02-9001-13-SI
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
PFISTER CHEMICAL INC.
RIDGEFIELD, NEW JERSEY

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9001-13
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

JUNE 29, 1990

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:

DEBORAH LAMOND
PROJECT MANAGER

SUSAN S. HODGKISS
SITE MANAGER

REVIEWED/APPROVED BY:

RONALD M. NAMAN
FIT OFFICE MANAGER

240228

SITE INSPECTION REPORT: LEVEL III

PART I: SITE INFORMATION

1. Site Name/Alias Pfister Chemical Inc.

   Street Linden Avenue

   City Ridgefield State NJ Zip 07657

2. County Bergen County Code 003 Cong. Dist. 09

3 EPA ID No. NJD001293216

4. Block No. 39 Lot No. 1

5. Latitude 40° 50' 33"N Longitude 74° 00' 34" W

   USGS Quad. Weehawken

6. Owner Albert Bendelius Tel. No. Unknown

   Street Unknown

   City Unknown State _____ Zip _____

7. Operator Pfister Chemical Inc. Tel. No. (201) 945-5400

   Street Linden Avenue

   City Ridgefield State NJ Zip 07657

8. Type of Ownership

   ☒ Private ☐ Federal ☐ State
   ☐ County ☐ Municipal ☐ Unknown ☐ Other _____

9. Owner/Operator Notification on File

   ☒ RCRA 3001 Date 12/1/82 ☐ CERCLA 103c Date _____
   ☐ None ☐ Unknown

10. Permit Information: Pfister holds numerous air permits for air scrubbers.

11. Site Status

    ☒ Active ☐ Inactive ☐ Unknown

12. Years of Operation 1936 to Present

13. **Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.**

(a) **Waste Sources**

Waste Unit No.	Waste Unit Type	Facility Name for Unit
1	Surface Impoundments	Lagoons
2	Containers	Drums

(b) **Other Areas of Concern**

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

An area of concern is the two aboveground tank farms located on the west side of the site. These tank farms are used for storage of raw materials. There are no reports of any incidents or spills associated with the raw material within these tanks (Ref. No. 26). In addition, spills throughout the plant grounds were observed during a U.S. Environmental Protection Agency (EPA) inspection. (Ref. No. 1)

14. **Information available from**

Contact Amy Brochu **Agency** U.S. EPA **Tel. No.** (201) 906-6802

Preparer Susan S. Hodgkiss **Agency** NUS Corp. Region 2 FIT **Date** June 29, 1990

PART II: WASTE SOURCE INFORMATION

During Pfister's operational history the company has constructed two lagoons on land which was reclaimed from Overpeck Creek. The first lagoon is located on the northern portion of the site, and based on aerial photographs, first appeared in 1954 (Ref. No. 25). This lagoon is used for cooling water, which is obtained from and returned to Overpeck Creek. The New Jersey Department of Environmental Protection (NJDEP), Bureau of Groundwater Monitoring recommended that monitoring wells be installed between the lagoon and Overpeck Creek and that Pfister should be required to apply for a New Jersey Pollutant Discharge Elimination System (NJPDES) permit (Ref. Nos. 1, 13). Based on aerial photographs, a second 2.5-acre lagoon was constructed some time between 1954 and 1959 (Ref. No. 25). This lagoon was used for the neutralization of process wastewater including scrubber wastewater and filtrate from chemical separation (Ref. Nos. 2, 4). All process wastewater was discharged to the lagoon where sodium hydroxide was added for pH adjustment. The waste liquids in this lagoon were again adjusted for pH with ammonia and then discharged into the sanitary sewer system (Ref. Nos. 1, 13). The use of this lagoon reportedly ceased in 1980 due to a cutback in plant production. All process wastewater now flows to the Bergen County Municipal Utilities Authority (BCMUA) (Ref. No. 2). The lagoon has been filled to within 1 to 2 feet of capacity and a purple colored chemical sludge is currently present in the lagoon. The depth of the sludge is approximately 2 to 10 feet and the volume is estimated to be between 5,000 and 10,000 yds^3 (Ref. Nos. 4, 19). Based on analytical data, the NJDEP determined that the sludge within the lagoon is hazardous (Ref. Nos. 20). Sludge samples collected by the NJDEP contained high levels of toluene, xylene, chlorobenzene, and ethybenzene (Ref. No. 13). This lagoon has been the subject of NJDEP and EPA investigations in recent years. Based on aerial photographs, the wastewater lagoon appears to have been backfilled between 1975 and 1977. Both lagoons are unlined and according to the company a 30-foot clay layer underlies the process wastewater lagoon. Pfister also contends that a 2-foot-thick clay barrier was installed on the west border of the process wastewater lagoon at the time that the creek was backfilled (Ref. No. 1).

Pfister Chemical Company generates hazardous waste from its distillation process. These wastes are turned into semisolids with the addition of vermiculite and contain aromatic amines and monochlorobenzene. Wastes are packaged in 55-gallon drums and stored until a sufficient quantity is present to make a shipment economical. These drums are stored within the facility building and inspected on a daily basis. There have been no reported leaks or spills on site regarding drum storage. (Ref. No. 1). No drums were observed outside the building during the NUS site inspection conducted on March 7, 1990. However, scrap metal and other discarded items such as reaction vessels were observed on the western side of the process wastewater lagoon. Standing water was also observed in the wastewater lagoon and appeared to have an oily sheen (Ref. No. 26).

PART III: PRE-EXISTENT ANALYTICAL DATA

The NJDEP, in cooperation with the U.S. Environmental Protection Agency (EPA), is responsible for the identification and assessment of potential dioxin contamination in the State of New Jersey. During Phase II of the dioxin study, the NJDEP collected and analyzed sediment and soil samples from 23 sites including Pfister. Sample locations were selected based on the history of the site and observations made during a reconnaissance. The sample location selection process was designed to include those areas with the greatest potential for dioxin contamination. Because of the low mobility of dioxin in soil, most samples were collected within the surficial soil (0 to 6 inches). Samples were analyzed for dioxins, in particular the chlorinated dioxin isomer, 2,3,7,8 - tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). On May 9, 1985, E.C. Jordan Co., for the NJDEP, collected seven surface soil samples and four sediment samples and their locations can be found in Ref. No. 13. Sampling results revealed that the dioxin isomer 2,3,7,8-TCDD was not detected in any of the samples collected. These samples included surface soils and sediments from the process wastewater lagoon. Samples were collected on the edge of the lagoon instead of from within; therefore, further sampling of the site was recommended (Ref. No. 13).

The NJDEP collected three samples from the process wastewater lagoon in June of 1982 (Ref. No. 3). Selected analytical results can be found in Table 1. Sampling results revealed high levels of toluene, total xylenes, and chlorobenzene. Further analysis of the sludge was recommended by the NJDEP in 1983.

TABLE 1

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
SELECTED PFISTER SAMPLING RESULTS JUNE 1982

	Solid No. 1 (ppb)	Solid No. 2 (ppb)	Solid No. 3 (ppb)
1,2-dichloroethane			450
Trichlorethylene	140	490	180
Benzene	1790		445
Toluene	12000		5715
Chlorobenzene	48000	39000	38000
Styrene	755		675
N-propylbenzene	33000		
1,3,5-trimethylbenzene	1490	575	
P-cymene	525		570
P-dichlorobenzene	1010		
1,2,3-trichlorobenzene	5650	1035	
M-xylene		148000	
P-xylene			1375000
Tetrachloroethylene		585	
Naphthalene		15000	

Note:

Solids collected from the process wastewater lagoon at a depth of 1 foot. Sample location can be found in Ref. No. 3.

TABLE 1 (CONT'D)

NEW JERSEY DEPARTMENT OF ENVIRONMETNAL PROTECTION
SELECTED PFISTER SAMPLING RESULTS JUNE 1982

	Solid No. 1 (ppb)	Solid No. 2 (ppb)	Solid No. 3 (ppb)
Silver	5	5	5
Selenium	3	3	3
Mercury	2	0.5	10
Lead	57	12	28
Chromium	96	248	84
Cadmium	1	1	2
Arsenic	5	5	5

Note:

Solids collected from the process wastewater lagoon at a depth of 1 foot. Sample location can be found in Ref. No. 3.

PART IV: SITE INSPECTION SAMPLE RESULTS

NUS Corporation Region 2 FIT conducted a sampling site inspection at the Pfister Chemical site on March 7, 1990. At total of 15 environmental samples were collected and included five surface water, four sediment, two sludge, and four soil samples. Table 2 presents a summary of the analytical data and Figure 3 located in Attachment 1 provides a Sample Location Map. Samples were analyzed under the Contract Laboratory Program (CLP) for Target Compound List (TCL) contaminants, excluding cyanide. A complete presentation of the analytical results can be found in Reference No. 39. Surface water, sediment, sludge, and soil samples were collected to determine whether a release of contaminants to the groundwater and surface water attributable to the facility has occurred or whether a potential exists for direct contact with contaminants in the soil that are attributable to the facility.

Sampling analysis revealed that several volatile organic compounds were detected in sludge samples, soil collected next to the process wastewater lagoon, surface water collected from this lagoon, and both downstream sediment samples. Polynuclear aromatic hydrocarbons (PAHs) were detected in all soil samples collected on site, one sludge sample, and the upstream sediment sample. Pesticides were detected in both downstream sediment samples, surface water collected from the process wastewater lagoon, a soil sample collected adjacent to this lagoon, and one sludge sample. Elevated levels of mercury were detected in sludge samples collected from the process wastewater lagoon.

[redacted]ITE NA[redacted]ISTER[redacted]AL IN[redacted]

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EPA CASE NO.: 13670 LAB: CEIMIC CORP.

Table 2
Summary of Analytical Results

VOLATILES										
Sample ID No.	NJDJ-SL2	NJDJ-S1	NJDJ-S2	NJDJ-S3	NJDJ-S4	NJDJ-RIN1	NJDJ-RIN2	NJDJ-RIN3	NJDJ-RIN4	NJDJ-TRBLK
Traffic Report No.	BEN48	BEN43	BEN44	BEN45	BEN46	BCY95	BCY96	BCY97	BCY98	BCY99
Matrix	SLUDGE	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor	100(MED)	1	1	1	4(MED)	1	1	1	1	1
Percent Moisture	61	45	12	17	77	--	--	--	--	--
Chloromethane						98	56	30	14	110
Bromomethane						J				J
Vinyl Chloride										
Chloroethane										
Methylene Chloride						J	J	J	J	J
Acetone	J									
Carbon Disulfide										
1,1-Dichloroethene										
1,1-Dichloroethane										
Trans-1,2-Dichloroethene (total)										
Chloroform										
1,2-Dichloroethane										
2-Butanone										
1,1,1-Trichloroethane										
Carbon Tetrachloride										
Vinyl Acetate										
Bromodichloromethane										
1,2-Dichloropropane										
cis-1,3-Dichloropropene										
Trichloroethene										
Dibromochloromethane										
1,1,2-Trichloroethane										
Benzene										
trans-1,3-Dichloropropene										
Bromoform										
4-Methyl-2-Pentanone										
2-Hexanone										
Tetrachloroethene										
Toluene										
1,1,2,2-Tetrachloroethane										
Chlorobenzene	J		J		190000 E					
Ethylbenzene	J				18000 E					
Styrene										
Xylenes (Total)	610000		J	J	190000 E					

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

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Table 2 (cont'd)

VOLATILES										
Sample ID No.	NJDJ-SW1	NJDJ-SW2(MS/MSD)	NJDJ-SW3	NJDJ-SW4	NJDJ-SW5(DUP)	NJDJ-SED1	NJDJ-SED2(MS/MSD)	NJDJ-SED3	NJDJ-SED4(DUP)	NJDJ-SL1
Traffic Report No.	BEN49	BEN50	BEN51	BEN52	BEN53	BEN54	BCY92	BCY93	BCY94	BEN47
Matrix	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SLUDGE
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor	1	1	1.7	125	2.5	1	10(MED)	5	.5	2000(MED)
Percent Moisture	--	--	--	--	--	58	30	31	34	41
Chloromethane										
Bromomethane										
Vinyl Chloride										
Chloroethane										
Methylene Chloride										
Acetone	J							200		
Carbon Disulfide										
1,1-Dichloroethene										
1,1-Dichloroethane										
Trans-1,2-Dichloroethene (total)										
Chloroform										
1,2-Dichloroethane										
2-Butanone										R
1,1,1-Trichloroethane										
Carbon Tetrachloride										
Vinyl Acetate										
Bromodichloromethane										
1,2-Dichloropropane										
cis-1,3-Dichloropropene										
Trichloroethene										
Dibromochloromethane										
1,1,2-Trichloroethane										
Benzene										
trans-1,3-Dichloropropene										
Bromoform										
4-Methyl-2-Pentanone										
2-Hexanone										
Tetrachloroethene										
Toluene										
1,1,2,2-Tetrachloroethane										
Chlorobenzene			13	2300		13	47000	300	3000	47000000
Ethylbenzene			11	1700	J		71000	120	1500	18000000
Styrene										
Xylenes (Total)			54	10000		55	500000 E	570	7000	110000000 E

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Table 2 (cont'd)

SEMI-VOLATILES										
Sample ID No.	NJDJ-SW1	NJDJ-SW2(MS/MSD)	NJDJ-SW3	NJDJ-SW4	NJDJ-SW5(DUP)	NJDJ-SED1	NJDJ-SED2(MS/MSD)	NJDJ-SED3	NJDJ-SED4(DUP)	NJDJ-SL1
Traffic Report No.	BEN49	BEN50	BEN51	BEN52	BEN53	BEN54	BCY92	BCY93	BCY94	BEN47
Matrix	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SLUDGE
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	10	1	5	40	10	10	400
Percent Moisture	--	--	--	--	--	43	32	33	33	41
Phenol				540						
bis(2-Chloroethyl)ether										
2-Chlorophenol										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene							J			J
Benzyl alcohol										
1,2-Dichlorobenzene							130000		J	J
2-Methylphenol				J						
bis(2-Chloroisopropyl)ether										
4-Methylphenol				190						
N-Nitroso-di-n-dipropylamine										
Hexachloroethane										
Nitrobenzene										
Isophorone										
2-Nitrophenol										
2,4-Dimethylphenol				130						
Benzoic acid										
bis(2-Chloroethoxy)methane										
2,4-Dichlorophenol				J						
1,2,4-Trichlorobenzene							25000	J	J	720000
Naphthalene				J			J			320000
4-Chloroaniline										
Hexachlorobutadiene										
4-Chloro-3-Methylphenol										
2-Methylnaphthalene										
Hexachlorocyclopentadiene										
2,4,6-Trichlorophenol										
2,4,5-Trichlorophenol									J	
2-Chloronaphthalene										
2-Nitroaniline										
Dimethylphthalate										
Acenaphthylene										
2,6-Dinitrotoluene										
3-Nitroaniline				J						
Acenaphthene										
2,4-Dinitrophenol										
4-Nitrophenol										
Dibenzofuran										
2,4-Dinitrotoluene										
Diethylphthalate										
4-Chlorophenyl-phenyl ether										
Fluorene										
4-Nitroaniline				J						
4,6-Dinitro-2-methylphenol										
N-nitrosodiphenylamine										
4-Bromophenyl-phenyl ether										
Hexachlorobenzene										

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Table 2 (cont'd)

SEMI-VOLATILES										
Sample ID No.	NJDJ-SW1	NJDJ-SW2(MS/MSD)	NJDJ-SW3	NJDJ-SW4	NJDJ-SW5(DUP)	NJDJ-SED1	NJDJ-SED2(MS/MSD)	NJDJ-SED3	NJDJ-SED4(DUP)	NJDJ-SL1
Traffic Report No.	BEN49	BEN50	BEN51	BEN52	BEN53	BEN54	BCY92	BCY93	BCY94	BEN47
Matrix	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SLUDGE
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	10	1	5	40	10	10	400
Percent Moisture	--	--	--	--	--	43	32	33	33	41
Pentachlorophenol										
Phenanthrene						J				J
Anthracene										
Di-n-butylphthalate										
Fluoranthene						J				J
Pyrene						J				J
Butylbenzylphthalate										
3,3'-Dichlorobenzidine										
Benzo(a)anthracene						J	J		J	J
Chrysene						J				J
bis(2-Ethylhexyl)phthalate										
Di-n-octylphthalate										
Benzo(b)fluoranthene						J				
Benzo(k)fluoranthene						J				
Benzo(a)pyrene										
Indeno(1,2,3-cd)pyrene										
Dibenz(a,h)anthracene										
Benzo(g,h,i)perylene										

NOTES:
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B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

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Table 2 (cont'd)

SEMI-VOLATILES										
Sample ID No.	NJDJ-SL2	NJDJ-S1	NJDJ-S2	NJDJ-S3	NJDJ-S4	NJDJ-RIN1	NJDJ-RIN2	NJDJ-RIN3	NJDJ-RIN4	NJDJ-TRBLK
Traffic Report No.	BEN4B	BEN43	BEN44	BEN45	BEN46	BCY95	BCY96	BCY97	BCY98	BCY99
Matrix	SLUDGE	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	200	2.7	10	10	80	1	1	1	1	N/A
Percent Moisture	62	49	11	24	60	--	--	--	--	N/A
Phenol										NR
bis(2-Chloroethyl)ether										NR
2-Chlorophenol										NR
1,3-Dichlorobenzene										NR
1,4-Dichlorobenzene										NR
Benzyl alcohol										NR
1,2-Dichlorobenzene										NR
2-Methylphenol										NR
bis(2-Chloroisopropyl)ether										NR
4-Methylphenol										NR
N-Nitroso-di-n-dipropylamine										NR
Hexachloroethane										NR
Nitrobenzene										NR
Isophorone										NR
2-Nitrophenol										NR
2,4-Dimethylphenol										NR
Benzoic acid										NR
bis(2-Chloroethoxy)methane										NR
2,4-Dichlorophenol										NR
1,2,4-Trichlorobenzene	180000		4900	J						NR
Naphthalene	J			J	J					NR
4-Chloroaniline										NR
Hexachlorobutadiene										NR
4-Chloro-3-Methylphenol										NR
2-Methylnaphthalene										NR
Hexachlorocyclopentadiene										NR
2,4,6-Trichlorophenol										NR
2,4,5-Trichlorophenol				J						NR
2-Chloronaphthalene										NR
2-Nitroaniline										NR
Dimethylphthalate										NR
Acenaphthylene										NR
2,6-Dinitrotoluene										NR
3-Nitroaniline	J			J						NR
Acenaphthene			J							NR
2,4-Dinitrophenol										NR
4-Nitrophenol										NR
Dibenzofuran										NR
2,4-Dinitrotoluene										NR
Diethylphthalate										NR
4-Chlorophenyl-phenyl ether										NR
Fluorene			J							NR
4-Nitroaniline										NR
4,6-Dinitro-2-methylphenol										NR
N-nitrosodiphenylamine										NR
4-Bromophenyl-phenyl ether										NR
Hexachlorobenzene										NR

