UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NPDES # 2381

July 20, 1981

Compliance Sampling Inspection-Toxic (CSI-T) - Pennwalt Corporation, Wyandotte, MI

Robert W. Bowlus, Environmental Engineer
THRU: A.R. Winklhofer, Director, EDO

Glenn Pratt, 5EP

Attached are two copies of the CSI-T report concerning the Pennwalt Corporation, Wyandotte, Michigan, NPDES No. ~~0004715.~~ The CSI-T was conducted on November 4-5, 1980 pursuant to your September 30, 1980 request.

During the survey the permittee did not meet the COD daily maximum pounds per day discharged through outfall 005 and also exceeded the BOD pounds per day discharged from outfall 006 by 22 pounds.

Although the permittee did not exceed the numeric effluent limitations based on the U.S. EPA collected samples for outfalls 002 and 003 it should be noted that the permittee has a continuing history of non-compliance with effluent limitations. MDNR has in the past cited the facility for non-compliance with effluent limitations.

Pennwalt Chemical Company received a split of the U.S. EPA composite samples and was to analyze the samples in their laboratories. Results of these analyses have not been obtained by EDO and should be requested by 5EWHME.

The permittee is conducting a wastewater characterization for several compounds for which there are no current 40 CFR 136 methods. The permittee is to submit an approvable method of analysis to MDNR. This writer does not know if these methods will also be submitted to QAO for their review. Since some of the organic compounds may eventually be limited, in future permits, QAO shold be copied by either MDNR or the Enforcement Division for their comments.

Review of historical data from a 1963 point source survey indicated that the lagoons used by Pennwalt were leaching into Monguagon Creek. The Monguagon Creek water samples taken in 1963 by Michigan Water Resources Commission and U.S. PHS of the creek upstream of Pennwalt showed negligible phenol with 0.852 mg/l (MWRC) and 0.550 mg/l (USPHS) downstream. The 1980 CSI-T survey had results of 42 mg/kg of a phenolic compound in the Monguagon Creek sediment (S32).

CRL was unable to run the bioassay and Ames tests on the effluent from outfall 006, West Plant, organic chemicals.

US EPA RECORDS CENTER REGION 5
402884

CONCURRENCES

SYMBOL	EDO							
SURNAME	Bowlus							
DATE	7/21/81	ARW						

OFFIC

Additionally it should be noted that the west plant currently has a organic air emissions problem. Numerous citizen complaints have been received by this office concerning the odor which smells like male feline territorial musk (an aromatic amine). Ocassionally other odors have been described such as skunk or dead fish (trimethylamine).

Attachments

cc: Bill Miner, 5EWHME

RWB/cak:7/20/81

CONCURRENCES								
SYMBOL								
SURNAME								
DATE								

OMB No. 158-R0073

NPDES COMPLIANCE INSPECTION REPORT *(Coding Instructions on back of last page)*

TRANSACTION CODE		NPDES	YR	MO	DA	TYPE	INSPECTOR	FAC TYPE	TIME
W	5	M1000238 1	80	11	05	[illegible]	R	2	a.m. p.m.
1	2	3 11	12		17	18	19	20	

REMARKS

21 64

ADDITIONAL

65 70

SECTION A - Permit Summary

NAME AND ADDRESS OF FACILITY *(Include County, State and ZIP code)*		EXPIRATION DATE
PENNWALT CORPORATION 4655 BIDDLE AVE WYANDOTTE MI 48192 WAYNE CO.		7/1/1983
		ISSUANCE DATE 6/20/75
RESPONSIBLE OFFICIAL E R GOLINSKI	TITLE MANAGER	PHONE 313-285-9200
FACILITY REPRESENTATIVE John LEWIS	TITLE ENVIRONMENTAL AFFAIRS	PHONE 313-285-9200

SECTION B - Effluent Characteristics *(Additional sheets attached* ____) SEE ATTACHED MOR Aug80-Oct80

PARAMETER/ OUTFALL		MINIMUM	AVERAGE	MAXIMUM	ADDITIONAL
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				

SECTION C - Facility Evaluation *(S = Satisfactory, U = Unsatisfactory, N/A = Not applicable)*

U	EFFLUENT WITHIN PERMIT REQUIREMENTS	S	OPERATION AND MAINTENANCE	M	SAMPLING PROCEDURES
S	RECORDS AND REPORTS	U	COMPLIANCE SCHEDULE	S	LABORATORY PRACTICES
S	PERMIT VERIFICATION	G	FLOW MEASUREMENTS		OTHER:

SECTION D - Comments M - Marginal

SECTION E - Inspection/Review

SIGNATURES	AGENCY	DATE
INSPECTED BY Robert W Bowler	USEPA	Nov 6 1980
INSPECTED BY		
REVIEWED BY		

ENFORCEMENT DIVISION USE ONLY

COMPLIANCE STATUS

☐ COMPLIANCE

☐ NONCOMPLIANCE

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Sections F thru L: Complete on all inspections, as appropriate. N/A = Not Applicable

PERMIT NO. M1000 2381

SECTION F - Facility and Permit Background

ADDRESS OF PERMITTEE IF DIFFERENT FROM FACILITY *(Including City, County and ZIP code)*

As on 1 of 4

DATE OF LAST PREVIOUS INVESTIGATION BY EPA/STATE 7/28/80

FINDINGS

BOD - outfall 006 loading limit high

SECTION G - Records and Reports

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. ☒ YES ☐ NO ☐ N/A *(Further explanation attached ____)*

DETAILS:

(a) ADEQUATE RECORDS MAINTAINED OF:			
(i) SAMPLING DATE, TIME, EXACT LOCATION	☒ YES	☐ NO	☐ N/A
(ii) ANALYSES DATES, TIMES	☒ YES	☐ NO	☐ N/A
(iii) INDIVIDUAL PERFORMING ANALYSIS	☒ YES	☐ NO	☐ N/A
(iv) ANALYTICAL METHODS/TECHNIQUES USED	☒ YES	☐ NO	☐ N/A
(v) ANALYTICAL RESULTS *(e.g., consistent with self-monitoring report data)*	☒ YES	☐ NO	☐ N/A
(b) MONITORING RECORDS *(e.g., flow, pH, D.O., etc.)* MAINTAINED FOR A MINIMUM OF THREE YEARS INCLUDING ALL ORIGINAL STRIP CHART RECORDINGS *(e.g. continuous monitoring instrumentation, calibration and maintenance records).*	☐ YES	☐ NO	☐ N/A
(c) LAB EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS KEPT.	☒ YES	☐ NO	☐ N/A
(d) FACILITY OPERATING RECORDS KEPT INCLUDING OPERATING LOGS FOR EACH TREATMENT UNIT.	☐ YES	☐ NO	☒ N/A
(e) QUALITY ASSURANCE RECORDS KEPT.	☒ YES	☐ NO	☐ N/A
(f) RECORDS MAINTAINED OF MAJOR CONTRIBUTING INDUSTRIES *(and their compliance status)* USING PUBLICLY OWNED TREATMENT WORKS.	☐ YES	☐ NO	☒ N/A

SECTION H - Permit Verification

INSPECTION OBSERVATIONS VERIFY THE PERMIT. ☒ YES ☐ NO ☐ N/A *(Further explanation attached ____)*

DETAILS:

(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE.	☒ YES	☐ NO	☐ N/A
(b) FACILITY IS AS DESCRIBED IN PERMIT.	☐ YES	☐ NO	☒ N/A
(c) PRINCIPAL PRODUCT(S) AND PRODUCTION RATES CONFORM WITH THOSE SET FORTH IN PERMIT APPLICATION. APAL Nov 30 1979 to MDNR	☐ YES	☐ NO	☐ N/A
(d) TREATMENT PROCESSES ARE AS DESCRIBED IN PERMIT APPLICATION.	☒ YES	☐ NO	☐ N/A
(e) NOTIFICATION GIVEN TO EPA/STATE OF NEW, DIFFERENT OR INCREASED DISCHARGES.	☒ YES	☐ NO	☐ N/A
(f) ACCURATE RECORDS OF RAW WATER VOLUME MAINTAINED.	☒ YES	☐ NO	☐ N/A
(g) NUMBER AND LOCATION OF DISCHARGE POINTS ARE AS DESCRIBED IN PERMIT.	☒ YES	☐ NO	☐ N/A
(h) CORRECT NAME AND LOCATION OF RECEIVING WATERS.	☒ YES	☐ NO	☐ N/A
(i) ALL DISCHARGES ARE PERMITTED. Backwash on intake screens	☐ YES	☒ NO	☐ N/A

SECTION I - Operation and Maintenance

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. ☒ YES ☐ NO ☐ N/A *(Further explanation attached ____)*

DETAILS:

(a) STANDBY POWER OR OTHER EQUIVALENT PROVISIONS PROVIDED.	☐ YES	☐ NO	☐ N/A
(b) ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	☐ YES	☐ NO	☐ N/A
(c) REPORTS ON ALTERNATE SOURCE OF POWER SENT TO EPA/STATE AS REQUIRED BY PERMIT.	☐ YES	☐ NO	☐ N/A
(d) SLUDGES AND SOLIDS ADEQUATELY DISPOSED.	☐ YES	☐ NO	☐ N/A
(e) ALL TREATMENT UNITS IN SERVICE.	☐ YES	☐ NO	☐ N/A
(f) CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATION AND MAINTENANCE PROBLEMS.	☒ YES	☐ NO	☐ N/A
(g) QUALIFIED OPERATING STAFF PROVIDED.	☒ YES	☐ NO	☐ N/A
(h) ESTABLISHED PROCEDURES AVAILABLE FOR TRAINING NEW OPERATORS.	☐ YES	☒ NO	☐ N/A
(i) FILES MAINTAINED ON SPARE PARTS INVENTORY, MAJOR EQUIPMENT SPECIFICATIONS, AND PARTS AND EQUIPMENT SUPPLIERS.	☒ YES	☐ NO	☐ N/A
(j) INSTRUCTIONS FILES KEPT FOR OPERATION AND MAINTENANCE OF EACH ITEM OF MAJOR EQUIPMENT.	☒ YES	☐ NO	☐ N/A
(k) OPERATION AND MAINTENANCE MANUAL MAINTAINED.	☐ YES	☒ NO	☐ N/A
(l) SPCC PLAN AVAILABLE. Not inspected at plant	☒ YES	☐ NO	☐ N/A
(m) REGULATORY AGENCY NOTIFIED OF BY PASSING. *(Dates ____ ____)*	☒ YES	☐ NO	☐ N/A
(n) ANY BY-PASSING SINCE LAST INSPECTION.	☐ YES	☒ NO	☐ N/A
(o) ANY HYDRAULIC AND/OR ORGANIC OVERLOADS EXPERIENCED.	☐ YES	☒ NO	☐ N/A

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PERMIT NO.

SECTION J - Compliance Schedules

PERMITTEE IS MEETING COMPLIANCE SCHEDULE. ☐ YES ☒ NO ☐ N/A *(Further explanation attached _____)*

CHECK APPROPRIATE PHASE(S):

- ☐ (a) THE PERMITTEE HAS OBTAINED THE NECESSARY APPROVALS FROM THE APPROPRIATE AUTHORITIES TO BEGIN CONSTRUCTION.
- ☐ (b) PROPER ARRANGEMENT HAS BEEN MADE FOR FINANCING *(mortgage commitments, grants, etc.)*.
- ☐ (c) CONTRACTS FOR ENGINEERING SERVICES HAVE BEEN EXECUTED.
- ☐ (d) DESIGN PLANS AND SPECIFICATIONS HAVE BEEN COMPLETED.
- ☐ (e) CONSTRUCTION HAS COMMENCED.
- ☐ (f) CONSTRUCTION AND/OR EQUIPMENT ACQUISITION IS ON SCHEDULE.
- ☐ (g) CONSTRUCTION HAS BEEN COMPLETED.
- ☐ (h) START-UP HAS COMMENCED.
- ☐ (i) THE PERMITTEE HAS REQUESTED AN EXTENSION ~~OF TIME~~.

FAILED TO MEET and ATTAIN the OPERATION LEVEL NECESSARY TO MEET EFFLUENT LIMITATIONS SPECIFIED IN MONR FINAL ORDER NO 1931

SECTION K - Self-Monitoring Program

Part 1 – Flow measurement *(Further explanation attached _____)*

	YES	NO	N/A
PERMITTEE FLOW MEASUREMENT MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS:	☒	☐	☐
(a) PRIMARY MEASURING DEVICE PROPERLY INSTALLED.	☒	☐	☐
TYPE OF DEVICE: ☐ WEIR ☒ PARSHALL FLUME ☐ MAGMETER ☐ VENTURI METER ☐ OTHER *(Specify _____)*			
(b) CALIBRATION FREQUENCY ADEQUATE. *(Date of last calibration _____)*	☒	☐	☐
(c) PRIMARY FLOW MEASURING DEVICE PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
(d) SECONDARY INSTRUMENTS *(totalizers, recorders, etc.)* PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
(e) FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGES OF FLOW RATES.	☒	☐	☐

Part 2 – Sampling *(Further explanation attached _____)*

	YES	NO	N/A
PERMITTEE SAMPLING MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS:	☒	☐	☐
(a) LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.	☒	☐	☐
(b) PARAMETERS AND SAMPLING FREQUENCY AGREE WITH PERMIT.	☒	☐	☐
(c) PERMITTEE IS USING METHOD OF SAMPLE COLLECTION REQUIRED BY PERMIT. IF NO, ☐ GRAB ☐ MANUAL COMPOSITE ☐ AUTOMATIC COMPOSITE FREQUENCY _____	☒	☐	☐
(d) SAMPLE COLLECTION PROCEDURES ARE ADEQUATE.	☒	☐	☐
(i) SAMPLES REFRIGERATED DURING COMPOSITING	☐	☒	☐
(ii) PROPER PRESERVATION TECHNIQUES USED	☒	☐	☐
(iii) FLOW PROPORTIONED SAMPLES OBTAINED WHERE REQUIRED BY PERMIT	☒	☐	☐
(iv) SAMPLE HOLDING TIMES PRIOR TO ANALYSES IN CONFORMANCE WITH 40 CFR 136.3	☒	☐	☐
(e) MONITORING AND ANALYSES BEING PERFORMED MORE FREQUENTLY THAN REQUIRED BY PERMIT.	☒	☐	☐
(f) IF (e) IS YES, RESULTS ARE REPORTED IN PERMITTEE'S SELF-MONITORING REPORT. NOT DETERMINED	☐	☐	☐

Part 3 – Laboratory *(Further explanation attached _____)*

	YES	NO	N/A
PERMITTEE LABORATORY PROCEDURES MEET THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS:	☒	☐	☐
(a) EPA APPROVED ANALYTICAL TESTING PROCEDURES USED. *(40 CFR 136.3)*	☒	☐	☐
(b) IF ALTERNATE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED.	☒	☐	☐
(c) PARAMETERS OTHER THAN THOSE REQUIRED BY THE PERMIT ARE ANALYZED.	☐	☒	☐
(d) SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.	☒	☐	☐
(e) QUALITY CONTROL PROCEDURES USED.	☒	☐	☐
(f) DUPLICATE SAMPLES ARE ANALYZED. _____ % OF TIME. SSolids	☒	☐	☐
(g) SPIKED SAMPLES ARE USED. _____ % OF TIME.	☐	☐	☐
(h) COMMERCIAL LABORATORY USED.	☒	☐	☐
(i) COMMERCIAL LABORATORY STATE CERTIFIED.	☐	☐	☒

LAB NAME ERG ANN ARBOR MI

LAB ADDRESS _____

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PERMIT NO. MI 0002381

SECTION L - Effluent/Receiving Water Observations *(Further explanation attached _____)*

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	VISIBLE FLOAT SOL	COLOR	OTHER

(Sections M and N: Complete as appropriate for sampling inspections)

SECTION M - Sampling Inspection Procedures and Observations *(Further explanation attached _____)*

- [x] GRAB SAMPLES OBTAINED
- [x] COMPOSITE OBTAINED
- [ ] FLOW PROPORTIONED SAMPLE
- [x] AUTOMATIC SAMPLER USED
- [x] SAMPLE SPLIT WITH PERMITTEE
- [x] CHAIN OF CUSTODY EMPLOYED
- [ ] SAMPLE OBTAINED FROM FACILITY SAMPLING DEVICE

COMPOSITING FREQUENCY hourly PRESERVATION Per CRL ROV

SAMPLE REFRIGERATED DURING COMPOSITING: [x] YES [ ] NO

SAMPLE REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE yes.

SECTION N - Analytical Results *(Attach report if necessary)*

See ATTACHED ANALYTICAL RESULTS

U.S. Environmental Protection Agency
Region V
Surveillance and Analysis Division
Eastern District Office
Compliance Sampling Inspection - Toxic

I. Permittee Identification

Pennwalt Corporation
4655 Biddle Avenue
Wyandotte, MI 48192

Responsible Official: E.R. Golinski, Plant Manager

NPDES Permit Number: MI0002381 Issued June 20, 1975 Expires July 1, 1983

Receiving Waters: Wye Street storm sewer, Detroit River, Wayne County Drain No. 5, and Monguagon Creek (Huntington drain) a tributary to the Detroit River.

II. Date of Sampling: November 4-5, 1980

Date of Interview: November 6, 1980

III. Participants

Permittee:

John Lewis, Environmental Affairs
C.W. Talcott, Senior Chemist

U.S. EPA:

Robert W. Bowlus, Environmental Engineer (report author)
Philip Gehring, Leader, Field Support Team
Charles Beier, Engineering Technician
Joseph Good, General Mechanic

MDNR-Point Mouillee:

Carl J. Hitchingham, Environmental Engineer

IV. Objective

The CSI-T was conducted pursuant to a September 30, 1980 Enforcement Division request to determine if the permittee is meeting the requirements contained in NPDES Permit No. MI0002381. In addition, three special tests were scheduled in order to determine if any toxic or carcinogenic/mutagenic pollutants are present in the company's discharges. However, the Ames and bioassay tests could not be completed due to laboratory problems.

V. Findings and Conclusions

A. The sample results from this CSI-T show the Pennwalt Chemical Company, with exception of BOD and COD loading at outfall 006 and COD at outfall 005, to be achieving the limits contained in the permit and Final Order No. 1931.

B. The MOR's for the months of August through October 1980 show numerous excursions of suspended solids, pH, ammonia, residual chlorine, total iron, phenol, and BOD.

C. This CSI-T survey corroborates MDNR's toxic metal findings in which the study on the Monguagon Creek by MDNR in February 1980 cited Pennwalt Corporation's discharge as a source of PCB's and oils and as a source of toxic heavy metals in Monguagon Creek sediments. The report concluded that the areas impacted by Pennwalt discharge exceeded the U.S. EPA "heavily polluted" levels for dredge spoils.

D. The only sampling deficiency uncovered during the survey was that the permittee does not refrigerate the composite samples during sampling at outfall 006, the lack of refrigeration may bias the BOD and other compounds which would tend to undergo biological degregation or chemical oxidation.

E. Several priority pollutants (VOA's) were detected in all outfalls. These compounds were at low levels and are typical of the chlorine-organic and inorganic-industries.

F. The organic compounds found using the GC/MS scan in the treatment lagoons were being reduced in concentration as the effluent passed through the treatment lagoons.

G. The permittee reported that no asbestos was found in their discharge from 005 during an internal company survey conducted in June 1980.

H. The permittee, as required under F.O. 1994, is conducting a process wastewater characterization study at the west complex or organics plant. Periodical reports of processes completed have been submitted to MDNR.

VI. Description of Permittee

A. Facility

The Pennwalt Corporation is engaged in the manufacture of a large variety of inorganic and special organic chemicals and operates on a continuous 24-hour day, 7 days per week schedule. Approximately 640 persons are employed at the Wyandotte-Riverview complex. The operations are divided by function into two separate facilities commonly referred to as the East Plant and the West Plant. Activities at the East Plant are geared to production of industrial inorganic chemicals principally derived from the production of chlorine from sodium chloride. The organics plant or West Complex synthesizes about 100 different organic compounds from various raw organic and inorganic materials.

B. Process

1. East Plant

The inorganic plant or East Complex utilizes salt brine, obtained through solution mining, chlorine, ammonia, scrap iron and various other raw materials.

The chlorine cells use a diaphram of Ruthium oxide bonded to stainless steel. Some of the chlorine and hydrogen which evolves from the cell is collected, burned to produce HCl which is then subsequently reacted with scrap iron to produce feric chloride. The plant also produces sal ammoniac, caustic soda and chlorine.

2. West Plant

Of the some 100 organic compounds produced at the organics or West Plant the major lines are the alklyamines and alkanolamines. Some significant compounds manufactured in these processes are ethylamine, butylamine, anylamine, isopropylamine, n-butylamine, hexylamines, sec-butylamine, ethylaminoethanol and dibutylaminoethanol. The amylphenols process generates several phenolic compounds some which are othoamyl phenol and diamyl phenol.

The company is conducting a process wastewater characterization study in which each process stream will be sampled and analyzed for product and raw materials and/or reation by-products. This study is required as part of Final Order No. 1994 dated February 19, 1981. However, many of the compounds being analyzed are not found in Standard Methods, 14th Edition, EPA Methods, or 40 CFR 136 as proposed. Part of the requirements of the Final Order is to submit to MDNR is a listing of these compounds and an approvable detailed analytical procedure for each identified compound. The listing of compounds has been submitted and the permittee is currently working on the analytical procedures which are acceptable to the State. An example of such a submittal has been attached (Attachment #7).

The organic plant describes their chemical reactions by process number. The following listing of process numbers, basic process name and process products and/or pollutants have been gathered through existing file information and discussions with plant and MDNR personnel. Many of following processes are run on as needed basis with the final product shipped or stored as inventory. It should be noted that this listing may not be a complete inventory of all processes and/or produced compounds and/or pollutants.

Pennwalt Process Number	General Process	Produced Compound and/or Pollutant
4		Diisopropylaminoethanol ethylaminoethanol
12	Amylphenols	orthoamyl phenol, diamyl phenol, phenol
20	Ditertiary nonyl Polysulfides	t-nonyl mercaptan t-nonyl polysulfide
21	Alkylamines	ethyl-, butyl-, amyl-, isopropyl-, n-butyl-, and sec-butyl-amines, ammonia
22	Vultacs	unknown

Pennwalt Process Number	General Process	Produced Compound and/or Pollutant
26	Thioureas	ethylamine, diethyl thiourea, carbon disulfide, hydrogen sulfide, diethyl thioureas, ethyl butyl thioureas, ethylamine, butylamine, diethyl thiourea
28	H_2S recovery	carbon disulfide, sodium hydrosulfide, ethylamine, butylamine, diethyl thiourea, dibutyl thiourea, hydrogen sulfide
31	Hexylamine	alkylamines, alkanolamines, ammonia
35	Hexylamines	alkylamines, ammonia
38	Endothull Acid Dibutylthiourea	furan, endothall acid dibutylthiourea, carbon disulfide, butylamine, hydrogen sulfide
44	Alkanolmines	alklamines, alkanolamines, ethylene oxide, propylene oxide, ethylaminoethanol, dibutylaminoethanol
45	Diethylhydroxylamine	triethylamine, triethylamine oxide, phosphorous, diethylhydroxylamine
46	Methane Sulfonyl Chloride Methane Sulfonic Acid	methylmercaptan chlorine, methane sulfonyl, chloride, methane sulfonic acid
47	Alkanolamines	alkylanines, alkanolamines, ethylene oxide, propylene oxide, dimethylamino-2 propanol, isopropylaminothanols
Pilot Plant	Alkylamines Alkanolamines Utra	See above See above monoethanolamine, zinc, triethylamine, carbon disulfide, toluene, pennac NB utra
Pilot Plant	Hexadecyl disulfide	bromine, hexadecyl mercaptan, hexadecyl disulfide, hydro bromic acid
Pilot Plant	Pennac NB	formaldehyde, thiourea, hydrogen disulfide, pennac part B, pennac part A, dimethylamine, diethylamine
Pilot Plant	Anhydrous Diethydoxylamine Distillation	 diethydroxylamine diethylamine

3. Water Supply

The process and cooling water used by both (East and West) plants is obtained through two intakes in the Trenton Channel of the Detroit River. The north intake supplies the barometric condensers in the evaporator department. The south intake services the remainder of the inorganics plant (West) and Detroit Edison's power plant located in the East complex. Both intakes have a continous backwash on the intake screens with the south water intake receiving intermittent chlorination. Neither of these backwashes are currently listed as a permitted discharges.

4. Wastewater Treatment

The non-contact cooling water from the chlorine liquidation processes is discharged through outfall 001 to the Wye Street sewer which flows to the Detroit River.

Outfall 002 discharges cooling water directly to the Detroit River from the barometric condensers, chlorine cell room, chlorine liquefaction scrubber effluent, machine shop wash pad water and surface drainage from the East and North areas of the process building (see outfall 002 sewer system). pH is adjusted using carbon dioxide, sulfuric acid or caustic prior to discharge.

Outfall 003 discharges cooling water from the ammonia chloride (sol ammoniac) process. The pH is adjusted using carbon dioxide, sulfuric acid or caustic prior to discharge (see outfall 003 sewer system). The effluent (003) is discharged into Wayne County Drain No. 5 on Chloride Street off the northwest corner of the Sal Ammoniac Building.

Seal water from the liquid ferric pumps, chlorine cell room drains, wash water from the evaporators, wash water from the tank room, and backwash from two of the filters used to filter caustic are discharged from outfall 005. The waste streams are given detention time in one of two settling ponds which are alternated. The discharge from the active pond is monitored prior to discharging into the Detroit River. The inactive lagoon is dredged and the solids disposed of by deep well injection. The inactive lagoon is also used to receive wastewater generated from the replacement of the asbestos diaphram on the chlorine cells. The permittee sampled and analyzed for asbestos during June 1980 and reportedly did not detect any in the outfall.

The treated effluent from the organics plant (East Plant) is discharged through outfall 006 to Monguagon Creek which in turn enters the Trenton Channel of the Detorit River. The treatment system consists of four ponds. Pond #1 receives cooling and process water from the pilot plant and thioureas process. Pond #1 discharges to Pond #3. Pond #2 receives the phenolic wastes from the amyl phenol process for anerobic, sedimentation and oil skimming. Pond #2 discharges to Pond #3. Pond #3 is basically a sedimentation and flow equalization pond.

Pond #3 discharges into Pond #4 for further detention and treatment. At the north end (upstream end) there is a single chamber neutralization pit capable of acid or base addition. Pond #4 provides additional retention time to the overall

system and is equipped with baffles to retain floating oils. The pond is also equipped with an oil skimmer. The plant non-contact cooling water is discharged to the end of Pond #4 where it mixes with the treated effluent and is discharged to Mongaugon Creek. (Attachment #5)

VII. Self-Monitoring

With the exception of refrigeration the composites at outfall 006, the self-monitoring program set up by Pennwalt Corporation appears to be in conformance with the applicable permit requirements. Samples of the data sheets generated showing parameters sampled at each site, analytical procedures used and type of sample are included in Attachment 8. The data generated through self-monitoring is routed through the company management and key punched into a computer which is used to generate the monthly operating report (Attachment #3).

