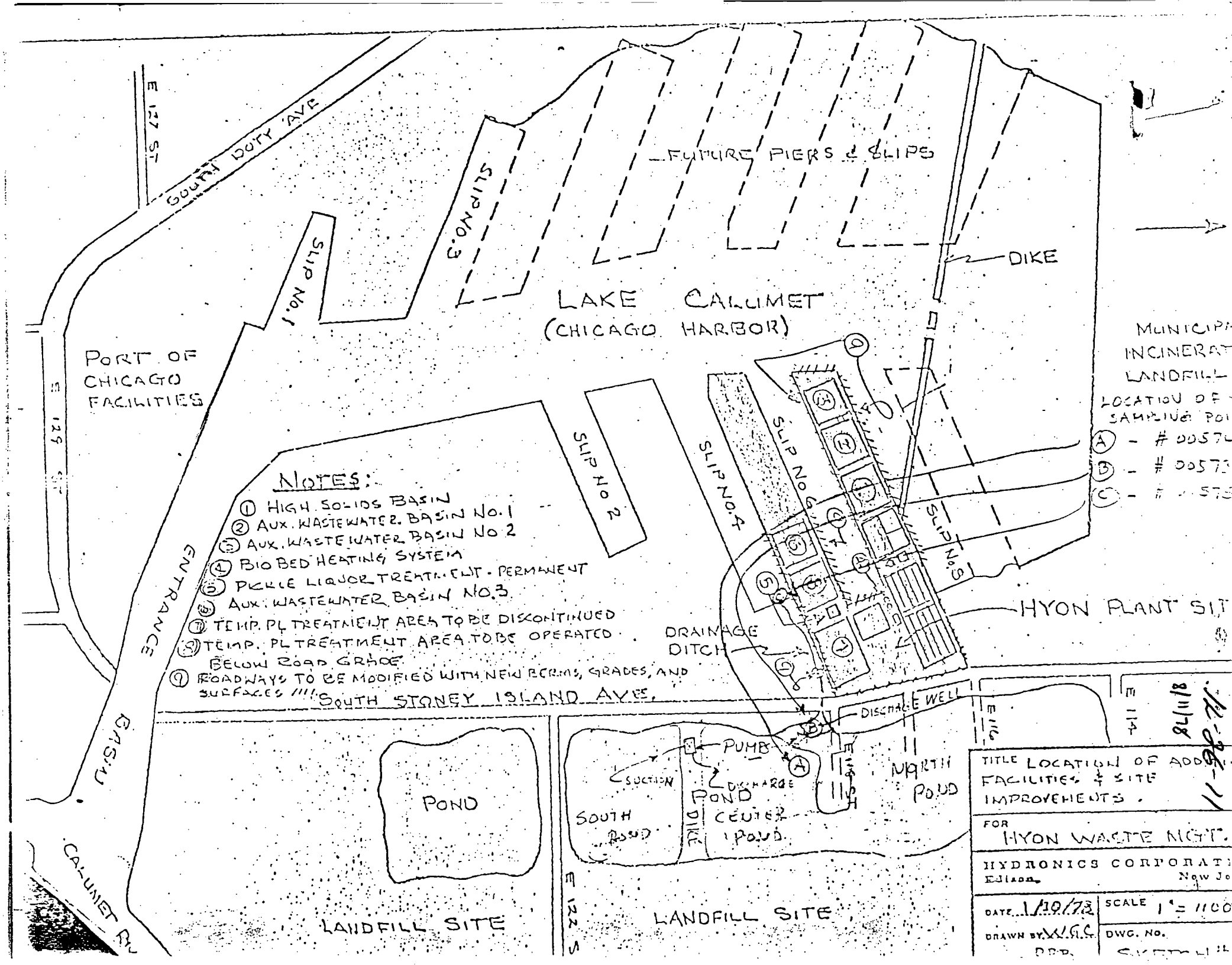
Lawrence E. Ziemba, Environmental Protection Engineer, Chicago