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Table 2 (cont'd)

SEMI-VOLATILES										
Sample ID No.	NJDJ-SL2	NJDJ-S1	NJDJ-S2	NJDJ-S3	NJDJ-S4	NJDJ-RIN1	NJDJ-RIN2	NJDJ-RIN3	NJDJ-RIN4	NJDJ-TRBLK
Traffic Report No.	BEN48	BEN43	BEN44	BEN45	BEN46	BCY95	BCY96	BCY97	BCY98	BCY99
Matrix	SLUDGE	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	200	2.7	10	10	80	1	1	1	1	N/A
Percent Moisture	62	49	11	24	60	--	--	--	--	N/A
Pentachlorophenol										NR
Phenanthrene		J	5000							NR
Anthracene			J							NR
Di-n-butylphthalate										NR
Fluoranthene		J	9900	J						NR
Pyrene		J	7900	J						NR
Butylbenzylphthalate										NR
3,3'-Dichlorobenzidine										NR
Benzo(a)anthracene	J	J	4800	J	J					NR
Chrysene		J	4500							NR
bis(2-Ethylhexyl)phthalate							B	B	B	NR
Di-n-octylphthalate										NR
Benzo(b)fluoranthene		J	4900							NR
Benzo(k)fluoranthene		J	3800							NR
Benzo(a)pyrene		J	5400							NR
Indeno(1,2,3-cd)pyrene			J							NR
Dibenz(a,h)anthracene			J							NR
Benzo(g,h,i)perylene			J							NR

NOTES:
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Table 2 (cont'd)

PESTICIDES										
Sample ID No.	NJDJ-SW1	NJDJ-SW2(MS/MSD)	NJDJ-SW3	NJDJ-SW4	NJDJ-SW5(DUP)	NJDJ-SED1	NJDJ-SED2(MS/MSD)	NJDJ-SED3	NJDJ-SED4(DUP)	NJDJ-SL1
Traffic Report No.	BEN49	BEN50	BEN51	BEN52	BEN53	BEN54	BCY92	BCY93	BCY94	BEN47
Matrix	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SLUDGE
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Dilution Factor/GPC Cleanup (Y)	1	1	1	300	1	2	5	5	5	1000
Percent Moisture	--	--	--	--	--	43	32	33	33	41
alpha-BHC				42						
beta-BHC									87	
delta-BHC										
gamma-BHC (Lindane)							81	81	110	
Heptachlor										
Aldrin							140	100	130	
Heptachlor epoxide										
Endosulfan I										
Dieldrin										
4,4'-DDE										
Endrin										
Endosulfan II										
4,4'-DDD							130			
Endosulfan sulfate										
4,4'-DDT										
Methoxychlor										
Endrin ketone										
alpha-Chlordane										
gamma-Chlordane										
Toxaphene										
Aroclor-1016										
Aroclor-1221										
Aroclor-1232										
Aroclor-1242										
Aroclor-1248							R	R	R	R
Aroclor-1254						R				
Aroclor-1260										

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: PFISTER CHEMICAL INC
TDD#: 02-9001-13
SAMPLING DATE: 03/07/90
EPA CASE NO.: 13670 LAB: CEIMIC CORP.

Table 2 (cont'd)

PESTICIDES										
Sample ID No.	NJDJ-SL2	NJDJ-S1	NJDJ-S2	NJDJ-S3	NJDJ-S4	NJDJ-RIN1	NJDJ-RIN2	NJDJ-RIN3	NJDJ-RIN4	NJDJ-TRBLK
Traffic Report No.	BEN48	BEN43	BEN44	BEN45	BEN46	BCY95	BCY96	BCY97	BCY98	BCY99
Matrix	SLUDGE	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	50	1	10	100	10	1	1	1	1	N/A
Percent Moisture	62	49	11	24	60	--	--	--	--	N/A
alpha-BHC										NR
beta-BHC										NR
delta-BHC										NR
gamma-BHC (Lindane)										NR
Heptachlor										NR
Aldrin										NR
Heptachlor epoxide										NR
Endosulfan I										NR
Dieldrin										NR
4,4'-DDE		58								NR
Endrin										NR
Endosulfan II										NR
4,4'-DDD		300								NR
Endosulfan sulfate					1200 E					NR
4,4'-DDT										NR
Methoxychlor										NR
Endrin ketone										NR
alpha-Chlordane										NR
gamma-Chlordane										NR
Toxaphene										NR
Aroclor-1016										NR
Aroclor-1221										NR
Aroclor-1232										NR
Aroclor-1242										NR
Aroclor-1248	R		R	R	R					NR
Aroclor-1254										NR
Aroclor-1260										NR

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: PFISTER CHEMICAL, INC.
TDDN: 02-9001-13
SAMPLING DATE: 3/7/90
EPA CASE NO.: 13670
LAB NAME: WEYERHAUSER

Table 2 (cont'd)

INORGANICS										
Sample ID No.	NJDJ-SW1	NJDJ-SW2(MS/MSD)	NJDJ-SW3	NJDJ-SW4	NJDJ-SW5(DUP)	NJDJ-SED1	NJDJ-SED2(MS/MSD)	NJDJ-SED3	NJDJ-SED4(DUP)	NJDJ-SL1
Traffic Report No.	MBAX18	MBAX19	MBAX20	MBAX21	MBAX22	MBAX23	MBAX24	MBAX25	MBAX26	MBAX16
Matrix	WATER	WATER	WATER	WATER	WATER	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SLUDGE
Units	ug/L	ug/L	ug/L	ug/L	ug/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aluminum	R	R	R	R	R	10300 E	5810	5670	7620	5020
Antimony										
Arsenic			J	10		23.9 E	6.9	J	J	3.4
Barium	J	J	J	J	J	116 E	118	83.8	96.7	70.5
Beryllium						J	J	J	J	J
Cadmium						J		J		6.7
Calcium	50700	50600	52500	151000	51400	J	J	J	J	7720
Chromium	J	J	10.2	79	J	66.7 E	284	129	107	909
Cobalt						J	J	J	J	J
Copper	J	J	J	28.1	J	54.5 E	118 E	27.8 E	24 E	399 E
Iron	793 E	630 E	1760 E	4890 E	1230 E	21400 E	17500	18000	17600	13000
Lead	J	J	4.1 E		4.4 E	175 E	151 E	29.5 E	26.2 E	98.6 E
Magnesium	26600	27800	28600	42600	28300	3200 E	1250	J	J	2530
Manganese	268	264	296	2170	285	186 E	138	69.6	59.5	274
Mercury	R	R	R	R	R	0.78 E	0.89	0.37	0.35	29.3
Nickel	J	J	J	42.4 E	J	27.4 E	16.7 E	11.2 E	8.7 E	38.3 E
Potassium	9040 E	9770 E	10300 E	26100 E	9880 E	J	J	J	J	J
Selenium						J	J	J	J	J
Silver						J	2.2	J	J	J
Sodium	208000	215000	227000	547000	222000	J	J	J	J	3200 E
Thallium	J	J	J					J	J	
Vanadium			J	J	J	35.7 E	31.7	72.1	78	29.9
Zinc	25.2	J	25.3	215	20.8	102 E	46.3 E	28 E	28.6 E	324 E

NOTES:
Blank space - compound analyzed for but not detected
E - estimated value
J - estimated value, compound present below CRDL but above IDL
R - analysis did not pass EPA QA/QC
NR - analysis not required

SITE NAME: PFISTER CHEMICAL, INC.
TDRN: 02-9001-13
SAMPLING DATE: 3/7/90
EPA CASE NO.: 13670
LAB NAME: WEYERHAUSER

Table 2 (cont'd)

INORGANICS										
Sample ID No.	NJDJ-SL2	NJDJ-S1	NJDJ-S2	NJDJ-S3	NJDJ-S4	NJDJ-RIN1	NJDJ-RIN2	NJDJ-RIN3	NJDJ-RIN4	NJDJ-TRBLK
Traffic Report No.	MBAX17	MBAX12	MBAX13	MBAX14	MBAX15	MBBC96	MBBC97	MBBC98	MBBC99	N/A
Matrix	SLUDGE	SOIL	SOIL	SOIL	SOIL	WATER	WATER	WATER	WATER	N/A
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L	ug/L	ug/L	ug/L
Aluminum	2740 E	14800	10400	19300	5720 E	J	J	J	J	NR
Antimony										NR
Arsenic	J	17	3.3	4.2	J					NR
Barium	80.7 E	130	73	175	J		J	J		NR
Beryllium		J	J	1						NR
Cadmium	J	J	J		J					NR
Calcium	2000 E	1790	14000	2890	13100 E	J		J	J	NR
Chromium	408 E	66.4	59.5	306	401 E	J	J	J		NR
Cobalt	J	J	J	17	J					NR
Copper	208 E	138 E	50.2 E	65.7 E	127 E					NR
Iron	6650 E	27800	18800	33900	35500 E	J	J	J	J	NR
Lead	75.7 E	328 E	78.4 E	51.7 E	99.5 E					NR
Magnesium	J	3590	4110	5200	J		J	J		NR
Manganese	87.2 E	228	386	829	786 E					NR
Mercury	86.1 E	1	3.7	0.65	11.2 E	R	R	R	R	NR
Nickel	J	29.4 E	17.3 E	27.8 E	87.2 E		J			NR
Potassium	J	1400 E	J	3200 E	J					NR
Selenium	J	J		9.2	J					NR
Silver	J	3.5	J	2.8	J					NR
Sodium	J	J	894 E	J	J	J	J	J	J	NR
Thallium		J						J		NR
Vanadium	J	51.1	29.3	64.6	143 E					NR
Zinc	73.7 E	155 E	87 E	66.1 E	94.2 E					NR

NOTES:
Blank space - compound analyzed for but not detected
E - estimated value
J - estimated value, compound present below CRDL but above IDL
R - analysis did not pass EPA QA/QC
NR - analysis not required

PART V: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. **Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.**

   There is a potential for groundwater contamination. Pfsister Chemical used an unlined process wastewater lagoon for over 30 years. Sampling revealed volatile and semivolatile contamination in soil, sediments, sludges, and surface water collected from within the lagoon and near it. Mercury was detected with elevated concentrations in sludge samples collected from the process wastewater lagoon.

   Ref. Nos. 2, 39

2. **Describe the aquifer of concern; include information such as depth, thickness, geologic composition, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.**

   The site lies within the Hackensack River Basin just north of the Hackensack Meadowlands. the bedrock in the basin is part of the Newark Group and is overlain by unconsolidated deposits. These unconsolidated deposits along Overpeck Creek are overlain by fill material to support the expansion of industries in the area. The fill material and organic material underlying the site is approximately 10 feet thick with a permeability of 10^{-3} to 10^{-5} cm/sec. The unconsolidated deposits consist of till, varved silt and clay, alluvium, sand, and gravel. The deposits in the vicinity of the site consist of varved silts and clay from approximately 10 to 40 feet below the surface and sand and gravel from approximately 40 to 55 feet below the surface. Groundwater in the unconsolidated deposits occurs in the interstices or pores between grains. Till, varved silt, and clay have a poor permeability. The bedrock underlying the site is the Passaic Formation, previous known as the Brunswick Formation, which forms the bedrock throughout most of the basin. The Passaic Formation is composed of mudstone, siltstone, sandstone, and conglomerate. The Passic Formation is approximately 55 to 63 feet below the surface in the vicinity of the site. Groundwater occurs in a network of interconnected openings formed along joints and fractures. The permeability of the unconsolidated deposits and the bedrock is 10^{-5} to 10^{-7} cm/sec. Groundwater flows southeast and the depth to the water table is approximately 7 to 17 feet.

   Ref. Nos. 2, 27, 28, 29

3. **Is a designated sole source aquifer within 3 miles of the site?**

   The Brunswick Shale and Sandstone Aquifers within the Passaic Formation, underlying the Ridgewood area, are designated as a sole source aquifer.

   Ref. No. 31

4. **What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?**

   Waste lagoons were constructed on land reclaimed from Overpeck Creek, with the depth of the lowest point of waste deposition being approximately 10 feet. The depth to the water table in the area is approximately 7 to 17 feet; therefore, the lowest point of waste deposition to the highest seasonal level of the saturated zone is 0 feet.

   Ref. Nos. 2, 4, 25

5. **What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?**

The permeability value of the unconsolidated deposits and the bedrock is 10^{-5} to 10^{-7} cm/sec.

Ref. No. 32

6. **What is the net precipitation for the area?**

The net annual precipitation for the area is approximately 13 inches.

Ref. No. 32

7. **Identify uses of groundwater within 3 miles of the site (i.e., private drinking source, municipal source, commercial, industrial, irrigation, unusable).**

Groundwater is used for potable water, industrial, and irrigation purposes within 3 miles of the site.

Ref. Nos. 38, 40-45

8. **What is the distance to and depth of the nearest well that is currently used for drinking or irrigation purposes?**

The nearest well is located approximately 0.75 mile northwest of the site in Ridgefield Park. The well is used for the municipal swimming pool; however, it also supplies drinking water for citizens using the pool. The depth of this well is unknown.

Ref. No. 43

9. **Identify the population served by the aquifer of concern within a 3-mile radius of the site.**

The Ridgefield Park municipal pool well serves approximately 1,045 people. Three backup wells for the Bogota public water supply are located approximately 2.4 to 2.8 miles northwest of the site and are capable of producing water immediately if needed.

Ref. Nos. 43, 44

SURFACE WATER ROUTE

10. **Describe the likelihood of a release of contaminant(s) to surface water as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminants to the facility.**

Based on NUS sampling results, a release of volatile organic compounds to Overpeck Creek has been documented. Sampling analysis also revealed the presence of volatile and semivolatile compounds in soils, sediments, and surface water samples collected on site. Elevated levels of mercury were also detected in sludge samples collected from the process wastewater lagoon. Lagoons have been constructed on land reclaimed from Overpeck Creek. The lagoons are uncovered; therefore, overflow would flow directly to Overpeck Creek and an unnamed stream.

Ref. Nos. 13, 33

11. **Identify and locate the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.**

The site is located on the east bank of Overpeck Creek, which is a tributary of the Hackensack River According to Pfister, surface runoff would flow to storm drains on site which currently discharge to the BCMUA. However, based on the topography of the site it appears that some runoff would flow to the soil area surrounding the lagoons.

Ref. Nos. 23, 33

12. What is the facility slope in percent? (Facility slope is measured from the highest point of deposited hazardous waste to the most downhill point of the waste area or to where contamination is detected.)

The facility slope is less than 3 percent.

Ref. No. 33

13. What is the slope of the intervening terrain in percent? (Intervening terrain slope is measured from the most downhill point of the waste area to the probable point of entry to surface water.)

The intervening terrain between the process wastewater lagoon and Overpeck Creek is less than 3 percent. However, during heavy rainfall, overflow from the lagoon could enter the creek.

Ref. No. 33

14. What is the 1-year 24-hour rainfall?

The 1-year 24-hour rainfall for the region is 2.5 inches.

Ref. No. 32

15. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The site is located on the east bank of Overpeck Creek and both lagoons were constructed on land reclaimed from this creek. An unnamed stream, which flows into Overpeck Creek, is located on the southern border of the site.

Ref. Nos. 13, 25

16. Identify uses of surface waters within 3 miles downstream of the site (i.e., drinking, irrigation, recreation, commercial, industrial, not used).

Overpeck Creek is designated for industrial and agricultural water supply, public potable water supply, migration of diadromous fish, and maintenance of wildlife. The Hackensack River is designated for shellfish harvesting. In addition, both Overpeck Creek and the Hackensack River are designated for maintenance, migration, and propagation of the natural and established biota; primary and secondary contact recreation; and other reasonable uses.

Ref. No. 37

17. Describe any wetlands, greater than 5 acres in area, within 2 miles downstream of the site. Include whether it is a freshwater or coastal wetland.

The site is approximately 0.75 mile north of the Hackensack Meadowlands, which is a tidally affected coastal wetland.

Ref. No. 33

18. Describe any critical habitats of federally listed endangered species within 2 miles of the site along the migration path.

There are no critical habitats of any federally listed endangered species within 2 miles of the site; however, the endangered peregrine falcon (Falcon peregrinus), may be using the Hackensack Meadowlands for feeding.

Ref. Nos. 35, 36

19. What is the distance to the nearest sensitive environment along or contiguous to the migration path (if any exist within 2 miles)?

The nearest sensitive environment is the Hackensack Meadowlands, which is located approximately 0.75 mile south of the site.

Ref. No. 33

20. Identify the population served or acres of food crops irrigated by surface water intakes within 3 miles downstream of the site and the distance to the intake(s).

There are no surface water intakes within 3 miles of the site.