A discrepancy has been noted in the method in which MDNR has required pH excursions to be reported. The MOR instructions only requires values higher than 9.5 to be counted, averaged, and reported. Note for instance at outfall 006 on page 11 of 39 (Attachment #3) the permittee had a pH of 2.7 and showed no violation in the summary which is key punched into MDNR's computer. Other sheets throughout the attachment show the same discrepancy.

Sample collection at the East Plant (inorganics) outfalls 001, 002, 003, and 005 is performed by the brine testers while the West Plant (organics) samples, outfall 006, are collected by the environmental staff. The East Plant has pH probes inserted into the major process sewer lines with the reading being remoted and alarmed to the guard shack.

The sample compositing schedule for outfall 006 is as follows, 7:30 a.m. Sunday till 7:30 a.m. Monday, 7:30 a.m. Tuesday till 7:30 a.m. Wednesday, and 7:30 a.m. Thursday till 7:30 a.m. Friday. The sampler is activated by timer to set it off on Sunday morning. Additionally the non-contact cooling water which by-passes the treatment pond is grabbed three times a week and analyzed for ammonia-N.

The permittee is having problems in determing an accurate flow from outfall 001 due to the turbulance and air entering in the discharge. The permittee estimates flow based on unit operation. The flow at outfall 002 is measured through two parallel parshall flumes. The electrical signal indicating depth above and below the flumes are remoted back to a mini-computer which computes flow. Flow at outfall 003 is obtained using a sonic flow meter in a 24" diameter concrete pipe. The settling pond discharge outfall 005 is measured using a one foot parshall flume. Flow measurement at this location may be suspect due to the extreme turbulence in the flume throat. The flow at outfall 006 is the sum of two flows. The cooling water and process water flows are determined separate and added together to determine flow.

Quality control of the laboratory was briefly covered during the inspection and it was learned that the analyses of all samples are started when the samples arrive at the laboratory. The pH meters are standardized using commerically prepared standards. The pH at outfall 006 is checked against the remote records which is located in the guard shack three times a week and as a check on the pH probes. A BOD seed was obtained from Monguagon Creek and ERG-Ann Arbor checked the BOD seed using the Ann Arbor WWTP seed with satisfactory correlation. The dissolved oxygen is analyzed using a probe and the BOD incubator's temperature at the time of the

inspection was 20°C. The permittee has had a factory representative in to adjust the temperature on the incubator. The phenol analyses are performed using a Spec. 20. The solutions are standardized as required and the graph is checked against prepared standards when the spec. 20 is suspected to be giving erratic results. Additionally the company analyses the samples split with MDNR as a further check on laboratory quality control. The U.S. EPA-Cincinnati lab has supplied samples of suspended solids, NH_3, pH and demand samples for COD and BOD for analyses.

VIII. U.S. EPA Sampling Program

U.S. EPA - EDO Sampling Methods and Locations

Sampling was conducted at a total of ten sites. These sites include: the main influent to the plants south intake; outfall 001–non-contact cooling water; outfall 002–process cooling water; outfall 003–process cooling water; outfall 005–process water; and outfall 006–non-contact process water from the East Plant. The sampling program also included three internal sites at the East Plant. These sites were located near the head end of Ponds #1 and 2, and on a catwalk near the head end of Pond #4 above the influence at the non-contact cooling water which mixes with process water just prior to discharging. The Monguagon Creek sediment sample was taken from Jefferson Avenue bridge. It should be noted that this site is below Jones Chemical Company's discharge to the Monguagon Creek. Outfalls 001 and 003 discharge to existing storm or combined sewers rather then directly to the Detroit River. The north water intake is used for non-contact cooling water and was not sampled.

The U.S. EPA sampling program utilized existing permittee self-monitoring locations. Sampling details are provided in the attached field report, annotated for clarity, with field notes (Attached #1) and includes a plant layout showing sampling location. Field measurements (residual chlorine, temperature, pH, flow, and conductivity) were also performed at each sampling site. Region V sampling, preservation and custody procedures were followed during this study.

Laboratory Procedures

All the samples collected during the study were analyzed at the U.S. EPA-EDO laboratory in Westlake, Ohio or at the U.S. EPA, Central Regional Laboatory in Chicago, Illinois. All analyses were done in accordance with 40 CFR, Part 136-Test Procedures for Analyses of Pollutants or analyzed by documented approved alternate test procedures.

IX. Discussion of Survey Results

Attachments #1 and 1A show the analytical results from samples collected during this survey. These tables tabulate the results of the organic, conventional, chemical, and field analyses.

Attachment #2 compares the sampling results with the NPDES permit limits. These data indicate that the permittee was, with the exception of BOD and COD loading at outfall 006 and COD at outfall 005, within numeric permit limitations on the date of the survey. Outfall 006 limits are applied after mixing with non-contact cooling water. A provision exists in the permit for net values of BOD upon demonstration that gross values are unattainable due to technical or economic considerations.

Attachment #3 is the permittee results of self-monitoring for the months of August through October 1980. These data indicate that the permittee has a continuing problem in meeting effluent limits for suspended solids, pH, residual chlorine, total iron, ammonia, phenol and BOD. These excursions have been asterised on attachment #3. The monthly summaries of these excursions are shown below with the number of excursion in ( )'s.

Outfall 002

	Suspended Solids (#/day)		pH (s.u.)		Residual Chlorine (mg/l)	
	Average	Maximum	Minimum	Maximum	Average	Maximum
Limits	1856	3711	6.5	9.5	1.00	1.50
August '80	4377	12320(14)	4.5(3)	11.4(8)	---	1.70(1)
September '80	4472	7515(16)	7.3(6)	11.2(6)	---	1.74(3)
October '80	3353	5982(11)	2.1(10)	11.9(8)	---	---

Outfall 003

	Iron (ug/l)		Suspended Solids #/D		pH (s.u.)	
	Average	Maximum	Average	Maximum	Minimum	Maximum
Limits	N/A	1600	844	1689	6.5	9.5
August '80	N/A	2310(1)	---	---	---	---
September '80	N/A	2570(2)	---	2320(2)	5.6(1)	11.1(3)
October '80	N/A	---	---	---	5.9(4)	11.2(3)

Outfall 005

	Suspended Solids mg/l		Suspended Solids #/D		pH (s.u.)	
	Average	Maximum	Average	Maximum	Minimum	Maximum
Limits	35	70	467	934	6.5	9.5
August '80	--	96(1)	---	1520(3)	6.3(1)	10.6(2)
September '80	--	98(2)	---	1306(1)	5.7(3)	11.4(5)
October '80	--	--	---	---	1.9(2)	11.2(1)

Outfall 006

	NH_3 AsN (mg/l)		#/D		pH (s.u.)		Chlorine Residual (mg/l)	
	Avg.	Max.	Avg.	Max.	Min.	Max.	Avg.	Max.
Limits	1.50	3.0	---	250	6.5	9.5	---	0.5
August '80	---	5.0(1)	---	379(1)	2.7(1)	---	---	2.1(1)
September '80	---	---			---	---	---	---
October '80	---	3.4(1)			---	9.9(1)	---	---

	BOD #/D		Phenol (ug/l)		#/D	
	Average	Maximum	Average	Maximum	Average	Maximum
Limits	386	576	---	200	---	10
August '80	1720	9369(3)	---	---	---	--
September'80	1254	3338(10)	---	305(1)	---	17.02(1)
October '80	1267	2438(14)	---	390(1)	---	25.35(1)

Four priority pollutants were found in the discharge from 006 (attachment 1A, page 19) tetrachloroethene 0.4 ug/l, dichloro methane 1.5 and 1.4 ug/l, trichloromethane 1.4 and 1.4 ug/l, and 1.2 dichloropropane 0.4 and 2.1 ug/l (attachment 1A, page 20 and 21. The organic scan of the influent to pond #1 found three named compounds and one unidentified compound (Attachment 1A, page 28). Of these compounds only 2,4,5 triproply-3 methylphenol was found in one final discharge-006. The organic scan of the influent to pond #2 (Attachment 1A, page 24) showed six (6) compounds ranging in concentration of 48 ug/l to 3100 ug/l. Of these compounds, 2,4,5 tripropyl-3 methylphenol (1900 ug/l) was detected in the final discharge-006 at 5.7 ug/l) and 2-(1-ethylpropyl) phenol (3100 ug/l) was detected in the final discharge-006 at 80 ug/l. The organic scan also found benzo (B) fluoranthene/benzo (A) pryene at 37 ug/l in the final discharge-006, but not in the contributary flows making up the discharge. The presence of this compound cannot be explained.

Four organic compounds were found using organic scan on the influent to pond #4 (Attachment 1A, page 33). These (80EL02S31) were N,N-dipentyl-1-pentanamine, 280 ug/l, 3-methyl-N, N-Bis(3-methybutyl)-1 butanamine (2 isomers), 1400 ug/l, 2-(1-ethylpropyl) phenol, 180 ug/l, 2,4,5-tripropyl-3-methylphenol, 10 ug/l. The organic compound 2,4,5-tripropyl-3-methylphenol was also found in the Monguagon Creek sediment at 42 ug/kg and in the final discharge from 006 at 5.7 ug/l.

Water samples were collected from outfall 006 to perform the Ames and two static bioassay tests. However, due to staffing changes CRL was unable to run the tests. These tests should be rescheduled for a later date either by ROV or MDNR.

Review of historical data "MWRC Report of Survey, Pennsalt Chemical Corporation; West Plant, March 1963" concluded that the lagoons used by Pennsalt (Pennwalt) were leaching into Monguagon Creek. Samples taken by Michigan Water Resources Commission and U.S. PHS, of Monguagon Creek upstream and downstream of 006 showed negligible phenol upstream while results of samples collected in the creek which flows near the old treatment lagoons averaged 0.852 mg/l and 0.550 mg/l of phenols. These lagoons have now been reconstructed for use as an emergency holding lagoon and sludge holding pond. During the November 1980 survey the organic compound 2,4,5-tripropyl-3-methylphenol, 42 mg/kg was found in the Monguagon Creek sediment sample at Jefferson Avenue bridge.

The sediment grab from Maoguagon Creek at the vicinity of the Jefferson Avenue bridge contains high levels of metals. MDNR's February 1980 evaluation of stream quality in the vincinity of Jones Chemical located between 001 and Jefferson Avenue stated that Pennwalt Corporation's discharge upstream of Jones Chemical as the major source of PCB's and oils in Monguagon Creek sediments, and a significant source of toxic heavy metals. The report concluded that "most sediment contaminents in areas impacted by the Pennwalt discharge exceeded the U.S. EPA 'heavily polluted' levels for dredge spoils".

No PCB's were detected in the samples scheduled for PCB analysis.

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Outfall 001
Sample No.: 81EL02 S01
Date & Time: 11/04/80 ; 6:00 A.M. P.M.
TO 11/05/80 ; 7:00 A.M. P.M.

Parameter	Concentration	Units	Comp. Grab
Nitrate + Nitrite as N	.	mg/l	
Ammonia as N	0.31	mg/l	
Kjeldahl Nitrogen, Tot	.	mg/l	
Organic Nitrogen	.	mg/l	
Phosphorous, Tot	.	mg/l	
COD	62.	mg/l	
TOC	.	mg/l	
Sulfate	.	mg/l	
Silica, Tot	.	mg/l	
Mercury	<0.1	µg/l	
Chloride	11.	mg/l	
Fluoride	.	mg/l	
Calcium, Tot, Ca	28.3	mg/l	
Magnesium, Tot. Mg	7.3	mg/l	
Sodium, Tot, Na	6.7	mg/l	
Silver, Tot, Ag	<3.	µg/l	
Aluminum, Tot, Al	115.	µg/l	
Boron, Tot, B	.	µg/l	
Barium, Tot, Ba	17.	µg/l	
Beryllium, Tot, Be	<1.	µg/l	
Cadmium, Tot, Cd	<2.	µg/l	
Chromium, Tot, Cr	<5.	µg/l	
Copper, Tot, Cu	<6.	µg/l	
Iron, Tot, Fe	400.	µg/l	
Lead, Tot, Pb	<30.	µg/l	
Manganese, Tot, Mn	9.	µg/l	
Molybdenum, Tot, Mo	<10.	µg/l	
Nickel, Tot, Ni	<30.	µg/l	
Selenium, Tot, Se	.	µg/l	
Tin, Tot, Sn	.	µg/l	
Titanium. Tot, Ti	7.	µg/l	
Vanadium, Tot, V	<5.	µg/l	
Yttrium, Tot, Y	<5.	µg/l	
Zinc, Tot, Zn	<50.	µg/l	

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Outfall 002

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S04	S05	S06
Flow	MGD	14.386		
Water Temperature, Field	C° / F°		23.5	22.0
Conductivity	Micromhos		355	400
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		0.2	<0.03
pH, Field	S.U.		8.2	7.2
Conductivity, Lab, 25°C	Micromhos	276		
pH, Lab	S.U.			
Residue, Total	mg/l			
Residue, Dissolved	mg/l			
Residue, Tot., (Sus.)	mg/l	11		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l			
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l		<1	<1

	Composite	Grab	Grab
Sample No.	S04	S05	S06
Date:	11 / 04-05 / 80	11 / 04	11 / 05
Time:	0700 hrs 0600 hrs	1150 hrs	1030 hrs

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Outfall 002
Sample No.: 81EL02 S04
Date & Time: 11/04/80 ; 7:00 A.M. P.M.
TO 11/04/80 ; 6:00 A.M. P.M.

Parameter	Concentration	Units	Comp.	Grab
Nitrate + Nitrite as N	.	mg/l		
Ammonia as N	0.28	mg/l		
Kjeldahl Nitrogen, Tot	.	mg/l		
Organic Nitrogen	.	mg/l		
Phosphorous, Tot	.	mg/l		
COD	48.	mg/l		
TOC	.	mg/l		
Sulfate	.	mg/l		
Silica, Tot	.	mg/l		
Mercury	<0.1	µg/l		
Chloride	23.	mg/l		
Fluoride	.	mg/l		
Calcium, Tot, Ca	27.6	mg/l		
Magnesium, Tot. Mg	7.2	mg/l		
Sodium, Tot, Na	18.6	mg/l		
Silver, Tot, Ag	<3.	µg/l		
Aluminum, Tot, Al	192.	µg/l		
Boron, Tot, B	.	µg/l		
Barium, Tot, Ba	18.	µg/l		
Beryllium, Tot, Be	<1.	µg/l		
Cadmium, Tot, Cd	<2.	µg/l		
Chromium, Tot, Cr	<5.	µg/l		
Copper, Tot, Cu	<6.	µg/l		
Iron, Tot, Fe	648.	µg/l		
Lead, Tot, Pb	< 30.	µg/l		
Manganese, Tot, Mn	13.	µg/l		
Molybdenum, Tot, Mo	<10.	µg/l		
Nickel, Tot, Ni	<30.	µg/l		
Selenium, Tot, Se	.	µg/l		
Tin, Tot, Sn	.	µg/l		
Titanium. Tot, Ti	10.	µg/l		
Vanadium, Tot, V	<5.	µg/l		
Yttrium, Tot, Y	<5.	µg/l		
Zinc, Tot, Zn	<50.	µg/l		

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Outfall 003

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S07	S08	S09
Flow	MGD	3.9		
Water Temperature, Field	C°/ F°		16.0	16.0
Conductivity	Micromhos		1000	600
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		0.8	0.20
pH, Field	S.U.		8.6	8.2
Conductivity, Lab, 25°C	Micromhos	629		
pH, Lab	S.U.			
Residue,Total	mg/l			
Residue,Dissolved	mg/l			
Residue,Tot.,(Sus.)	mg/l	5		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l			
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l		2	<1

	Composite	Grab	Grab
Sample No.	S07	S08	S09
Date:	11/04 - 05/80	11/04	11/05
Time:	0700 hrs 0600 hrs	1130 hrs	1130 hrs

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Outfall 003
Sample No.: 81EL02 S07
Date & Time: 11/04/80 ; 7:00 A.M. P.M.
TO 11/05/80 ; 6:00 A.M. P.M.

Parameter	Concentration	Units	Comp.	Grab
Nitrate + Nitrite as N	.	mg/l		
Ammonia as N	3.06	mg/l		
Kjeldahl Nitrogen, Tot	.	mg/l		
Organic Nitrogen	.	mg/l		
Phosphorous, Tot	.	mg/l		
COD	50.	mg/l		
TOC	.	mg/l		
Sulfate	.	mg/l		
Silica, Tot	.	mg/l		
Mercury	0.4	µg/l		
Chloride	130.	mg/l		
Fluoride	.	mg/l		
Calcium, Tot, Ca	27.5	mg/l		
Magnesium, Tot. Mg	7.4	mg/l		
Sodium, Tot, Na	71.5	mg/l		
Silver, Tot, Ag	<3.	µg/l		
Aluminum, Tot, Al	221.	µg/l		
Boron, Tot, B	.	µg/l		
Barium, Tot, Ba	18.	µg/l		
Beryllium, Tot, Be	<1.	µg/l		
Cadmium, Tot, Cd	<2.	µg/l		
Chromium, Tot, Cr	<5.	µg/l		
Copper, Tot, Cu	<6.	µg/l		
Iron, Tot, Fe	883.	µg/l		
Lead, Tot, Pb	<30.	µg/l		
Manganese, Tot, Mn	23.	µg/l		
Molybdenum, Tot, Mo	<10.	µg/l		
Nickel, Tot, Ni	<30.	µg/l		
Selenium, Tot, Se	.	µg/l		
Tin, Tot, Sn	.	µg/l		
Titanium. Tot, Ti	10.	µg/l		
Vanadium, Tot, V	<5.	µg/l		
Yttrium, Tot, Y	<5.	µg/l		
Zinc, Tot, Zn	<50.	µg/l		

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Outfall 005

Dates of Survey 11/04/80 thru 11/05/80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S10	S11	S12
Flow	MGD	1.23*		
Water Temperature, Field	C°/ F°		11.0	14.0
Conductivity	Micromhos		10,000+	10,000+
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l	—	0.63	0.70
pH, Field	S.U.		7.5	7.4
Conductivity, Lab, 25°C	Micromhos	21,608		
pH, Lab	S.U.			
Residue,Total	mg/l			
Residue,Dissolved	mg/l			
Residue,Tot.,(Sus.)	mg/l	<5		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l			
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l		<1	1

	Composite	Grab	Grab
Sample No.	S10	S11	S12
Date:	11/04-05/80	11/04	11/05
Time:	0700 hrs 0600 hrs	1115hrs	1010 hrs

* Battery failure on Manning dipper - flow estimated

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Outfall 005
Sample No.: 81EL02 S10
Date & Time: 11/04/80 ; 7 :00 A.M. P.M.
TO 11/05/80 ; 6 :00 A.M. P.M.

Parameter	Concentration	Units	Comp.	Grab
Nitrate + Nitrite as N	0.42	mg/l		
Ammonia as N	.	mg/l		
Kjeldahl Nitrogen, Tot	.	mg/l		
Organic Nitrogen	.	mg/l		
Phosphorous, Tot	.	mg/l		
COD	947 .	mg/l		
TOC	.	mg/l		
Sulfate	.	mg/l		
Silica, Tot	.	mg/l		
Mercury	.	µg/l		
Chloride	5600 .	mg/l		
Fluoride	.	mg/l		
Calcium, Tot, Ca	<50 .	mg/l		
Magnesium, Tot. Mg	<1 .	mg/l		
Sodium, Tot, Na	3790 .	mg/l		
Silver, Tot, Ag	<30 .	µg/l		
Aluminum, Tot, Al	<900 .	µg/l		
Boron, Tot, B	.	µg/l		
Barium, Tot, Ba	<50 .	µg/l		
Beryllium, Tot, Be	<10 .	µg/l		
Cadmium, Tot, Cd	<10 .	µg/l		
Chromium, Tot, Cr	<50 .	µg/l		
Copper, Tot, Cu	<60 .	µg/l		
Iron, Tot, Fe	<1200 .	µg/l		
Lead, Tot, Pb	<300 .	µg/l		
Manganese, Tot, Mn	<50 .	µg/l		
Molybdenum, Tot, Mo	<100 .	µg/l		
Nickel, Tot, Ni	<300 .	µg/l		
Selenium, Tot, Se	.	µg/l		
Tin, Tot, Sn	.	µg/l		
Titanium. Tot, Ti	<60 .	µg/l		
Vanadium, Tot, V	<50 .	µg/l		
Yttrium, Tot, Y	<50 .	µg/l		
Zinc, Tot, Zn	<500 .	µg/l		

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Outfall 006

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S13	S14	S15
Flow	MGD	7.9		
Water Temperature, Field	C° / F°		17	16
Conductivity	Micromhos		280	280
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		<0.03	<0.03
pH, Field	S.U.		7.7	7.8
Conductivity, Lab, 25°C	Micromhos	244		
pH, Lab	S.U.			
Residue, Total	mg/l			
Residue, Dissolved	mg/l			
Residue, Tot., (Sus.)	mg/l	10		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l	0.011		
BOD-5	mg/l	9		
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l		<1	<1
Sulfide	mg/l		<0.02	<0.02

	Composite	Grab	Grab
Sample No.	S13	S14	S15
Date:	11 /04-05/ 80	11/ 04	11/05
Time:	0709 hrs 0609 hrs	1035 hrs	0825 hrs

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Outfall 006
Sample No.: 81EL02 S13
Date & Time: 11/ 04/ 80 ; 7 : 09 A.M. P.M.
TO 11/ 05/ 80 ; 6 : 09 A.M. P.M.

Parameter	Concentration	Units	Comp.	Grab
Nitrate + Nitrite as N	0.49	mg/l		
Ammonia as N	.	mg/l		
Kjeldahl Nitrogen, Tot	.	mg/l		
Organic Nitrogen	.	mg/l		
Phosphorous, Tot	.	mg/l		
COD	41.	mg/l		
TOC	.	mg/l		
Sulfate	.	mg/l		
Silica, Tot	.	mg/l		
Mercury	.	µg/l		
Chloride	15.	mg/l		
Fluoride	.	mg/l		
Calcium, Tot, Ca	27.5	mg/l		
Magnesium, Tot. Mg	7.0	mg/l		
Sodium, Tot, Na	8.1	mg/l		
Silver, Tot, Ag	<3.	µg/l		
Aluminum, Tot, Al	94.	µg/l		
Boron, Tot, B	.	µg/l		
Barium, Tot, Ba	16.	µg/l		
Beryllium, Tot, Be	<1.	µg/l		
Cadmium, Tot, Cd	<2.	µg/l		
Chromium, Tot, Cr	<5.	µg/l		
Copper, Tot, Cu	<6.	µg/l		
Iron, Tot, Fe	495.	µg/l		
Lead, Tot, Pb	<30.	µg/l		
Manganese, Tot, Mn	9.	µg/l		
Molybdenum, Tot, Mo	<10.	µg/l		
Nickel, Tot, Ni	<30.	µg/l		
Selenium, Tot, Se	.	µg/l		
Tin, Tot, Sn	.	µg/l		
Titanium. Tot, Ti	9.	µg/l		
Vanadium, Tot, V	<5.	µg/l		
Yttrium, Tot, Y	<5.	µg/l		
Zinc, Tot, Zn	<50.	µg/l		

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Intake (south)

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S16	S17	S18
Flow	MGD			
Water Temperature, Field	C°/ F°	10.0	10.0	
Conductivity	Micromhos			
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		<0.03	<0.03
pH, Field	S.U.		7.6	7.7
Conductivity, Lab, 25°C	Micromhos	232		
pH, Lab	S.U.			
Residue,Total	mg/l			
Residue,Dissolved	mg/l			
Residue,Tot.,(Sus.)	mg/l	6		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l	<0.002		
BOD-5	mg/l	3		
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l		<1	<1

	Composite	Grab	Grab
Sample No.	S16	S17	S18
Date:	11 /04 - 05 / 80	11 / 04	11 / 05
Time:	0700 hrs 0600 hrs	1155 hrs	1050 hrs

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company
Sample Source: Intake (south)
Sample No.: 81EL02 S16
Date & Time: 11/04/80 ; 7 00 A.M. P.M.
TO 11/05/80 ; 6 00 A.M. P.M.