LEZ:arl
1/8/74

HYON WASTE MGT. PLANT SITE



(W) = LOCATION OF MONITORING WELLS



E 127 ST
SOUTH DOTY AVE
SLIP NO. 3
FUTURE PIERS & SLIPS
SLIP NO. 1
DIKE
LAKE CALUMET
(CHICAGO HARBOR)
PORT OF CHICAGO FACILITIES
E 129 ST
SLIP NO 2
SLIP NO. 4
SLIP NO 6
SLIP NO. 5
MUNICIPA
INCINERAT
LANDFILL
LOCATION OF
SAMPLING POI
A - # 00574
B - # 00573
C - # 0575
NOTES:
1 HIGH SOLIDS BASIN
2 AUX. WASTEWATER BASIN NO. 1
3 AUX. WASTEWATER BASIN NO 2
4 BIO BED HEATING SYSTEM
5 PICKLE LIQUOR TREATMENT - PERMANENT
6 AUX. WASTEWATER BASIN NO. 3
7 TEMP. PL TREATMENT AREA TO BE DISCONTINUED
8 TEMP. PL TREATMENT AREA TO BE OPERATED BELOW ROAD GRADE
9 ROADWAYS TO BE MODIFIED WITH NEW BERMS, GRADES, AND SURFACES
SOUTH STONEY ISLAND AVE.
ENTRANCE BASIN
DRAINAGE DITCH
HYON PLANT SIT
DISCHARGE WELL
E 116
E 114
PUMP
SUCTION
DISCHARGE
POND
SOUTH POND
DIKE
CENTER POND
NORTH POND
POND
CALUMET RI
LANDFILL SITE
E 122 S
LANDFILL SITE
TITLE LOCATION OF ADD
FACILITIES & SITE IMPROVEMENTS.
FOR HYON WASTE MGT.
HYDRONICS CORPORAT
Edison, New Jo
DATE 1/10/78
SCALE 1" = 1100
DRAWN BY W.G.C.
DWG. NO.

...ILLINOIS ENVIRONMENTAL PROTECTION AGENCY - DIVISION OF WATER POLLUTION CONTROL

(2)

SPECIAL ANALYSIS FORM 00574 AUG 11 78

me Collected 11:30 A.M. Sub-Basin MAYWOOD

e Collected 8-11-78 Collector F. YUMPING / F. SABUGAL

ility Name: Facility Number: File Town

UNNAMED POND OWNED BY LAND

eam Name(s) AND LAKES LANDFILL Stream Code:

rce of Sample: (Exact Location)

NEAR SUCTION END OF PUMP

sical Observations, Remarks:

TURBID, WITH SCUM & BROWNISH IN COLOR

	Field Dissolved Oxygen	Field pH	Field Temp.

.014	Arsenic		Coliform/100ml	130	BOD
0.2	Barium		Fecal Coliform 100 ml	370	COD
2.3	Boron		Fecal Strep 100 ml		TS/EC
.00	Cadmium		Algae (Total) /ml	140	Susp.Solids
0.02	Copper	16.0	Ammonia (N)	78	Vol.Susp.Solids
0.00	Chromium (tri)		Organic Nitrogen (N)	8.3	pH (units)
0.00	Chromium (hex)	0.2	Nitrate + Nitrite (N)		Turbidity (JTU)
4.0	Iron (Total)	0.48	Phosphorus (P)		Hardness
	Iron (Dissolved)		Chloride	520	Alkalinity
0.06	Lead		Fluoride	0	Total Acidity
0.26	Manganese		Sulfate		Free Acidity
0.0	Mercury (ppb)	0.01	Cyanide	6	Oil
0.1	Nickel		MBAS	1550	Other (Specify) ROE
0.00	Selenium	0.065	Phenol (ppb)		
0.00	Silver				
0.1	Zinc				

ults in mg/l unless erwise noted:

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Received by: RECEIVED ... ENVIRONMENTAL PROTECTION AGENCY

Transported by:

Received by: SEP -5 1978 ... DIV. ...

FOR LAB USE ONLY

Lab Number: C000574 Rec'd by: D. Mulk

Date sample rec'd: 8-11-78 Time: 2:35

Date analysis completed: 8-31-78

Date results forwarded: 8-31-78

Total Tests requested: 29 Tests run 29

Lab Section: Chicago Supervisor: Daugherty

(1) ILLINOIS ENVIRONMENTAL PROTECTION AGENCY - DIVISION OF WATER POLLUTION CONTROL

SPECIAL ANALYSIS FORM

00573 AUG 11 '78

me Collected 11:00 A.M Sub-Basin MAYWOOD

e Collected 8-11-78 Collector F. YUMPING / F. SABUGAL

ility Name: UNNAMED POND OWNED BY LAND AND LAKES LANDFILL Facility Number: File Town

eam Name(s) Stream Code:

rce of Sample: (Exact Location)