Ref. No. 42

21. What is the state water quality classification of the water body of concern?

The state water quality classification of Overpeck Creek is FW2-NT/SE2 and that for the Hackensack river is SE1. FW2-NT/SE2 waters are designated for maintenance, migration and propagation of the natural and established biota; primary and secondary contact recreation; industrial and agricultural water supply; public potable water supply; and other reasonable uses. SE1 waters are designated for shellfish harvesting; migration, maintenance and propagation of the natural and established biota; primary and secondary contact recreation; and other reasonable uses.

Ref. No. 37

22. Describe any apparent biota contamination that is attributable to the site.

There is no apparent biota contamination that is attributable to the site.

Ref. No. 26

AIR ROUTE

23. Describe the likelihood of a release of contaminant(s) to the air as follows: observed, alleged, potential, none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.

There is a potential for a release of contaminants to the air. Lagoons are uncovered and during a NJDEP inspection, wastewater within the lagoons was volatizing and emitting a strong chemical ordor. During the NUS on-site reconnaissance and site inspection, above-background readings on the HNu and OVA were detected after disturbance of the waste within the process wastewater lagoon. Xylene was also detected during the on-site reconnaissance after disturbance of the wastewater in the process wastewater lagoon. In 1988, a chemical powder that was heated accidently caused a plume of noxious fumes containing benzene gas to float into the air, forcing an evacuation of the plant. On Wednesday, June 13, 1990, a fire occurred in drums stored within the facility releasing noxious fumes, also forcing an evacuation of the plant.

Ref. Nos. 13, 26, 46

24. What is the population within a 4-mile radius of the site?

The population within a 4-mile radius of the site is approximately 613,000.

Ref. No. 34

FIRE AND EXPLOSION

25. Describe the potential for a fire or explosion to occur with respect to the hazardous substance(s) known or suspected to be present on site. Identify the hazardous substance(s) and the method of storage or containment associated with each.

There is no potential for a fire or explosion associated with wastes within the lagoons. However, there is a potential associated with wastes stored in drums. On Wednesday, June 13, 1990, a fire occurred in drums stored within the facility.

Ref. Nos. 26, 46

26. What is the population within a 2-mile radius of the hazardous substance(s) at the facility?

The population within 2 miles of the site is approximately 90,500.

Ref. No. 34

DIRECT CONTACT/ON-SITE EXPOSURE

27. Describe the potential for direct contact with hazardous substance(s) stored in any of the waste units on site or deposited in on-site soils. Identify the hazardous substance(s) and the accessibility of the waste unit.

There is little potential for direct contact with the lagoons by the public. The site is fenced and a guard is posted 24 hours a day to limit public access to the site.

Ref. Nos. 1, 26

28. How many residents live on a property whose boundaries encompass any part of an area contaminated by the site?

There are no residents whose property boundaries encompass any part of an area known to be contaminated by the site.

Ref. No. 26

29. What is the population within a 1-mile radius of the site?

The population within 1 mile of the site is approximately 19,400.

Ref. No. 34

PART VI: ACTUAL HAZARDOUS CONDITIONS

On April 8, 1986, two employees of the Bergen County Utilities Authority conducting an inspection suffered a reaction to an environmental exposure on the Pfister Chemical site. They required emergency treatment at the local hospital and one employee required additional care by an ophthalmologist.

On Wednesday, June 13, 1990, a chemical reaction occurred in a drum within the storage area of the plant. According to local police, one of the chemicals started to decompose, causing the substance to smolder and noxious fumes to be released.

Sampling results indicated the presence of toluene, xylene, chlorobenzene, ethylbenzene, and mercury in sludge samples collected from the process wastewater lagoon, downstream sediment samples, and soil adjacent to the lagoon.

No other actual hazardous conditions pertaining to human or environmental contamination have been documented. Specifically:

- Contamination has not been documented either in organisms in a food chain leading to human or in organisms directly consumed by humans.
- There have been no documented incidents of damage to flora (e.g., stressed vegetation) or to fauna (e.g., fish kill) that can be attributed to the hazardous materials at the facility.
- There is no documented contamination of a sewer or storm drain.
- There is no direct evidence of a release of a substance of concern from the facility to the groundwater.

PART VII: SITE SUMMARY AND RECOMMENDATIONS

Pfister Chemical is located on Linden Avenue in Ridgefield, Bergen County, New Jersey. The surrounding area is industrial/residential. The property is bounded to the west by Overpeck Creek, a tributary of the Hackensack River; to the north by Route 46; and to the south by an unnamed stream which flows into Overpeck Creek (Ref. No. 26).

Pfister Chemical began operations at the Ridgefield plant in 1936 on a previously unoccupied site. Pfister manufactures chemical intermediates used by the dye and pigment industries. The primary wastes generated on site are process wastewater and still bottoms. Pfister has numerous air permits for air scrubbers used at the facility (Ref. No. 1).

Two unlined lagoons were constructed on land reclaimed from Overpeck Creek, one is used for non-contact cooling water and the other for process wastewater neutralization. The cooling water lagoon was first observed in 1954 and appears to be unchanged over the years, based on aerial photographs (Ref. No. 25). The cooling water is obtained from and returned to Overpeck Creek. The process wastewater lagoon is approximately 2.5 acres in size and was constructed some time between 1954 and 1959 (Ref. No.13). The use of this lagoon reportedly ceased in 1980 due to cutbacks in plant production. All process wastewater since then has been discharged to the sanitary sewer system. The lagoon has been filled to within 1 to 2 feet of capacity and a chemical sludge is present. This sludge is approximately 2 to 10 feet deep, with an estimated volume of 5,000 to 10,000 yds^3 (Ref. Nos. 4, 19). This lagoon has been the subject of NJDEP and EPA investigations in recent years (Ref. No. 13). In addition, hazardous waste drums containing still bottoms from the distillation processes performed on site are stored within the plant building. When a sufficient amount of drums is present to make a shipment economical, wastes are disposed of off site. Drum storage areas are inspected on a daily basis and there have been no reports of leaks or spills associated with these drums (Ref. No. 1). No drums were observed outside the building during the NUS site inspection conducted on March 7, 1990 (Ref. No. 26).

The NJDEP, in cooperation with the U.S. EPA, has identified and assessed potential dioxin-contaminated sites in New Jersey. On May 9, 1985, E.C. Jordan Co. collected seven surface soil (0 to 6 inches) and four sediment samples from Pfister for this dioxin study. Dioxin was not detected in any of the samples. However, samples were collected on the edge of the lagoon instead of from within it; therefore, further investigation of the site was recommended (Ref. No. 13).

The NJDEP collected three sludge samples from the process wastewater lagoon in June of 1982 (Ref. No. 3). Sampling analysis revealed high levels of toluene, total xylenes, and chlorobenzene. After reviewing the sampling results, the NJDEP determined the sludge within the lagoon was hazardous and recommended further analysis (Ref. Nos. 13).

PART VII: SITE SUMMARY AND RECOMMENDATIONS (Cont'd)

NUS Corporation Region 2 FIT conducted a sampling site inspection on March 7, 1990. A total of 15 environmental samples were collected and included five surface water, four sediments, two sludge and four soil samples. Sampling analysis revealed similar volatile and semivolatile compounds to those detected in the NJDEP samples. Elevated levels of mercury above normal background concentrations were detected in sludge samples collected from the process wastewater lagoon. Based on the NUS sampling results, a release of volatile organic compounds to the waters of Overpeck Creek has been documented.

Several hazardous incidents involving Pfister Chemical have occurred. On April 8, 1986, two employees of the Bergen County Municipal Utilities Authority suffered a reaction to an environmental incident on the Pfister site. They required emergency treatment and one employee required additional care (Ref. No. 18). In 1988, a chemical powder that was heated accidentially caused a plume of noxious fumes containing benzene gas to be released into the air, forcing an evacuation of the plant. On Wednesday, June 13, 1990, a chemical reaction occurred in a drum within the storage area of the plant. According to local police, one of the chemicals stored in the area decomposed and caused a release of noxious fumes. A number of public safety workers suffered slight chemical burns and other minor injuries due to this chemical reaction (Ref. No. 46). In addition, during a NJDEP site inspection, the process wastewater lagoon was volatilizing, emitting a strong chemical odor (Ref. No. 13).

On January 3, 1989 Pfister Chemical signed an NJDEP Administrative Consent Order (AOC) which requires the installation of seven monitoring wells and a number of soil borings in the lagoon. During the NUS site inspection conducted on March 7, 1990, evidence of test pits and sampling were observed.

Groundwater is used for potable water and irrigation within 3 miles of the site. There is one private well located approximately 0.75 mile northwest of the site; it serves approximately 1,045 people. Three backup wells to the Bogota public supply well are located approximately 2.5 miles northwest of the site and can be used when needed (Ref. Nos. 40-45). Surface water is used for industrial purposes within 3 miles of the site (Ref. Nos. 13, 42). The Hackensack Meadowlands, a tidally affected coastal wetland, is located 0.75 mile south of the site and may be a feeding area for the endangered Peregrine Falcon. There are no critical habitats of any federally listed endangered species within 2 miles of the site (Ref. Nos. 35, 36). The site is fenced and a guard is posted to limit public access to the site. However, there is a potential for direct contact by on-site workers with the uncovered lagoons

PART VII: SITE SUMMARY AND RECOMMENDATIONS (Cont'd)

(Ref. No. 26). Based on the information provided a **LISTING SITE INSPECTION (LSI)** is recommended for Pfister Chemical. The LSI should address groundwater conditions under the site, the full extent of contaminant release to Overpeck Creek, and its impact on the sensitive Hackensack Meadowlands environment.

ATTACHMENT 1

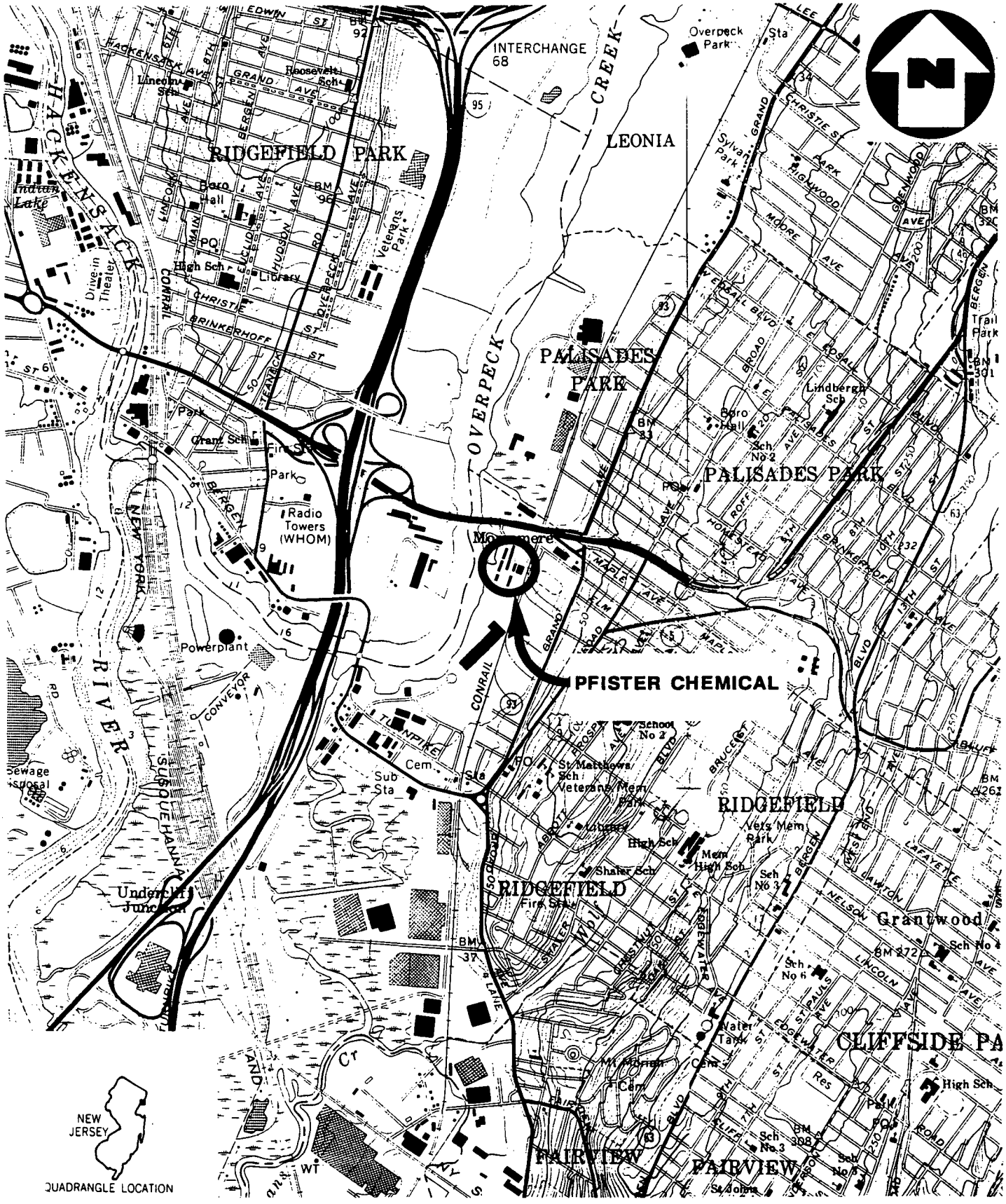
PFISTER CHEMICAL
RIDGEFIELD, NEW JERSEY

CONTENTS

FIGURE 1:	Site Location Map
FIGURE 2:	Site Map
FIGURE 3:	Sample Location Map
EXHIBIT A:	Photograph Log*

Note:

* Photographs are from the site reconnaissance only. Photographic documentation of the site inspection is unavailable due to equipment malfunction.



(QUAD) WEEHAWKEN, N.J.

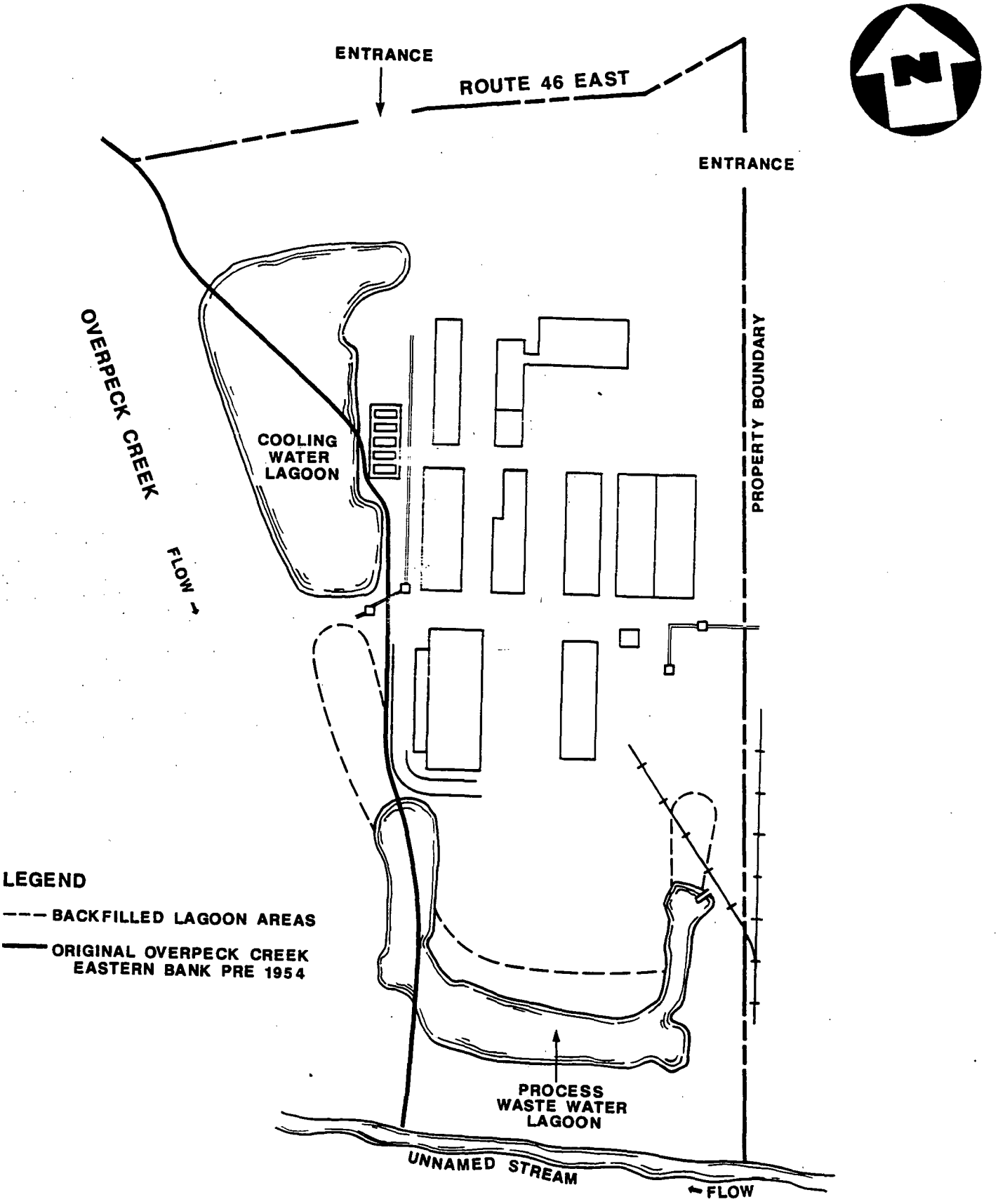
SITE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION



SITE MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

NOT TO SCALE

FIGURE 2

NUS CORPORATION

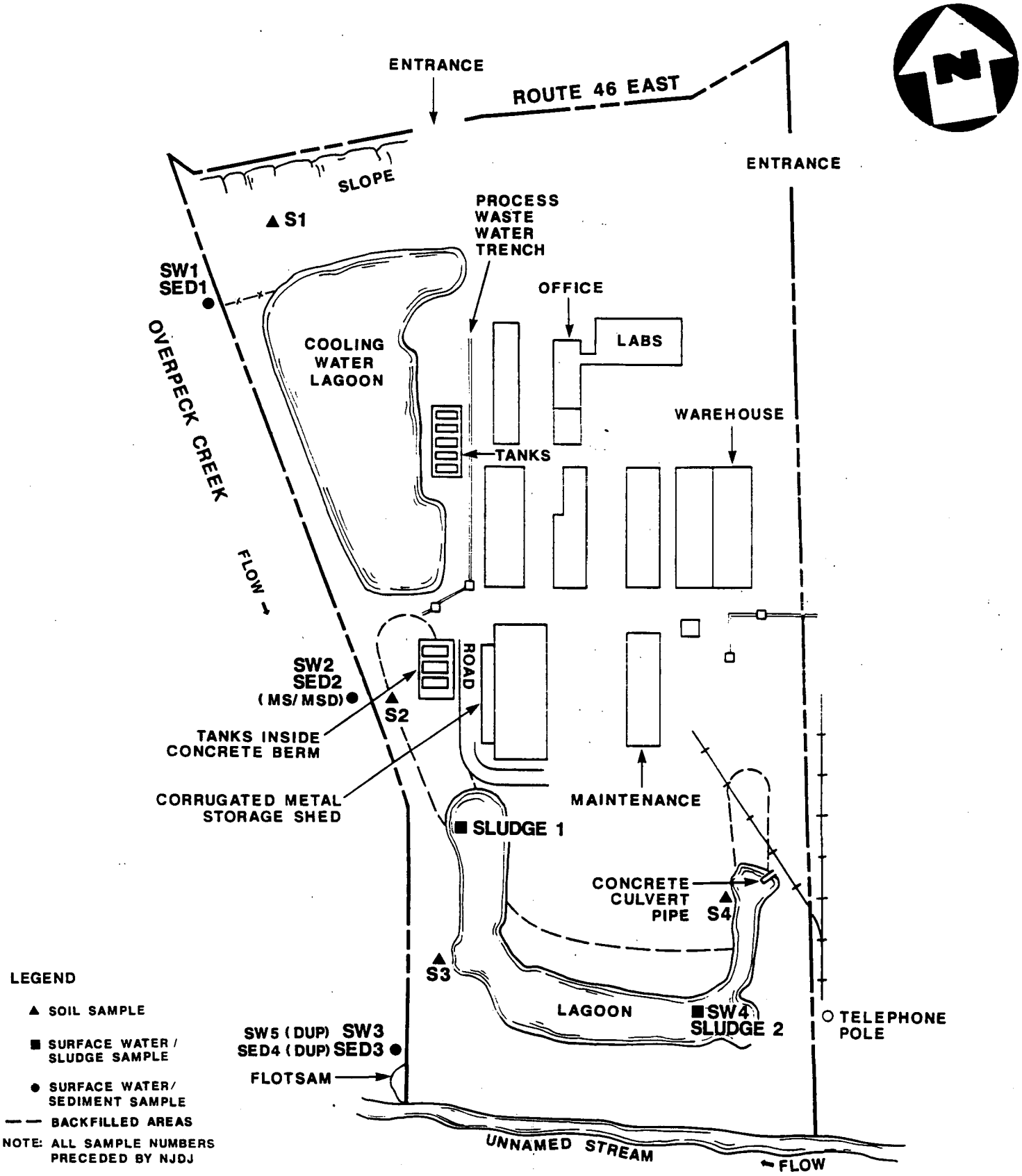


FIGURE 3

SAMPLE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

NOT TO SCALE

NUS CORPORATION

EXHIBIT A

PHOTOGRAPH LOG

PFISTER CHEMICAL, INC.
RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

FEBRUARY 16, 1990

PFISTER CHEMICAL, INC.
RIDGEFIELD, BERGEN COUNTY, NEW JERSEY
FEBRUARY 16, 1990

PHOTOGRAPH INDEX

ALL PHOTOGRAPHS TAKEN BY DEBORAH E. LaMOND

Photo Number	Description	Time
1P-1	Looking northwest towards route 46 at start of lagoon.	1027
1P-2	Looking south down western section of lagoon.	1031
1P-3	John Harrison taking a Draeger tube sample for detection of toluene in northwestern section of lagoon.	1038
1P-4	John Harrison taking a Draeger tube sample for detection of chlorobenzene at same location as 1P-3.	1040
1P-5	John Harrison taking a Draeger tube sample for detection of xylene at same location as 1P-3.	1043
1P-6	Looking south along corridor of land between western boundary of lagoon and Overpeck Creek.	1052
1P-7	Looking south along eastern bank of Overpeck Creek, which forms the western border of site.	1056
1P-8	Looking northwest along southwestern curve of lagoon.	1058
1P-9	Looking east along south section of lagoon.	1059
1P-10	Looking north at plant works from southern bank of lagoon.	1100
1P-11	Looking south along eastern section of lagoon.	1111
1P-12	Northeast end of lagoon. Note railroad tracks on eastern bank.	1112
1P-13	Looking northeast from on-site reconnaissance command post toward plant works.	1130

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-1 February 16, 1990 1027
Looking northwest towards route 46 at start of lagoon.

1P-2 February 16, 1990 1031
Looking south down western section of lagoon.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-3 February 16, 1990 1038
John Harrison taking a Draeger tube sample for detection of toluene in northwestern section of lagoon.

1P-4 February 16, 1990 1040
John Harrison taking a Draeger tube sample for detection of chlorobenzene at same location as 1P-3.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-5 February 16, 1990 1043
John Harrison taking a Draeger tube sample for detection of xylene at same location as 1P- 3.

1P-6 February 16, 1990 1052
Looking south along corridor of land between western boundary of lagoon and Overpeck Creek.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-7 February 16, 1990 1056
Looking south along eastern bank of Overpeck Creek, which forms the western border of site.

1P-8 February 16, 1990 1058
Looking northwest along southwestern curve of lagoon.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-9 February 16, 1990 1059
Looking east along south section of lagoon.

1P-10 February 16, 1990 1100
Looking north at plant works from southern bank of lagoon.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-11 February 16, 1990 1111
Looking south along eastern section of lagoon.

1P-12 February 16, 1990 1112
Northeast end of lagoon. Note railroad tracks on eastern bank.

PFISTER CHEMICAL, INC., RIDGEFIELD, BERGEN COUNTY, NEW JERSEY

1P-13

February 16, 1990
Looking northeast from on-site reconnaissance command post toward plant works.

1130

ATTACHMENT 2

REFERENCES

1. Resource Conservation and Recovery Act (RCRA) Generator and Treatment, Storage, and disposal (TSD) Facility Inspection Checklist, Pfister Chemical, January 9, 1981.

2. Memorandum from Peter Sugarman, Bureau of Groundwater Management, to Dick White, Region I Enforcement, Subject: Pfister Chemical Company. May 7, 1982.

3. Water Analysis sheets, Division of Water Resources, NJDEP, Form VST-010, Pfister Chemical, September 9, 1982.

4. Report of Phone Call: Conversation between Arthur Gusmano, Pfister Chemical and Division of Water Resources, NJDEP, June 15, 1982.

5. NJDEP memorandum from Thomas McKee to Peter Lynch (both of NJDEP), Subject: Pfister Chemical, December 1, 1982.

6. Letter from David J. Shotwell, Chief, Bureau of Compliance and Enforcement, to Mr. O'Connor, Pfister Chemical. January 7, 1983.

7. Report of Phone Call: Conversation between A. Gusmano, Pfister Chemical and Division of Water Resources, NJDEP, January 12, 1983.

8. NJDEP memorandum from Thomas McKee to Edward Stevenson (both of NJDEP), Subject: Pfister Chemical, Dioxin Testing, October 26, 1983.

9. Letter from Frank Coolick, Chief, Bureau of Hazardous Waste Engineering, NJDEP, to Arthur F. Gusmano, Technical Director, Pfister Chemical, June 21, 1984.

10. Letter from Frank Coolick, Chief, Bureau of Hazardous Waste Engineering, NJDEP, to Mr. Samson, Esquire, Wolff & Samson, July 31, 1984.

11. Letter from David Shotwell, Chief, Bureau of Compliance and Enforcement, NJDEP, to Edward O'Connor, Vice President, Pfister Chemical, September 21, 1984.

12. NJDEP Administrative Order, Pfister Chemical, August 28, 1985.

13. Phase II Dioxin Site Investigation, Final Report, Pfister Chemical, E.C. Jordan Co., December 1985.

14. Letter from Frank Coolick, Chief, Bureau of Hazardous Waste Engineering to Arthur Gusmano, Technical Manager, Pfister Chemical, January 27, 1986.

15. Potential Hazardous Waste Site, Preliminary Assessment, EPA form 2070-12 (7-81), Pfister Chemical, February 26, 1986.

16. NJDEP memorandum from Frank Coolick to Ken Siet (both of NJDEP), Subject: Pfister Chemical, Status Determination, March 18, 1986.

17. Letter from Frank Coolick, Chief, Bureau of Hazardous Waste Engineering, NJDEP, to Gage Andretta, March 18, 1986.

18. Letter from Jerome A. Tozzi, Safety Director, Bergen County Municipal Utilities Authority, to Mr. Hoffman, Civil Defense and Disaster Control, April 14, 1986.

REFERENCES (CONT'D)

19. NJDEP memorandum from Thomas McKee to Frank Coolick (both of NJDEP), Subject: Pfister Chemical April 16, 1986.

20. NJDEP memorandum from Frank Coolick to Stefan Sedlak (both of NJDEP), Subject: Pfister Chemical, June 3, 1986.

21. Letter from Ernest J. Kuhlwein, Jr., Acting Chief, Bureau of Hazardous Waste Engineering, NJDEP, to Gage Andretta, Kimmelman, Wolff & Samson, October 9, 1986.

22. Notification Report, NJDEP, Pfister Chemical, August 9, 1988.

23. NJDEP memorandum from Dave Oster to spill file, Subject: Inspection of Pfister Chemical, August 22, 1988.

24. Hackensack Meadowlands aerial photograph, Overpeck Creek.

25. Narative summary of Aerial Photos, Pfister Chemical, Joanne Torchia, NUS Corporation, July 2, 1990.

26. Field Logbook No. 0505, Pfister Chemical, TDD No. 02-9001-13, Off-Site Reconnaissance and Site Inspection, NUS Corp. Region 2 FIT, Edison, New Jersey, February 16, and March 7, 1990.

27. Carswell, L.D. Apprasial of Waste Resources in the Hackensack River Basin, Water Resources Investigation 76-74, U.S. Geological Survey, June 1976.

28. Miller, David W. The New Jersey Groundwater Situation, Geraghty and Miller Special Report, August, 1979.

29. Olsen, Paul E. The Latest Triassic and Early Jurassic Formations of the Newark Basin (Eastern North America, Newark Supergroup): Stratigraphy, Structure and Correlation, Bingham Laboratories, Department of Biology, Yale University, September 16, 1980.

30. Telecon Note: Conversation between Gary Lipsius, Bureau of Case Management, NJDEP, and Deborah LaMond, NUS Corporation, January 30, 1990.

31. Federal Register; Volume 49, Brunswick Shale and Sandstone Aquifer of the Ridgewood Area, New Jersey; Final Determination, Tuesday, January 24, 1984 Notices.

32. Uncontrolled hazardous site ranking system, A user's manual, 40 CFR, Part 300, Appendix A, 1986.

33. Three-Mile Vicinity Map based on U.S. Geological Survey Topographic Maps, 7.5 minute series, Quadrangles for "Weehawken, NJ," 1967, photorevised 1981. "Central Park, NY-NJ," 1966, photorevised 1979, "Hackensack, NJ," 1955, photorevised 1981, and "Yonkers-NY-NJ," 1966, photorevised 1979.

34. General Sciences Corporation, Graphical Modeling System (GEMS), Landover, Maryland, 1986.

35. U.S. Fish and Wildlife Service, Atlantic Coast Ecological Inventory, Newark NJ-NY-PA, 1980.

36. Letter from Clifford G. Day, Supervisor, Fish and Wildlife Service, U.S. Department of the Interior to Stanley B. Shulfer, NUS Corporation, November 14, 1988.

REFERENCES (CONT'D)

37. Surface Water Classification, Surface Water Quality Standard, NJAC 7:9-4, Index D and NJAC 7:9-4.1 et. seq., May 1985.

38. Water Supply Overlay Map, Sheet 26, NJDEP. August 1975.

39. U.S. EPA Contract Laboratory Program for organics, Ceimic Corp., and for inorganics, Weyerhauser Company, Case No. 13670, Laboratory Analysis from NUS Region 2 FIT Site Inspection conducted on March 7, 1990.

40. Telecon Note: Conversation between Jean Mattio, Hackensack Water Co., and Joanne Torchia, NUS Corporation, June 27, 1990.

41. Telecon Note: Conversation between Pete Faller, Bogota Swim Club, and Anthony Culmone, NUS Corporation, November 8, 1988.

42. Telecon Note: Conversation between Angel Cayas, Hackensack Water Company, and Anthony Culmone, NUS Corporation, October 31, 1988.

43. Telecon Note: Conversation between Ann Marie Sivano, Manager, Ridgefield Park Municipal Pool, and John Reickhoff, NUS Corporation, June 30, 1989.

44. Telecon Note: Conversation between Jean Matteo, Hackensack Water Company, and John Reickhoff, NUS Corporation, June 26, 1989.

45. Telecon Note: Conversation between Bob Diodge, Ridgefield DPW, and Anthony Culmone, NUS Corporation, November 7, 1988.

46. Voreacos, David and Joan Verdon, Pfister Chemical Plant Releases noxious fumes, The Record, Thursday, June 14, 1990 and John Mooney, 29 Injured in Release of Fumes at Ridgefield Chemical Plant, The Record.

47. Project Note: Deborah LaMond, NUS Corporation, to file, Subject: Photographs and slides of site inspection activities, July 6, 1990.

REFERENCE NO. 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FEB ... NEW YORK, N.Y. 10007

RCRA GENERATOR INSPECTION CHECKLIST

Generator's Name: PFISTER CHEMICAL INC. EPA I.D. #: NJD 001293216

Generator's Address: LINDEN AVE. RIDGEFIELD NJ. Contact: ARTHUR GUSMANO TECHNICAL DIRECTOR

	YES	NO
1. Does generator have an EPA I.D. number?	(x)	( )
2. Does generator store material on-site?	(x)	( )
3. Is waste accumulated for more than 90 days?	(x)	( )
4. Does generator manifest waste?	(x)	( )
5. Does manifest show following information:		
a. Name, address, I.D. of generator	(x)	( )
b. Name, address, I.D. of transporter	(x)	( )
c. Name, address, I.D. of designated facility	(x)	( )
d. Name, of alternative facility	(x)	( )
e. DOT waste description	(x)	( )
f. Quantity of waste-volume, weight, number of containers	(x)	( )
g. Signed certification statement	(x)	( )
6. Does generator maintain manifest records?	(x)	( )

7. General Comments:

1) WASTE MATERIALS SHIPPED SINCE 11/19/80 ARE LISTED AS "NON-HAZARDOUS" UNDER DOT HAZARD CLASS - UN # & EPA WASTE TYPE NOT LISTED ON MANIFEST

2) SOME SPILLS THROUGHOUT PLANT GROUNDS, ALTHOUGH MOST OF AREA IS PAVED. ALL STORM DRAINAGE REPORTEDLY GOES TO LAGOON THROUGH STORM DRAINAGE SYSTEM.

Inspected By: [signature]

NJD002993216

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

RCRA TSD FACILITY INSPECTION CHECKLIST

Company's Name: PFISTER CHEMICAL INC EPA I.D. #: NJD002993216

Company's Address: LINDEN AVE, RIDGEFIELD, NJ Contact: ARTHUR GUTMANS TECHNICAL DIRECTOR

	YES	NO
1. Does the facility have an EPA I.D. number?	(X)	( )
2. In what capacity does the facility handle hazardous waste? Circle all appropriate	(X)	( )

Storer	Treater	Disposer
Pile	Filtration	Landfill
(Drums)	Incineration	Land Treatment
Surface Tanks	Thermal	Incineration
Subsurface Tanks	(Chemical)	Surface Impoundment
(Surface Impoundments)	Biological	(Other) SANITARY SEWER
Other _____	~~Other~~ _____	

3. Does the facility generate hazardous waste?	(X)	( )
4. Does the facility transport hazardous waste?	( )	(X)
5. Does the facility comply with the following	(X)	( )
a. Adequate Security	(X)	( )

Comments: PERIMETER FENCE AROUND GROUNDS WITH GUARD AT GATE. NEUTRALIZATION TANK HAS WARNING LABEL.

b. Contingency Plan and Emergency Procedures	(X)	( )

Comments: CERTAIN COMPANY PERSONNEL HAVE BEEN TRAINED. PLAN HAS ALSO BEEN SENT TO LOCAL OFFICIALS (FIRE DEPT., POLICE) ~~HAS~~

c. Inspection Plan	(X)	( )

Comments: DAILY INSPECTION OF DRUMS AND NEUTRALIZATION LAGOON BY MAINTENANCE FOREMAN.

d. Personnel Training	(X)	( )

Comments: SUPERVISORY PERSONNEL IN CERTAIN AREAS (MAINTENANCE, PRODUCTION, ETC) ARE GIVEN TRAINING IN HANDLING

e. Waste Analysis Plan (X) ( )
Comments: COMPANY MANIFESTED LAST WASTE SHIPMENT AS F001 - GENERIC WASTE. USES PART SAMPLE ANALYSIS FOR PRESENT SHIPMENTS. NO ANALYSIS OF INDIVIDUAL DRUMS OR SHIPMENTS

f. Preparedness and Prevention Plans (X) ( )
Comments: WITH COMPANY AND LOCAL GOVERNMENT

6. Has the facility filed a part A permit application? (X) ( )

7. Does the facility maintain manifest records? (X) ( )

8. Does the facility have other environmental permits? (X) ( )

a. NPDES ( ) (X)

b. Air (12) (X) ( )

c. State (X) ( )
--identify AIR POLLUTION

d. Other ( ) (X)
--identify

9. Identify hazardous wastes handled and method for handling
COMPANY ENGAGED IN TR (4 CHLORO 2 METHYL BENZEAMINE) DISTILLATION. HAZARDOUS WASTE MATERIAL CONSISTS OF STILL BOTTOMS FROM THE DISTILLATION PROCESS, MIXED INTO A SEMI-SOLID WITH THE ADDITION OF VERMICULITE. WASTE IS CLASSIFIED AS F001, CONSISTING OF AROMATIC AMINES AND MONOCHLOROBENZENE. WASTES ARE
CONTINUED ON ATTACHED SHEET

10. General Comments
RECYCLED COOLING WATER IS DISCHARGED INTO A LAGOON. A SECOND, LARGER LAGOON IS USED FOR PROCESS WASTE WATER AND LOW pH PROCESS WATER. AT PRESENT THE COMPANY CLAIMS THE LIQUID IN THIS LAGOON MAINTAINS
CONTINUED ON ATTACHED SHEET

Inspected by: [signature]

Date: JAN 9, 1981

PFISTER CHEMICAL INC. (NSD 001293216)

9) (CONTINUED) PACKAGED IN 55-GALLON DRUMS AND STORED UNTIL A SUFFICIENT QUANTITY IS PRESENT TO MAKE SHIPMENT ECONOMICAL - ABOUT 80 DRUMS EVERY FEW MONTHS.