Parameter	Concentration	Units	Comp.	Grab
Nitrate + Nitrite as N	.	mg/l		
Ammonia as N	0.32	mg/l		
Kjeldahl Nitrogen, Tot	.	mg/l		
Organic Nitrogen	.	mg/l		
Phosphorous, Tot	.	mg/l		
COD	30.	mg/l		
TOC	.	mg/l		
Sulfate	.	mg/l		
Silica, Tot	.	mg/l		
Mercury	.	µg/l		
Chloride	14.	mg/l		
Fluoride	.	mg/l		
Calcium, Tot, Ca	27.4	mg/l		
Magnesium, Tot. Mg	7.2	mg/l		
Sodium, Tot, Na	7.1	mg/l		
Silver, Tot, Ag	< 3.	µg/l		
Aluminum, Tot, Al	118.	µg/l		
Boron, Tot, B	.	µg/l		
Barium, Tot, Ba	16.	µg/l		
Beryllium, Tot, Be	<1.	µg/l		
Cadmium, Tot, Cd	<2.	µg/l		
Chromium, Tot, Cr	<5.	µg/l		
Copper, Tot, Cu	<6.	µg/l		
Iron, Tot, Fe	368.	µg/l		
Lead, Tot, Pb	<30.	µg/l		
Manganese, Tot, Mn	15.	µg/l		
Molybdenum, Tot, Mo	<10.	µg/l		
Nickel, Tot, Ni	<30.	µg/l		
Selenium, Tot, Se	.	µg/l		
Tin, Tot, Sn	.	µg/l		
Titanium. Tot, Ti	13.	µg/l		
Vanadium, Tot, V	<5.	µg/l		
Yttrium, Tot, Y	<5.	µg/l		
Zinc, Tot, Zn	<50.	µg/l		

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Amylphenols to Pond #2

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:			S22	S20
Flow	MGD			
Water Temperature, Field	C° / F°		27	
Conductivity	Micromhos		330	
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		<0.03	
pH, Field	S.U.		8.5	
Conductivity, Lab, 25°C	Micromhos			
pH, Lab	S.U.			
Residue, Total	mg/l			
Residue, Dissolved	mg/l			
Residue, Tot., (Sus.)	mg/l			
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l			0.620
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l			

	Composite	Grab	Grab
Sample No.		S22	S20
Date:	/ /	11/ 04	11 / 04
Time:	hrs hrs	1010hrs	1010 hrs

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Thioureas Influent to Pond #1

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:			S26	S28
Flow	MGD			
Water Temperature, Field	C°/ F°		14.0	
Conductivity	Micromhos		250	
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		<0.03	
pH, Field	S.U.		7.5	
Conductivity, Lab, 25°C	Micromhos			
pH, Lab	S.U.			
Residue,Total	mg/l			
Residue,Dissolved	mg/l			
Residue,Tot.,(Sus.)	mg/l			
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l			<0.002
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l			

	Composite		Grab	Grab
Sample No.			S26	S28
Date:	/ /		11 / 04	11 / 04
Time:	hrs	hrs	1350 hrs	1350 hrs

U. S. Environmental Protection Agency
Region V
Eastern District Office
Analytical Data

Permittee: Pennwalt Chemical Company

Survey No.: 81EL02

Sample Source: Influent to Pond #4

Dates of Survey 11 / 04 / 80 thru 11 / 05 / 80

Parameter	Units	Comp.	Grab	Grab
Sample No.:		S29	S30	S31
Flow	MGD			
Water Temperature, Field	C°/ F°		17.0	16.0
Conductivity	Micromhos		260	330
Chlorine, Free Avl, Field	mg/l			
Chlorine, Tot Resd, Field	mg/l		<0.03	<0.03
pH, Field	S.U.		8.1	8.7
Conductivity, Lab, 25°C	Micromhos	247		
pH, Lab	S.U.			
Residue,Total	mg/l			
Residue,Dissolved	mg/l			
Residue,Tot.,(Sus.)	mg/l	7		
Cyanide, Tot.	mg/l			
Cyanide, Amenable to Cl_2	mg/l			
Chromium, Hex, Cr	mg/l			
Phenol	mg/l	0.039		
BOD-5	mg/l			
BOD-20	mg/l			
Coliform, Fecal	#/100ml			
Coliform, Total	#/100ml			
Oil & Grease	mg/l			
Sulfide	mg/l		<0.02	<0.02

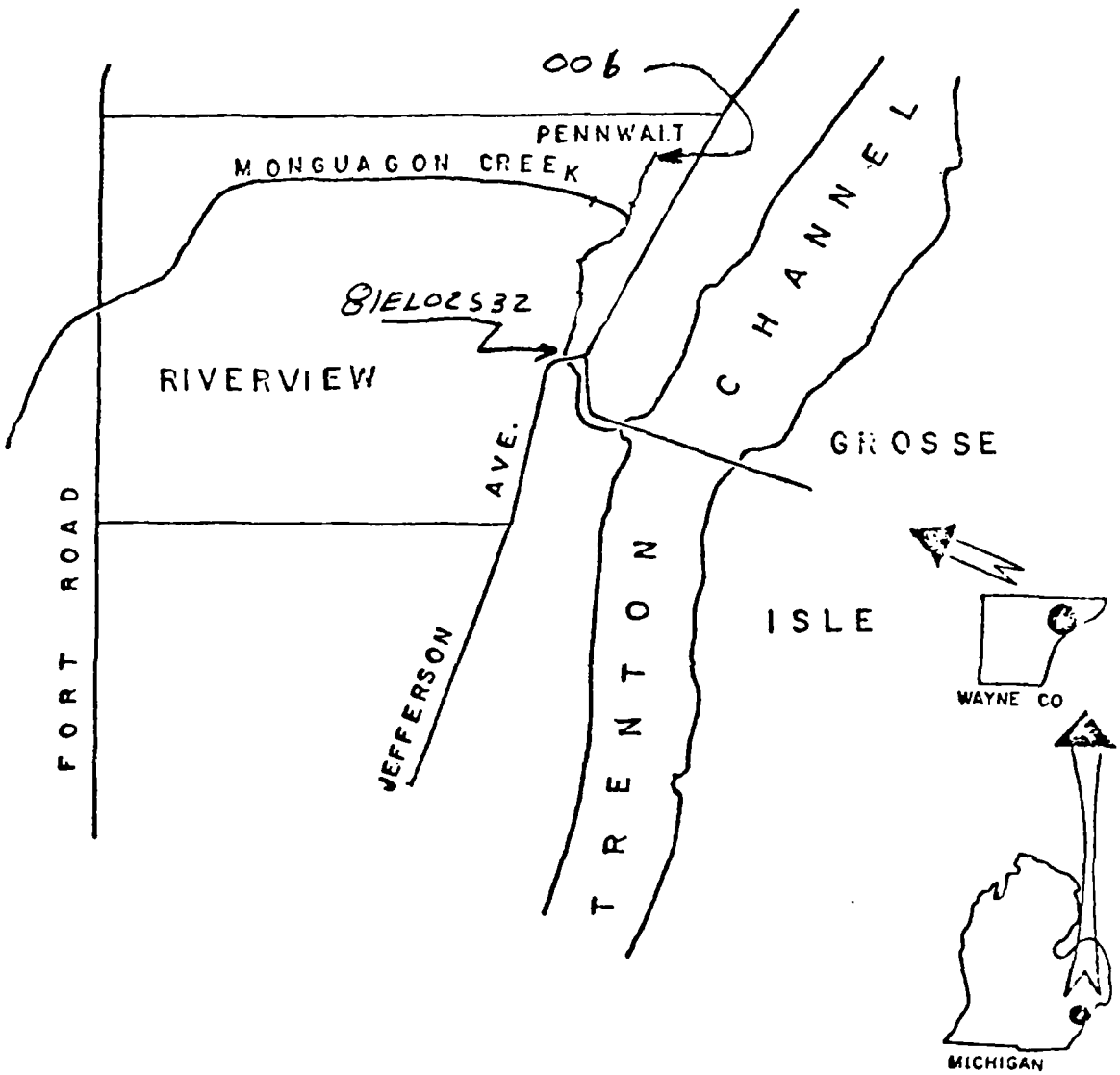
	Composite	Grab	Grab
Sample No.	S29	S30	S31
Date:	11 / 04- 05/ 80	11 / 04	11 / 05
Time:	0712 hrs 0612 hrs	0945 hrs	0750 hrs

U. S. Environmental Protection Agency
Region V
Eastern DISTRICT Office
Analytical Data

Permittee: Pennwalt Chemical Company Study
Sample Source: Jefferson Ave. Bridge, Moguagon Creek
Sample No.: 81EL02 S32
Date & Time: __/__/__ ; __:__ A.M. P.M.
TO __/__/__ ; __:__ A.M. P.M. Creek Sludge

Parameter	Concentration	Units	Comp. Grab
Nitrate + Nitrite as N	.	mg/l	
Ammonia as N	.	mg/l	
Kjeldahl Nitrogen, Tot	.	mg/l	
Organic Nitrogen	.	mg/l	
Phosphorous, Tot	.	mg/l	
COD	.	mg/l	
TOC	.	mg/l	
Sulfate	.	mg/l	
Silica, Tot	.	mg/l	
Mercury	.	µg/l	
Chloride	.	mg/l	
Fluoride	.	mg/l	
Calcium, Tot, Ca	120.	mg/l	
Magnesium, Tot. Mg	17.8	mg/l	
Sodium, Tot, Na	<1.2	mg/l	
Silver, Tot, Ag	7.	µg/l	
Aluminum, Tot, Al	13,000.	µg/l	
Boron, Tot, B	.	µg/l	
Barium, Tot, Ba	170.	µg/l	
Beryllium, Tot, Be	2.	µg/l	
Cadmium, Tot, Cd	9.	µg/l	
Chromium, Tot, Cr	230.	µg/l	
Copper, Tot, Cu	140.	µg/l	
Iron, Tot, Fe	35,000.	µg/l	
Lead, Tot, Pb	540.	µg/l	
Manganese, Tot, Mn	780.	µg/l	
Molybdenum, Tot, Mo	37.	µg/l	
Nickel, Tot, Ni	140.	µg/l	
Selenium, Tot, Se	.	µg/l	
Tin, Tot, Sn	.	µg/l	
Titanium. Tot, Ti	210.	µg/l	
Vanadium, Tot, V	44.	µg/l	
Yttrium, Tot, Y	20.	µg/l	
Zinc, Tot, Zn	2,700.	µg/l	

Location and sampling station on Monguagon Creek, Wayne County,



See Summary under

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ATTACHMENT NO 1A
/ O.F. 40

DATE April 1, 1981

SUBJECT Data Set: EDO 582 (Pennwalt Corporation)

FROM Curtis Ross, Director
Central Regional Laboratory

TO A.R. Winklhofer, Chief
Eastern District Office (5SED)

The following samples were received at the Central Regional Laboratory and analyzed for the requested parameters:

CRL SAMPLE #	ORIGIN	PARAMETERS REQUESTED
81-EL02S02	001 (11/04/80)	VOA
81-EL02S03	001 (11/05/80)	GC/MS Scan, VOA
81-EL02S05	002 (11/04/80)	VOA
81-EL02S06	002 (11/05/80)	GC/MS Scan, VOA
81-EL02S08	003 (11/07/80)	VOA
81-EL02S09	003 (11/05/80)	GC/MS Scan, VOA
81-EL02S12	005 (11/05/80)	GC/MS Scan
81-EL02S13	006 (11/05/80)	GC/MS Scan
81-EL02S14	006 (11/04/80)	VOA
81-EL02S15	006 (11/05/80)	VOA
81-EL02S22	Infl. Pond #2 (11/04/80)	GC/MS Scan, VOA
81-EL02S28	Infl. Pond #1 (11/04/80)	GC/MS Scan, VOA
81-EL02S30	Infl. Pond #4 (11/04/80)	VOA
81-EL02S31	EPF ~~Infl~~. Pond #4 (11/05/80)	GC/MS Scan, VOA
81-EL02S32	MONONGAHELA CREEK SEDIMENT	GC/MS Scan
81-EL02R33	Blank	GC/MS Scan, VOA

An analytical summary of the above is shown in the attached Tables.

If you have any questions regarding these analyses, please contact me at (FTS) 353-8370 or Robert Glowacky at (FTS) 886-3578.

Attachment

Bob,
Note several volatile compounds were detected in the Reagent Blank. I can not explain their presence.
Art 4/13/81

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S02 (001)

Compound	Amount (PPB)
Propane,1,2-dichloro-	3.2
Ethene, trichloro-	0.1
Ethene, tetrachloro-	0.2

FINAL REPORT

ATTACHMENT #01A
3 OF 40

MS DATA FILE FRN: 7522

NAME: EL02S03 EDO 582
MISC DATA: 2-17-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.0
2	1,4-DICHLOROBENZENE	LESS THAN .7
3	HEXACHLOROETHANE	LESS THAN 1.3
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.2
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.2
6	NITROBENZENE	LESS THAN .6
7	ISOPHORONE	LESS THAN .3
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .5
9	1,2-DICHLOROBENZENE	LESS THAN .9
10	1,2,4-TRICHLOROBENZENE	LESS THAN .8
11	NAPHTHALENE	LESS THAN .2
12	HEXACHLOROBUTADIENE	LESS THAN 1.5
13	2-CHLORONAPHTHALENE	LESS THAN .4
14	ACENAPHTHYLENE	LESS THAN .3
15	DIMETHYLPHTHALATE	LESS THAN .4
16	2,6-DINITROTOLUENE	LESS THAN 2.4
17	ACENAPHTHENE	LESS THAN .4
18	2,4-DINITROTOLUENE	LESS THAN 1.4
19	FLUORENE	LESS THAN .4
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .6
21	DIETHYLPHTHALATE	LESS THAN .4
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 7.8
23	N-NITROSODIPHENYLAMINE	LESS THAN .8
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 1.5
25	HEXACHLOROBENZENE	LESS THAN 1.3
26	1-CHLORONAPHTHALENE	LESS THAN .4
27	PHENANTHRENE/ANTHRACENE	LESS THAN .4
28	FLUORANTHENE	LESS THAN .5
29	PYRENE	LESS THAN .9
30	DI-N-BUTYLPHTHALATE	LESS THAN .5
31	BUTYL BENZYLPHTHALATE	LESS THAN 5.7
32	CHRYSENE	LESS THAN 14.9
33	BENZO(A)ANTHRACENE	LESS THAN 14.9
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.1
35	DI-N-OCTYLPHTHALATE	LESS THAN 2.4
36	BENZO(B)FLUORANTHENE	LESS THAN 1.6
37	BENZO(A)PYRENE	LESS THAN 3.0
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.0
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 2.2
40	BENZO(G,H,I)PERYLENE	LESS THAN 9.3
41	DIBROMOBIPHENYL (ISTD)	29.9

FINAL REPORT

ATTACHMENT #01A
4 OF 40

MS DATA FILE FRN: 7522

NAME: EL02S03 EDO 582
MISC DATA: 2-17-81

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 2.4
2	2-CHLOROPHENOL	LESS THAN .8
3	PHENOL	LESS THAN .7
4	2,4-DIMETHYLPHENOL	LESS THAN .8
5	2,4-DICHLOROPHENOL	LESS THAN 1.1
6	P-T-BUTYLPHENOL	LESS THAN .5
7	P-CHLORO-M-CRESOL	LESS THAN 1.2
8	2,4,6-TRICHLOROPHENOL	LESS THAN 1.9
9	PENTACHLOROPHENOL	LESS THAN 9.2
10	4-NITROPHENOL	LESS THAN 10.2

ATTACHMENT NO 1A
5 OF 20

Purgeable Fraction

EDO-582 (Pennewalt): 81-EL02S03 (001)

Compound	Amount (PPB)
Ethane,1,1,1-trichloro-	0.2
Propane,1,2-dichloro-	0.4
Ethene,tetrachloro-	0.5

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S05 (002)

Compound	Amount (PPB)
Methane,trichloro-	1.4
Methane,tetrachloro-	0.8
Propane,1,2-dichloro-	10
Ethene,trichloro-	0.1
Ethene,tetrachloro-	0.1

FINAL REPORT

ATTACHMENT NO1A
7 OF 40

MS DATA FILE FRN: 7525

NAME: EL02S06 FV 1
MISC DATA:

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.0
2	1,4-DICHLOROBENZENE	LESS THAN .7
3	HEXACHLOROETHANE	LESS THAN 1.3
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.2
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.2
6	NITROBENZENE	LESS THAN .6
7	ISOPHORONE	LESS THAN .3
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .5
9	1,2-DICHLOROBENZENE	LESS THAN .9
10	1,2,4-TRICHLOROBENZENE	LESS THAN .7
11	NAPHTHALENE	LESS THAN .2
12	HEXACHLOROBUTADIENE	LESS THAN 1.4
13	2-CHLORONAPHTHALENE	LESS THAN .4
14	ACENAPHTHYLENE	LESS THAN .3
15	DIMETHYLPHTHALATE	LESS THAN .4
16	2,6-DINITROTOLUENE	LESS THAN 2.3
17	ACENAPHTHENE	LESS THAN .4
18	2,4-DINITROTOLUENE	LESS THAN 1.4
19	FLUORENE	LESS THAN .4
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .6
21	DIETHYLPHTHALATE	13
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 7.6
23	N-NITROSODIPHENYLAMINE	LESS THAN .7
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 1.5
25	HEXACHLOROBENZENE	LESS THAN 1.3
26	1-CHLORONAPHTHALENE	LESS THAN .4
27	PHENANTHRENE/ANTHRACENE	LESS THAN .4
28	FLUORANTHENE	LESS THAN .5
29	PYRENE	LESS THAN .9
30	DI-N-BUTYLPHTHALATE	LESS THAN .5
31	BUTYL BENZYLPHTHALATE	LESS THAN 5.5
32	CHRYSENE	LESS THAN 14.4
33	BENZO(A)ANTHRACENE	LESS THAN 14.4
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.1
35	DI-N-OCTYLPHTHALATE	LESS THAN 2.4
36	BENZO(B)FLUORANTHENE	LESS THAN 1.6
37	BENZO(A)PYRENE	LESS THAN 2.9
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.0
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 2.1
40	BENZO(G,H,I)PERYLENE	LESS THAN 9.0
41	DIBROMOBIPHENYL (ISTD)	29.1

FINAL REPORT

ATTACHMENT NO. 1A
8 OF 40

MS DATA FILE FRN: 7525

NAME: EL02S06 FV 1
MISC DATA:

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

002

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 2.4
2	2-CHLOROPHENOL	LESS THAN .8
3	PHENOL	LESS THAN .7
4	2,4-DIMETHYLPHENOL	LESS THAN .8
5	2,4-DICHLOROPHENOL	LESS THAN 1.1
6	P-T-BUTYLPHENOL	LESS THAN .5
7	P-CHLORO-M-CRESOL	LESS THAN 1.2
8	2,4,6-TRICHLOROPHENOL	LESS THAN 1.9
9	PENTACHLOROPHENOL	LESS THAN 9.0
10	4-NITROPHENOL	LESS THAN 9.9

ATTACHMENT NO 1 λ
9 OF 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S06 (002)

Compound	Amount (PPB)
Methane,trichloro-	1.5
Ethane,1,1,1-trichloro-	0.2
Propane,1,2-dichloro-	2.6
Ethene,trichloro-	0.1
Ethene,tetrachloro-	0.4

ATTACHMENT NO. 1
10 OF 40

~~Fraction~~ Fraction
PACKEABLE

Sample: EDO-582 (Pennwalt): 81-EL02S08 (003)

Compound	Amount (PPB)
Methane,trichloro-	0.4
Propane,1,2-dichloro-	2.4
Ethene,tetrachloro-	0.2

FINAL REPORT

ATTACHMENT NO. 1
11 OF 40

MS DATA FILE FRN: 7524

NAME: EDO 582 EL02509 FV 1
MISC DATA: 2-17-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN .9
2	1,4-DICHLOROBENZENE	LESS THAN .6
3	HEXACHLOROETHANE	LESS THAN 1.1
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.1
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.0
6	NITROBENZENE	LESS THAN .5
7	ISOPHORONE	LESS THAN .3
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .4
9	1,2-DICHLOROBENZENE	LESS THAN .8
10	1,2,4-TRICHLOROBENZENE	LESS THAN .7
11	NAPHTHALENE	LESS THAN .2
12	HEXACHLOROBUTADIENE	LESS THAN 1.3
13	2-CHLORONAPHTHALENE	LESS THAN .4
14	ACENAPHTHYLENE	LESS THAN .2
15	DIMETHYLPHTHALATE	LESS THAN .4
16	2,6-DINITROTOLUENE	LESS THAN 2.1
17	ACENAPHTHENE	LESS THAN .3
18	2,4-DINITROTOLUENE	LESS THAN 1.2
19	FLUORENE	LESS THAN .4
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .5
21	DIETHYLPHTHALATE	7.4
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 6.8
23	N-NITROSODIPHENYLAMINE	LESS THAN .7
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 1.3
25	HEXACHLOROBENZENE	LESS THAN 1.1
26	1-CHLORONAPHTHALENE	LESS THAN .4
27	PHENANTHRENE/ANTHRACENE	LESS THAN .4
28	FLUORANTHENE	LESS THAN .4
29	PYRENE	LESS THAN .8
30	DI-N-BUTYLPHTHALATE	LESS THAN .4
31	BUTYL BENZYLPHTHALATE	LESS THAN 4.9
32	CHRYSENE	LESS THAN 12.8
33	BENZO(A)ANTHRACENE	LESS THAN 12.8
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.0
35	DI-N-OCTYLPHTHALATE	LESS THAN 2.1
36	BENZO(B)FLUORANTHENE	LESS THAN 1.4
37	BENZO(A)PYRENE	LESS THAN 2.6
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN .9
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 1.9
40	BENZO(G,H,I)PERYLENE	LESS THAN 8.0
41	DIBROMOBIPHENYL (ISTD)	32.9

FINAL REPORT

ATTACHMENT NO. 1
12 OF 43

MS DATA FILE FRN: 7524

NAME: EDO 582 EL02509 FV 1
MISC DATA: 2-17-81

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 2.1
2	2-CHLOROPHENOL	LESS THAN .7
3	PHENOL	LESS THAN .6
4	2,4-DIMETHYLPHENOL	LESS THAN .7
5	2,4-DICHLOROPHENOL	LESS THAN 1.0
6	P-T-BUTYLPHENOL	LESS THAN .4
7	P-CHLORO-M-CRESOL	LESS THAN 1.0
8	2,4,6-TRICHLOROPHENOL	LESS THAN 1.7
9	PENTACHLOROPHENOL	LESS THAN 8.0
10	4-NITROPHENOL	LESS THAN 8.9

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S09 (003)

Compound	Amount (PPB)
Methane,dichloro-	1.7
Methane,trichloro-	0.5
Propane,1,2-dichloro-	0.4
Ethene,tetrachloro-	0.1

FINAL REPORT

ATTACHMENT NO 1 A
14 OF 40

MS DATA FILE FRN: 7526

NAME: EL02812 FV 1
MISC DATA:

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.3
2	1,4-DICHLOROBENZENE	LESS THAN .9
3	HEXACHLOROETHANE	LESS THAN 1.7
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.6
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.6
6	NITROBENZENE	LESS THAN .7
7	ISOPHORONE	LESS THAN .4
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .6
9	1,2-DICHLOROBENZENE	LESS THAN 1.2
10	1,2,4-TRICHLOROBENZENE	LESS THAN 1.0
11	NAPHTHALENE	LESS THAN .3
12	HEXACHLOROBUTADIENE	LESS THAN 1.9
13	2-CHLORONAPHTHALENE	LESS THAN .5
14	ACENAPHTHYLENE	LESS THAN .4
15	DIMETHYLPHTHALATE	LESS THAN .5
16	2,6-DINITROTOLUENE	LESS THAN 3.1
17	ACENAPHTHENE	LESS THAN .5
18	2,4-DINITROTOLUENE	LESS THAN 1.9
19	FLUORENE	LESS THAN .5
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .8
21	DIETHYLPHTHALATE	LESS THAN .5
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 10.1
23	N-NITROSODIPHENYLAMINE	LESS THAN 1.0
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 2.0
25	HEXACHLOROBENZENE	LESS THAN 1.7
26	1-CHLORONAPHTHALENE	LESS THAN .5
27	PHENANTHRENE/ANTHRACENE	LESS THAN .5
28	FLUORANTHENE	LESS THAN .7
29	PYRENE	LESS THAN 1.2
30	DI-N-BUTYLPHTHALATE	LESS THAN .6
31	BUTYL BENZYLPHTHALATE	LESS THAN 7.4
32	CHRYSENE	LESS THAN 19.2
33	BENZO(A)ANTHRACENE	LESS THAN 19.2
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.5
35	DI-N-OCTYLPHTHALATE	LESS THAN 3.1
36	BENZO(B)FLUORANTHENE	LESS THAN 2.1
37	BENZO(A)PYRENE	LESS THAN 3.9
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.3
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 2.8
40	BENZO(G,H,I)PERYLENE	LESS THAN 12.0
* 41	DIBROMOBIPHENYL (ISTD)	4.3

* LOW RECOVERY OF DBBP, OUTSIDE QC LIMIT
MAK 4/3/81

FINAL REPORT

ATTACHMENT NO. 1
15 OF 20

MS DATA FILE FRN: 7526

NAME: EL02S12 FV 1
MISC DATA:

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 3.2
2	2-CHLOROPHENOL	LESS THAN 1.0
3	PHENOL	LESS THAN 1.0
4	2,4-DIMETHYLPHENOL	LESS THAN 1.1
5	2,4-DICHLOROPHENOL	LESS THAN 1.4
6	P-T-BUTYLPHENOL	LESS THAN .6
7	P-CHLORO-M-CRESOL	LESS THAN 1.6
8	2,4,6-TRICHLOROPHENOL	LESS THAN 2.5
9	PENTACHLOROPHENOL	LESS THAN 12.1
10	4-NITROPHENOL	LESS THAN 13.3

ORGANIC SCAN: DATA SET EDO 582, SAMPLES COLLECTED IN THE VICINITY OF THE PENNWALT CORP., NOVEMBER 5, 1980

CCS

CRL SAMPLE NUMBER 81-EL02S12

(UNITS ARE UG/L)

COMPOUND	ESTIMATED CONCENTRATION
BROMOFORM	9
UNIDENTIFIED COMPOUND (SPECTRUM #127)	3.3

FINAL REPORT

ATTACHMENT NO. 1
17 OF 40

MS DATA FILE FRN: 7528

NAME: ED0582 80-EL02513 FV 1
MISC DATA:

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.2
2	1,4-DICHLOROBENZENE	LESS THAN .8
3	HEXACHLOROETHANE	LESS THAN 1.5
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.4
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.4
6	NITROBENZENE	LESS THAN .7
7	ISOPHORONE	LESS THAN .4
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .6
9	1,2-DICHLOROBENZENE	LESS THAN 1.0
10	1,2,4-TRICHLOROBENZENE	LESS THAN .9
11	NAPHTHALENE	LESS THAN .3
12	HEXACHLOROBUTADIENE	LESS THAN 1.7
13	2-CHLORONAPHTHALENE	LESS THAN .5
14	ACENAPHTHYLENE	LESS THAN .3
15	DIMETHYLPHTHALATE	LESS THAN .5
16	2,6-DINITROTOLUENE	LESS THAN 2.8
17	ACENAPHTHENE	LESS THAN .4
18	2,4-DINITROTOLUENE	LESS THAN 1.7
19	FLUORENE	LESS THAN .5
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .7
21	DIETHYLPHTHALATE	LESS THAN .5
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 9.2
23	N-NITROSODIPHENYLAMINE	LESS THAN .9
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 1.8
25	HEXACHLOROBENZENE	LESS THAN 1.6
26	1-CHLORONAPHTHALENE	LESS THAN .5
27	PHENANTHRENE/ANTHRACENE	LESS THAN .5
28	FLUORANTHENE	LESS THAN .6
29	PYRENE	LESS THAN 1.1
30	DI-N-BUTYLPHTHALATE	LESS THAN .6
31	BUTYL BENZYLPHTHALATE	LESS THAN 6.7
32	CHRYSENE	LESS THAN 17.4
33	BENZO(A)ANTHRACENE	LESS THAN 17.4
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.3
35	DI-N-OCTYLPHTHALATE	LESS THAN 2.9
36	BENZO(B)FLUORANTHENE	LESS THAN 1.9
37	BENZO(A)PYRENE	LESS THAN 3.5
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.2
39	DIBENZO(A,H)ANTHRACENE.	LESS THAN 2.6
40	BENZO(G,H,I)PERYLENE	LESS THAN 10.9
41	DIBROMOBIPHENYL (ISTD)	28.1

FINAL REPORT

ATTACHMENT NO. 1
8 OF 40

MS DATA FILE FRN: 7528

NAME: ED0582 80-EL02S13 FV 1
MISC DATA:

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 2.9
2	2-CHLOROPHENOL	LESS THAN .9
3	PHENOL	LESS THAN .9
4	2,4-DIMETHYLPHENOL	LESS THAN 1.0
5	2,4-DICHLOROPHENOL	LESS THAN 1.3
6	P-T-BUTYLPHENOL	LESS THAN 3.0
7	P-CHLORO-M-CRESOL	LESS THAN 1.4
8	2,4,6-TRICHLOROPHENOL	LESS THAN 2.3
9	PENTACHLOROPHENOL	LESS THAN 10.9
10	4-NITROPHENOL	LESS THAN 12.0