~~NEAR SUCTION~~ POND ON DISCHARGE ~~FROM~~ SIDE OF PUMP, UPSTREAM OF 24"Ø LINE TO CALUMET LAKE

sical Observations, Remarks:

BROWNISH RED IN COLOR

	Field Dissolved Oxygen		Field pH		Field Temp.
0.017 Arsenic		Coliform/100ml	140	BOD	
0.2 Barium		Fecal Coliform 100 ml	540	COD	
4.7 Boron		Fecal Strep 100 ml		TS/FC	
0.00 Cadmium		Algae (Total) /ml	200	Susp.Solids	
0.02 Copper	16.0	Ammonia (N)	130	Vol.Susp.Solids	
XX Chromium (tri)		Organic Nitrogen (N)	8.2	pH (units)	
Chromium (hex)	0.1	Nitrate + Nitrite(N)		Turbidity (JTU)	
5.0 Iron (Total)	1.0	Phosphorus (P)		Hardness	
Iron (Dissolved)		Chloride	1140	Alkalinity	
0.06 Lead		Fluoride	0	Total Acidity	
0.27 Manganese		Sulfate		Free Acidity	
0.0 Mercury (ppb)	0.00	Cyanide	3	Oil	
0.1 Nickel		MBAS	2740	Other (Specify) ROE	
0.00 Selenium	0.019	Phenol (ppm)			
0.00 Silver					
0.1 Zinc					

ults in mg/l unless erwise noted.

Recycled Paper

Chromium color Interference
tal Chromium [redacted] 0.02

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Received by: RECEIVED ILL. ENVIRONMENTAL PROTECTION AGENCY
Transported by: SEP 5 1978
Received by: DIV. WATER POLLUTION CONTROL FIELD OPERATIONS ...

FOR LAB USE ONLY
Lab Number: C000573 Rec'd by: [signature]
Date sample rec'd: 8-11-78 Time: 2:35
Date analysis completed: 8-31-78
Date results forwarded: 9-1-78
Total Tests requested: 29 Tests run: 29
Lab Section: Chicago Supervisor: J. Daugherty

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY - DIVISION OF WATER POLLUTION CONTROL

SPECIAL ANALYSIS FORM

00575 AUG 11 '78

me Collected 12:00 N Sub-Basin MAYWOOD

te Collected 8-11-78 Collector F. YUMPING / F.S

cility Name: Facility Number: File Town

UNNAMED POND OWNED BY LAND & LAKES LANDFILL

eam Name(s) Stream Code:

rce of Sample: (Exact Location)

OUTLET END OF 24" PC. LINE TO CALUMET LAKE

sical Observations, Remarks:

BROWNISH RED IN COLOR

	Field Dissolved Oxygen	Field pH	Field Temp.

0.013	Arsenic		Coliform/100ml	85	BOD
0.2	Barium		Fecal Coliform 100 ml	435	COD
8.0	Boron		Fecal Strep 100 ml		TS/EC
0.00	Cadmium		Algae (Total) /ml	180	Susp.Solids
0.02	Copper	15.0	Ammonia (N)	100	Vol.Susp.Solids
	Chromium (tri)		Organic Nitrogen (N)	8.2	pH (units)
interference	Chromium (hex)	0.1	Nitrate + Nitrite(N)		Turbidity (JTU)
4.0	Iron (Total)	0.66	Phosphorus (P)		Hardness
	Iron (Dissolved)		Chloride	900	Alkalinity
0.04	Lead		Fluoride	0	Total Acidity
0.23	Manganese		Sulfate		Free Acidity
0.0	Mercury (ppb)	0.01	Cyanide	4	Oil
0.1	Nickel		MBAS	2770	Other (Specify) ROE
0.00	Selenium	0.055	Phenol (ppb)		
0.00	Silver				
0.0	Zinc				

ults in mg/l unless erwise noted.

Recycled Paper

Total Chromium - 0.02

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ILL. ENVIRONMENTAL PROTECTION AGENCY
Received by:
Transported by: SEP - 5 1978
DIV. WATER POLLUTION CONTROL
Received by:

FOR LAB USE ONLY

Lab Number: C000575 Rec'd by: [signature]

Date sample rec'd: 8-11-78 Time: 2:35

Date analysis completed: 8-31-78

Date results forwarded: 9-1-78

Total Tests requested 29 Tests run 28

Lab Section: Chicago Supervisor: [signature]