ALL PROCESS WASTEWATERS ARE DISCHARGED TO AN UNLINED LAGOON WHERE SODIUM HYDROXIDE IS ADDED FOR pH ADJUSTMENT. THE DISCHARGE FROM THIS LAGOON IS THEN AGAIN ADJUSTED FOR pH WITH THE ADDITION OF AMMONIA, AND DISCHARGED INTO THE SANITARY SEWER SYSTEM. FLOW THROUGH THIS LAGOON IS ESTIMATED AT 0.50 MGD.

10) (CONTINUED) A pH OF 2 OR MORE. HOWEVER, FLOWS TO THIS LAGOON WILL BE INCREASING IN THE FUTURE, AND THE ALKALINE FEED MAY NOT BE ABLE TO KEEP THE pH ABOVE 2. A PERMIT FOR THIS LAGOON HAS THEREFORE BEEN APPLIED FOR. ~~THIS~~

THIS LAGOON IS UNLINED, WITH NO MONITORING WELLS, BUT COMPANY REPRESENTATIVES CLAIM THAT A 30 FOOT THICK LAYER OF CLAY LIES UNDER IT, AND THAT THEY HAVE INSTALLED A 2 FOOT THICK CLAY BARRIER ON THE SIDE OF THE LAGOON AWAY FROM THE PLANT.

REFERENCE NO. 2

Chron.

Dick White Through Peter Lynch, Region I Enforcement

Peter Sugarman Through John Trela and Raig Kasabach, Bureau of Ground Water Management

Pfister Chemical Company; Ridgefield - Bergen County

MAY 7 1982

1. On April 21, 1982 I conducted a site visit to the above-cited facility at the request of Region I Enforcement. The original request was for pollution analyses. Present at the site were Dick White from Region I and Arthur F. Gusmano and Richard Braun from Pfister Chemical Company.

2. Pfister Chemical is situated to the east and immediately adjacent to Overpeck Creek, a tributary of the Hackensack River. The company manufactures organic chemical intermediates and pigments for the textile industry.

3. There are two lagoons located on the site. Lagoon number 1 is used for plant process cooling water. Lagoon number 2 was used for pre-treatment of process wastewater, including scrubber wastewater from fourteen air scrubbers. At the present time Lagoon number 2 is not in operation due to a cutback in plant production and a resulting cutback in process wastewater. Process wastewater was originally about 500,000 gallons per day and has been reduced to 200,000-250,000 gallons per day. All process wastewater now flows to the Bergen County MUA. Mr. Gusmano indicated at the present time that the lagoon would probably not be used anymore.

4. Four water supply wells have been drilled on-site. The Brunswick Formation is mapped on the site and lies 55-63 feet below the surface according to the driller's logs. The unconsolidated material situated above the Brunswick can be described according to the driller's log and the U.S.G.S. Hackensack River Basin Report as the following:

DEPTH	LITHOLOGY
0-10	Fill (and [illegible])
10-40	Clay (probab[illegible] varved silts and clay)
40-55	Sand and gravel (Till)

Static water level below the land surface varied between 7 and 17 feet in the four wells. Soils mapped on the site are tidal marsh deposits.

INITIAL RECOMMENDATIONS

Pfister Chemical should be required to apply for a NJPDES permit for their cooling lagoon (lagoon number 1). As part of their permit, one monitor wells should be installed between the lagoon and Overpeck Creek and screened 15 feet into the static water table. The parameters to be sampled for in their NJPDES permit will be determined from the results of the water quality analysis on the cooling water in the lagoon and the effluent from the outfall pipe to the lagoon. The water samples should be analyzed for all of the parameters outlined in the NJPDES application.

Attachment C,

6. Pfister chemical must submit a statement indicating their intentions concerning lagoon number 2. If they intend to discontinuing the use of this lagoon they must submit a closure plan to the Department containing the following as a minimum: a) the installation of 2 monitor wells to determine if any ground water degradation has occurred in the area of the process lagoon. These wells should be constructed according to Department specifications and screened 15 feet below the static water table. Approximate locations of these wells are shown on the attached diagram. These two wells should be sampled for volatile organics with a GC/MS scan, metals, Total Dissolved Solids (TDS), pH, and Chemical Oxygen Demand (COD); and b) the analysis of the sludge using the EP Toxicity test to determine if this material should be classified as a hazardous waste and consequently removed from the site and sent to a suitable landfill.

If Pfister decides to continue to use this lagoon they must file for a NJPDES permit. As part of this permit the two wells would be required, as would chemical analysis of the soils using the EP Toxicity test.

WQM94:ljp

cc: William Althoff
Richard Bellis

Attachment 2

REFERENCE NO. 3

Form VST-050
8/79

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTODY
BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. 10171
DATE REC'D. ____
STORET ENT. ____ READ ____

MUNICIPALITY Ridgefield	COUNTY Bergen	STREAM
FACILITY Pfister Chemical	LOCATION Rt. 46	RECEIVED
REPRESENTATIVE Arthur Gusmano	TITLE Technical Director	COLL NAME T. McKee

REMARKS Sample site #1, solids from [illegible] depth ≈ 1 ft

SEP 16 9 [illegible] 82
NJ DEPT
DIV WATER RESOURCES
MS&E

STATION IDENTIFICATION NUMBER: SC, | YR MO DAY: 820615 | HOUR: 1100.

SAMPLE#10171

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25 °C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100 ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC.% ____

BOD ____

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. scan	ppb	P		
☐ trichloroethylene		P	140	
☐ benzene		P	1790	
☐ toluene		P	12000	
☐ chlorobenzene		P	48000	
☐ Styrene		P	755	
☐ n-propylbenzene		P	33000	
☐ tert-butylbenzene		P	780	
☐ 1,3,5 trimethylbenzene		P	1490	
☐ p-cymene		P	525	
☐ p-dichlorobenzene		P	1010	
☐ hexachlorobutadiene		P	545	
☐ 1,2,3 trichlorobenzene		P	5650	
☐ + numerous		P		
☐ unidentified peaks		P		
☐ EP		P		
☐ Extraction procedure		P		
☒ silver	ppb	P	5	K
☒ selenium		P	3	K
☒ mercury		P	2.0	
☒ lead		P	57	
☒ chromium T		P	96	
☒ cadmium		P	1	K
☒ ~~barium~~ cancelled 8-27-82 J. Selt		P		
☒ arsenic		P	5	K

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)

REPORT SUBMITTED
SEP 9 1982
NJDOH Environmental Chemistry Laboratory

Chemist Review ____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) - Water Resources Copy(For Transmission)
Part 4(Yellow) - Bacteriology Copy

Attachment D,

Form VST-010
8/79
PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protectic
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTODY

BACT. LAB NO.	
DATE REC'D.	
BOTTLE NO.	10172
DATE REC'D.	
STORET ENT. / READ	

MUNICIPALITY: Ridgefield	COUNTY: Bergen	STREAM:
FACILITY: Pfister Chemical	LOCATION: Rt 46	RECEIVED
REPRESENTATIVE: Arthur Gusmano	TITLE: Technical Director	COLL NAME: Tom McKee
REMARKS: Sample site #2, solids from lagoon, depth ≈ 1 ft.		

SEP 10 1982 AM '82 INJ DE... DIV WATER RESOURCES MS&E

STATION IDENTIFICATION NUMBER	YR.	DAY	HOUR
SC,	82	06 15	1115,

SAMPLE#10172

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐ Trichloroethylene		P	490	
☐ Tetrachloroethylene		P	585	
☐ m-xylene		P	148000	
☐ chlorobenzene		P	39000	
☐ cumene		P	2754	
☐ sec-butyl benzene		P	425	
☐ 1,3,5 trimethyl benzene		P	575	
☐ 1,2,4 trimethyl benzene		P	520	
☐ 1,2,4 trichlorobenzene		P	525	
☐ Naphthalene		P	15000	
☐ 1,2,3 trichlorobenzene		P	1035	
☐ + numerous		P		
☐ unidentified peaks		P		
☐		P		
☐		P		
☐ E.P. Extraction	ppb	P		
☒ silver		P	5	K
☒ selenium		P	3	K
☒ mercury		P	.5	K
☒ lead		P	12	
☒ chromium T		P	248	
☒ cadmium		P	1	
☒ ~~barium~~ cancelled 8-21-82		P		
☒ arsenic		P	5	K

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)

REPORT SUBMITTED
SEP 9 1982
NJDOH Environmental Chemistry Laboratory

Chemist Review _____ Part 1(White) - Water Quality Inventory Copy Part 3(Pink) - Water Resources Copy(For Transmissio

Attachment No

Form VST-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY Ridgefield	COUNTY Bergen	STREAM
FACILITY Pfister Chemical	LOCATION Rt. 46	
REPRESENTATIVE Arthur Gusmano	TITLE Technical Director	COLL NAME T. McKee
REMARKS Sample site #3, Sep. 1982 lagoon depth = 1 ft.		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. 10173
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER: SC, ____ VR. MO. DAY: 820915 HOUR: 1130,

SAMPLE#10173

NJ DIV WATER RESOURCES MS&E

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613, ____

☐ Fecal Strept MPN/100 ml P31677, ____

☐ Tot coli MPN/100 ml P31505, ____

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC.% ____

BOD ____

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312, ____

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,2 dichloroethane		P	450	
☐ trichloroethylene		P	180	
☐ benzene		P	445	
☐ Toluene		P	5715	
☐ p-xylene		P	1375000	
☐ chlorobenzene		P	38000	
☐ Styrene		P	675	
☐ p-cymene		P	570	
☐		P		
☐ +Numerous		P		
☐ unidentified peaks		P		
☐		P		
☐		P		
☐		P		
☒ E.P. extraction	ppb	P		
☒ silver		P	5	K
☒ selenium		P	3	K
☒ mercury		P	10	
☒ lead		P	28	
☒ chromium T		P	84	
☒ cadmium		P	2	
☒ ~~barium~~ cancelled 8-27-82 J. Sell		P		
☒ arsenic		P	5	K

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO

REPORT SUBMITTED
SEP 9 1982
NJDOH Environmental Chemistry Laboratory

Chemist Review ____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) - Water Resources Copy(For Transmission)
Part 4(Yellow) - Bacteriology Copy

Attachment D3

Form VST-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY Ridgefield	COUNTY Bergen	STREAM
FACILITY Pfister Chemical Inc.	LOCATION N. 46 East	
REPRESENTATIVE A. Crossmann	TITLE Technical Dir.	COLL NAME T. McKee
REMARKS water sample from production well # 2		

BACT. LAB NO. _____
DATE REC'D. _____
BOTTLE NO. 18365
DATE REC'D. _____
STORET ENT. _____ READ _____

STATION IDENTIFICATION NUMBER: SC, 11 [illegible] 15976
YR. MO. DAY: 8[illegible] 1[illegible] [illegible]
HOUR: 11[illegible]

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE
SEED YES ☐ NO ☐

CONC. %			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,2 dichloroethene		P	16	
☐ trichloroethylene		P	43	
☐ + trachloroethylene		P	2	
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
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☐		P		
☐		P		
☐		P		

RECEIVED
DEC 28 1982
DEPT. ENVIRONMENTAL PROTECTION
NEWARK OFFICE

CHAIN OF CUSTODY

DATE	TIME	FROM (NAME)	TO (NAME)

Chemist Review _____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) - Water Resources Copy(For Transmission)
Part 4(Yellow) - Bacteriology Copy

Attachment D4

Form VS1-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY: [illegible]	COUNTY: Bergen	STREAM:
FACILITY: [illegible] Chemical Inc	LOCATION: Rt 46 East	
REPRESENTATIVE: A. Gusmano	TITLE: Technical Director	COLL NAME: T. McKee
REMARKS: Water sample from production well #3		

BACT. LAB NO. _____
DATE REC'D. _____
BOTTLE NO. 18366
DATE REC'D. _____
STORET ENT. _____ READ _____

STATION IDENTIFICATION NUMBER: SC, _____ YR. MO. DAY: [illegible] HOUR: [illegible]

BLANK#15976

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25 °C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613, _____

☐ Fecal Strept MPN/100 ml P31677, _____

☐ Tot coli MPN/100 ml P31505, _____

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.% _____

BOD _____

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312, _____

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ VO scan	ppb	P		
☐		P		
☐ 1,2 dichloroethene		P	120	
☐ 1,2 dichloroethane		P	7	
☐ trichloroethylene		P	280	
☐ tetrachloroethylene		P	2	
☐ chlorobenzene		P	6	
☐		P		
☐ +1 unidentified peak		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
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☐		P		
☐		P		
☐		P		
☐		P		

RECEIVED
DEC 28 1982
DEPT. ENVIRONMENTAL PROTECTION
NEWARK OFFICE

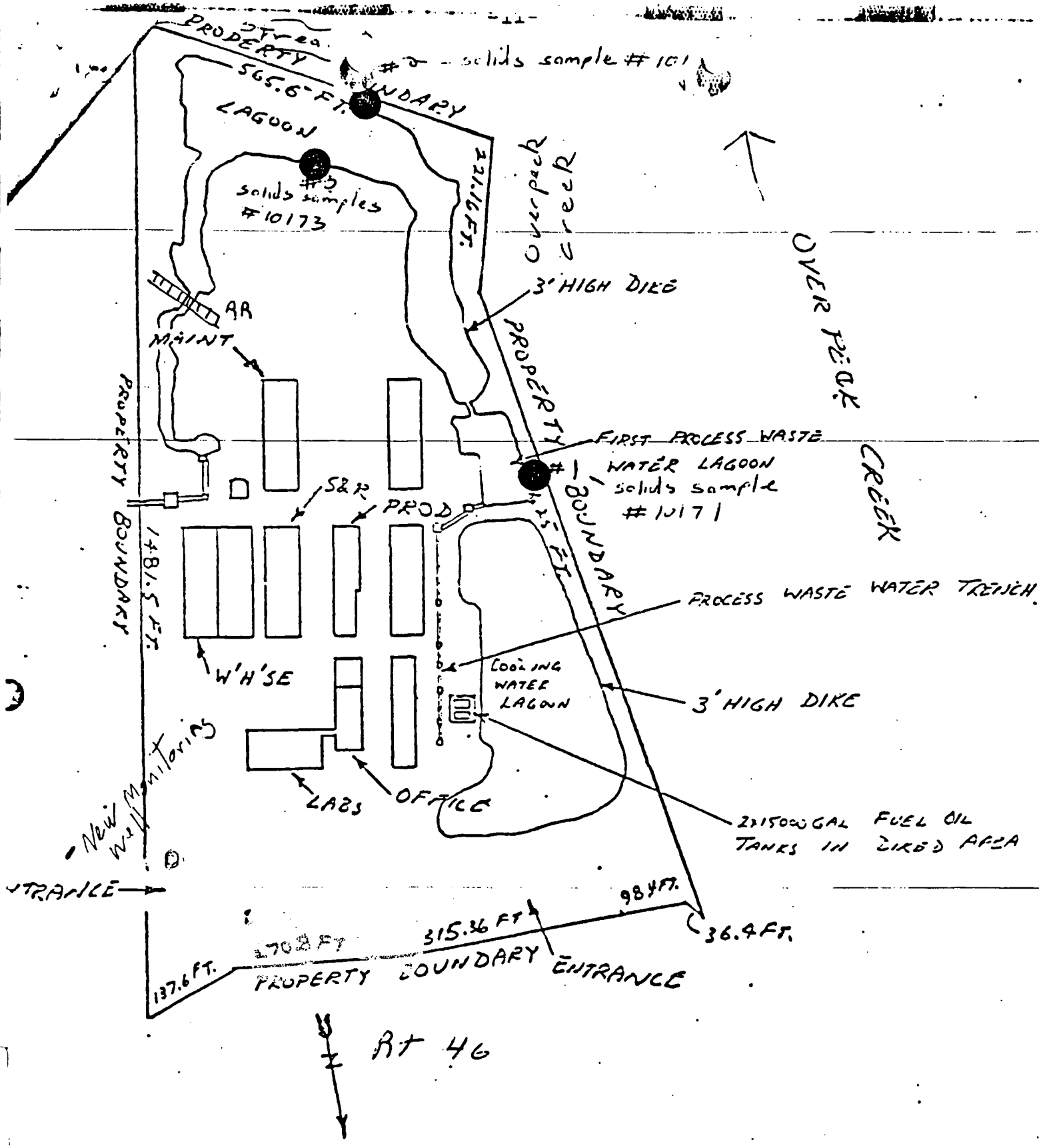
CHAIN OF CUSTODY

DATE	TIME	FROM (NAME)	TO (NAME)

Chemist Review _____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) - Water Resources Copy(For Transmission)
Part 4(Yellow) - Bacteriology Copy

Attachment D



● solid samples Taken from process waste lagoon 6-15-92 depth ≈ 1.5'

SCALE: 1 INCH = 200 FEET

REFERENCE NO. 4

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resources
Pollution Control Monitoring,
Surveillance and Enforcement Element

REPORT OF: PHONE CALL / VISIT

Out ✓ File

Date 6-15-92 Routing

Time 9:30

Person Contacted Arthur Gusmano Phone # 945-5400

Affiliation Pfister Chemical

Subject of Call / Visit: Sampling of sludge in process waste lagoons

Summary of Call / Visit: Pfister chemical has used the unlined lagoons on its Ridgefield site for the past 30 years. process wastes including filtrate from chemical separation operation and scrubber water from air pollution control devices.