ORGANIC SCAN: DATA SET EDO 582, SAMPLES COLLECTED IN THE VICINITY OF THE PENNWALT CORP., NOVEMBER 5, 1980

ATTACHMENT NO. 1
19 OF 23

CRL SAMPLE NUMBER 81-EL02813

(UNITS ARE UG/L)

COMPOUND	ESTIMATED CONCENTRATION
2-(1-ETHYLPROPYL)PHENOL	80
2,4,5-TRIPROPYL-3-METHYLPHENOL	5.7
BENZO(B)FLUORANTHENE/BENZO(A)PYRENE	37
MINIMUM DETECTION LEVEL	1.9

ATTACHMENT NO. 1
20 OF 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02s14 (006)

Compound	Amount (PPB)
Methane, dichloro-	1.4
Methane,trichloro-	1.4
Propane,1,2-dichloro-	2.1

ATTACHMENT NO 1A
OF. 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S15 (006)

Compound	Amount (PPB)
Methane,dichloro-	1.5
Propane,1,2-dichloro-	1.4
Ethene,tetrachloro-	0.4

FINAL REPORT

MS DATA FILE FRN: 7527

NAME: EL02S22 EDO 582 FV 1
MISC DATA:

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.4
2	1,4-DICHLOROBENZENE	LESS THAN 1.0
3	HEXACHLOROETHANE	LESS THAN 1.8
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.7
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.9
6	NITROBENZENE	LESS THAN .8
7	ISOPHORONE	LESS THAN .5
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .7
9	1,2-DICHLOROBENZENE	LESS THAN 1.2
10	1,2,4-TRICHLOROBENZENE	LESS THAN 1.0
11	NAPHTHALENE	LESS THAN .3
12	HEXACHLOROBUTADIENE	LESS THAN 2.0
13	2-CHLORONAPHTHALENE	LESS THAN .6
14	ACENAPHTHYLENE	LESS THAN .4
15	DIMETHYLPHTHALATE	LESS THAN .6
16	2,6-DINITROTOLUENE	LESS THAN 3.3
17	ACENAPHTHENE	LESS THAN .5
18	2,4-DINITROTOLUENE	LESS THAN 2.0
19	FLUORENE	LESS THAN .6
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .8
21	DIETHYLPHTHALATE	LESS THAN 2.0
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 10.7
23	N-NITROSODIPHENYLAMINE	LESS THAN 1.0
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 2.1
25	HEXACHLOROBENZENE	LESS THAN 1.8
26	1-CHLORONAPHTHALENE	LESS THAN .6
27	PHENANTHRENE/ANTHRACENE	LESS THAN .6
28	FLUORANTHENE	LESS THAN .7
29	PYRENE	LESS THAN 1.2
30	DI-N-BUTYLPHTHALATE	LESS THAN .7
31	BUTYL BENZYLPHTHALATE	LESS THAN 62.4
32	CHRYSENE	LESS THAN 20.4
33	BENZO(A)ANTHRACENE	LESS THAN 20.4
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.6
35	DI-N-OCTYLPHTHALATE	LESS THAN 3.3
36	BENZO(B)FLUORANTHENE	LESS THAN 2.2
37	BENZO(A)PYRENE	LESS THAN 4.1
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.4
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 3.0
40	BENZO(G,H,I)PERYLENE	LESS THAN 12.8
41	DIBROMOBIPHENYL (ISTD)	30.4

FINAL REPORT

ATTACHMENT NO 1
23 OF 40

MS DATA FILE FRN: 7527

NAME: EL02S22 EDO 582 FV 1
MISC DATA:

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 3.4
2	2-CHLOROPHENOL	LESS THAN 1.1
3	PHENOL	LESS THAN 1.0
4	2,4-DIMETHYLPHENOL	LESS THAN 1.2
5	2,4-DICHLOROPHENOL	LESS THAN 1.5
6	P-T-BUTYLPHENOL	LESS THAN .7
7	P-CHLORO-M-CRESOL	LESS THAN 1.6
8	2,4,6-TRICHLOROPHENOL	LESS THAN 2.7
9	PENTACHLOROPHENOL	LESS THAN 12.8
10	4-NITROPHENOL	LESS THAN 14.1

ORGANIC SCAN: DATA SET EDO 582, SAMPLES COLLECTED IN THE VICINITY OF THE PENNWALT CORP., NOVEMBER 5, 1980

CRL SAMPLE NUMBER 81-EL02822

(UNITS ARE UG/L)

COMPOUND	ESTIMATED CONCENTRATION
N,N-ETHYLMETHYL-1-METHOXY-1-BUTANAMINE	910
4-(1-ETHYLPROPYL)PHENOL	600
2-(1-ETHYLPROPYL)PHENOL	3100
2,4,6-TRIPROPYL PHENOL	1500
4-(1,1,3,3-TETRAMETHYLBUTYL)PHENOL	48
2,4,5-TRIPROPYL-3-METHYLPHENOL	1900
MINIMUM DETECTION LEVEL	10

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S22 (Infl. Pond #2)

Compound	Amount (PPB)
Propane,1,2-dichloro-	2.2
Benzene	1.3
Benzebe,methyl-	1.8
*2-Butene	2.1
*Butane,2-methyl-	3.1
*2-Pentene or Dimethylcyclopropane	750
*2-Pentene or Dimethylcyclopropane	12
*2-Pentene or Dimethylcyclopropane	620
*Pentene,methyl (4 isomers)	26
*1,4-Hexadiene	4.5
*2-Butene,2-chloro-3-methyl-	2.0
*Cycloheptane,bromo-	4.9
*Unknown 1	85
*Unknown 2	2.6

*See footnote in 81-EL02R33

FINAL REPORT

ATTACHMENT NO1A
26 OF 40

MS DATA FILE FRN: 7543

NAME: EDO 582 EL02528 FV 1
MISC DATA: 2-12-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

		NAME	CONCENTRATION (UG/L)
STANDARD		D-10 PHENANTHRENE	30.0
	1	1,3-DICHLOROBENZENE	LESS THAN 1.3
	2	1,4-DICHLOROBENZENE	LESS THAN 1.1
	3	HEXACHLOROETHANE	LESS THAN 1.8
	4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.5
	5	N-NITROSODIPROPYLAMINE	LESS THAN 1.6
	6	NITROBENZENE	LESS THAN .9
	7	ISOPHORONE	LESS THAN .4
	8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .6
	9	1,2-DICHLOROBENZENE	LESS THAN 1.1
	10	1,2,4-TRICHLOROBENZENE	LESS THAN .8
	11	NAPHTHALENE	LESS THAN .3
	12	HEXACHLOROBUTADIENE	LESS THAN 1.6
	13	2-CHLORONAPHTHALENE	LESS THAN .4
	14	ACENAPHTHYLENE	LESS THAN .3
	15	DIMETHYLPHTHALATE	LESS THAN .4
	16	2,6-DINITROTOLUENE	LESS THAN 3.1
	17	ACENAPHTHENE	LESS THAN .4
	18	2,4-DINITROTOLUENE	LESS THAN 1.9
	19	FLUORENE	LESS THAN .5
	20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .8
	21	DIETHYLPHTHALATE	LESS THAN .4
	22	1,2-DIPHENYLHYDRAZINE	LESS THAN 10.0
	23	N-NITROSODIPHENYLAMINE	LESS THAN .8
	24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 1.8
	25	HEXACHLOROBENZENE	LESS THAN 1.2
	26	1-CHLORONAPHTHALENE	LESS THAN .4
	27	PHENANTHRENE/ANTHRACENE	LESS THAN .5
	28	FLUORANTHENE	LESS THAN .7
	29	PYRENE	LESS THAN 1.1
	30	DI-N-BUTYLPHTHALATE	LESS THAN .6
	31	BUTYL BENZYLPHTHALATE	LESS THAN 7.3
	32	CHRYSENE	LESS THAN 19.1
	33	BENZO(A)ANTHRACENE	LESS THAN 19.1
	34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.5
	35	DI-N-OCTYLPHTHALATE	LESS THAN 3.1
	36	BENZO(B)FLUORANTHENE	LESS THAN 2.1
	37	BENZO(A)PYRENE	LESS THAN 3.9
	38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.3
	39	DIBENZO(A,H)ANTHRACENE	LESS THAN 2.8
	40	BENZO(G,H,I)PERYLENE	LESS THAN 11.9
	41	DIBROMOBIPHENYL (ISTD)	18.0

FINAL REPORT

ATTACHMENT NO 1A
27 OF 40

MS DATA FILE FRN: 7543

NAME: EDO 582 EL02828 FV 1
MISC DATA: 2-12-81

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 3.2
2	2-CHLOROPHENOL	LESS THAN 1.0
3	PHENOL	LESS THAN 1.0
4	2,4-DIMETHYLPHENOL	LESS THAN 1.1
5	2,4-DICHLOROPHENOL	LESS THAN 1.4
6	P-T-BUTYLPHENOL	LESS THAN .6
7	P-CHLORO-M-CRESOL	LESS THAN 1.5
8	2,4,6-TRICHLOROPHENOL	LESS THAN 2.5
9	PENTACHLOROPHENOL	LESS THAN 11.9
10	4-NITROPHENOL	LESS THAN 13.1

ORGANIC SCAN: DATA SET EDO 583, SAMPLES COLLECTED IN THE VICINITY OF PENNWALT CORP., NOVEMBER 5, 1980

ATTACHMENT NO 1.A
28 OF 40

CRL SAMPLE NUMBER 81-EL02828

(UNITS ARE UG/L)

COMPOUND	ESTIMATED CONCENTRATION
2-(1-ETHYLPROPYL) PHENOL	2.3
2,4,5-TRIPROPYL-3-METHYLPHENOL	3.5
DI-1-(4,5,6,7-TETRAHYDROINDOLE) METHANONE	5
UNIDENTIFIED COMPOUND (SPECTRUM # 282)	3.7
MINIMUM DETECTION LEVEL	.9

ATTACHMENT NO 1A
29 OF

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S28 (Influ. Pond #1 Thioureas)

Compound	Amount (PPB)
Methane,trichloro-	0.9
Propane,1,2-dichloro-	2.3
Ethene,tetrachloro-	1.6
*Dimethylhexene	88
*Dimethylhexane	140

ATTACHMENT NO 1A
30 OF 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S30 (Influ. Pond #4)

Compound	Amount (PPB)
Methane,trichloro-	8.7
Propane,1,2-dichloro-	2.4
Ethene,trichloro-	0.1
Ethene,tetrachloro-	0.1
*Butene,methyl-	4.9

*See footnote in 81-EL02R33

FINAL REPORT

T. ACHMENT NOLA.
31 OF 40

MS DATA FILE FRN: 7544

NAME: EDO 582 EL02331 FV 1
MISC DATA: 2-12-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 1.4
2	1,4-DICHLOROBENZENE	LESS THAN 1.2
3	HEXACHLOROETHANE	LESS THAN 2.0
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 1.6
5	N-NITROSODIPROPYLAMINE	LESS THAN 1.7
6	NITROBENZENE	LESS THAN .9
7	ISOPHORONE	LESS THAN .5
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN .7
9	1,2-DICHLOROBENZENE	LESS THAN 1.2
10	1,2,4-TRICHLOROBENZENE	LESS THAN .8
11	NAPHTHALENE	LESS THAN .3
12	HEXACHLOROBUTADIENE	LESS THAN 1.7
13	2-CHLORONAPHTHALENE	LESS THAN .4
14	ACENAPHTHYLENE	LESS THAN .3
15	DIMETHYLPHTHALATE	LESS THAN .4
16	2,6-DINITROTOLUENE	LESS THAN 3.3
17	ACENAPHTHENE	LESS THAN .5
18	2,4-DINITROTOLUENE	LESS THAN 2.0
19	FLUORENE	LESS THAN .5
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN .8
21	DIETHYLPHTHALATE	LESS THAN .5
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 10.8
23	N-NITROSODIPHENYLAMINE	LESS THAN .9
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 2.0
25	HEXACHLOROBENZENE	LESS THAN 1.3
26	1-CHLORONAPHTHALENE	LESS THAN .4
27	PHENANTHRENE/ANTHRACENE	LESS THAN .5
28	FLUORANTHENE	LESS THAN .7
29	PYRENE	LESS THAN 1.1
30	DI-N-BUTYLPHTHALATE	LESS THAN .6
31	BUTYL BENZYLPHTHALATE	LESS THAN 7.9
32	CHRYSENE	LESS THAN 20.5
33	BENZO(A)ANTHRACENE	LESS THAN 20.5
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 1.6
35	DI-N-OCTYLPHTHALATE	LESS THAN 3.4
36	BENZO(B)FLUORANTHENE	LESS THAN 2.2
37	BENZO(A)PYRENE	LESS THAN 4.1
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 1.4
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 3.0
40	BENZO(G,H,I)PERYLENE	LESS THAN 12.8
41	DIBROMOBIPHENYL (ISTD)	24.3

FINAL REPORT

ATTACHMENT NO 1A
32 OF 40

MS DATA FILE FRN: 7544

NAME: EDO 582 EL02S31 FV 1
MISC DATA: 2-12-81

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 3.4
2	2-CHLOROPHENOL	LESS THAN 1.1
3	PHENOL	LESS THAN 1.0
4	2,4-DIMETHYLPHENOL	LESS THAN 1.2
5	2,4-DICHLOROPHENOL	LESS THAN 1.5
6	P-T-BUTYLPHENOL	LESS THAN 5.4
7	P-CHLORO-M-CRESOL	LESS THAN 1.7
8	2,4,6-TRICHLOROPHENOL	LESS THAN 2.7
9	PENTACHLOROPHENOL	LESS THAN 12.8
10	4-NITROPHENOL	LESS THAN 14.1

ORGANIC SCAN: DATA SET EDO 582, SAMPLES COLLECTED IN THE VICINITY OF THE PENNWALT CORP., NOVEMBER 5, 1980

ATTACHMENT NO 1A
3) OF 40

CRL SAMPLE NUMBER 81-EL02931

(UNITS ARE UG/L)

COMPOUND	ESTIMATED CONCENTRATION
N,N-DIPENTYL-1-PENTANAMINE	280
3-METHYL-N,N-BIS(3-METHYLBUTYL)-1-BUTANAMINE(2 ISOMERS)	1400
2-(1-ETHYLPROPYL)PHENOL	180
2,4,5-TRIPROPYL-3-METHYLPHENOL	10
MINIMUM DETECTION LEVEL	5.4

ATTACHMENT NO 1A
34 OF 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02S31 (Influ. Pond #4)

Compound	Amount (PPB)
Methane,trichloro-	0.5
Propane,1,2-dichloro-	1.6
Ethene,trichloro-	0.1
Ethene,tetrachloro-	0.4
*Butene,methyl	5.6

*See footnote in 81-EL02R33

FINAL REPORT

ATTACHMENT NO1A
35 OF 40

MS DATA FILE FRN: 7550

NAME: EL02332 FV 100
MISC DATA: 2-13-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (MG/KG)
STANDARD	D-10 PHENANTHRENE	150.0
1	1,3-DICHLOROBENZENE	LESS THAN 6.3
2	1,4-DICHLOROBENZENE	LESS THAN 4.2
3	HEXACHLOROETHANE	LESS THAN 7.8
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 7.4
5	N-NITROSODIPROPYLAMINE	LESS THAN 7.2
6	NITROBENZENE	LESS THAN 3.5
7	ISOPHORONE	LESS THAN 2.0
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN 2.9
9	1,2-DICHLOROBENZENE	LESS THAN 5.4
10	1,2,4-TRICHLOROBENZENE	LESS THAN 4.5
11	NAPHTHALENE	LESS THAN 1.3
12	HEXACHLOROBUTADIENE	LESS THAN 8.8
13	2-CHLORONAPHTHALENE	LESS THAN 2.5
14	ACENAPHTHYLENE	LESS THAN 1.7
15	DIMETHYLPHTHALATE	LESS THAN 2.4
16	2,6-DINITROTOLUENE	LESS THAN 14.3
17	ACENAPHTHENE	LESS THAN 2.2
18	2,4-DINITROTOLUENE	LESS THAN 8.6
19	FLUORENE	LESS THAN 2.5
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN 3.6
21	DIETHYLPHTHALATE	LESS THAN 2.5
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 46.9
23	N-NITROSODIPHENYLAMINE	LESS THAN 4.6
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 9.1
25	HEXACHLOROBENZENE	LESS THAN 8.0
26	1-CHLORONAPHTHALENE	LESS THAN 2.5
27	PHENANTHRENE/ANTHRACENE	LESS THAN 2.5
28	FLUORANTHENE	21.4
29	PYRENE	12.7
30	DI-N-BUTYLPHTHALATE	LESS THAN 3.0
31	BUTYL BENZYLPHTHALATE	LESS THAN 34.3
32	CHRYSENE	LESS THAN 89.1
33	BENZO(A)ANTHRACENE	LESS THAN 89.1
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 6.9
35	DI-N-OCTYLPHTHALATE	LESS THAN 14.6
36	BENZO(B)FLUORANTHENE	LESS THAN 9.7
37	BENZO(A)PYRENE	LESS THAN 18.0
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 6.2
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 13.1
40	BENZO(G,H,I)PERYLENE	LESS THAN 55.7
41	DIBROMOBIPHENYL (ISTD)	LESS THAN 17.5

FINAL REPORT

MS DATA FILE FRN: 7550

NAME: EL02SB2 FV 100
MISC DATA: 2-13-81

ATTACHMENT NO1A
3 OF 40

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (MG/KG)
STANDARD	D-10 PHENANTHRENE	150.0
1	2-NITROPHENOL	LESS THAN 14.7
2	2-CHLOROPHENOL	LESS THAN 4.7
3	PHENOL	LESS THAN 4.4
4	2,4-DIMETHYLPHENOL	LESS THAN 5.1
5	2,4-DICHLOROPHENOL	LESS THAN 6.6
6	P-T-BUTYLPHENOL	LESS THAN 3.0
7	P-CHLORO-M-CRESOL	LESS THAN 7.2
8	2,4,6-TRICHLOROPHENOL	LESS THAN 11.7
9	PENTACHLOROPHENOL	LESS THAN 55.7
10	4-NITROPHENOL	LESS THAN 61.4

ORGANIC SCAN: DATA SET EDO 582, SAMPLES COLLECTED IN THE VICINITY OF THE PENNWALT CORP., NOVEMBER 5, 1980

ATTACHMENT NO1A

37 OF 40

CRL SAMPLE NUMBER 81-EL03832

(UNITS ARE MG/KG)

COMPOUND	ESTIMATED CONCENTRATION
2,4,5-TRIPROPYL-3-METHYLPHENOL	42
MINIMUM DETECTION LEVEL	14

FINAL REPORT

ATTACHMENT NO 1 A
38 OF 45

MS DATA FILE FRN: 7533

NAME: EL02R33 FV 1
MISC DATA: 2-11-81

IDFILE FRN: 4604

IDFILE NAME: BASE NEUTRAL ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	1,3-DICHLOROBENZENE	LESS THAN 3.9
2	1,4-DICHLOROBENZENE	LESS THAN 2.6
3	HEXACHLOROETHANE	LESS THAN 4.9
4	BIS(2-CHLOROETHYL)ETHER	LESS THAN 4.6
5	N-NITROSODIPROPYLAMINE	LESS THAN 4.5
6	NITROBENZENE	LESS THAN 2.2
7	ISOPHORONE	LESS THAN 1.3
8	BIS(2-CHLOROETHOXY)METHANE	LESS THAN 1.8
9	1,2-DICHLOROBENZENE	LESS THAN 3.3
10	1,2,4-TRICHLOROBENZENE	LESS THAN 2.8
11	NAPHTHALENE	LESS THAN .8
12	HEXACHLOROBUTADIENE	LESS THAN 5.5
13	2-CHLORONAPHTHALENE	LESS THAN 1.6
14	ACENAPHTHYLENE	LESS THAN 1.0
15	DIMETHYLPHTHALATE	LESS THAN 1.5
16	2,6-DINITROTOLUENE	LESS THAN 8.9
17	ACENAPHTHENE	LESS THAN 1.4
18	2,4-DINITROTOLUENE	LESS THAN 5.4
19	FLUORENE	LESS THAN 1.5
20	4-CHLOROPHENYLPHENYL ETHER	LESS THAN 2.3
21	DIETHYLPHTHALATE	LESS THAN 1.5
22	1,2-DIPHENYLHYDRAZINE	LESS THAN 29.2
23	N-NITROSODIPHENYLAMINE	LESS THAN 2.8
24	4-BROMOPHENYLPHENYL ETHER	LESS THAN 5.7
25	HEXACHLOROBENZENE	LESS THAN 4.9
26	1-CHLORONAPHTHALENE	LESS THAN 1.6
27	PHENANTHRENE/ANTHRACENE	LESS THAN 1.6
28	FLUORANTHENE	LESS THAN 1.9
29	PYRENE	LESS THAN 3.4
30	DI-N-BUTYLPHTHALATE	LESS THAN 1.8
31	BUTYL BENZYLPHTHALATE	LESS THAN 21.3
32	CHRYSENE	LESS THAN 55.4
33	BENZO(A)ANTHRACENE	LESS THAN 55.4
34	BIS(2-ETHYLHEXYL)PHTHALATE	LESS THAN 4.3
35	DI-N-OCTYLPHTHALATE	LESS THAN 9.1
36	BENZO(B)FLUORANTHENE	LESS THAN 6.0
37	BENZO(A)PYRENE	LESS THAN 11.2
38	INDENO(1,2,3-C,D)PYRENE	LESS THAN 3.9
39	DIBENZO(A,H)ANTHRACENE	LESS THAN 8.1
40	BENZO(G,H,I)PERYLENE	LESS THAN 34.6
41	DIBROMOBIPHENYL (ISTD)	35.5

FINAL REPORT

MS DATA FILE FRN: 7533

NAME: EL02R33 FV 1
MISC DATA: 2-11-81

IDFILE FRN: 4601

IDFILE NAME: ACID ANALYSIS
MISC DATA:

	NAME	CONCENTRATION (UG/L)
STANDARD	D-10 PHENANTHRENE	30.0
1	2-NITROPHENOL	LESS THAN 9.2
2	2-CHLOROPHENOL	LESS THAN 2.9
3	PHENOL	LESS THAN 2.8
4	2,4-DIMETHYLPHENOL	LESS THAN 3.2
5	2,4-DICHLOROPHENOL	LESS THAN 4.1
6	P-T-BUTYLPHENOL	LESS THAN 1.8
7	P-CHLORO-M-CRESOL	LESS THAN 4.5
8	2,4,6-TRICHLOROPHENOL	LESS THAN 7.3
9	PENTACHLOROPHENOL	LESS THAN 34.6
10	4-NITROPHENOL	LESS THAN 38.2

TRANSMITTAL NO. A
40 of 40

Purgeable Fraction

Sample: EDO-582 (Pennwalt): 81-EL02R33 (blank)

Compound	Amount (PPB)
Methane,dichloro-	2.3
Methane,trichloro-	1.3
Ethane,1,2-dichloro-	10
*Butene, methyl	1.7

*Identified by mass spectrum only. Authentic compound was not analyzed and compared. Response factor was assumed to be identical to that of the internal standard used.

WESTERN Sampling Date 4/5 11 9 Lab Arrival Date 20 11 80 Analysis Due 15/0
Day Month Year Day Month Year Day Month

Number 13303 Activity CSI-Toxic Study PENNWALT CORP.

EL02 All units are micrograms per liter or milligrams per kilogram Data Set 582 ATTACHMENT 1B

Water *	39488	39492	39496	39500	39504	39508			39110	39100		181
CRL Sample Log Number	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Dibutyl Phthalate	Diethyl Hexyl Phthalate	TOTAL PCB	GC/MS
Sediment *	39491	39495	39499	39503	39507	39511			39112	39102		
S03			K0.001	K0.001	K0.001	K0.001					✓	✓
S06			K0.001	K0.001	K0.001	K0.001					✓	✓
S09			K0.001	K0.001	K0.001	K0.001					✓	✓
S12			NO	SAMPLE								✓
S13			K0.001	K0.001	K0.001	K0.001					✓	✓
S22			K0.001	K0.001	K0.001	K0.001					✓	✓
S28			K0.001	K0.001	K0.001	K0.001					✓	✓
S31			K0.001	K0.001	K0.001	K0.001					✓	✓
R33			K0.001	K0.001	K0.001	K0.001					✓	✓

(SEDIMENT)

GF 5/27/81

Transmitted 5/27/81 [illegible]

Cole 3-14 water, 2-one yellow pigs stored accidentally room 1024 refrigerator.

UNITS ARE MG/LITER

EASTERN Sampling Date 4/5 11 (Day Month Y) Lab Arrival Date 20 11 80 (Day Month Year) Analysis Due 1/5/ (Day/ Mon

No. Number 13 303 Activity CSI - Toxic Study PENNWALT CORP.

EL02 All units are micrograms per liter or milligrams per kilogram Draft dt 5-8-2

Water *	39482	39492	39496	39500	39504	39508			39110	39100		
CRL Sample Log Number	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Dibutyl Phthalate	Diethyl Hexyl Phthalate	TOTAL PCB	GC/MS
Sediment *	39491	39495	39499	39503	39507	39511			39112	39102		
	Outfall											
S03	001		K0.001	K0.001	K0.001	K0.001					✓	✓
S06	002		K0.001	K0.001	K0.001	K0.001					✓	✓
S09	003		K0.001	K0.001	K0.001	K0.001					✓	✓
S12	005		NO	SAMPLE	COLLECTED							✓
S13	006		K0.001	K0.001	K0.001	K0.001					✓	✓
S22	Pond	#2	K0.001	K0.001	K0.001	K0.001					✓	✓
S28	Pond	#1	K0.001	K0.001	K0.001	K0.001					✓	✓
S31	Pond	#4	K0.001	K0.001	K0.001	K0.001					✓	✓
R33			K0.001	K0.001	K0.001	K0.001					✓	✓

(SEDIMENT)

GF 5/27/81

Transmitted 5/27/81 [illegible]

Cole 3-1 water, 2-one gallon jugs stored accumulating room 1024 refrigerator.