The lagoons are presently not in use and filled to within 1'±2' of capacity with a purple colored chemical sludge. Depth of the sludge is estimated to be 2' to 10'. The amount of sludge is estimated to be between 5,000 and 10,000 cubic yards.

Mr Gusmano has stated his intention to bury the lagoon or continue to use it but would like to be in compliance with applicable regs.

Action Recommended

Samples of sludge were taken from sites indicated on attached map. Signature

will be analyzed for V.O and Metals by E.P. Toxicity.

REFERENCE NO. 5

ADM-012

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Peter Lynch through Robert Plumb

FROM Thomas McKee T.M. DATE December 1, 1982

SUBJECT Pfister Chemical

On November 22, 1982, a meeting was held between representatives of Pfister Chemical, Incorporated (Pfister) and the Region I Enforcement Element. The purpose of the meeting was to discuss the regulatory requirements applicable to Pfister's wastewater management systems. The following is a list of attendance:

Richard Sullivan.....NJ First Inc., Consultant for Pfister
Peter Lynch.....Chief - Region I
Robert Plumb.....Assistant Chief - Region I
Thomas McKee.....Environmental Specialist - Region I

The following areas of permitting and monitoring requirements were discussed in regard to Pfister's Ridgefield facility:

1. SIU Permits-

Pfister is presently discharging approximately 200,000 gpd to the Bergen County Utilities Authority (BCUA). Under present regulations Pfister would be required to file for an SIU by March of 1983. According to William Boehle of the Industrial Pretreatment Section, under proposed changes to the regulations (N.J.A.C. 7:14A-13), which are expected to be adopted in January of 1983, BCUA would be enforcing pretreatment requirements and no NJPDES permit would be required. The Bureau of Industrial Waste Management has notified companies discharging to sewer authorities with approved pretreatment programs of the proposed changes in the regulations and advised them not to file for SIU permits.

2. Discharge To Ground Water Permit (DGW)-

Pfister has two surface impoundments. One is used for recycling non-contact cooling water and the other, no longer in use, was used for pretreatment of process wastewater before discharge to BCUA. Mr. Sullivan questioned the need for permitting and monitoring of the

cooling water lagoon. The water for cooling is diverted from the adjacent Overpeck Creek and its quality may not be significantly different from water in the Creek after its use by Pfister. Sandra Roth of the Bureau of Ground Water Management's ground water discharge permits section, reports that exemptions for cooling water lagoons have been granted. Decisions are made on a case by case basis. Some companies have been granted "easy" permits with no requirements for monitoring wells and only periodic effluent analysis. Other companies have received "no action" letters which exempts them from any requirements under NJPDES. Sandra suggested that Pfister submit a letter to BGWM's permit section requesting a determination on requirements for the cooling water lagoon. An analysis of the discharge to the lagoon should be submitted with the letter.

Regarding the deactivated surface impoundments that was used for process wastes it was agreed that a determination would have to be made whether the sludge remaining in the lagoon is a hazardous waste in order to determine which regulations are applicable. If the sludge is a hazardous waste, Pfister will be subject to RCRA requirements for ground water monitoring. If the sludge is a non-hazardous waste, Section 6.7 of NJPDES will apply which also requires ground water monitoring.

Analytical reports of sludge samples have been sent to the Division of Waste Management's technical assistance group to determine whether it is hazardous waste. Pfister will probably be required to do more testing in order for technical assistance to make its determination.

E22:G25

REFERENCE NO. 6

02-49-01

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 027, Trenton, N.J. 08625

LINO F. PEREIRA
DEPUTY DIRECTOR

[redacted] Chemical Inc.
[redacted] O'Connor
[redacted]
[redacted], NJ 07657

[redacted] NOTICE OF VIOLATION
[redacted] TO SUBMIT ANNUAL REPORT

[redacted] Mr. O'Connor:

As a result of the information included in your company's RCRA Part A submittal to the EPA, Region II, your hazardous waste activities were classified as a TSD (Treatment, Storage or Disposal) facility status. Pursuant to the provisions of the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq., the Department of Environmental Protection has determined by examination of our files that you failed to submit a TSD Facility Annual Report by March 1, 1982. The requirements of this report are given on the enclosed sheet (along with instructions on how to be delisted from TSD status). Please note that this report is different and separate from the Generator's Report referred to in N.J.A.C. 7:26-7.4(g).

[redacted], THEREFORE, YOU ARE HEREBY NOTIFIED that your facility shall submit the required annual report within fifteen (15) days of receipt of this Notice to: Frank Gaulick, Chief, Bureau of Hazardous Waste Engineering, 32 East Hanover Street, Trenton, New Jersey 08625.

[redacted] NOTICE that the Solid Waste Management Act establishes penalties of up to [redacted] per day for violation of the Department's hazardous waste management regulations. Your failure to correct the above violation, or any future violation, may result in a penalty action by this Department. Failure to submit the required report by the specified date will result in daily fines as follows:

i.	During the first week after the deadline:	$100/day
ii.	During the second week after the deadline:	$200/day
iii.	During the third week after the deadline:	$500/day
iv.	During the fourth week after the deadline and subsequently: a maximum of	$25,000/day

If you have any questions regarding this Notice, please call the Bureau of Hazardous Waste Engineering at (609) 292-9880.

[redacted] JAN 07 1983

David J. Shotwell, Chief
Bureau of Compliance and Eforcement

[redacted]

New Jersey Is An Equal Opportunity Employer

REFERENCE NO. 7

DE' 'ENT OF ENVIRONMENTAL PROTECT.
Division of Water Resources
Pollution Control Monitoring,
Surveillance and Enforcement Element

REPORT OF: PHONE CALL / VISIT

In ✓ Out ____ File Pfister

Date 1-12-83 Routing SB, PL

Time ____

Person Contacted Art Cusmano Phone # 945-5400

Affiliation Pfister Chemical

Subject of Call/Visit EPA Letter on waste lagoon

Summary of Call/Visit Art has received letter from EPA on waste lagoon. Based on analyses provided by Pfister and DEP EPA has determined that the waste lagoon as a hazardous waste management unit subject to RCRA. Under RCRA Pfister has two option, (1) remove all hazardous waste from lagoon or (2) provide post closure care. Post closure care is a 30 year program of g.w. monitoring, reporting and maintaining of cover and controll systems on the site. Mr. Cusmano would like to get EPA "off his back" and let the state handle his case under the terms of our original directive.

~~Action Recommended~~

Signature

REFERENCE NO. 8

MEMO NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Edward Stevenson, Manager, Industrial Investigation Unit
Office of Science and Research

FROM Thomas McKee through Robert Plumb, Assistant Chief
Metro Region, Enforcement, Division of Water Res. DATE October 26, 1983

SUBJECT Pfister Chemicals, Inc., Ridgefield, Bergen County
Dioxin Testing

Pfister Chemical is a manufacturer of chemical intermediates used by the dye and pigment industries. For the past thirty (30) years a 2.5 acre unlined lagoon has been used by Pfister for pretreatment (neutralization) of its process wastewaters. The lagoon is presently not in use. An estimated 5000 to 10000 cubic yards of a purple colored chemical sludge has accumulated in the lagoons. The results of limited analyses conducted by DWR (attached) revealed that the sludge contains high levels of xylene and other volatile organic chemicals. Additional analyses are necessary to characterize the sludge so that an informed decision on proper disposal of this material can be made. In the 1980 EPA report on dioxins two of the chemicals formerly produced by Pfister were listed as Class II organics, the manufacture of which involves reaction conditions which are conducive to the formation of dioxins.

DWR has taken enforcement action against Pfister to assure proper closure of the lagoon (copies enclosed). In order to proceed with the case information on possible dioxin contamination of the chemical sludge is needed. The assistance of the Office of Science and Research in obtaining information on the dioxin content of the sludge is hereby requested. Please advise this office of any pertinent information obtained from the company. For futher information or coordination of upcoming activities please call the writer at (201) 648-2200.

E22:G25

Enclosure

Attachment B

REFERENCE NO. 9

TS-F

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

DR. MARWAN M. SADAT, P.E.
DIRECTOR

LINO F. PEREIRA, P.E.
DEPUTY DIRECTOR

21 JUN 1984

Arthur F. Gusmano, Technical Director
Pfister Chemical Inc.
Ridgefield, New Jersey 07657

RE: Status under NJDEP Regulations of Surface Impoundment listed as Hazardous Waste Facilities on the original USEPA RCRA Part A Application for Pfister Chemical Inc., Ridgefield, EPA ID NO. NJD001293216

Dear Mr. Gusmano:

The Bureau of Hazardous Waste Engineering has reviewed its records on the above referenced facility, and finds that the original RCRA Part A application filed by your company with the USEPA in 1980 listed a hazardous waste surface impoundment activity. The Bureau also finds that your company has made a subsequent claim to the USEPA requesting exclusion of the surface impoundment activity from hazardous waste facility regulation under RCRA on the basis that the surface impoundment(s) in question are not used for the management of hazardous wastes.

Your are hereby advised that, as a result of your company's original RCRA Part A application, the referenced facility has been classified by the NJDEP as a hazardous waste facility subject to NJDEP regulations therefor, including the regulations of the Division of Waste Management under N.J.A.C. 7:26-9.1 through N.J.A.C. 7:26-12.1 et seq. and/or the regulations of the Division of Water Resources under N.J.A.C. 7:14A-4.1 et seq. As a hazardous waste facility involving surface impoundment(s) for the management of hazardous wastes, the referenced facility would be subject to the standards and requirements for hazardous waste surface impoundments recently adopted by the NJDEP under N.J.A.C. 7:26-10.6 and N.J.A.C. 7:26-12.2(f), as well as the requirements for financial assurance of closure and contingent post-closure care and liability insurance for non-sudden accidental occurrences arising from operations of the facility pursuant to N.J.A.C. 7:26-9.10, 9.11, and 9.13, respectively.

21 JUN 1984

You are also hereby advised that should your company seek exclusion from these NJDEP regulations for the subject surface impoundment(s) at the referenced facility on the basis that the wastes managed in said impoundment(s) are not hazardous wastes as defined under NJDEP regulations, then your company should submit the following information regarding the subject wastes to the NJDEP for review and proper classification of said wastes:

1. Results of EP toxicity tests for heavy metals and pesticides

2. Results of RCRA tests for ignitability, corrosivity and reactivity

3. Assay for any organic compound which appears to be a constituent of the wastestream (if applicable)

(The above testing (items 1, 2, and 3) must be done at a state certified laboratory).

4. Description of process which produces the wastestream

5. Estimate of wastestream quantity on a monthly and annual basis.

This waste declassification request and data should be submitted to:

Shirlee Schiffman, Assistant Chief
Bureau of Hazardous Waste Classification and Manifest
Division of Waste Management
32 East Hanover Street
Trenton, New Jersey 08625

Should you have any questions on the waste classification procedures, you should call Ms. Schiffman at (609) 292-8341.

You are also advised that the deadlines specified under N.J.A.C. 7:26-9.13 for documentation of liability insurance for non-sudden and accidental occurrences have expired, and to date, your company has not complied with these requirements. The Bureau of Hazardous Waste Engineering will hold this matter in abeyance for thirty (30) days from the date of this letter, pending your company's submission of a proper NJDEP waste declassification request as described above. Should you have any questions on this matter, please call this office at (609) 292-9880.

Very truly yours,

Frank Coolick

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP8/ch
c: Shirlee Schiffman

REFERENCE NO. 10

02-49-01 ~~Run~~ NFO

VAD

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

[redacted]

LINO F. PEREIRA, P.E.
DEPUTY DIRECTOR

31 JUL 1984

[redacted] Samson, Esquire
[redacted] & Samson
[redacted] at Law
[redacted] Corporate Center
[redacted] Farm Road
[redacted], NJ 07068

[redacted] Pfister Chemical Inc., Ridgefield, NJ
[redacted] ID NO. NJD001293216

[redacted] Mr. Samson:

[redacted] will acknowledge and reply to your July 10, 1984 letter on behalf of your [redacted], the above referenced facility.

[redacted] Jersey Department of Environmental Protection (NJDEP) has been autho-[redacted] pursuant to 40 CFR 123 to administer Phase I and Phase II of the RCRA [redacted] waste management program.

[redacted] course of assuming the delegated responsibility this Bureau has been [redacted] facility status determinations and has recently reviewed the status of [redacted] Pfister Chemical Inc. operation in Ridgefield, NJ.

[redacted]'s June 21, 1984 letter (copy attached) was issued to determine the [redacted] of an unlined surface impoundment reported as being used [redacted] neutralization of aqueous wastes prior to discharge to a POTW [redacted] certified (2/14/84) 1983 annual report from Pfister. New Jersey has reg-[redacted] relating to land treatment which differ from Federal regulations in [redacted] to elementary neutralization.

[redacted] indicate two USEPA Region II letters (5/23/83 and 1/10/83 copies [redacted]) which appear to be the basis for your July 10, 1984 contention that [redacted] concluded that no further action was necessary with respect to the Pfister [redacted] in that the surface impoundment "did not store, and has not previously [redacted], hazardous waste."

[redacted] attention is drawn to the 5/23/83 letter from Region II USEPA which states [redacted] USEPA determination "does not preclude NJDEP from requiring ground [redacted] monitoring at the subject facility in accordance with its New Jersey Pol-[redacted] Discharge Elimination System regulations."

Also of note in the 5/23/83 letter is the statement that the USEPA determination was based on an April 21, 1983 letter from Pfister Chemical Inc. and in previously submitted correspondence. Unfortunately, this Bureau has no copies of this referenced correspondence which appears to rectify the earlier January 10, 1983 USEPA findings which "strongly indicate the lagoon was used as a depository for hazardous waste.

This Bureau would appreciate your forwarding copies of the referenced correspondence within thirty (30) days of the date of this letter so that it may assist in our determination as to the classification of materials involved which is the prime intent of the June 21, 1984 letter to Pfister.

Until such time as the classification of the waste remaining on the impoundment has been determined as intended by the June 21, 1984 letter the Department will consider the Pfister Ridgefield Facility a Hazardous Waste Facility subject to the standards of N.J.A.C. 7:26-10.6 and N.J.A.C. 7:26-12.2(f) and additionally to the standards of Division of Water Resources regulations under N.J.A.C. 7:14A et seq.

Should you have any questions on this matter, please call this office at (609) 292-9880.

Very truly yours,

Frank Coolick

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP5/slw
Attachments
c: Shirlee Schiffman

RECEIVED
AUG 22 1984
Division of Waste Mgt.

REFERENCE NO. 11

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
120 Rt. 156, Yardville, N.J. 08620

DR. MARWAN M. SADAT, P.E.
DIRECTOR

LINO F. PEREIRA
DEPUTY DIRECTOR

Mr. Edward O'Connor
Vice President
Pfister Chemical Inc.
Foot of Linden Avenue
Ridgefield, NJ 07657

RE: NOTICE OF VIOLATION
FAILURE TO ESTABLISH FINANCIAL ASSURANCE FOR CLOSURE AND POST-CLOSURE
EPA ID #NJD001293216

Dear Mr. O'Connor:

Pursuant to the provisions of the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq., the Department of Environmental Protection has determined by examination of our files that you violated N.J.A.C. 7:26-9.10(e) and 9.11(c) in that you have failed to establish, and/or submit to the Department, financial assurance for closure and post-closure of the facility.

NOW, THEREFORE, YOU ARE HEREBY NOTIFIED that your facility shall submit the required financial assurance documents within thirty (30) days of receipt of this Notice to: Mr. Frank Coolick, Bureau of Hazardous Waste Engineering, 32 East Hanover Street, Trenton, New Jersey 08625.

BE ON NOTICE that the Solid Waste Management Act establishes penalties of up to $25,000 per day for violation of the Department's hazardous waste management regulations. Your failure to correct the above violation will result in a penalty action by this Department up to the maximum allowed pursuant to law.

If you have any questions regarding the documents to be submitted, please call the Bureau of Hazardous Waste Engineering at (609) 292-9880. If you have any questions regarding this Notice, please call John Barry of the Bureau of Compliance and Enforcement at (609) 984-3695.

DATE: SEP 2 1 1984

David J. Shotwell, Chief
Bureau of Compliance
and Enforcement

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F010:F014:lmc

REFERENCE NO. 12

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
120 Rt. 156, Yardville, N.J. 08620

DR. MARWAN M. SADAT, P.E.
DIRECTOR

LINO F. PEREIRA
DEPUTY DIRECTOR

AUG 28 1985

(IN THE MATTER OF)
(PFISTER CHEMICAL, INC.)

ADMINISTRATIVE
ORDER

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (Department) by N.J.S.A. 13:1D-1 et seq., the Solid Waste Management Act, as amended and supplemented, N.J.S.A. 13:1E-1 et seq., and duly delegated to the Assistant Director for Enforcement and Field Operations, Division of Waste Management, pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1) The New Jersey Department of Environmental Protection (hereinafter "the Department") has determined that Pfister Chemical, Inc. is operating a hazardous waste facility (EPA ID #NJD001293216) as defined by N.J.A.C. 7:26-1.4 and is located at Block 39, Lot 1, Foot of Linden Avenue, Ridgefield Boro, Bergen County, New Jersey.

2) As a result of the information included in your company's RCRA Part A submittal to the USEPA, Region II, your hazardous waste activities were classified as a TSD (Treatment, Storage or Disposal) facility status. Pursuant to the provisions of the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., the Department of Environmental Protection has determined by examination of our files that you failed to submit a 1984 TSD Facility Annual Report by March 1, 1985, in violation of N.J.A.C. 7:26-7.6(f)2.

3) N.J.A.C. 7:26-7.6(f)2 states: The owner or operator must prepare and submit two copies of an annual report to the Department by March 1 of each year. The report must include:

   i. The EPA identification number, name and address of the facility.

   ii. The calendar year cover by the report.

Tim Pelle

Attachment 2,

iii. A compilation of the daily operating record kept pursuant to N.J.A.C. 7:26-9.1 et seq. for the calendar year covered by the report.

iv. A summary of all manifest numbers for all hazardous waste received, identifying those shipments which were rejected in whole or in part and identifying those shipments where a discrepancy occurred.

v. For each type of hazardous waste accepted, a report of the total quantity received and the quantities consigned to each treatment, recovery, or disposal process used. The report shall include the quantities of each waste type placed into storage and removed from storage during the reporting period.

vi. Monitoring data under N.J.A.C. 7:14A-6.1 et seq. (Rules of the Division of Water Resources), where required.

vii. The most recent closure cost estimate under N.J.A.C. 7:26-9.8 and the most recent post-closure cost estimate under N.J.A.C. 7:26-9.9, where applicable.

viii. A certification signed and dated by the owner or operator of the facility or his authorized representative stating "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete, I am aware that there are significant penalties under N.J.S.A. 7:1E-1 et seq. for submitting false information, including the possibility of fine and imprisonment."

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED that Pfister Chemical, Inc., its principals, agents, employees, successors, assigns, tenants, and any receiver or trustee in bankruptcy appointed pursuant to a proceeding in law or equity, (should such an entity be appointed to take control of the facility which is the subject of this Order) shall:

4) Within fifteen (15) calendar days of receipt of this Order submit the required 1984 TSD annual report to:

Attachment A2

[redacted] Jersey Department of Environmental Protection
[redacted]ision of Waste Management
[redacted]reau of Compliance & Enforcement
[redacted]20 Route 156
[redacted]rdville, NJ 06820
[redacted]ention: Dina DiMarsico

[redacted] [redacted] NOTICE that the maximum civil penalty for violations of the [redacted] Waste Management Act or an ORDER issued pursuant thereto is [redacted] per day.

Joseph A. Rogalski
Assistant Director

[redacted]:P026:lmc

REFERENCE NO. 13

PHASE II
DIOXIN SITE INVESTIGATION

FINAL REPORT

PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY

NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION
TRENTON, NEW JERSEY

E.C. JORDAN CO.

DECEMBER 1985

PHASE II DIOXIN SITE INVESTIGATION
FINAL REPORT

FOR

PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY

Submitted To

New Jersey Department of Environmental Protection
Division of Waste Management
Hazardous Site Mitigation Administration
428 East State Street
Trenton, New Jersey 08625

By

E.C. Jordan Co.
P.O. Box 7050, DTS
Portland, Maine 04112

December 1985

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PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY

1.0 BACKGROUND

1.1 Project Description

The New Jersey Department of Environmental Protection (NJDEP), in cooperation with the U.S. Environmental Protection Agency (EPA), is responsible for the identification and assessment of potential dioxin contamination in the State of New Jersey. During Phase I of the Dioxin Site Investigation Program, the NJDEP collected and analyzed soil samples from nine sites where compounds known to be associated with dioxin were produced. As part of Phase II of the program, soil and sediment samples from an additional 23 sites selected by the NJDEP were analyzed for dioxin contamination.

This report summarizes the Phase II dioxin investigation of Pfister Chemical, Inc. (Pfister) in Ridgefield, NJ conducted by E.C. Jordan under contract to the NJDEP. The investigation consisted of five major tasks: (1) file review; (2) site reconnaissance; (3) sample collection; (4) sample analysis; and (5) report preparation.

Records on file at the following offices of the NJDEP were examined during the file review:

- Division of Waste Management, Hazardous Site Mitigation Administration, Trenton (HSMA);
- Division of Waste Management, Bureau of Field Operations, Parsippany-Troy and Yardville (DWM);
- Office of Science and Research, Industrial Investigation Unit, Trenton (OSR); and
- Division of Water Resources, Trenton (DWR).

Records on file at EPA's Region II Office in Edison, NJ were also reviewed.

During the site reconnaissance, site personnel were interviewed to confirm file information. Sample locations were selected based on the site use history and observations made during the reconnaissance. The sample location selection process was designed to include those areas with the greatest potential for dioxin contamination. Because of the low mobility of dioxin in soil, most samples were collected within the surficial soil stratum (0 to 6 inches). Samples were delivered to the Environmental Testing and Certification Corporation (ETC) in Edison, NJ for analysis of dioxins, in particular the chlorinated dioxin isomer, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). One sample was subsequently sent to California Analytical Laboratories (Cal-Analytical) in West Sacramento, CA for re-analysis.

1.2 Site Location

Pfister Chemical, Inc.
Linden Avenue
Ridgefield, New Jersey 07657

Bergen County
Latitude 40°50'33" Longitude 74°00'34"

Ridgefield is in northeastern New Jersey, approximately 12 miles northeast of Newark. The site is just east of Exit 18E of the New Jersey Turnpike on Route 46 (Figure 1).

1.3 Site Topography and Layout

Pfister's Ridgefield facility is in a narrow low lying area on the east bank of Overpeck Creek. The site is nearly flat with an average elevation of 5 feet above mean sea level (MSL). The topography rises sharply to elevations of from 50 to 100 feet above MSL within one-quarter mile east of the site (Figure 1).

Much of the adjacent land bordering Overpeck Creek is in industrial use. The upland areas east of the site have been developed primarily for residential/commercial uses.

Figure 2 depicts the layout of the 17.5-acre Pfister site.

1.4 Environmental Setting

Overpeck Creek forms the western boundary of the Pfister site. The creek flows into the Hackensack River approximately 1.5 miles downstream of the site (Figure 1). There are extensive wetlands along the Hackensack River from this point south to Newark Bay. Non-contact cooling water is taken from and returned to Overpeck Creek. Stormwater runoff is captured by storm drains which are connected to the city sewer system. Scrubber water is also discharged to the sewer (8).

Pfister draws process water from two 300-foot deep production wells on-site and discharges it to the Bergen County Sewage Authority after neutralization (8).

There are no groundwater monitoring wells at the Pfister site (8). Consequently, Jordan was unable to obtain information on the depth to groundwater or the direction of groundwater flow during our file review. Groundwater flow is very likely influenced by the production wells on-site.

1.5 Site Use History

Pfister Chemical, Inc. built the Ridgefield plant in 1936 on the previously unoccupied site (8). Pfister manufactures chemical intermediates used by the dye and pigment industries at this location (6). Chemicals listed on Pfister's Selected Substance Report of June 1980 are: monochlorobenzene,

aniline, copper (cuprous oxide), zinc chloride, and formaldehyde. Process wastewater, cooling water, and still bottoms are the primary waste products generated (4,6).

A 2.5-acre lagoon at the Pfister site was used from around 1953 to 1980 for neutralization of process wastewater (Figure 2). This lagoon has been the subject of NJDEP and EPA investigations in recent years (5,6). Sludge samples collected from the lagoon by the NJDEP in June 1982 contained high levels of toluene, total xylenes, chlorobenzene, and ethylbenzene (5). Further analysis of the sludge was recommended by the New Jersey DWR in 1983. DWR also recommended the installation of four groundwater monitoring wells at the site in order to assess the impact of the impoundment on groundwater quality (6). As noted above, these wells have not been installed. The lagoon is unlined, but Pfister representatives have stated that it is underlain by a layer of clay 30 feet thick (4,8).

There is also a non-contact cooling water lagoon at Pfister, as depicted in Figure 2. The land on which the lagoon is constructed was reclaimed from Overpeck Creek by Pfister (8).

2.0 POTENTIAL DIOXIN CONTAMINATION

2.1 Use, Production, or Disposal of Dioxin-Associated Chemicals

Pfister produced two Class II compounds at the Ridgefield facility: 2-chloro-1,4-diethoxy-5-nitrobenzene and 5-chloro-2,4-dimethoxy aniline (1,8). These compounds are called DEB and ITR amine, respectively, by Pfister. Class I and II compounds are those organics identified by EPA as being most likely to be associated with the formation of dioxins (1).

Pfister produced approximately 30,000 pounds of DEB a year during the 1970's and 10,000 to 15,000 pounds of ITR amine per year from 1961 to 1983 (8). These compounds were then sold to other chemical companies.

2.2 Storage and Handling Methods

Process wastewater from the DEB and ITR amine manufacturing areas was discharged to the neutralization lagoon from the early 1950's until around 1980. DWR estimates that 5,000 to 10,000 cubic yards of chemical sludge accumulated in the neutralization lagoon during the 30 years it was in use (5). DWR is concerned that if dioxins were formed as a byproduct of manufacturing at this plant, it is possible that this sludge is contaminated (6).

2.3 Past Sampling Efforts

There were no records in the NJDEP or EPA files reviewed which indicated previous soil, sediment, groundwater, or surface water sampling at the Pfister site specifically for dioxin analysis.

3.0 SITE RECONNAISSANCE AND RATIONALE FOR SAMPLING LOCATIONS

3.1 Summary of Site Reconnaissance

On March 19, 1985, E.C. Jordan Co. personnel (C. Moore and W. Britton) and NJDEP representatives (A. DeCicco and R. Tuccillo) met with the Technical Director (A. Gusmano) and the General Production Manager (R. Braun), at the Pfister plant in Ridgefield, NJ. The meeting consisted of two parts: (a) an interview during which site use history and production practices were discussed; and (b) a tour of the facility under the direction of Mr. Gusmano. Using the information gathered during the file review in conjunction with the

observations made during the site visit, three sample areas have been identified at this site. These areas, shown on Figure 2, are:

- the area adjacent to the cooling water lagoon,
- the two segments of the lagoon used for process water,
- the cleared area at the rear of the property (adjacent to the rear lagoon).

3.2 Rationale for Sampling Locations

The active (production) area at this site is paved. The only exposed soil areas observed during the site reconnaissance are the front lawn, the areas around the cooling water and process water lagoons, and the cleared area identified above. Surface runoff, according to the company officials, goes to the public sewer system. However, based on site topography, it appears that some runoff would flow to the soil areas surrounding the lagoons as well as in the cleared area at the back of the site. Therefore, the surface areas between the plant and the lagoons should be sampled. Similarly, even though Pfister personnel indicated that the rear portion of the site had never been used, portions of this area were devoid of vegetation. Also, an old ramp or loading dock is adjacent to this part of the site. Thus, sampling within the rear unpaved area appears to be warranted.

The process water lagoon, which has segments at the side and rear of the property, was the receptor for process water until about 1980. The side lagoon segment (adjacent to the cooling water lagoon) contained a significant amount of water at the time of the site visit, and there was a noticeable oil slick or sheen on the surface of this part of the lagoon. The rear lagoon segment had only small areas of water and these appeared to be low points where rainwater

had collected. Both segments are prime sampling points and sediment samples are proposed.

Based on discussions with the NJDEP staff, it was agreed that 10 samples (not counting duplicates or field blanks) would be collected at this site. A site sampling plan, which identifies the sample locations, is included as Appendix A of this report. Appendix B contains the site specific health and safety plan.

4.0 SAMPLE COLLECTION AND ANALYSIS

4.1 Summary of Sampling Episode

On May 9, 1985, E.C. Jordan Co. personnel (C. Moore and R. Burger) collected seven surface soil samples (including one duplicate) and four sediment samples at the Pfister Chemical site for analysis of 2,3,7,8-TCDD. Two representatives of the NJDEP (R. Tuccillo and W. Mennel) were present during the sampling. The sampling locations are shown in Figure 3. Samples were split at the request of the site owners. Appendix C contains a copy of the field data sheets. Slides of the sample sites are included in Appendix D.

The samples were collected in accordance with the sampling plan (Appendix A) with the following exceptions. Sample 17-1 was moved from the north to the south end of the storage tank because of observed drainage patterns from the process area. Sample 17-6 was relocated because the area adjacent to the rear segment of the lagoon had been filled and graded since the site reconnaissance. Sample 17-6 was taken in an area of undisturbed soil adjacent to an open shed (roof only) which appeared to be used for loading, unloading, and possibly storage of materials. The sediment corer was used for Sample 17-9 only. The sludge characteristics were such that field decontamination of the sediment

corer was impractical. Samples 17-10, 17-11, and 17-12 were collected on the edge of the lagoon with tulip bulb planters.

Ambient air recordings of 8 to 10 ppm were recorded with the PI meter at sample location 2. Levels of up to 350 ppm were measured in the sediments taken from the former process wastewater lagoon.

4.2 Summary of Results

The method employed by ETC for the analysis of soil and sediment samples for 2,3,7,8-TCDD was the EPA September 1983 statement of work, "Dioxin Analysis, Soil/Sediment Matrix Multi-Concentration using Selected Ion Monitoring (SIM) GC/MS Analysis with Jar Extraction Procedure." According to ETC, the accuracy of the analysis is directly dependent on the accuracy of the native TCDD stock solution. ETC uses the certified standard from EPA as the primary standard to calculate the values in the sample. Cal-Analytical uses a comparable method for 2,3,7,8-TCDD analysis known as the EPA Invitation for Bid, Contract Laboratory Program, WA84-A002.

The results of the 2,3,7,8-TCDD analysis by ETC and Cal-Analytical for Pfister Chemical are shown in Table 1 and Figure 3. Data validation was performed by the NJDEP. Repeat analysis was required on four samples which did not initially pass ETC's internal quality assurance review. The repeat analysis was successful on all but one of these samples, Sample 17-11. The NJDEP sent this sample to Cal-Analytical for re-analysis where acceptable analytical results were obtained. In the final analysis, no 2,3,7,8-TCDD was detected in any of the surface soil or sediment samples analyzed and all of the detection limits were below the action level of 1 ppb currently utilized by the NJDEP.

TABLE 1

RESULTS OF 2,3,7,8-TCDD ANALYSIS
PFISTER CHEMICAL, INC.

Sample Collection Date: May 9, 1985
Sample Analysis Dates: May 22, 24, 25, 1985; June 16, 1985
Laboratory: Environmental Testing and Certification Corporation, Edison, New Jersey

Sample Number	Figure 3 Reference	2,3,7,8-TCDD (ppb[1]) Measured	DL[2]	Sample Type
17-1	1	ND[3]	0.08	Surface soil
17-2	2	ND	0.08	Surface soil
17-3	None	ND	0.09	Field/equipment blank
17-4	4	ND[4]	0.04	Surface soil
17-5	5	ND	0.11	Surface soil
17-6	6	ND	0.21	Surface soil
17-7	7	ND	0.06	Surface soil
17-8	8	ND	0.07	Duplicate of 17-7
17-9	9	ND[4]	0.12	Sediment
17-10	10	ND[4]	0.51	Sediment
17-11	11	ND[5]	0.19	Sediment
17-12	12	ND	0.38	Sediment
17-13	None	5.64	--	Proficiency
17-14	None	ND	0.09	Sampler equipment blank

[1] ppb - Parts per billion, i.e., µg/kg of soil or sediment on an "as is" basis.
[2] DL - Method detection limit which is the concentration at which there is a 99 percent confidence level that the compound is present. ETC only reports detection limits for non-detect results.
[3] ND - Not detected.
[4] Repeat analysis.
[5] Result of re-analysis by California Analytical Laboratories of West Sacramento, CA on October 2, 1985.

A duplicate sample was taken at sample location 7. The soil collected at this location was thoroughly mixed and then poured alternately into two sample bottles which were then sealed and submitted to the laboratory as a check on the consistency of the laboratory analysis. The results of Samples 17-7 and 17-8 were consistent. No 2,3,7,8-TCDD was detected in either sample with detection limits of 0.06 ppb and 0.07 ppb, respectively.

A combined field/equipment blank was also submitted to ETC for analysis. The blank consisted of analyte-free soil supplied by the NJDEP which was poured through a tulip bulb planter into a foil pan and then into an empty sample bottle at the site. The bottle was then sealed and submitted to the laboratory as a check on possible contamination from the sample site, sampling equipment, or sample containers. No 2,3,7,8-TCDD was detected in the field/equipment blank (Sample 17-3).

A proficiency sample supplied by the NJDEP was submitted to ETC with samples from this site. This sample serves as a check on analytical accuracy and may be comprised of one of three general types:

1. blank clay - nothing has been added to the sample;
2. spiked blank clay - dioxin isomers other than 2,3,7,8-TCDD have been added;
3. spiked soil - various levels of 2,3,7,8-TCDD have been added to the sample with a maximum spike of 10 ppb.

Sample 17-13 was a spiked soil with an acceptable accuracy range of 6.39 ± 0.84 ppb. The measured concentration of 5.64 ppb of 2,3,7,8-TCDD was within the accuracy limits defined by EPA.