UNITS ARE MG/LITER

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfall 001

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
			Daily Avg.	Daily Max.
	mg/l	lbs/day	mg/l	lbs/day
Flow (MGD)				
Total Suspended Solids	8		--	--
Total Chlorine Residual	<0.003		--	--
Ammonia (N)	0.31		--	--
Chlorides	11		--	--
Oil and Grease	3		No visible film	
Temperature °F	12		--	--
COD	62		--	--
pH	7.6		6.5 - 9.5	

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfall 002

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
	mg/l	lbs/day	Daily Max. mg/l	Daily Max. lbs/day
Flow (MGD)	14.386			
Chlorides	23	2760		
Oil and Grease	<1		No visible film	
Temperature	23.5			
COD	48	5760		
Total Suspended Solids	11	1320		3711
Ammonia (N)	0.28	33.60	2.3	
Total Residual Chlorine	0.2		1.5	
Total Lead	<0.030			2.75
pH	8.2		6.5 - 9.5	

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfall 003

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
	mg/l	lbs/day	Daily Max. mg/l	Daily Max. lbs/day
Flow (MGD)	3.9	--		
Chlorides	130	4228		
Oil and Grease	2	65	No visible film	
Temperature	16.0	--		
Total Suspended Solids	5	163		1689
Ammonia (N)	3.06	100	5.0	
Total Copper	<0.006	--	1.0	
Total Lead	<0.030	--		2.0
Total Iron	0.883	28.72	1.6	
Chlorine Residual	0.8	--	1.5	
pH	8.6		6.5-9.5	

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfall 005

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
	mg/l	lbs/day	Daily Max. mg/l	Daily Max. lbs/day
Flow (MGD)	1.23	--		
Total Suspended Solids	<5	--	70	934
COD	947	9714		1801
Ammonia (N)	0.42	<1.3	1.5	
Total Chlorine Residual	0.70	--	1.6	
Chlorides	5600	57446		
Total Lead	<0.300*	--	0.2	2.7
Temperature	14.0	--		
Oil and Grease	1	10	No visible film	
pH	7.5	--	6.5 - 9.5	

* Laboratory unable to achieve lower detection limits due to interference.

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfalls 002, 003, 005

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
			Daily Avg.	Daily Max.
	mg/l	lbs/day	mg/l	lbs/day
Chlorides		64,434		500,000

Attachment #2

Comparison of USEPA Survey Results
and NPDES Permit Limits
Outfall 006

Parameter	USEPA Survey Results		NPDES Permit Final Limitations	
	mg/l	lbs/day	Daily Max. mg/l	Daily Max. lbs/day
Flow (MGD)	7.9			
BOD*	9	592		570
COD	41	2701		
Total Suspended Solids (Total)	(10) 4 net	(658) 264 net		570 net
Chlorides	15	988		8800 net
Ammonia (N)	0.49	32	1.5	250
Total Chlorine Residual	<0.03		0.5	
Phenol	0.011	0.725	0.2	
Sulfide	<0.002	--		
Temperature	17	--		
Oil and Grease	<1	--	No visible film	
Total Zinc	<0.050	--	1.0	
pH	7.8	--	6.5 - 9.5	

* Permit contains provision for net values if demonstrated by permittee that gross values are unattainable due to technical or economic considerations.

PENNWALT CORPORATION
4633 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 000
INTAKE

1 820298 M10002381 820409 80 11 06

	00530 SOLIDS-SUSPENDED MG/L		00940 CHLORIDES MG/L		00335 COD LOW-LEVEL MG/L		IRON UG/L		00310 BOD5 MG/L	
1	76	COMP								
1	56	COMP								
1	90	COMP	1 24	COMP	1 39	COMP	1 1,750			
1	62	COMP								
1	104	COMP	1 22	COMP	1 30	COMP		1	4	COMP
1	104	COMP			1 27	COMP				
1	162	COMP	1 23	COMP			1 1,830			
1	68	COMP								
1	56	COMP								
1	94	COMP	1 24	COMP			1 1,760			
1	76	COMP			1 18	COMP				
1	89	COMP	1 16	COMP			1 2,180			
1	80	COMP			1 21	COMP		1	2	COMP
1	81	COMP	1 20	COMP	1 29	COMP	1 2,570			
1	55	COMP								
1	47	COMP								
1	36	COMP	1 16	COMP						
1	88	COMP			1 8	COMP	1 1,740			
1	82	COMP	1 31	COMP				1	3	COMP
1	50	COMP			1 19	COMP				
1	52	COMP	1 16	COMP	1 25	COMP				
1	36	COMP								
1	61	COMP								
1	60	COMP	1 23	COMP	1 17	COMP				
1	45	COMP					1 1,840			
1	64	COMP	1 23	COMP				1	3	COMP
1	75	COMP			1 16	COMP				
1	68	COMP	1 24	COMP	1 26	COMP				
1	64	COMP								
1	64	COMP								
1	136	COMP	1 19	COMP						
	74		22		23		1953		3	
	162		31		39		2570		4	
	31		13		12		7		3	
	31		13		12		7		4	

8/01/80
8/31/80

LEWIS, JOHN J.
E.R. GULINSKI

W1758
313-285-9200

ATTACHMENT NO 3
1 OF 3

PENNWALT CORPORATION
4653 RIDGE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1983 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
TOTAL CHLORIDE LOADING 002, 003, & 005

1 820298 MI0002381 820298 80 11 06

47036
CHLORIDE-NET#/D
LBS/DAY
MAXIMUM
500,000

1 88789 COMP
1 103192 COMP
1 38364 COMP

1 66839 COMP
1 86315 COMP
1 121059 COMP

1 53195 COMP
1 96819 COMP
1 76644 COMP

1 64149 COMP
1 68439 COMP
1 82616 COMP

1 6105 COMP
77117
121059

13
13
0
0
3/01/80
8/31/80

LEWIS, JOHN J. W1758
E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
3 OF 3

PENNWALT CORPORATION
4655 DIXIE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

1 820298 MI0002381 820224 80 11 06

	50050 FLOW CONDUIT MGD		00530 SOLIDS-SUSPENDED MG/L		00610 AMMONIA-NITROGEN MG/L			00400 PH 0 TO 14 MAXIMUM 9.5 MINIMUM 6.5			00940 CHLORIDE MG/L			50060 CHLORINE-TOTAL MG/L			00335 COD-LOW LEVEL MG/L		
C	7.4																		
C	7.5																		
C	7.4																		
C	7.6																		
C	7.6				1	.01	COMP	1	7.5	COMP	1	23	COMP				1	17	COMP
C	7.8	1	23											1	.20	COMP			
C	7.8																		
C	7.8																		
C	7.9																		
C	7.8																		
C	8.0																		
C	8.0				1	.00	COMP	1	7.4	COMP	1	18	COMP						
C	8.1	1	27											1	.00	COMP	1	7	COMP
C	5.2																		
C	5.3																		
C	5.4																		
C	6.0																		
C	5.9																		
C	5.9				1	.00	COMP	1	8.1	COMP	1	18	COMP						
C	6.1	1	20											1	.00	COMP			
C	7.0																		
C	6.8																		
C	6.7																		
C	7.0																		
C	6.4																		
C	2.9				1	.00	COMP	1	8.1	COMP	1	23	COMP						
C	2.9	1	18											1	.84	COMP	1	10	COMP
C	2.9																		
C	2.9																		
C	2.9																		
C	2.9																		
	6.2		23			.00			7.8			21			.26			11	
	8.1		28			.01		MIN.	8.1			23			.84			17	
	7.4																		
	31		4			4			4			4			4			3	
	C		4			4			4			4			4			3	
									0										
									0										

8/01/80
8/31/80

LEWIS, JOHN J.
L.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
3 OF 3

PENNWALT CORPORATION
655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

2 820299 M10002381 820224 80 11 06

	01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0		00011 TEMP-WATER F	
1	0			
1	0			
1	0			
1	0			
1	0			
1	0	1	61	
1	0			
1	0			
1	0			
1	0			
1	0			
1	0			
1	0	1	61	
1	0			
1	0			
1	0			
1	0			
1	0			
1	0	1	57	
1	0			
1	0			
1	0			
1	0			
1	0			
1	0	1	63	
1	0			
1	0			
1	0			
1	0			
		0		61
		0		63
		31		4
		31		4
		0		
		0		
		8/01/80		
		8/31/80		

LEWIS, JOHN J. W1758
E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
4 OF 3

PENNWALT CORPORATION
4255 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

1 820298 MI0002381 820190 80 11 06

	50050 FLOW CONDUIT MGD	85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 1856	MAXIMUM 3711	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.40	MAXIMUM 2.30	00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5	00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50	00335 COD-LOW LEVEL MG/L	
C	15.5	1 *5937	COMP			C	8.7 7.7			1 .00			
C	15.6	1 2605	COMP			C	8.6 7.3			1 .00			
C	15.2	1 *4058	COMP	1 .25	COMP	C	8.5 7.7	1 30	COMP	1 .12			
C	16.0	1 *5072	COMP			C	8.7 7.9			1 .00		1 26	COMP
C	14.9	1 *7688	COMP	1 .00	COMP	C	8.6 8.0	1 33	COMP	1 .00		1 22	COMP
C	15.6	1 *6240	COMP			C	*10.6 7.1			1 .00		1 19	COMP
C	15.4	1 *12320	COMP	1 .00	COMP	C	8.4 7.7	1 31	COMP	1 .00			
C	15.5					C	8.5 7.7			1 .00			
C	15.4	1 2310	COMP			C	9.3 7.1			1 .00			
C	15.2			1 .38	COMP	C	8.6 7.5	1 21	COMP	1 .06			
C	15.2	1 2782	COMP			C	*9.7 6.9			1 .00		1 18	COMP
C	15.3	1 2555	COMP	1 .00	COMP	C	9.1 7.3	1 31	COMP	1 .00			
C	13.5	1 *4955	COMP			C	*11.0 5.6*			1 .00		1 13	COMP
C	11.7	1 3311	COMP			C	9.2 7.0	1 122	COMP	1 .00		1 36	COMP
C	16.0	1 3200	COMP	1 .00	COMP	C	*11.4 6.0*			1 .00			
C	16.0	1 3472	COMP			C	8.5 7.2			1 .30			
C	15.5	1 1550	COMP	1 1.06	COMP	C	*11.4 4.5*	1 31	COMP	1 *1.70			
C	15.9	1 *6360	COMP			C	8.8 7.0			1 1.10		1 12	COMP
C	15.8	1 3160	COMP	1 .00	COMP	C	8.3 7.2	1 34	COMP	1 .56			
C	15.7	1 *3799	COMP			C	8.0 7.4			1 .65		1 17	COMP
C	16.0	1 *5328	COMP	1 .00	COMP	C	*10.7 7.4	1 40	COMP	1 .00		1 22	COMP
C	16.6	1 1660	COMP			C	8.1 7.5			1 .27			
C	15.7	1 3140	COMP			C	8.1 7.5			1 .06			
C	15.3	1 3565	COMP	1 .00	COMP	C	8.2 7.5	1 40	COMP	1 .24		1 13	COMP
C	15.5	1 2062	COMP			C	8.9 6.7			1 .00			
C	15.1	1 3398	COMP	1 .00	COMP	C	8.5 7.6	1 36	COMP	1 .35			
C	15.1	1 *4787	COMP			C	8.9 7.2			1 .00		1 9	COMP
C	13.2	1 *3736	COMP	1 .62	COMP	C	*11.0 6.6	1 49	COMP	1 .26		1 33	COMP
C	15.6	1 3635	COMP			C	*9.9 6.9			1 .12			
C	15.0	1 *4245	COMP			C	8.4 7.6			1 .00			
C	15.4	1 *10010	COMP	1 .88	COMP	C	9.2 6.9	1 39	COMP	1 .30			
	15.3		*4377		.25		8.1		41		.20		20
	16.6		*12320		1.06	MIN.	*11.4		122		*1.70		36
							*4.5						
	31		29		13		31		13		31		12
	C		29		13		C		13		31		12
			14		0		8				1		
			6038		.00		10.7				1.70		

8/01/80
8/31/80

LEWIS, JOHN J.
F.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
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PENNWALT CORPORATION
3655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820190 80 11 06

91008 LEAD LBS/DAY AVERAGE	MAXIMUM	01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F	
LT 1.37	2.75	0			
		1	0	1	96
		1	0	1	94
		1	0	1	94
		1	0	1	94
		1	0	1	94
		1	0	1	94
		1	0	1	94
		1	0	1	92
		1	0	1	95
		1	0	1	92
		1	0	1	74
1	.92 COMP	1	0	1	90
		1	0	1	95
		1	0	1	98
		1	0	1	102
		1	0	1	94
		1	0	1	86
		1	0	1	94
		1	0	1	89
		1	0	1	94
		1	0	1	90
		1	0	1	77
		1	0	1	94
		1	0	1	94
		1	0	1	93
1	.60 COMP	1	0	1	95
		1	0	1	94
		1	0	1	93
		1	0	1	94
		1	0	1	93
		1	0	1	94
	.76		0		92
	.92		0		102
	2		31		31
	2		31		31
	0		0		
	.00		0		
	8/01/80				
	8/31/80				

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
6 OF 31

PENNWALT CORPORATION
3555 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

1 820298 MI0002381 820193 80 11 06

	50050 FLOW CONDUIT MGD	85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 844	MAXIMUM 1687	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 3.00	MAXIMUM 5.00		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50	01042 COPPER-TOTAL UG/L MAXIMUM 1000		
C	4.5	1	1202				C	8.4	7.7			1	1.18			
C	4.8						C	9.3	7.7			1	.27			
C	4.6			1	.25	COMP	C	8.4	8.1	1	186 COMP	1	.21	1	20	COMP
C	4.7	1	785				C	8.7	7.5			1	.00	1	27	COMP
C	4.7	1	235	1	.00	COMP	C	9.1	7.7	1	116 COMP	1	.45			
C	4.7	1	860				C	9.4	6.8			1	.25			
C	4.7	1	940	1	.25	COMP	C	8.0	7.6	1	41 COMP	1	.50			
C	4.6	1	690				C	8.1	7.6			1	.45			
C	4.6						C	8.0	7.1			1	.58			
C	4.7			1	.00	COMP	C	7.9	7.2	1	82- COMP	1	.09	1	17	COMP
C	4.6	1	1150				C	8.0	7.3			1	.70			
C	4.6	1	1072	1	.00	COMP	C	8.0	7.1	1	70 COMP	1	.40	1	21	COMP
C	4.6	1	538				C	8.0	7.4			1	.32			
C	4.4	1	805	1	.00	COMP	C	7.9	7.6	1	94 COMP	1	.10			
C	4.5	1	149				C	8.1	7.1			1	.00			
C	4.4						C	8.3	7.9			1	.05			
C	4.4			1	.00	COMP	C	8.3	7.7	1	68 COMP	1	.30			
C	4.7	1	470				C	8.4	7.4			1	.00			
C	4.7	1	940	1	.00	COMP	C	8.2	7.3	1	58 COMP	1	.19			
C	4.6	1	382				C	8.0	7.3			1	.00	1	35	COMP
C	4.6	1	308	1	.00	COMP	C	7.9	7.2	1	77 COMP	1	.00	1	18	COMP
C	4.5	1	527				C	8.1	7.3			1	.00			
C	4.6						C	7.8	7.2			1	.88			
C	4.5			1	.00	COMP	C	7.8	7.6	1	72 COMP	1	.87			
C	4.6	1	612				C	8.9	8.4			1	.86	1	12	COMP
C	4.6	1	768	1	.00	COMP	C	7.9	7.5	1	37 COMP	1	1.10	1	12	COMP
C	4.6	1	612				C	8.1	7.5			1	.70			
C	5.0	1	750	1	.88	COMP	C	8.2	7.6	1	67 COMP	1	.28			
C	5.2	1	780				C	8.5	7.5			1	.31			
C	5.3						C	8.0	7.8			1	.05			
C	5.6			1	.25	COMP	C	8.7	7.3	1	100 COMP	1	.70			
	4.7		694		.13			7.9			70		.38		20	
	5.6		1202		.88		MIN.	9.4			186		1.18		0	
								6.8								
	31		21		13			31			13		31		8	
	C		21		13			C			13		31		8	
			0		0			0					0		0	
			0		.00			.0					.00		0	

8/01/80
8/31/80

LEWIS, JOHN J.

E.R. GOLINSKI

W1758

313-285-9200

ATTACHMENT NO 3
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PENNWALT CORPORATION
4755 RIDGE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820193 80 11 06

	01045 IRON-TOTAL UG/L MAXIMUM		91008 LEAD-TOTAL LBS/DAY AVERAGE	MAXIMUM		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F	
	1600		LT 1.00	2.00		0			
						1	0	1	82
						1	0	1	82
1	*2310	COMP				1	0	1	82
						1	0	1	82
						1	0	1	80
						1	0	1	82
						1	0	1	82
						1	0	1	82
						1	0	1	83
1	1130	COMP				1	0	1	83
						1	0	1	80
			1	.78	COMP	1	0	1	73
						1	0	1	83
						1	0	1	83
						1	0	1	83
						1	0	1	83
						1	0	1	83
						1	0	1	80
						1	0	1	89
1	1520	COMP				1	0	1	80
						1	0	1	82
						1	0	1	76
						1	0	1	83
						1	0	1	84
1	1230	COMP				1	0	1	83
			1	.37	COMP	1	0	1	84
						1	0	1	84
						1	0	1	83
						1	0	1	84
						1	0	1	83
						1	0	1	84
		1548		.58			0		82
		*2310		.78			0		89
		4		2			31		31
		4		2			31		31
		1		0			0		
		2310		.00			0		
		8/01/80							
		8/31/80							

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 8 O.F. 39

3

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

1 820298 MI0002381 820223 80 11 06

	50050 FLOW CONDUIT MGD	00530 SOLIDS-SUSPENDED MG/L AVERAGE LT 35	MAXIMUM 70	85032 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 467	MAXIMUM 934	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.00	MAXIMUM 1.50		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50
C	1.9	1	*96	1	*1520				C	8.7 8.1				1 .00	
C	1.9								C	8.5 7.6				1 .00	
C	1.7					1	.38	COMP	C	8.2 7.6	1	5802	COMP	1 .00	
C	2.0	1	2	1	44				C	9.0 7.2	1	6345	COMP	1 .00	
C	1.9	1	12	1	190	1	.01	COMP	C	*10.6 7.9	1	6223	COMP	1 .00	
C	1.9	1	22	1	348				C	9.5 6.3*				1 .45	
C	1.9	1	18	1	285	1	.62	COMP	C	8.8 7.0	1	5497	COMP	1 .10	
C	1.9	1	8	1	127				C	9.5 6.7				1 .00	
C	1.8								C	8.8 7.9				1 .00	
C	1.7					1	.62	COMP	C	8.9 7.6	1	5064	COMP	1 .00	
C	2.1	1	10	1	174				C	9.3 7.7	1	5729	COMP	1 .00	
C	2.2	1	24	1	440	1	.00	COMP	C	8.0 7.8	1	4509	COMP	1 .00	
C	2.0	1	5	1	84				C	8.6 7.7				1 .00	
C	2.1	1	66	1	*1155	1	.38	COMP	C	8.8 7.7	1	6217	COMP	1 .00	
C	2.0	1	14	1	234				C	8.8 7.6				1 .00	
C	1.9								C	8.2 7.6				1 .00	
C	2.0					1	.88	COMP	C	7.8 7.4	1	2978	COMP	1 .00	
C	1.9	1	4	1	63				C	8.4 7.2				1 .00	
C	2.2	1	10	1	183	1	.25	COMP	C	*9.8 7.0	1	5235	COMP	1 .16	
C	2.0	1	4	1	66				C	8.6 7.4				1 .00	
C	1.8	1	2	1	31	1	1.25	COMP	C	8.3 7.6	1	4759	COMP	1 .00	
C	1.7	1	8	1	114				C	8.2 7.5				1 .00	
C	1.6								C	8.3 7.4				1 .18	
C	1.5					1	.00	COMP	C	8.6 7.6	1	4837	COMP	1 .19	
C	1.7	1	4	1	56				C	8.4 7.6				1 .22	
C	1.8	1	3	1	45	1	.00	COMP	C	8.0 7.5	1	4442	COMP	1 .50	
C	1.7	1	6	1	85				C	8.4 7.2				1 .44	
C	1.6	1	9	1	120	1	.25	COMP	C	7.9 7.1	1	5882	COMP	1 .28	
C	1.6	1	2	1	27				C	8.7 7.2				1 .00	
C	1.4								C	8.4 7.0				1 .00	
C	1.5								C	8.8 7.9				1 .00	
	1.8		16		256		.39			8.1		5251			.08
	2.2		*96		*1520		1.25		MIN.	*10.6		6345			.50
										*6.3					
	31		21		21		12			31		14			31
	C		21		21		12			C		14			31
			1		2		0			2					0
			96		1338		.00			10.2					.00
	8/01/80														
	8/31/80														

LEWIS, JOHN J.
E.R. GOLINSKI

WL758
313-285-9200

ATTACHMENT NO 3
9 OF 31

PENNWALT CORPORATION
6633 MIDDLE AVENUE
ALLANDALE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

2 820298 MI0002381 820223 80 11 06

	81017 COD LBS/DAY MAXIMUM		01051 LEAD-TOTAL UG/L AVERAGE	MAXIMUM	91038 LEAD-TOTAL LBS/DAY AVERAGE	MAXIMUM		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F	
	1301		LT 100	200	LT 1.40	2.70		0			
								1	0	1	84
								1	0	1	82
								1	0	1	82
1	882	COMP						1	0	1	82
1	950	COMP						1	0	1	82
1	1218	COMP						1	0	1	82
								1	0	1	82
								1	0	1	83
								1	0	1	85
			1	12	1	.17	COMP	1	0	1	82
1	594	COMP						1	0	1	84
								1	0	1	85
1	284-	COMP						1	0	1	84
1	508	COMP						1	0	1	85
								1	0	1	84
								1	0	1	85
								1	0	1	83
1	490	COMP						1	0	1	82
								1	0	1	80
1	384-	COMP	1	23	1	.38	COMP	1	0	1	82
								1	0	1	85
								1	0	1	81
								1	0	1	84
								1	0	1	83
1	14-	COMP						1	0	1	84
								1	0	1	85
1	255-	COMP						1	0	1	85
1	347	COMP						1	0	1	84
								1	0	1	85
								1	0	1	84
								1	0	1	85
	368			18		.28			0		83
	1218			23		.38			0		85
	11			2		2			31		31
	11			2		2			31		31
	0			0		0			0		
	0			0		.00			0		
	8/01/80										
	8/31/80										

LEWIS, JOHN J. W1758

E.R. GULINSKI 313-285-9200

ATTACHMENT NO 3

/ 0.5 /

PENNWALT CORPORATION
4655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

1 820298 MI0002381 821088 80 11 06

	50050 FLOW CONDUIT MGD	47031 SOLIDS-SUS-NET#/D LBS/DAY AVERAGE LT 380	MAXIMUM 570	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.50	MAXIMUM 3.00	81019 AMMONIA-NITROGEN LBS/DAY MAXIMUM 250.00	00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5	47026 CHLORIDE-NET#/D LBS/DAY MAXIMUM 8800		50060 CHLORINE-TOTAL MG/L MAXIMUM 0.50
C	7.8			1 .10		1 6.47	C	8.1 7.3			1 .00
C	9.0						C	8.6 7.2			
C	8.9	1 6081-	COMP				C	7.7 7.2 1	75	COMP	
C	8.6			1 1.00		1 71.64	C	8.6 8.1			1 .00
C	8.4	1 6506-	COMP				C	8.0 7.6 1	208	COMP	
C	9.1			1 *5.00		1 *379.02	C	8.4 8.0			1 .00
C	9.3	1 12162-	COMP				C	8.6 7.7 1	308	COMP	
C	9.1			1 .00		1 .00	C	8.3 7.4			1 .00
C	9.1						C	8.4 2.7*			
C	8.9	1 6747-	COMP				C	8.1 7.5 1	75-	COMP	
C	8.8			1 .00		1 .00	C	8.8 7.6			1 .00
C	9.5	1 6731-	COMP				C	8.4 8.2 1	558	COMP	
C	9.7			1 .20		1 16.20	C	8.8 7.8			1 .00
C	10.0	1 6414-	COMP				C	8.8 7.6 1	167-	COMP	
C	8.3			1 1.70		1 117.53	C	8.3 8.0			1 .00
C	7.4						C	8.8 8.1			
C	7.5	1 1999-	COMP				C	8.4 8.0 1	125-	COMP	
C	7.9			1 .30		1 19.75	C	8.7 8.0			1 .00
C	7.3	1 4382-	COMP				C	8.6 8.0 1	791-	COMP	
C	7.3			1 .70		1 42.56	C	8.9 8.1			1 .00
C	7.4	1 2774-	COMP				C	8.3 7.9 1	800	COMP	
C	7.5			1 .35		1 21.90	C	8.6 8.1			1 .00
C	8.3						C	8.5 8.0			
C	8.4	1 3782-	COMP				C	8.5 7.2 1	0	COMP	
C	8.6			1 .30		1 21.50	C	8.4 7.9			1 .48
C	8.6	1 3440-	COMP				C	8.3 7.3 1	433	COMP	
C	9.0			1 .15		1 11.25	C	8.2 7.6			1 .05
C	9.0	1 4423-	COMP				C	7.7 7.3 1	150-	COMP	
C	8.9			1 1.50		1 111.25	C	8.0 7.4			1 *2.10
C	9.0						C	7.6 7.5			
C	9.0						C	7.8 7.5			
	8.6	5453-		.87		63.01		8.0	90		.20
	10.0	0		*5.00		*379.02		8.9	800		*2.10
							MIN.	*2.7			
	31	12		13		13		31	12		13
	C	12		13		13		C	12		13
		0		1		1		0	0		1
		0		5.00		379.02		.0	0		2.10

8/01/80
8/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

WL758
313-285-9200

ATTACHMENT NO 3
11 OF 39

PENNWALT CORPORATION
4555 PIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

2 820290 MI0002381 821088 80 11 06

85001 P005 LBS/DAY AVERAGE	MAXIMUM	00335 COD-LOW LEVEL MG/L			01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM	45003 PHENOL LBS/DAY MAXIMUM	32730 PHENOL UG/L MAXIMUM	00745 SULFIDE-TOTAL MG/L			01092 ZINC-TOTAL UG/L MAXIMUM
LT 386	576				0	10.00	200				1000
					1 0						
					1 0						
		1	16	COMP	1 0	1.51	COMP	1 20	COMP	1 .0	COMP
					1 0						
1 487	COMP	1	6	COMP	1 0	1.43	COMP	1 20	COMP		
1 300	COMP				1 0						
1 233	COMP	1	11	COMP	1 0	1.58	COMP	1 20	COMP		
					1 0						
					1 0						
		1	27	COMP	1 0	2.94	COMP	1 40	COMP	1 .0	COMP
					1 0						
		1	15	COMP	1 0	1.62	COMP	1 20	COMP		1 12 COMP
1 165	COMP				1 0						
1 173	COMP	1	0	COMP	1 0	1.70	COMP	1 20	COMP		
1 349	COMP				1 0						
					1 0						
		1	7	COMP	1 0	1.28	COMP	1 20	COMP	1 .0	COMP
					1 0						
1 307	COMP	1	9	COMP	1 0	1.24	COMP	1 20	COMP		
1 489	COMP				1 0						
1 429	COMP	1	0	COMP	1 0	1.26	COMP	1 20	COMP		
					1 0						
					1 0						
		1	84	COMP	1 0	1.43	COMP	1 20	COMP	1 .0	COMP
					1 0						
1 *4369	COMP	1	95	COMP	1 0	1.46	COMP	1 20	COMP		1 21 COMP
1 *3969	COMP				1 0						
1 *9369	COMP	1	160	COMP	1 0	1.53	COMP	1 20	COMP		
					1 0						
					1 0						
					1 0						
	*1720		36		0	1.58		22		.0	17
	*9369		160		0	2.94		40		.0	21
	12		12		31	12		12		4	2
	12		12		31	12		12		4	2
	3				0	0		0			0
	5902				0	.00		0			0
	8/01/80										
	8/31/80										

LEWIS, JOHN J. W1758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3

12 OF 34

PENNWALT CORPORATION
4655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

AUGUST 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

1 820298 MI0002381 821084 80 11 06

00011
TEMP-WATER
F

1 81

1 79
1 86
1 81

1 86
1 82
1 81

1 73
1 77
1 77

1 84
1 86
1 80

82
88

13
13

8/01/80
8/31/80

LEWIS, JOHN J.
E.R. GULINSKI

W1758
313-285-9200

U.S. ATTACHMENT NO 3
13 OF 24

PENNWALT CORPORATION
4615 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
TOTAL CHLORIDE LOADING 002, 003, & 005

1 820298 MI0002381 820298 80 11 06

41026
CHLORIDE-NET#/D
LBS/DAY
MAXIMUM
500,000

1	106898	COMP
1	80934	COMP
1	84024	COMP
1	74403	COMP
1	83083	COMP
1	93720	COMP
1	108956	COMP
1	72462	COMP
1	81958	COMP
1	101634	COMP
1	90447	COMP
1	106432	COMP
1	127324	COMP

93252
127324

13
13
0
0
9/01/80
9/30/80

LEWIS, JOHN J.
E.R. GOLINSKI

WL758
313-285-9200

ATTACHMENT NO 3
14/26 39

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

1 320298 MI0002381 820224 80 11 06

	50050 FLOW CONDUIT MGD	00530 SOLIDS-SUSPENDED MG/L		00610 AMMONIA-NITROGEN MG/L			00400 PH 0 TO 14 MAXIMUM 9.5			MINIMUM 6.5	00940 CHLORIDE MG/L			50060 CHLORINE-TOTAL MG/L			00335 COD-LOW LEVEL MG/L		
C	2.9																		
C	3.4			1	1.38	COMP	1	7.4	COMP		1	19	COMP						
C	2.5	1	70											1	.00	COMP	1	13	COMP
C	1.1																		
C	2.4																		
C	2.4																		
C	2.0																		
C	2.0																		
C	1.6			1	.25	COMP	1	8.0	COMP		1	21	COMP						
C	1.9	1	14											1	.00	COMP			
C	2.8																		
C	2.6																1	12	COMP
C	2.7																		
C	2.4																		
C	1.0																		
C	1.1			1	.38	COMP	1	7.1	COMP		1	21	COMP						
C	2.1	1	19											1	.00	COMP	1	5	COMP
C	2.5																		
C	3.8																		
C	3.8																		
C	3.6																		
C	3.9																		
C	3.6			1	.00	COMP	1	7.1	COMP		1	15	COMP						
C	3.8	1	24											1	.00	COMP			
C	3.9																		
C	3.9																1	12	COMP
C	3.7																		
C	3.6																		
C	3.4																		
C	2.9	1	24	1	.25	COMP	1	7.4	COMP										
	2.8		30		.45			7.4				19			.00			11	
	3.9		70		1.38		MIN.	8.0				21			.00			13	
								7.1											
	30		5		5			5				4			4			4	
	C		5		5			5				4			4			4	
								0											
								0											

9/01/80
9/30/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
15-0631

PENNWALT CORPORATION
4155 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

2 820298 MI0002381 820224 80 11 06

	01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0		00011 TEMP-WATER F
1	0		
1	0		
1	0	1	62
1	0		
1	0	1	64
1	0		
1	0		
1	0		
1	0		
1	0	1	59
1	0		
1	0		
1	0		
1	0		
1	0		
1	0	1	57
1	0		
1	0		
1	0		
1	0		
1	0		
1	0	1	57
1	0		
1	0		
1	0		
1	0		
1	0		

0	60
0	64
30	5
30	5
0	
0	
9/01/80	
9/30/80	

LEWIS, JOHN J. W1758
E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
to DE 29

PENNWALT CORPORATION
4605 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

1 820298 MI0002381 820190 80 11 06

	50050 FLOW CONDUIT MGD		85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 1856	MAXIMUM 3711		00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.40	MAXIMUM 2.30		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L			50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50		00335 COD-LOW LEVEL MG/L	
C	16.3	1	*5982	COMP				C	9.5	6.5				1	.06		1	29	COMP
C	16.7	1	*7515	COMP	1	.38	COMP	C	*9.7	8.1	1	50	COMP	1	.00				
C	15.9	1	3705	COMP				C	8.8	7.1				1	.00		1	14	COMP
C	16.0	1	*7200	COMP	1	.25	COMP	C	*10.4	6.3	1	36	COMP	1	.25		1	13	COMP
C	16.6	1	*5528	COMP				C	8.9	6.6				1	.08				
C	16.2	1	3240	COMP				C	7.9	7.2				1	*1.17				
C	16.1	1	*6440	COMP	1	.00	COMP	C	7.9	7.3	1	35	COMP	1	*1.60				
C	16.1	1	*5909	COMP				C	9.4	6.3*				1	.40		1	21	COMP
C	16.5	1	2195	COMP	1	.00	COMP	C	8.9	7.0	1	24	COMP	1	.30				
C	16.2	1	*7420	COMP				C	9.1	6.8				1	.70				
C	13.0	1	*3900	COMP	1	.25	COMP	C	8.7	7.3	1	34	COMP	1	.24		1	12	COMP
C	15.9	1	*4770	COMP				C	*10.9	7.1				1	.18		1	8	COMP
C	13.4	1	*4462	COMP				C	7.9	7.2				1	.08				
C	17.9	1	*6856	COMP	1	.00	COMP	C	8.1	7.4	1	33	COMP	1	.70				
C	15.8	1	*5261	COMP				C	9.8	7.1				1	.72		1	19	COMP
C	15.8	1	*5009	COMP	1	.00	COMP	C	9.5	7.2	1	35	COMP	1	.40				
C	15.1	1	*5542	COMP				C	8.8	6.8				1	*1.74		1	4	COMP
C	15.3	1	3443	COMP	1	.00	COMP	C	8.7	6.9	1	33	COMP	1	.45		1	14	COMP
C	15.6	1	3245	COMP				C	8.6	7.2				1	.47				
C	16.5	1	3581	COMP				C	8.1	7.2				1	*1.55				
C	15.1	1	*3775	COMP	1	.00	COMP	C	8.2	7.5	1	37	COMP	1	.55				
C	15.4	1	3080	COMP				C	*9.7	6.9				1	.57		1	8	COMP
C	13.6	1	3169	COMP	1	.00	COMP	C	8.5	6.4	1	31	COMP	1	.17				
C	15.5	1	3612	COMP				C	*11.2	2.3*				1	.23				
C	14.7	1	*5395	COMP	1	.25	COMP	C	*10.8	3.3*	1	49	COMP	1	.00		1	10	COMP
C	15.2	1	3040	COMP				C	9.1	5.9*				1	.00		1	5	COMP
C	15.6	1	2855	COMP				C	8.5	7.2				1	.00				
C	15.9	1	2783	COMP	1	.00	COMP	C	7.8	7.5	1	31	COMP	1	.00				
C	15.5	1	2325	COMP				C	8.9	7.1				1	.00		1	10	COMP
C	13.5	1	2930	COMP	1	.00	COMP	C	8.4	7.4	1	42	COMP	1	.00				
	15.6		*4472			.09			7.9			30			.42			13	
	17.9		*7515			.38		MIN.	*11.2			50			*1.74			29	
									*2.3										
	30		30			13			30			13			30			13	
	C		30			13			C			13			30			13	
			16			0			6						3				
			5685			.00			10.5						1.63				

9/01/80
9/30/80

LEWIS, JOHN J.

F.R. GOLINSKI

W1758

313-285-9200

ATTACHMENT NO 3

17 06 39

PENNWALT CORPORATION
4655 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820190 80 11 06

	91008 LEAD LBS/DAY AVERAGE	MAXIMUM	01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F
	LT 1.37	2.75	0		
			1	0	1 92
			1	0	1 98
			1	0	1 96
			1	0	1 96
			1	0	1 92
			1	0	1 96
			1	0	1 94
			1	0	1 92
1	1.49	COMP	1	0	1 94
			1	0	1 92
			1	0	1 94
			1	0	1 88
			1	0	1 90
			1	0	1 90
			1	0	1 87
			1	0	1 90
			1	0	1 87
			1	0	1 85
			1	0	1 86
			1	0	1 89
			1	0	1 87
			1	0	1 89
1	.95	COMP	1	0	1 87
			1	0	1 93
			1	0	1 87
			1	0	1 83
			1	0	1 85
			1	0	1 83
			1	0	1 85
			1	0	1 86
		1.22		0	90
		1.49		0	98
		2		30	30
		2		30	30
		0		0	
		.00		0	
		9/01/80			
		9/30/80			

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

1 320298 MI0002381 820193 80 11 06

	50050 FLOW CONDUIT MGD	85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 844	MAXIMUM 1689	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.00	MAXIMUM 5.00		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50	01042 COPPER-TOTAL UG/L MAXIMUM 1000		
C	5.5	1	1419				C	8.6	7.6			1	.00		1	18	COMP
C	5.5	1	732	1	1.38	COMP	C	8.2	6.8	1	113	COMP	1 .00		1	12	COMP
C	5.3	1	885				C	7.9	6.8				1 .08				
C	5.5	1	644	1	.38	COMP	C	7.7	7.2	1	114	COMP	1 .12				
C	5.7	1	985				C	8.1	7.0				1 .22				
C	5.6						C	7.7	7.4				1 .39				
C	5.6			1	.00	COMP	C	7.7	7.3	1	98	COMP	1 .53				
C	5.3	1	440				C	8.0	7.0				1 .25		1	10	COMP
C	5.7	1	285	1	.00	COMP	C	8.7	6.6	1	150	COMP	1 .00		1	20	COMP
C	5.8	1	290				C	8.3	6.8				1 .00				
C	5.4	1	583	1	.00	COMP	C	8.3	7.3	1	137	COMP	1 .00				
C	5.4	1	718				C	8.3	7.4				1 .00				
C	5.5						C	8.4	7.8				1 .00				
C	5.5			1	.00	COMP	C	8.5	7.9	1	140	COMP	1 .00		1	14	COMP
C	5.5	1	825				C	8.8	6.9				1 .00		1	14	COMP
C	5.5	1	919	1	.00	COMP	C	8.7	7.8	1	139	COMP	1 .05				
C	6.0	1	552				C	8.8	7.7				1 .00				
C	6.1	1	*1830	1	.00	COMP	C	8.4	7.8	1	101	COMP	1 .00				
C	5.6	1	655				C	8.6	7.2				1 .07				
C	5.5						C	7.6	7.1				1 .00				
C	5.6			1	.00	COMP	C	9.1	7.2	1	127	COMP	1 .00		1	10	COMP
C	5.6	1	280				C	*9.7	7.1				1 .17				
C	6.1	1	1116	1	.00	COMP	C	*9.7	5.6	*1	121	COMP	1 .96		1	8	COMP
C	5.8	1	916				C	8.3	6.7				1 .55				
C	5.8	1	580	1	.00	COMP	C	8.6	7.3	1	136	COMP	1 .55				
C	5.8	1	*2320				C	8.7	7.0				1 .30				
C	5.7						C	8.1	7.6				1 .50				
C	5.8			1	.00	COMP	C	8.0	7.7	1	129	COMP	1 .55		1	12	COMP
C	5.9	1	295				C	8.2	7.4				1 .60		1	20	COMP
C	5.7	1	809	1	.00	COMP	C	*11.1	7.1	1	131	COMP	1 .35				
	5.7		822		.14			7.8			126			.21			14
	6.1		*2320		1.38		MIN.	*11.1			150			.96			0
								*5.6									
	30		22		13			30			13			30			10
	C		22		13			C			13			30			10
			2		0			3						0			0
			2075		.00			10.2						.00			0
	9/01/80																
	9/30/80																

LEWIS, JOHN J.
E.P. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
19 06 31

PENNWALT CORPORATION
4655 RIDGE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820193 80 11 06

	01045 IRON-TOTAL UG/L MAXIMUM 1600		91008 LEAD-TOTAL LBS/DAY AVERAGE LT 1.00	MAXIMUM 2.00		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0		00011 TEMP-WATER F
1	*1750	COMP				1 0	1	84
						1 0	1	85
						1 0	1	83
						1 0	1	83
						1 0	1	83
						1 0	1	83
1	*2570	COMP				1 0	1	84
						1 0	1	83
			1	.63	COMP	1 0	1	84
						1 0	1	82
						1 0	1	77
						1 0	1	77
						1 0	1	78
1	1510	COMP				1 0	1	77
						1 0	1	77
						1 0	1	77
						1 0	1	76
						1 0	1	75
						1 0		
						1 0	1	74
1	1180	COMP				1 0	1	72
						1 0	1	74
			1	.43	COMP	1 0	1	73
						1 0	1	74
						1 0	1	72
						1 0	1	74
						1 0	1	73
1	1090	COMP				1 0	1	74
						1 0	1	71
						1 0	1	70
		*1620		.53		0		78
		*2570		.63		0		85
		5		2		30		29
		5		2		30		29
		2		0		0		
		2160		.00		0		
		9/01/80						
		9/30/80						

LEWIS, JOHN J. W1758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3

PENNWALT CORPORATION
4655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

1 820298 MI0002381 820223 80 11 06

	50050 FLOW CONDUIT MGD	00530 SOLIDS-SUSPENDED MG/L AVERAGE LT 35	MAXIMUM 70	85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 467	MAXIMUM 934	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.00	MAXIMUM 1.50		00400 PH 0 TO 14 MAXIMUM 9.0	MINIMUM 6.5		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50
C	1.6	1	4	1	53				C	8.6	7.5			1	.00
C	1.6	1	5	1	67				C	8.5	7.6	1	7378 COMP	1	.00
C	1.5	1	22	1	275				C	8.6	7.8			1	.00
C	1.5	1	4	1	50	1	.63	COMP	C	8.8	7.8	1	5967 COMP	1	.00
C	1.6	1	8	1	107				C	*11.3	7.5			1	.00
C	1.0								C	8.6	7.5			1	.36
C	1.7					1	.00	COMP	C	8.4	7.5	1	5540 COMP	1	.92
C	1.7	1	5	1	71				C	8.5	7.6			1	.60
C	1.7	1	34	1	481	1	.75	COMP	C	8.9	7.5	1	4814 COMP	1	.40
C	1.6	1	*98	1	*1306				C	8.7	7.6			1	.53
C	1.6	1	1	1	13	1	.00	COMP	C	8.3	6.9	1	5870 COMP	1	.00
C	1.4	1	*72	1	840				C	8.7	7.9			1	.00
C	1.4								C	8.5	7.6			1	.00
C	1.4					1	.00	COMP	C	8.7	7.9	1	7383 COMP	1	.00
C	1.4	1	7	1	81				C	8.8	7.7			1	.14
C	1.5	1	12	1	150	1	.25	COMP	C	8.5	6.8	1	8176 COMP	1	.35
C	1.3	1	10	1	108				C	*11.4	7.7			1	.80
C	1.0	1	22	1	183	1	.37	COMP	C	8.2	7.4	1	8048 COMP	1	1.15
C	1.2	1	2	1	20				C	8.5	7.8			1	.10
C	1.1								C	8.5	7.4			1	.18
C	1.2					1	.00	COMP	C	8.6	7.4	1	7578 COMP	1	.00
C	.3	1	1	1	2				C	*9.8	5.9*			1	.12
C	.8	1	1	1	6	1	.25	COMP	C	*10.1	7.2	1	14186 COMP	1	.00
C	1.2	1	27	1	270				C	8.0	7.5			1	.10
C	1.2	1	10	1	100	1	.00	COMP	C	8.3	7.3	1	8225 COMP	1	.38
C	1.1	1	27	1	248				C	8.3	7.4			1	.00
C	1.5								C	8.3	6.3*			1	.00
C	1.7					1	.00	COMP	C	8.9	7.6	1	7089 COMP	1	.00
C	1.7	1	5	1	71				C	8.9	7.6			1	.00
C	1.4	1	8	1	94	1	.38	COMP	C	*9.8	5.7*	1	10421 COMP	1	.00
	1.4		18		209		.22			8.1			7744		.20
	1.7		*98		*1306		.75			*11.4			14186		1.15
									MIN.	*5.7					
	30		22		22		12			30			13		30
	C		22		22		12			C			13		30
			2		1		0			5					0
			85		1306		.00			10.5					.00
	9/01/80 9/30/80														

LEWIS, JOHN J. W1758

F.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
2/ DE 39

PENNWALT CORPORATION
-635 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

2 820298 MI0002381 820223 80 11 06

	81217 COD LBS/DAY MAXIMUM 1801		01051 LEAD-TOTAL UG/L AVERAGE LT 100	MAXIMUM 200	91008 LEAD-TOTAL LBS/DAY AVERAGE LT 1.40	MAXIMUM 2.70		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0		00011 TEMP-WATER F	
1	240	COMP						1 0	1	84	
								1 0	1	85	
1	312-	COMP						1 0	1	83	
1	638-	COMP						1 0	1	84	
								1 0	1	83	
								1 0	1	84	
								1 0	1	84	
1	439	COMP	1	16	1	.22	COMP	1 0	1	83	
								1 0	1	83	
			1	18	1	.24	COMP	1 0	1	81	
1	507	COMP						1 0	1	72	
1	186-	COMP						1 0	1	78	
								1 0	1	78	
								1 0	1	78	
1	455	COMP						1 0	1	74	
								1 0	1	78	
1	75-	COMP						1 0	1	77	
1	192	COMP						1 0	1	78	
								1 0	1	73	
								1 0	1	75	
								1 0	1	73	
								1 0	1	75	
								1 0	1	73	
								1 0	1	75	
1	330	COMP						1 0	1	73	
1	165-	COMP						1 0	1	75	
								1 0	1	70	
								1 0	1	68	
1	1246	COMP						1 0	1	69	
								1 0	1	68	
		169		17		.23		0		77	
		1246		18		.24		0		85	
		12		2		2		30		30	
		12		2		2		30		30	
		0		0		0		0			
		0		0		.00		0			
		9/01/80									
		9/30/80									

LEWIS, JOHN J. WL758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
32 OF 31

PENNWALT CORPORATION
4555 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

1 820298 MI0002381 821089 80 11 06

	50050 LOW CONDUIT MGD	47031 SOLIDS-SUS-NET#/D LBS/DAY AVERAGE LT 380		MAXIMUM 570	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.50		MAXIMUM 3.00	81019 AMMONIA-NITROGEN LBS/DAY MAXIMUM 250.00	
C	9.0	1	7422-	COMP					
C	8.8	1	6381-	COMP	1	.00		1	.00
C	8.7				1	.80		1	57.94
C	3.9								
C	8.7				1	.10		1	7.22
C	8.4								
C	8.5	1	6231-	COMP					
C	8.3				1	.00		1	.00
C	8.5	1	5739-	COMP					
C	8.9				1	.00		1	.00
C	7.6	1	7280-	COMP					
C	8.7				1	1.50		1	108.75
C	9.0								
C	8.5	1	5240-	COMP					
C	8.5				1	.50		1	35.45
C	8.5	1	4182-	COMP					
C	8.2				1	.90		1	61.50
C	8.3	1	5806-	COMP					
C	8.1				1	.10		1	6.72
C	8.1								
C	8.3	1	5323-	COMP					
C	8.2				1	.00		1	.00
C	7.9	1	4148-	COMP					
C	8.3				1	.00		1	.00
C	8.4	1	6714-	COMP					
C	8.2				1	.30		1	20.50
C	8.3								
C	8.4	1	2732-	COMP					
C	7.6				1	.50		1	31.69
C	6.7	1	2957-	COMP					
	8.4		5197-			.36			25.37
	9.0		0			1.50			108.75
	30		13			13			13
	C		13			13			13
			0			0			0
			0			.00			.00

	00400 PH 0 TO 14 MAXIMUM 9.5		MINIMUM 6.5		47026 CHLORIDE-NET#/D LBS/DAY MAXIMUM 8800		50060 CHLORINE-TOTAL MG/L MAXIMUM 0.50	
C	7.7	7.4	1	1724	COMP			
C	8.0	7.3	1	292	COMP	1	.00	
C	8.1	7.7				1	.00	
C	8.4	8.0	1	225	COMP			
C	8.4	8.0				1	.00	
C	8.4	8.0						
C	8.2	8.1	1	283	COMP			
C	8.7	8.2				1	.00	
C	8.4	7.9	1	566	COMP			
C	8.8	7.9				1	.00	
C	8.2	7.7	1	758-	COMP			
C	8.5	7.6				1	.00	
C	8.0	7.5						
C	7.6	7.1	1	142	COMP			
C	9.0	7.9				1	.00	
C	8.0	7.6	1	566-	COMP			
C	8.3	7.9				1	.00	
C	8.6	7.4	1	208-	COMP			
C	8.4	7.9				1	.00	
C	8.5	8.2						
C	8.4	8.2	1	550-	COMP			
C	8.6	8.2				1	.00	
C	8.5	7.8	1	200	COMP			
C	8.1	7.8				1	.00	
C	8.0	7.3	1	417-	COMP			
C	8.2	7.8				1	.00	
C	8.5	7.9						
C	8.2	7.7	1	558-	COMP			
C	8.7	8.2				1	.00	
C	9.1	8.4	1	450-	COMP			
	8.1			5-			.00	
	9.1			1724			.00	
MIN.	7.1							
	30			14			13	
	C			14			13	
	0			0			0	
	.0			0			.00	

9/01/80
9/30/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
OF 3

PENNWALT CORPORATION
4655 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

2 820298 MI0002381 821088 80 11 06

85001 BOD5 LBS/DAY AVERAGE	MAXIMUM		00335 COD-LOW LEVEL MG/L		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM	85003 PHENOL LBS/DAY MAXIMUM		32730 PHENOL UG/L MAXIMUM		00745 SULFIDE-TOTAL MG/L		01092 ZINC-TOTAL UG/L MAXIMUM	
LT 386	576				0	10.00		200				1000	
			1 45	COMP		1.53	COMP	1 20	COMP	1 .0	COMP		
1 *1610		COMP	1 27	COMP		1.50	COMP	1 20	COMP				
1 * 870		COMP											
1 516		COMP	1 4	COMP		1.51	COMP	1 20	COMP				
					1 0								
					1 0								
			1 7	COMP	1 0	1.45	COMP	1 20	COMP	1 .0	COMP		
					1 0								
1 * 638		COMP	1 12	COMP	1 0	1.45	COMP	1 20	COMP			1 14	COMP
1 *3338		COMP			1 0								
1 *1011		COMP	1 0	COMP	1 0	1.29	COMP	1 20	COMP				
					1 0								
			1 297	COMP	1 0	1.45	COMP	1 20	COMP	1 .0	COMP		
					1 0								
1 *2406		COMP	1 49	COMP	1 0	1.45	COMP	1 20	COMP				
1 *1911		COMP			1 0								
1 *1453		COMP	1 7	COMP	1 0	1.41	COMP	1 20	COMP				
					1 0								
					1 0								
			1 10	COMP	1 0	2.74	COMP	1 40	COMP	1 .0	COMP		
					1 0								
1 261		COMP	1 7	COMP	1 0	1.34	COMP	1 20	COMP			1 12	COMP
1 *689		COMP			1 0								
1 *1260		COMP	1 0	COMP	1 0	1.43	COMP	1 20	COMP				
					1 0								
					1 0								
			1 3	COMP	1 0	2.77	COMP	1 40	COMP	1 .0	COMP		
					1 0								
1 335		COMP	1 0	COMP	1 0	*17.02	COMP	1 *305	COMP				
	*1254		33		0	2.74		43		.0		13	
	*3338		297		0	*17.02		* 305		.0		14	
	13		14		26	14		14		5		2	
	13		14		26	14		14		5		2	
	10				0	1		1				0	
	1519				0	17.02		305				0	
	9/01/80												
	9/30/80												

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
24 OF 39

PENNWALT CORPORATION
4665 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

3 320298 MI0002381 821088 80 11 06

	00011 TEMP-WATER F
1	86
1	81
1	77
1	75
1	75
1	82
1	81
1	82
1	81
1	81
1	79
1	81
1	77

80
86

13
13

9/01/80
9/30/80

LEWIS, JOHN J.
E.R. GULINSKI

W1758
313-285-9200

ATTACHMENT NO 3
27 DE 39

PENNWALT CORPORATION
4055 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

SEPTEMBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 000
INTAKE

1 820298 MI0002381 820409 80 11 06

	00530 SOLIDS-SUSPENDED MG/L		00940 CHLORIDES MG/L		00335 COD LOW-LEVEL MG/L		IRON UG/L	00310 BOD5 MG/L	
1	106	COMP			1 66	COMP	1 3,190		
1	94	COMP	1 18	COMP				1 2	COMP
1	58	COMP			1 58	COMP			
1	86	COMP	1 19	COMP	1 20	COMP			
1	82	COMP							
1	58	COMP							
1	100	COMP	1 19	COMP			1 4,150		
1	86	COMP			1 31	COMP			
1	88	COMP	1 21	COMP				1 2	COMP
1	90	COMP							
1	116	COMP	1 30	COMP	1 1	COMP			
1	78	COMP			1 17	COMP			
1	84	COMP							
1	92	COMP	1 18	COMP			1 3,220		
1	69	COMP			1 16	COMP			
1	68	COMP	1 22	COMP				1 5	COMP
1	98	COMP			1 31	COMP			
1	93	COMP	1 21	COMP	1 19	COMP			
1	68	COMP							
1	62	COMP							
1	79	COMP	1 24	COMP			1 1,840		
1	60	COMP			1 22	COMP			
1	63	COMP	1 15	COMP					
1	54	COMP						1 3	COMP
1	101	COMP	1 24	COMP	1 7	COMP			
1	72	COMP			1 4	COMP			
1	58	COMP							
1	42	COMP	1 22	COMP					
1	42	COMP			1 2	COMP			
1	60	COMP	1 30	COMP				1 4	COMP
	77		22		23		3100	3	
	116		30		66		4150	5	
	30		13		13		4	5	
	30		13		13		4	5	

9/01/80
9/30/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
26 OF 54

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 000
INTAKE

1 820298 MI0002381 820409 80 11 06

	00530 SOLIDS-SUSPENDED MG/L		00940 CHLORIDES MG/L		00335 COD LOW-LEVEL MG/L		IRON UG/L		00310 BOD5 MG/L	
1	68	COMP			1	15	COMP			
1	91	COMP	1	27	COMP	1	50	COMP	1	4	COMP
1	51	COMP								
1	62	COMP							1	4	COMP
1	48	COMP	1	18	COMP			1	1,990		
1	54	COMP				1	11	COMP			
1	58	COMP	1	18	COMP						
1	40	COMP				1	15	COMP			
1	42	COMP	1	22	COMP	1	11	COMP			
1	54	COMP									
1	46	COMP							1	5	COMP
1	58	COMP	1	19	COMP						
1	44	COMP				1	15	COMP	1	1,450	
1	30	COMP	1	23	COMP						
1	34	COMP				1	2	COMP	1	5	COMP
1	66	COMP	1	22	COMP	1	31	COMP			
1	48	COMP									
1	58	COMP							1	5	COMP
1	63	COMP	1	21	COMP			1	1,530		
1	53	COMP				1	14	COMP			
1	60	COMP	1	18	COMP				1	3	COMP
1	45	COMP				1	24	COMP			
1	24	COMP	1	39	COMP	1	14	COMP			
1	48	COMP									
1	120	COMP									
1	78	COMP	1	20	COMP				1	3	COMP
1	53	COMP				1	4	COMP			
1	52	COMP	1	22	COMP			1	1,870		
1	36	COMP				1	1	COMP	1	1,520	
1	44	COMP	1	21	COMP	1	8	COMP			
1	48	COMP									
	54		22			16			1672		4
	120		39			50			1990		5
	31		13			14			5		7
	31		13			14			5		7

10/01/80
10/31/80

LEWIS, JOHN J.
F.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
20 OF 31

PENNWALT CORPORATION
755 GIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 000
TOTAL CHLORIDE LOADING 002, 003, & 005

1 820298 MI0002381 820298 80 11 06

47026
CHLORIDE-NET#/D
LBS/DAY
MAXIMUM
500,000

1	90363	COMP
1	87573	COMP
1	98510	COMP
1	82100	COMP
1	60192	COMP
1	73603	COMP
1	123725	COMP
1	93221	COMP
1	75861	COMP
1	76052	COMP
1	1649	COMP
1	110255	COMP
1	64874	COMP

79844
123725

13
13
0
0
10/01/80
10/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 9
27 QE 37

PENNWALT CORPORATION
6625 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

1 820728 MI0002381 820224 80 11 06

	50050 FLOW CONDUIT MGD		00530 SOLIDS-SUSPENDED MG/L		00610 AMMONIA-NITROGEN MG/L			00400 PH 0 TO 14 MAXIMUM 9.5			MINIMUM 6.5	00940 CHLORIDE MG/L			50060 CHLORINE-TOTAL MG/L			00335 COD-LOW LEVEL MG/L		
C	1.5	1	22					1	7.4	COMP					1	.00	COMP	1	10	COMP
C	1.4																			
C	1.5																			
C	1.5																			
C	1.5																			
C	1.5				1	.25	COMP	1	8.3	COMP		1	20	COMP						
C	1.5	1	21												1	.00	COMP	1	10	COMP
C	3.2																			
C	3.6																			
C	3.4																			
C	3.5																			
C	3.5																			
C	3.3				1	.75	COMP	1	8.1	COMP		1	26	COMP						
C	3.1	1	12												1	.00	COMP	1	5	COMP
C	1.7																			
C	2.2																			
C	2.2																			
C	2.2																			
C	3.5				1	.62	COMP	1	7.7	COMP		1	20	COMP						
C	3.5	1	23					1	6.9	COMP					1	.00	COMP	1	6	COMP
C	3.5																			
C	3.5																			
C	3.5																			
C	3.5																			
C	3.5				1	.25	COMP	1	6.6	COMP		1	23	COMP						
C	3.5	1	20												1	.00	COMP	1	8	COMP
C	3.5																			
C	3.5																			
	2.7		20			.47				7.5			22			.00			8	
	3.6		23			.75		MIN.		8.3			26			.00			10	
										6.6										
	31		5			4				6			4			5			5	
	C		5			4				6			4			5			5	
										0										
										0										

10/01/80
10/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
21 OF 37

PENNWALT CORPORATION
4655 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 001
DISCHARGE TO WYE STREET STORM SEWER

2 820298 MI0002381 820224 80 11 06

01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0	00011 TEMP-WATER F		
1	0	1	50
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0		
1	0	1	57
1	0	1	57
1	0		
1	0		
1	0		
1	0		
1	0		
1	0	1	57
1	0	1	57
1	0		
1	0		
1	0		
1	0		
1	0		
1	0	1	54
1	0	1	54
1	0		

0	55
0	57
31	7
31	7
0	
0	
10/01/80	
10/31/80	

LEWIS, JOHN J. W1758
L.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
30 DE 34

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

1 820298 MI0002381 820190 80 11 06

	50050 FLOW CONDUIT MGD		85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 1856	MAXIMUM 3711		00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.40	MAXIMUM 2.30		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L			50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50		00335 COD-LOW LEVEL MG/L	
C	14.7	1	*4660	COMP				C		*11.9	7.1			1	.00		1	5	COMP
C	15.5	1	2325	COMP	1	.00	COMP	C		*9.6	7.6 1		43	COMP	1 .00		1	21	COMP
C	13.6	1	2040	COMP				C		8.7	7.1				1 .00				
C	12.1	1	1912	COMP				C		8.7	7.2				1 .00				
C	12.2	1	1928	COMP	1	.00	COMP	C		8.6	7.4 1		49	COMP	1 .00				
C	14.6	1	*4380	COMP				C		*10.7	6.9				1 .00		1	8	COMP
C	16.4	1	*4641	COMP	1	.00	COMP	C		9.5	6.7 1		21	COMP	1 .95				
C	16.2	1	2835	COMP				C		8.8	6.9				1 .35		1	14	COMP
C	16.3	1	*4483	COMP	1	.00	COMP	C		8.9	7.0 1		39	COMP	1 .40		1	15	COMP
C	17.0	1	*4964	COMP				C		*11.3	6.2*				1 .47				
C	16.4	1	3280	COMP				C		9.1	5.9*				1 .98				
C	15.4	1	*4497	COMP	1	.00	COMP	C		9.1	6.5 1		8	COMP	1 1.13				
C	16.0	1	*3872	COMP				C		8.5	6.1				1 .25		1	11	COMP
C	16.6	1	3038	COMP	1	.38	COMP	C		*10.9	2.1*1		95	COMP	1 .54				
C	16.0	1	2128	COMP				C		9.0	6.5				1 .35		1	3	COMP
C	17.6	1	*4101	COMP	1	.00	COMP	C		8.8	6.9 1		45	COMP	1 .00		1	12	COMP
C	16.9	1	3380	COMP				C		9.5	6.5				1 1.35				
C	15.7	1	3407	COMP				C		*9.7	6.4*				1 .70				
C	16.0	1	2400	COMP	1	.25	COMP	C		*9.8	6.6 1		45	COMP	1 .15				
C	16.3	1	3537	COMP				C		*9.8	6.8				1 1.25				
C	16.2	1	*3775	COMP	1	.25	COMP	C		8.2	7.2 1		35	COMP	1 .00				
C	16.8	1	3074	COMP				C		9.1	7.1				1 .49		1	8	COMP
C	16.5	1	1370	COMP	1	.25	COMP	C		8.9	6.3*1		45	COMP	1 .72		1	10	COMP
C	16.1	1	2544	COMP				C		9.0	7.1				1 .00				
C	16.3	1	*5982	COMP				C		9.0	6.5				1 .55				
C	15.1	1	*4651	COMP	1	.00	COMP	C		9.1	6.3*1		21	COMP	1 .73				
C	15.5	1	3488	COMP				C		9.4	6.5				1 .12		1	9	COMP
C	15.7	1	3407	COMP	1	.00	COMP	C		9.4	6.2*1		342	COMP	1 .22				
C	15.7	1	2481	COMP				C		9.4	6.0*				1 .14		1	5	COMP
C	14.5	1	2538	COMP	1	.00	COMP	C		9.2	6.3*1		42	COMP	1 .00		1	15	COMP
C	14.7	1	2822	COMP				C		9.5	6.5				1 .24				
	15.6		*3353			.09				8.0			64			.39		10	
	17.6		*5982			.38			MIN.	*11.9			342			1.35		21	
										*2.1									
	31		31			13				31			13			31		13	
	C		31			13				C			13			31		13	
			11			0				8						0			
			4546			.00				10.5						.00			

10/01/80
10/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
31 DEC 3)

PENNWALT CORPORATION
4655 RIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 002
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820190 80 11 06

	91008 LEAD LBS/DAY AVERAGE	MAXIMUM		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F
	LT 1.37	2.75		0		
			1	0	1	92
			1	0	1	93
			1	0	1	86
			1	0	1	92
			1	0	1	90
			1	0	1	89
1	.66	COMP	1	0	1	81
			1	0	1	80
			1	0	1	81
			1	0	1	80
			1	0	1	77
			1	0	1	76
			1	0	1	79
			1	0	1	57
			1	0	1	75
			1	0	1	78
			1	0	1	78
			1	0	1	78
			1	0		
			1	0	1	78
1	.49	COMP	1	0	1	74
			1	0	1	74
			1	0	1	74
			1	0	1	72
			1	0	1	72
			1	0	1	72
			1	0	1	70
			1	0	1	72
			1	0	1	70
			1	0	1	72
			1	0	1	70
		.58		0		78
		.66		0		93
		2		31		30
		2		31		30
		0		0		
		.00		0		
		10/01/80				
		10/31/80				

LEWIS, JOHN J. W1758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3

32 0.5

PENNWALT CORPORATION
4655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

1 820298 MI0002381 820193 80 11 06

	50050 FLOW CONDUIT MGD		85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE	MAXIMUM	00610 AMMONIA-NITROGEN MG/L AVERAGE	MAXIMUM		00400 PH 0 TO 14 MAXIMUM	MINIMUM		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE	MAXIMUM	01042 COPPER-TOTAL UG/L MAXIMUM		
			LT 844	1689	LT 3.00	5.00		9.5	6.5				LT 1.00	1.50	1000		
C	5.4	1	916				C	8.6	7.1				1	.55			
C	5.7	1	901		1	.00	COMP	8.2	7.6	1	108	COMP	1	.55			
C	5.6	1	795				C	8.2	7.2				1	.53			
C	5.5						C	7.7	7.2				1	.60			
C	5.6				1	.00	COMP	7.7	7.3	1	119	COMP	1	.63	1	8	COMP
C	5.4	1	448				C	7.9	7.2				1	.60	1	7	COMP
C	5.6	1	1025		1	.88	COMP	8.0	7.3	1	112	COMP	1	.75			
C	5.6	1	935				C	8.5	6.2*				1	.75			
C	5.6	1	465		1	1.57	COMP	8.2	7.2	1	155	COMP	1	.11			
C	5.4	1	583				C	8.2	7.1				1	.14			
C	5.2						C	8.0	7.1				1	.10			
C	5.4				1	.72	COMP	8.0	7.2	1	155	COMP	1	.18			
C	5.3	1	705				C	8.0	7.2				1	.14	1	10	COMP
C	5.3	1	795		1	1.34	COMP	*11.2	7.2	1	162	COMP	1	.10	1	17	COMP
C	5.1	1	933				C	8.0	7.5				1	.06			
C	5.0	1	290		1	1.01	COMP	8.4	7.4	1	77	COMP	1	.07			
C	4.6	1	805				C	8.0	6.4*				1	.09	1	5	COMP
C	5.0						C	8.8	6.3*				1	.07			
C	4.4				1	.00	COMP	7.9	7.6	1	100	COMP	1	.45	1	5	COMP
C	4.4	1	475				C	8.6	7.5				1	.14	1	7	COMP
C	4.7	1	705		1	.75	COMP	*10.0	6.8	1	98	COMP	1	.00			
C	4.9	1	573				C	7.9	7.4				1	.00			
C	5.0	1	585		1	1.75	COMP	8.9	5.9*		101	COMP	1	.00			
C	9.8	1	980				C	8.7	6.6				1	.00			
C	4.6						C	8.3	7.3				1	.05			
C	4.1				1	.15	COMP	8.1	7.1	1	71	COMP	1	.01			
C	3.8	1	825				C	8.0	7.0				1	.00			
C	4.0	1	600		1	.38	COMP	8.5	7.2	1	71	COMP	1	.00	1	9	COMP
C	3.8	1	445				C	8.3	7.0				1	.09	1	1	COMP
C	3.9	1	554		1	.75	COMP	8.2	7.0	1	110	COMP	1	.08			
C	3.9	1	456				C	*9.9	6.6				1	.08			
	5.1			697		.72			7.7			111		.22			8
	9.8			1025		1.75			*11.2			162		.75			0
								MIN.	* 5.9								
	31			23		13			31			13		31			9
	C			23		13			C			13		31			9
				0		0			3					0			0
				0		.00			10.4					.00			0

10/01/80
10/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
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PENNWALT CORPORATION
6655 MIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 003
DISCHARGE TO DETROIT RIVER

2 820298 MI0002381 820193 80 11 06

01045 IRON-TOTAL UG/L MAXIMUM			91008 LEAD-TOTAL LBS/DAY AVERAGE	MAXIMUM	01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		00011 TEMP-WATER F	
1600			LT 1.00	2.00	0			
					1	0	1	67
					1	0		
					1	0	1	71
					1	0	1	70
1	920	COMP			1	0	1	68
					1	0	1	67
			1	.28 COMP	1	0	1	68
					1	0	1	67
					1	0	1	68
					1	0	1	68
					1	0	1	69
					1	0	1	76
1	1000	COMP			1	0	1	66
					1	0	1	64
					1	0	1	66
					1	0	1	64
					1	0		
					1	0	1	64
1	660	COMP			1	0	1	62
					1	0	1	64
			1	.19 COMP	1	0	1	64
					1	0	1	66
					1	0	1	64
					1	0	1	64
					1	0	1	63
					1	0	1	61
					1	0	1	60
1	1360	COMP			1	0	1	61
1	1100	COMP			1	0	1	60
					1	0	1	61
					1	0	1	60
		1008		.24		0		65
		1360		.28		0		76
		5		2		31		29
		5		2		31		29
		0		0		0		
		0		.00		0		
		10/01/80						
		10/31/80						

LEWIS, JOHN J. W1758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3
34 O.F. 35

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

1 820298 MI0002381 820223 80 11 06

	50050 FLOW CONDUIT MGD	00530 SOLIDS-SUSPENDED MG/L AVERAGE LT 35	MAXIMUM 70	85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE LT 467	MAXIMUM 934	00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.00	MAXIMUM 1.50		00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5		00940 CHLORIDE MG/L		50060 CHLORINE-TOTAL MG/L AVERAGE LT 1.00	MAXIMUM 1.50
C	.1	1	6	1	5				C	8.7	7.9			1 .00	
C	1.0	1	8	1	67	1 .38		COMP	C	8.3	7.9	1 10165	COMP	1 .00	
C	1.2	1	7	1	70				C	8.0	7.6			1 .00	
C	1.2								C	8.7	7.7			1 .00	
C	1.2					1 .25		COMP	C	9.1	7.3	1 7993	COMP	1 .00	
C	1.2	1	6	1	60				C	8.2	7.2			1 .00	
C	1.4	1	12	1	140	1 .25		COMP	C	8.2	7.5	1 8054	COMP	1 .00	
C	1.2	1	12	1	120				C	8.2	7.5			1 .40	
C	1.2	1	5	1	50	1 .25		COMP	C	9.1	7.3	1 7383	COMP	1 .65	
C	1.2	1	5	1	50				C	8.6	7.1			1 .60	
C	1.2								C	8.3	7.3			1 .00	
C	1.2					1 .38		COMP	C	7.7	7.4	1 5571	COMP	1 .00	
C	1.3	1	5	1	55				C	8.3	7.0			1 .00	
C	1.4	1	12	1	140	1 .62		COMP	C	*11.2	1.9*	1 4954	COMP	1 .00	
C	1.4	1	16	1	186				C	9.4	5.2			1 .00	
C	1.7	1	5	1	71	1 .25		COMP	C	8.7	7.9	1 8359	COMP	1 .00	
C	.2	1	12	1	20				C	8.4	7.9			1 .00	
C	1.1								C	8.6	7.8			1 .00	
C	1.3					1 .38		COMP	C	7.9	7.7	1 8066	COMP	1 .00	
C	1.2	1	10	1	100				C	8.2	7.1			1 .00	
C	1.2	1	4	1	40	1 .38		COMP	C	8.4	7.7	1 7065	COMP	1 .19	
C	1.3	1	5	1	55				C	8.1	7.5			1 .00	
C	1.3	1	8	1	87	1 1.00		COMP	C	8.2	7.3	1 6748	COMP	1 .00	
C	1.5	1	1	1	12				C	9.3	7.4			1 .00	
C	1.3								C	8.8	8.5	1 6175	COMP	1 .00	
C	1.3					1 .63		COMP	C	7.3	7.1			1 .00	
C	1.3	1	6	1	65				C	7.4	6.8			1 .00	
C	1.4	1	2	1	24	1 .38		COMP	C	7.4	7.0	1 5748	COMP	1 .00	
C	1.3	1	2	1	22				C	7.7	7.0			1 .00	
C	1.2	1	6	1	60				C	8.0	7.0	1 5968	COMP	1 .13	
C	1.2	1	4	1	40				C	8.0	7.2			1 .00	
	1.2		7		67		.43			7.8		7096			.06
	1.7		16		186		1.00			*11.2		10165			.65
									MIN.	*1.9					
	31		23		23		12			31		13			31
	C		23		23		12			C		13			31
			0		0		0			1					0
			0		0		.00			11.2					.00

10/01/80
10/31/80

LEWIS, JOHN J. W1758

E.P. GOLINSKI 313-285-9200

ATTACHMENT NO 3

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PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 005
TREATED PROCESS WASTES PRIOR TO MIXING

2 820298 MI0002381 820223 80 11 06

	81017 COD LBS/DAY MAXIMUM 1801		01051 LEAD-TOTAL UG/L AVERAGE LT 100	MAXIMUM 200	91008 LEAD-TOTAL LBS/DAY AVERAGE LT 1.40	MAXIMUM 2.70		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM 0		00011 TEMP-WATER F	
1	8-	COMP						1	0	1	78
1	300	COMP						1	0	1	64
								1	0	1	79
								1	0	1	70
			1	9	1	.08	COMP	1	0	1	68
1	410	COMP						1	0	1	69
								1	0	1	68
1	110-	COMP						1	0	1	69
1	390	COMP						1	0	1	68
								1	0	1	65
								1	0	1	65
								1	0	1	65
1	163	COMP						1	0	1	63
								1	0	1	69
1	315	COMP						1	0	1	67
1	1090	COMP						1	0	1	64
								1	0		
								1	0	1	64
								1	0	1	66
1	290	COMP	1	9	1	.08	COMP	1	0	1	64
								1	0	1	66
1	315-	COMP						1	0	1	64
1	270	COMP						1	0	1	65
								1	0	1	64
								1	0	1	83
								1	0	1	58
1	270	COMP						1	0	1	58
								1	0	1	58
1	238-	COMP						1	0	1	58
								1	0	1	58
								1	0	1	58
	217			9		.08			0		66
	1090			9		.08			0		83
	13			2		2			31		30
	13			2		2			31		30
	0			0		0			0		
	0			0		.00			0		
	10/01/80										
	10/31/80										

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
36 OF 36

PENNWALT CORPORATION
4695 RIDGE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

1 920298 MI0002381 821088 80 11 06

	50050 FLOW CONDUIT MGD	47031 SOLIDS-SUS-NET#/D LBS/DAY AVERAGE LT 380	MAXIMUM 570		00610 AMMONIA-NITROGEN MG/L AVERAGE LT 1.50	MAXIMUM 3.00	81019 AMMONIA-NITROGEN LBS/DAY MAXIMUM 250.00	00400 PH 0 TO 14 MAXIMUM 9.5	MINIMUM 6.5	47026 CHLORIDE-NET#/D LBS/DAY MAXIMUM 8800		50060 CHLORINE-TOTAL MG/L MAXIMUM 0.50
C	6.8				1 .50		1 28.36	C	8.6 8.3			1 .00
C	7.2	1 4798-	COMP					C	8.7 7.9	1 1616-	COMP	
C	7.4				1 1.30		1 80.14	C	9.1 7.9			1 .00
C	7.7							C	8.2 7.5			
C	7.8	1 2666-	COMP					C	9.3 7.8	1 258-	COMP	
C	7.8				1 .10		1 6.47	C	*9.9 7.2			1 .00
C	7.7	1 3590-	COMP					C	9.3 8.1	1 258-	COMP	
C	7.9				1 .40		1 26.31	C	8.5 7.9			1 .00
C	8.0	1 2732-	COMP					C	7.9 7.5	1 533-	COMP	
C	7.9				1 .00		1 .00	C	7.9 7.6			1 .00
C	7.7							C	8.5 7.9			
C	7.5	1 3565-	COMP					C	8.1 7.8	1 317-	COMP	
C	7.7				1 .30		1 19.25	C	8.2 7.9			1 .00
C	7.8	1 1691-	COMP					C	8.6 7.1	1 583-	COMP	
C	7.8				1 .30		1 19.50	C	7.9 7.5			1 .00
C	8.0							C	8.3 7.3			
C	7.2	1 1799-	COMP		1 .60		1 36.00	C	8.9 7.5	1 1083	COMP	1 .00
C	6.6							C	8.7 7.9			
C	5.6	1 2657-	COMP					C	8.3 7.8	1 325-	COMP	
C	7.1				1 .00		1 .00	C	8.3 7.7			1 .00
C	7.5	1 3565-	COMP					C	8.0 7.4	1 441-	COMP	
C	7.3				1 1.20		1 73.00	C	7.9 7.4			1 .00
C	7.7	1 1349-	COMP					C	7.5 7.2	1 1608-	COMP	
C	7.9				1 .50		1 32.94	C	8.1 7.2			1 .00
C	7.8							C	7.5 7.3			
C	7.6							C	7.4 7.2			
C	8.1	1 2632-	COMP					C	7.3 7.2	1 941	COMP	
C	8.1	1 3040-	COMP		1 .30		1 20.25	C	7.5 7.0	1 0	COMP	1 .00
C	8.1	1 0	COMP		1 2.10		1 141.67	C	8.3 6.7			1 .00
C	8.3	1 2907-	COMP		1 *3.40		1 235.06	C	8.0 7.0	1 208-	COMP	
C	7.9							C	7.7 7.1			
	7.6		2642-		.79		51.35		7.9		317-	.00
	8.3		0		*3.40		235.06		*9.9		1083	.00
								MIN.	6.7			
	31		14		14		14		31		13	13
	C		14		14		14		C		13	13
			0		1		0		1		0	0
			0		3.40		.00		9.9		0	.00

10/01/80
10/31/80

LEWIS, JOHN J.
E.R. GOLINSKI

W1758
313-285-9200

ATTACHMENT NO 3
37.0F39

PENNWALT CORPORATION
4655 BIDDLE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

2 820298 MI0002381 821088 80 11 06

85001 8005 LBS/DAY AVERAGE	85001 8005 LBS/DAY MAXIMUM		00335 COD-LOW LEVEL MG/L		01300 OIL-GREASE-VISUL 0 TO 4 MAXIMUM		85003 PHENOL LBS/DAY MAXIMUM		32730 PHENOL UG/L MAXIMUM		00745 SULFIDE-TOTAL MG/L		01092 ZINC-TOTAL UG/L MAXIMUM	
LT 386	576				0		10.00		200				1000	
1	*626	COMP			1	0								
1	*1620	COMP	1	22	COMP	1 0	5.98	COMP	1	100	COMP			
						1 0								
			1	11	COMP	1 0	*25.35	COMP	1	*390	COMP	1 .0	COMP	
1	*901	COMP	1	11	COMP	1 0	3.85	COMP	1	60	COMP		1 14	COMP
1	*727	COMP				1 0								
1	*1136	COMP	1	0	COMP	1 0	1.36	COMP	1	20	COMP			
						1 0								
			1	0	COMP	1 0	1.28	COMP	1	20	COMP	1 .1	COMP	
1	*780	COMP	1	0	COMP	1 0								
1	*842	COMP				1 0								
1	*1400	COMP				1 0								
			1	0	COMP	1 0	1.22	COMP	1	20	COMP			
			1	0	COMP	1 0	.95	COMP	1	20	COMP	1 .0	COMP	
1	*2438	COMP	1	39	COMP	1 0	1.28	COMP	1	20	COMP		1 5	COMP
1	*1037	COMP				1 0								
1	*639	COMP	1	4	COMP	1 0	1.31	COMP	1	20	COMP			
						1 0								
			1	15	COMP	1 0	1.38	COMP	1	20	COMP	1 .0	COMP	
1	*1823	COMP	1	14	COMP	1 0	1.38	COMP	1	20	COMP			
1	*1482	COMP				1 0								
1	*2283	COMP	1	59	COMP	1 0	1.41	COMP	1	20	COMP			
	*1267			13		0	3.90			61		.0		10
	*2438			59		0	*25.35			*390		.1		14
	14			13		31	12			12		4		2
	14			13		31	12			12		4		2
	14					0	1			1				0
	1267					0	25.35			390				0
	10/01/80													
	10/31/80													

LEWIS, JOHN J. W1758

E.R. GOLINSKI 313-285-9200

ATTACHMENT NO 3

PENNWALT CORPORATION
4655 RIDGE AVENUE
WYANDOTTE, MICHIGAN 48192

OCTOBER 1980 DISTRICT 1

PENNWALT CORPORATION
OUTFALL 006
DISCHARGE TO MONGUAGON CREEK

3 820298 MI0002381 821088 80 11 06

00011
TEMP-WATER
F

1 73
1 72

1 73
1 73
1 73

1 72
1 70
1 63

1 63
1 63
1 64

1 61
1 61
1 61

67
73

14
14

10/01/80
10/31/80

LEWIS, JOHN J. W1758
E.R. GOLINSKI 313-285-9200

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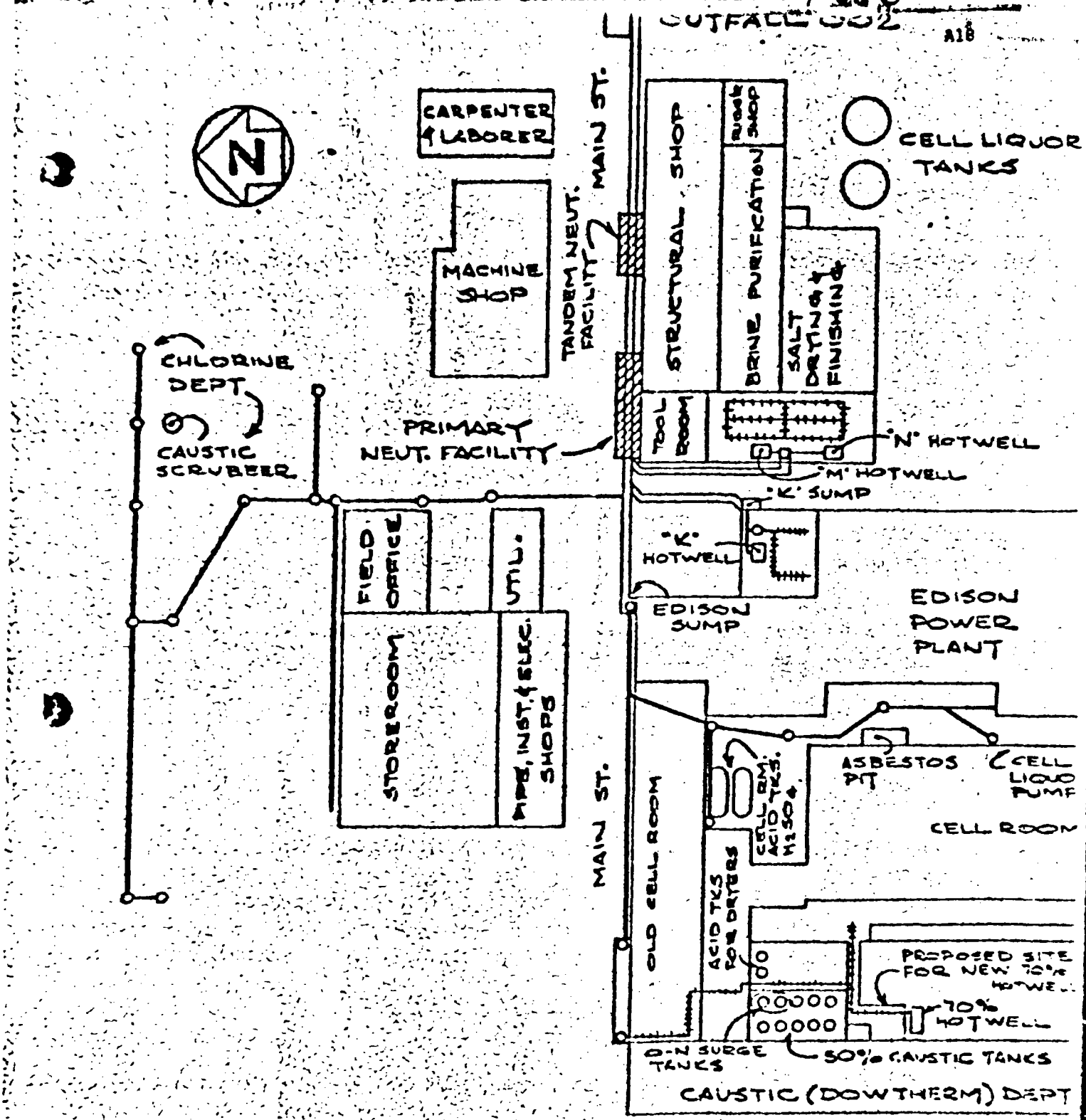
ATTACHMENT NO 4

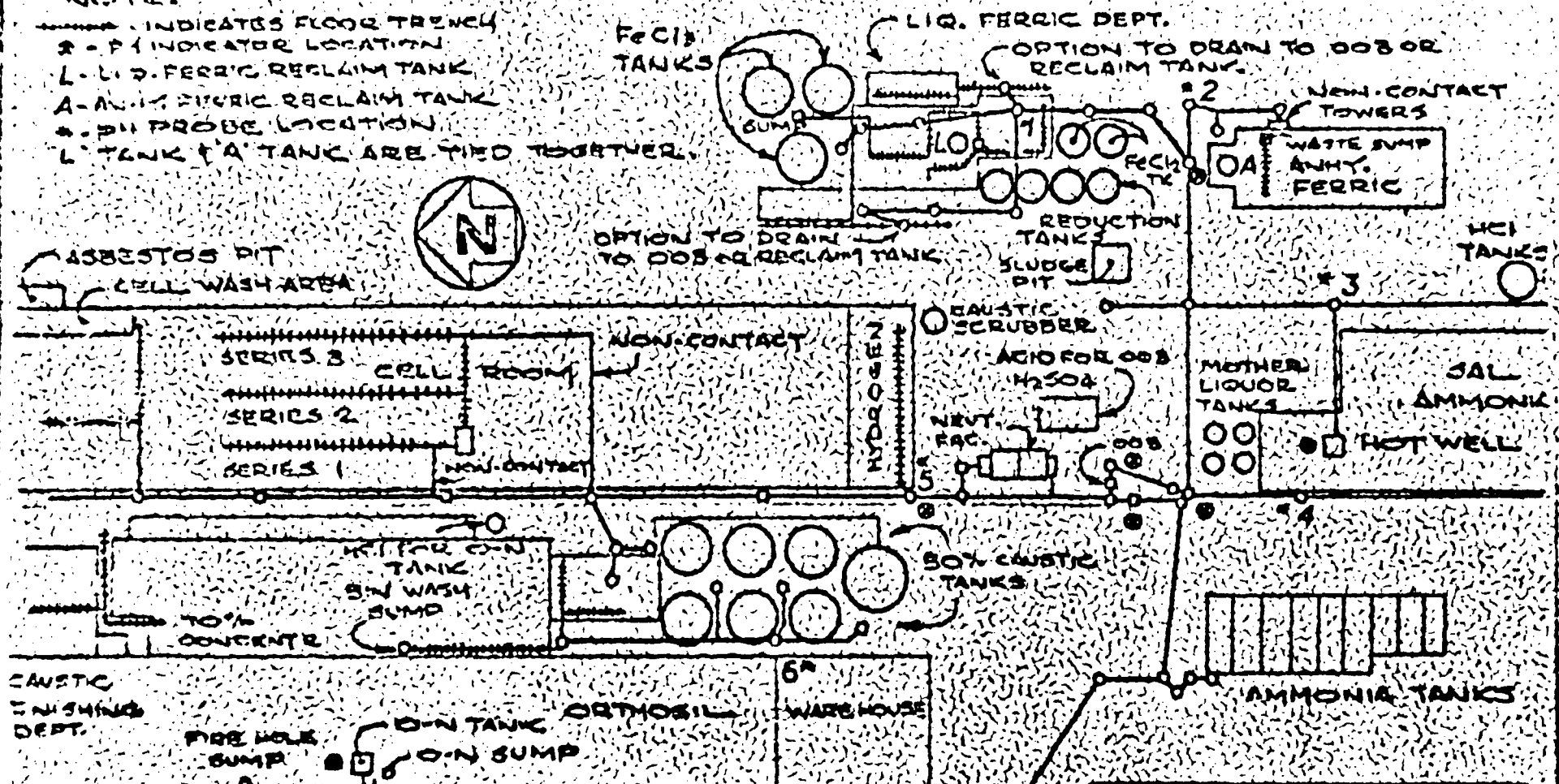


NOTE: ---- INDICATES FLOOR TRENCH
pH INDICATION IS AT ALL HOTWELLS, MAIN ST. NEUTRALIZATION FACILITIES & OUTFALL 002.

OUTFALL 002 SEWER SYSTEM			
SCALE	NONE	DATE	9-4-73
DRAWN	CHASE	APP'D.	
PENNWALT CORPORATION			
NO.			

This drawing, including the principle of design, is the property of Pennwalt Corporation and is submitted with the understanding that it will not be used for any purpose except that specified in writing by the Pennwalt Corporation.

NOTE:
- INDICATES FLOOR TRENCH
* - pH INDICATOR LOCATION
L - LIQ. FERRIC RECLAIM TANK
A - ANHY. FERRIC RECLAIM TANK
* - pH PROBE LOCATION
L TANK & A TANK ARE TIED TOGETHER.



OUTFALL 003 SEWER SYSTEM

SCALE	NONE	DATE	8/5/70
DRAWN	CHASE	APPD.	

PENNWALT CORPORATION

NO.

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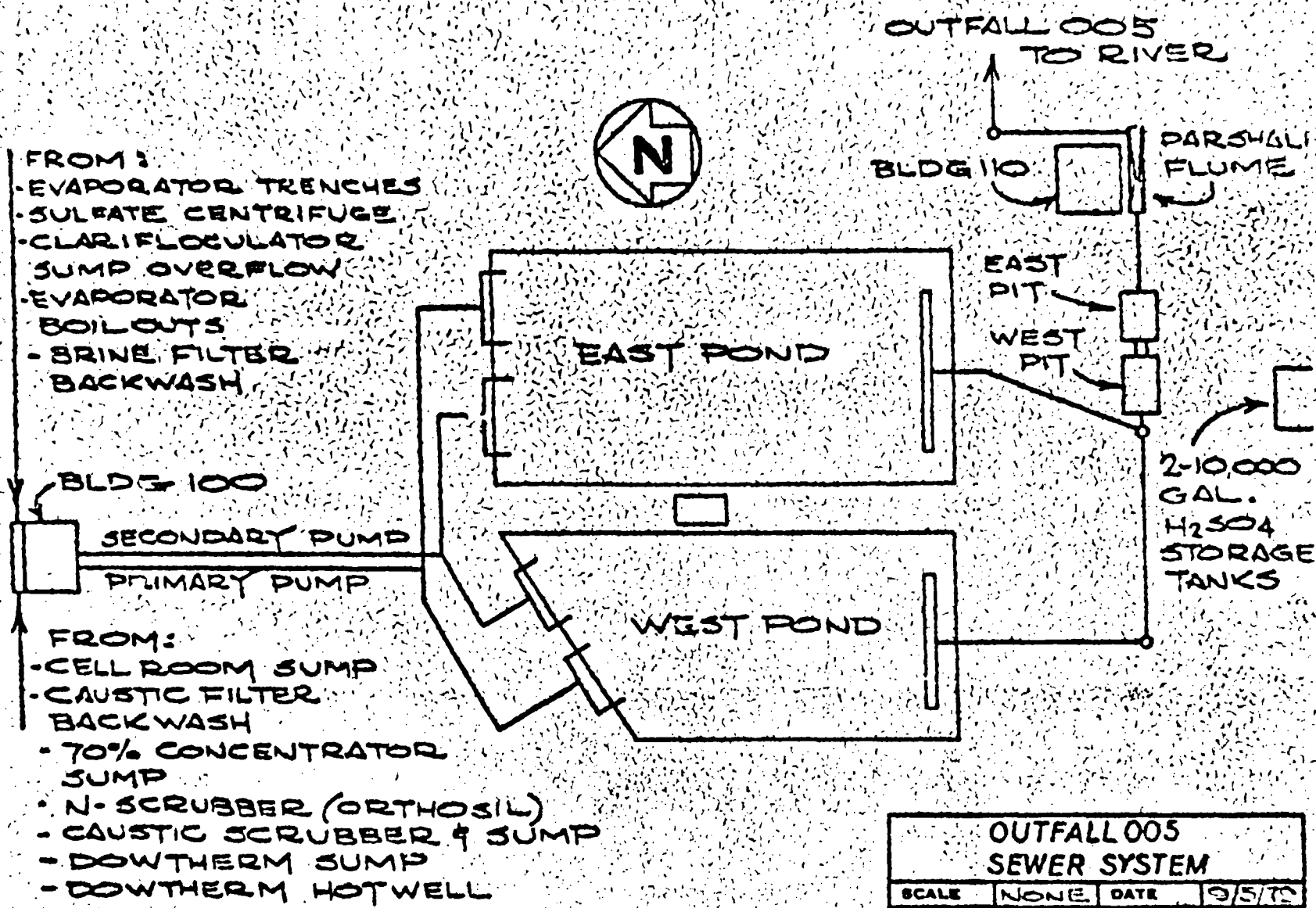
ATTACHMENT NO. 4



OUTFALL 005 SEWER SYSTEM			
SCALE	NONE	DATE	9/5/70
DRAWN	CHASE	APP'D.	

PENNWALT CORPORATION

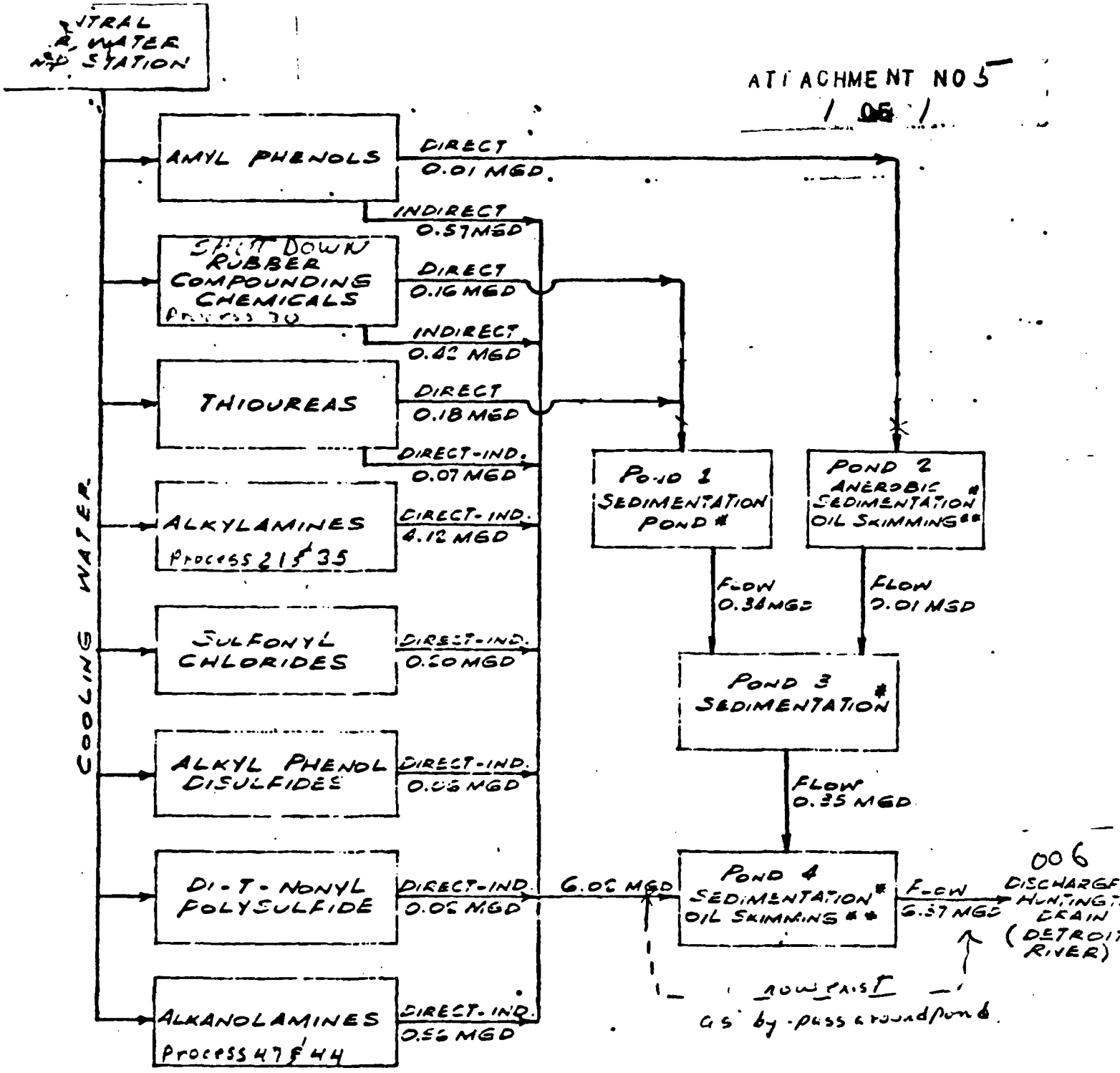
NO.

This drawing, including the principle of design, is the property of Pennwalt Corporation and is submitted with the understanding that it will not be used for any purpose except that specified in writing by the Pennwalt Corporation.

ATTACHMENT NO 4
3 OF 3

ATTACHMENT NO 5

/ 06 /



* SOLIDS TO LAND FILL
** OIL TO LICENSED DISPOSAL CONTRACTOR

NOTE: ALL FLOWS ONCE THROUGH COOLING WATER

This drawing, including the principle of design, is the property of Pennwalt Corporation and is submitted with the understanding that it will not be used for any purpose except that specified in writing by the Pennwalt Corporation.

SCHEMATIC DIAGRAM PLANT EFFLUENTS DISCH. SER. No. 006			
SCALE	–	DATE	6-9-75
DRAWN	FRENCH	APP'D.	
PENNWALT CORPORATION			
SK. NO.	WW2-3583		

K+E ALBANENE

December 2, 1980

Field Report - Pennwalt Corporation - CSI-T Survey, Wyandotte, Michigan

Philip E. Gehring, Leader, Field Support Team
THRU: A.R. Winklhofer, Director, EDO

Files

The enclosed field notes detail activities involved in obtaining field data and samples for analysis at Pennwalt Corporation, Wyandotte, Michigan. The following is a synopsis of the field notes and some additional information.

Survey Dates: November 4-5, 1980

Survey Crew: Charles Baier, Engineering Technician
Joseph Good, General Mechanic
Roland Hartranft, Engineering Technician
Philip Gehring, Leader, Field Support Team

Sample Sites: 81EL02

A diagram of sample sites is enclosed.

Influent: Sample numbers S16-18, D19

ISCO automatic samplers were set on wooden catwalk across the mouth of the intake* from the Detroit River. Grab samples were collected at the same site at the surface. The ISCO intakes were at a depth of approximately four feet. * South intake (also supplies [illegible] Plant)

Outfall 001: Sample numbers S01-03

An ISCO sampler was set up near some storage tanks in the north central area of the east plant. [illegible]

Outfall 002: Sample numbers S04-06

An ISCO sampler was set up at the Detroit River end of the main east-west road through the plant.

Outfall 003: Sample numbers S07-09

An ISCO sampler was set up near a small overpass on an east-west road in the south central area of the east plant. [illegible]

Outfall 005: Sample numbers S10-12

Sample site located in the southeast corner of the plant some distance back from the Detroit River.

Outfall 006: Sample numbers S13-15

This sample site was located just outside the south fence line near a railroad spur gate. Discharge is to Monguagon Creek.

Pond #4: Sample numbers S29-31

The ISCO sampler was situated on a catwalk near the head end of the pond to avoid mixing zone of non-contact cooling water.

Ponds #1 and #2: Sample numbers, 28 pond #1 near head end
Sample numbers, 22 pond #2 near head end

Monguagon Creek: Sample number S32
Sediment Sample taken from Jefferson Ave bridge D/S of 006 and Jones Chemical

Blanks: Sample number R33

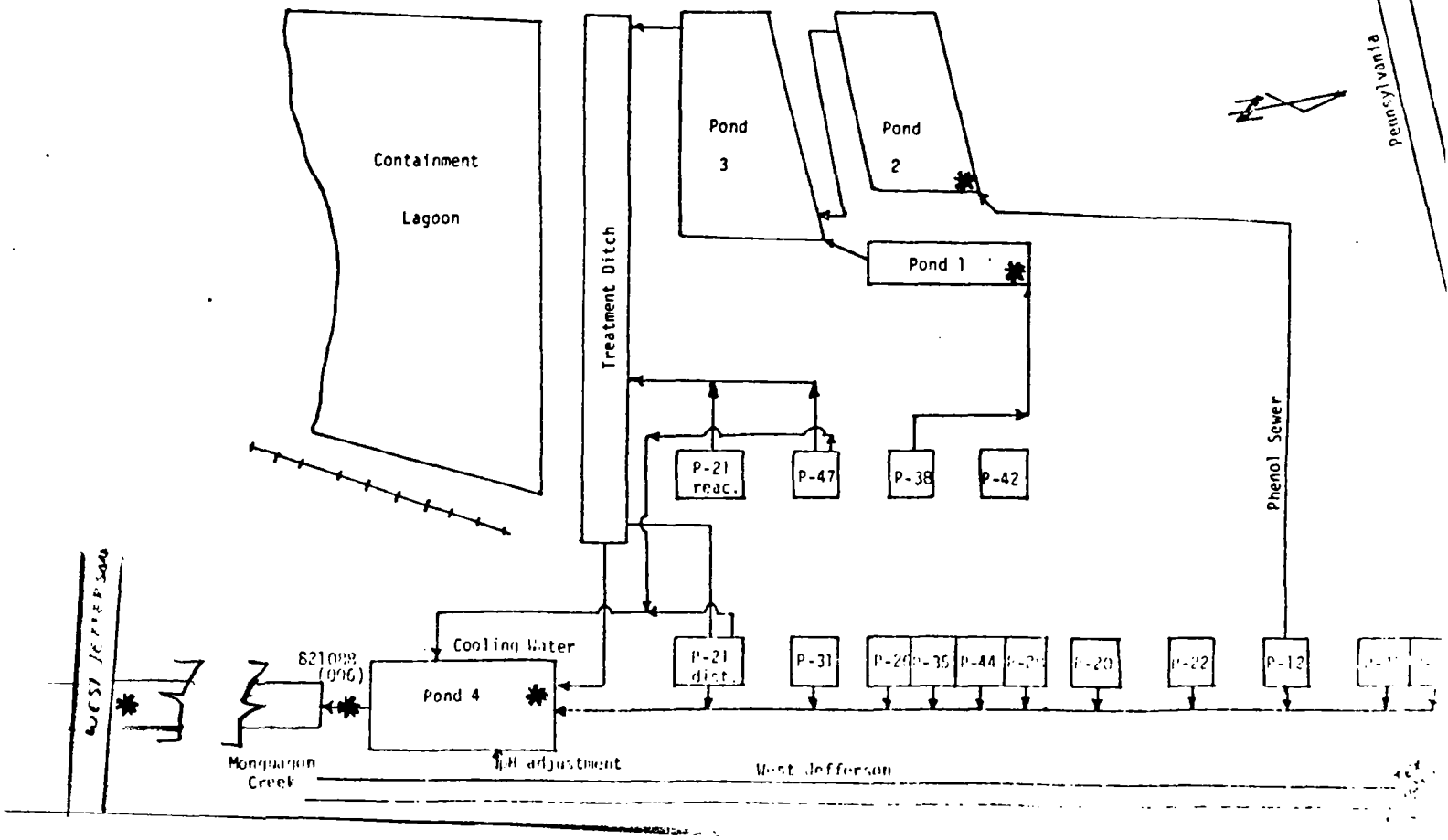
Sample types and frequencies are discussed in the field notes. All composite samples consisted of hourly aliquots. A rough estimate of the flow at 005 would be 1.23 MGD. This was based on 20.5 hours of actual flow records and 3.5 hours estimated flow. Bioassays were not performed due to scheduling conflicts at CRL. Thermometer numbers were not recorded, therefore, no quality control for field temperature readings.

cc: Robert Bowlus

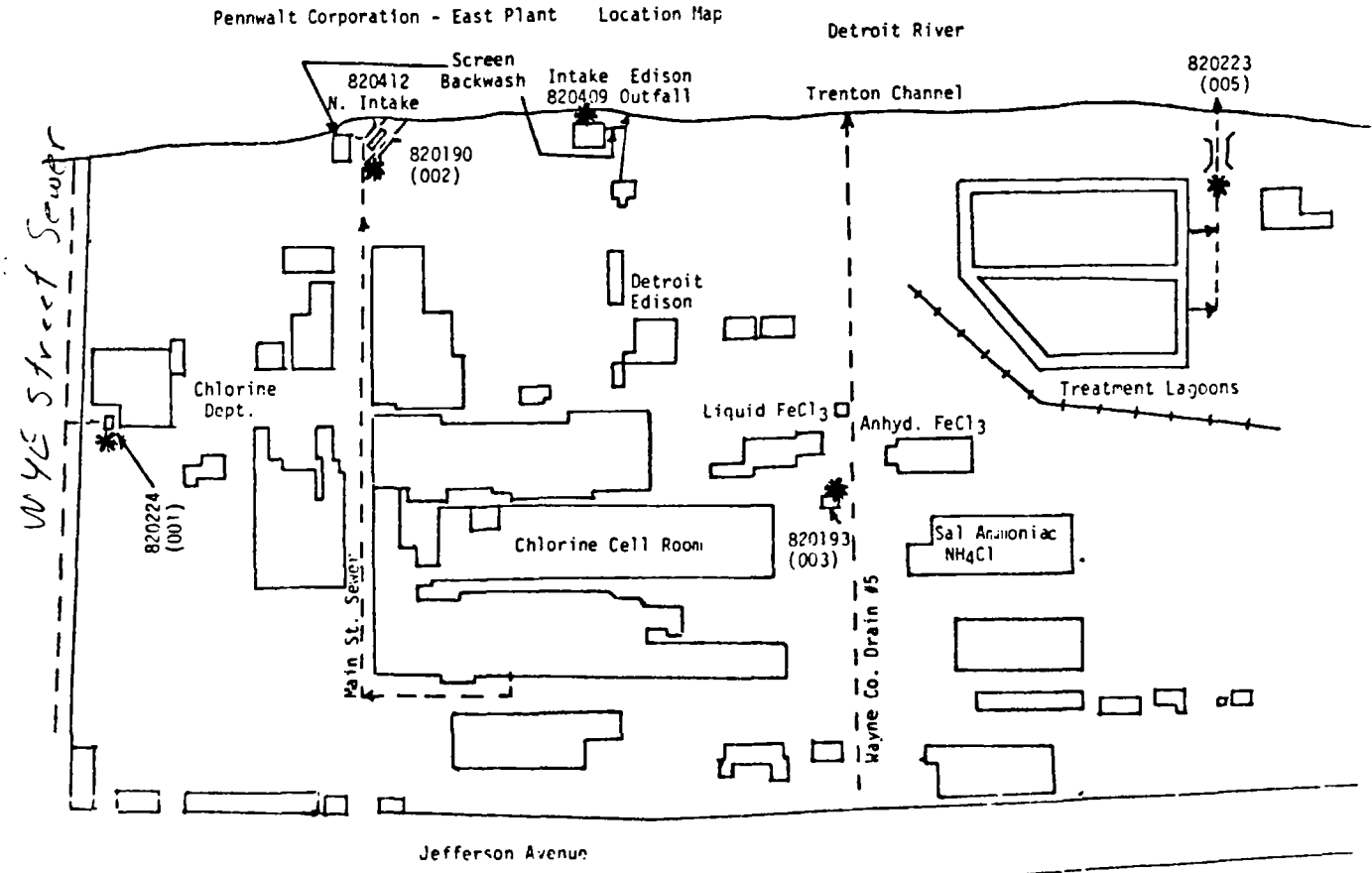
ATTACHMENT NO 6
3 OF 5

Pennwalt Corporation

West Plant Layout & Wastewater Treatment



Pennwalt Corporation - East Plant Location Map



*—SAMPLING LOCATIONS