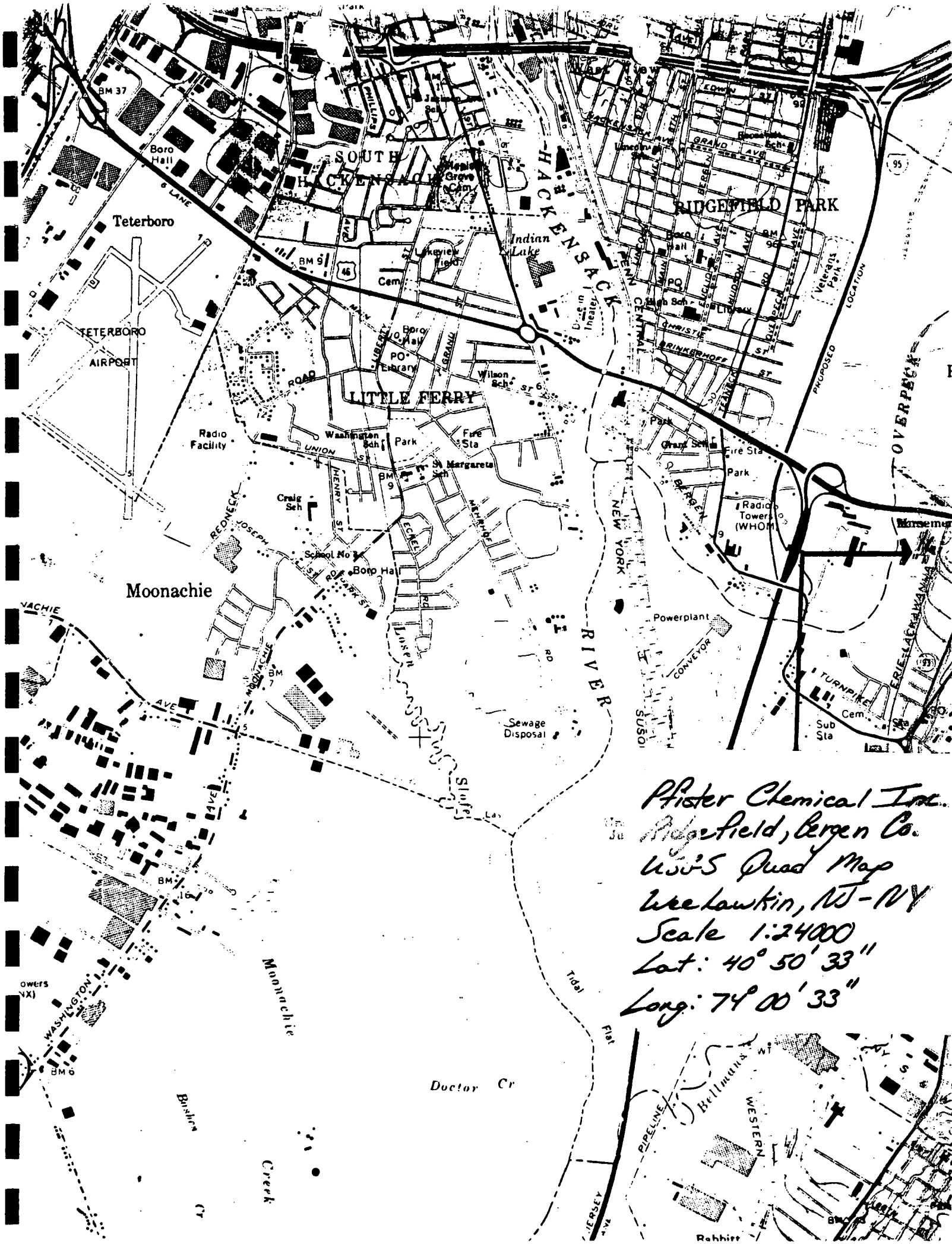
An additional equipment blank was submitted to the laboratory with samples from this site. The blank consisted of analyte-free water which was used to

rinse a precleaned tulip bulb planter. The rinsate was collected in a sample bottle which was sealed and submitted to the laboratory for analysis as a check on equipment cleaning procedures. The analyte was not detected in the sampler equipment blank (Sample 17-14).

4.3 Assessment of the Need for Further Dioxin Sampling

The dioxin isomer, 2,3,7,8-TCDD was not detected in any of the samples collected at the Pfister site. These samples included surface soil from six locations and sediment from four locations in the former process wastewater lagoon. However, samples 17-10, 17-11, and 17-12 were collected from the edge of the lagoon instead of from within it, as orginally proposed, due to problems encountered with field cleaning of the sediment corer. Future investigations at the Pfister site should include sampling and analysis for 2,3,7,8-TCDD of the sludge material in the central portion of the lagoon.

Pfister Chemical Inc.
Linden Avenue
Ridgefield, Bergen Co.
New Jersey


SOUTH HACKENSACK
HACKENSACK
RIDGEFIELD PARK
Teterboro
TETERBORO AIRPORT
Boro Hall
Indian Lake
Lakeview Field
Cem
Boro Hall
PO Library
LITTLE FERRY
Wilson Sch
Radio Facility
Washington Sch
Park
Fire Sta
St Margarets Sch
Craig Sch
School No 3
Boro Hall
Moonachie
Sewage Disposal
Powerplant
Radio Tower (WHOM)
Fire Sta
Park
Grant Sch
Veterans Park
Library
High Sch
PROPOSED LOCATION
OVERPECK
NEW YORK
RIVER
Tidal Flat
Doctor Cr
Moonachie Creek
Bellmans
WESTERN
PIPELINE
Rabbitt
Cem
Sub Sta
TURNPIKE
ERIE-LACKAWANNA
Pfister Chemical Inc.
Ridgefield, Bergen Co.
USGS Quad Map
Weehawkin, NJ-NY
Scale 1:24000
Lat: 40° 50' 33"
Long: 74° 00' 33"

REFERENCE NO. 14

ANa-fa

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

DR. MARWAN M. SADAT, P.E.
DIRECTOR

RICHARD C. SALKIE,
ASSOCIATE DIRECT

Mr. Arthur Gusmano - Technical Manager
Pfister Chemical, Inc.
Ridgefield, New Jersey 07657

27 JAN 1986

RE: Pfister Chemicals, Status Determination
Ridgefield, NJD 001 293 216

Dear Mr. Gusmano:

The Bureau of Hazardous Waste Engineering ("the Bureau") has reviewed your facility's file and has found that your company never responded to the Bureau's June 21, 1984 letter. This letter is enclosed for your convenience.

In the aforementioned letter, this Bureau requested that the referenced facility submit information concerning the surface impoundments, so a decision could be made on their status. You were also advised that, until enough information is gathered, submitted to this Bureau and then approved concerning the surface impoundments, your facility would be considered as a hazardous waste TSD facility and would be subject to standards and requirements of surface impoundments.

This Bureau is hereby advising you that the following information shall be submitted to this Bureau within thirty (30) days of the date of this letter:

1. Results of EP Toxicity tests for heavy metals and pesticides.

2. Results of RCRA tests for ignitability, corrosivity and reactivity.

3. Assay for any organic compound which appears to be a constituent of the waste stream (if applicable).

4. Definition of process which produces the waste stream.

5. Estimate of waste stream quantity in a monthly and annual basis.

Should your facility decide to delist the aforementioned surface impoundments, a request has to be submitted to this Bureau. As mentioned earlier, all of this information has to be provided within

27 JAN 1986

thirty (30) days of the date of this letter, or this matter will be referred to the Bureau of Compliance and Enforcement for further action.

Should you have any questions concerning the above requirements, please contact Al Navidi at (609) 984-4791.

Very truly yours,

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP12:lk
Attachment
cc: Ken Siet

REFERENCE NO. 15

Preliminary Assessment

PFISTER CHEMICAL INC.
Linden Avenue
Ridgefield, Bergen County
New Jersey 07657

EPA

POTENTIAL HAZARDOUS WASTE SITE. PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	001293216

II. SITE NAME AND LOCATION

01 SITE NAME	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Pfister Chemical Inc.	Linden Avenue

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Ridgefield	NJ	07657	Bergen		

09 COORDINATES LATITUDE	LONGITUDE	
40° 50' 33"	74° 00' 33"	Block: 39 Lot: 1

10 DIRECTIONS TO SITE: Take Route 1 N to the Garden State Parkway. Take Garden State Parkway N to exit 157. Take Route 46 East through Little Ferry and Ridgefield Park. Cross N.J. Turnpike and Overpeck Creek, make a right on Grand Ave. Turn right on Linden Ave. Follow to end.

III. RESPONSIBLE PARTIES

01 OWNER	02 STREET
Albert Bendelius	

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
			( )

07 OPERATOR	08 STREET
Arthur Gusmono - Tech. Director	Linden Ave.

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Ridgefield	NJ	07657	201) 945-5400

13 TYPE OF OWNERSHIP (Check one)
- [X] A. PRIVATE
- [ ] B. FEDERAL: _____ (Agency name)
- [ ] C. STATE
- [ ] D. COUNTY
- [ ] E. MUNICIPAL
- [ ] F. OTHER: _____ (Specify)
- [ ] G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
- [ ] A. RCRA 3001 DATE RECEIVED 12 / 1 / 82 (MONTH DAY YEAR)
- [ ] B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED ___ / ___ / ___ (MONTH DAY YEAR)
- [ ] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
- [X] YES DATE 5 / 7 / 82 (MONTH DAY YEAR)
- [ ] NO

BY (Check all that apply)
- [ ] A. EPA
- [ ] B. EPA CONTRACTOR
- [X] C. STATE
- [ ] D. OTHER CONTRACTOR
- [ ] E. LOCAL HEALTH OFFICIAL
- [ ] F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
- [X] A. ACTIVE
- [ ] B. INACTIVE
- [ ] C. UNKNOWN

03 YEARS OF OPERATION: 1936 (BEGINNING YEAR) / present (ENDING YEAR) [ ] UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Sludge samples collected by the NJDEP in June 1982, contained high levels of toluene, total xylenes, chlorobenzene, and ethylbenzene. (See Attachment D)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Pfister has been depositing hazardous wastes into a 2.5 acre unlined lagoon for 30 years. The potential exists that contamination to soils, groundwater, surface water and off-site property occurred as a result.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
- [ ] A. HIGH (Inspection priority)
- [X] B. MEDIUM (Inspection priority)
- [ ] C. LOW (Inspect on time available basis)
- [ ] D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Anne DeCicco	NJDEP/HSMA	609) 984-2493

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Carol Graubart	DEP	HSMA	609) 633-2215	2 26 86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE. PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER: 001293216

II. SITE NAME AND LOCATION

01 SITE NAME: Pfister Chemical Inc.	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Linden Avenue
03 CITY: Ridgefield	04 STATE: NJ; 05 ZIP CODE: 07657; 06 COUNTY: Bergen; 07 COUNTY CODE; 08 CONG DIST
09 COORDINATES LATITUDE: 40° 50' 33" LONGITUDE: 74° 00' 33"	Block: 39 Lot: 1

10 DIRECTIONS TO SITE: Take Route 1 N to the Garden State Parkway. Take Garden State Parkway N to exit 157. Take Route 46 East through Little Ferry and Ridgefield Park. Cross N.J. Turnpike and Overpeck Creek, make a right on Grand Ave. Turn right on Linden Ave. Follow to end.

III. RESPONSIBLE PARTIES

01 OWNER: Albert Bendelius	02 STREET:
03 CITY:	04 STATE; 05 ZIP CODE; 06 TELEPHONE NUMBER: ( )
07 OPERATOR: Arthur Gusmono - Tech. Director	08 STREET: Linden Ave.
09 CITY: Ridgefield	10 STATE: NJ; 11 ZIP CODE: 07657; 12 TELEPHONE NUMBER: 201) 945-5400

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED 12 / 1 / 82 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED ___ / ___ / ___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 5 / 7 / 82 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1936 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Sludge samples collected by the NJDEP in June 1982, contained high levels of toluene, total xylenes, chlorobenzene, and ethylbenzene. (See Attachment D)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Pfister has been depositing hazardous wastes into a 2.5 acre unlined lagoon for 30 years. The potential exists that contamination to soils, groundwater, surface water and off-site property occurred as a result.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT: Anne DeCicco	02 OF (Agency/Organization): NJDEP/HSMA	03 TELEPHONE NUMBER: 609, 984-2493

04 PERSON RESPONSIBLE FOR ASSESSMENT: Carol Graubart	05 AGENCY: DEP	06 ORGANIZATION: HSMA	07 TELEPHONE NUMBER: 609, 633-2215	08 DATE: 2 26 86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	001293216

TE STATES, QUANTITIES, AND CHARACTERISTICS

CAL STATES (Check all that apply)

- ☐ SOLID
- ☐ POWDER, FINES
- ☐ SLUDGE
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS
- ☐ OTHER _____ (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS 5000-10000

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

ASTE TYPE

ORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
	SLUDGE X	5000-10000	cu yards	high levels of xylene, toluene,
LW	OILY WASTE			chlorobenzene, and ethylbenzene
	SOLVENTS X			were detected in sludge samples
	PESTICIDES			collected from the lagoon by
CC	OTHER ORGANIC CHEMICALS			the NJDEP in June 1982. (See
	INORGANIC CHEMICALS			Attachment D)
	ACIDS			
AS	BASES			
ES	HEAVY METALS			

ZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

EGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Toluene	108-88-3	All substance con-		
OL	Xylene	133-02-07	tained within a 2.5 acre		
SOL	Chlorobenzene	108-90-7	unlined lagoon.		
SOL	Ethylbenzene	100-41-4	(See Attachment B)		

EEDSTOCKS (See Appendix for CAS Numbers)

EGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

OURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Attachment B (Memo from DWR, Enforcement, Metro Region, Oct. 1983)
Attachment D (NJDOH Laboratory Analysis, May 1982)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER: 001293216

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

High levels of toluene, total xylenes, chlorobenzene and ethylbenzene were detected in the 2.5 acre process waste lagoon at the Pfister site. Contamination to groundwater may have occurred. (See Attachments B&D)

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Pfister's process waste lagoon is immediately adjacent to Overpeck Creek, a tributary of the Hackensack River. The potential exists for contamination to have occurred. (Attachment C1)

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

[illegible] — [illegible] — [X] POTENTIAL — [illegible]
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Direct contact to the hazardous substances within the lagoon is possible as it is not enclosed.

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (acres) — 04 NARRATIVE DESCRIPTION

A 2.5 acre unlined process waste lagoon, utilized by Pfister for thirty years, was found to contain high levels of toluene, total xylenes, chlorobenzene, and ethylbenzene. Contamination to soils may have resulted. (See Attachments B & D)

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

At present, Pfister's process waste lagoon is not enclosed. The potential exists for workers to experience exposure to the hazardous substances within the lagoon as a result.

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	001293216

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include names of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION (See Attachments B & D)
Process wastes containing Toluene, Xylene, Chlorobenzene, and Ethylbenzene have been deposited by the company in an unlined lagoon for thirty years.

01 ☒ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION Overpeck Creek is adjacent to Pfister's process waste lagoon. It is possible contamination may have occurred. (See Attachment C1)

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

At present, enforcement action has been taken against Pfister to assure proper closure of the process waste water lagoon.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Attachment A (Administrative Consent Order, DWM, August 1985)
Attachment B (Memo from DWR, Enforcement, Metro Reg. Oct. 1983)
Attachment C (Inspection Report, Bureau of Groundwater Management, May 1982)

EPA FORM 2070-13 (7-81)

REFERENCE NO. 16

Ron
02-49-01

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

[illegible]

RICHARD C. SALKIE, P.E.
ASSOCIATE DIRECTOR

MAR 18 1986

MEMORANDUM

[illegible] Ken Siet,
Division of Water Resources

[illegible] Frank Coolick, Chief FC
Bureau of Hazardous Waste Engineering

[illegible] Pfister Chemicals, Status Determination
NJD001293216

The subject facility possesses a surface impoundment that was determined to be non-regulated by USEPA on May 23, 1983. The basis for this decision is unclear. This Bureau advised Pfister that they were still a hazardous waste facility and that their impoundment would still be regulated until [illegible] concurs with the EPA decision. The use of the impoundment had been explained by Gage Andretta, the company's attorney, to the USEPA on April 21, 1983. This case is still unresolved. Please review the enclosed correspondence and notify this bureau on your determination within thirty (30) days of the date of this memo. Should you have any additional questions regarding this matter, please address them to Al Navidi at 4-[illegible].

[illegible]:hdp
attachment

c: Tom McKee-DWR, Metro Enforcement
2 Babcock Place
W. Orange, NJ 07052

REFERENCE NO. 17

Ron
02-49-01

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

[illegible] M. SADAT, P.E.
DIRECTOR

RICHARD C. SALKIE, P.E.
ASSOCIATE DIRECTOR

MAR 18 1986

Mr. Gage Andretta
[illegible] Corporate Center
[illegible] Becker Farm Road
Roseland, New Jersey 07062

Re: Pfister Chemical, Inc.
EPA ID No. NJD 001293216

Dear Mr. Andretta:

This Bureau is in receipt of your letter dated February 12, 1986. After another review of the referenced facility's file, it was realized that the response to the Bureau's June 21, 1984 letter from your office was indeed in the file. This Bureau would like to apologize for this misunderstanding.

This Bureau however, wishes to consult both the Bureau of Hazardous Waste Planning and Classification and the Bureau of Groundwater Quality Management of the Division of Water Resources on the validity of the USEPA's determination on the surface impoundment of the referenced facility.

This Bureau is also requesting Pfister Chemicals to submit a closure plan, within thirty (30) days for its former hazardous waste drum storage area. This item was apparently overlooked in the EPA's May 23, 1983 letter to Pfister Chemicals.

Pfister Chemicals will be notified as soon as a decision is reached on the surface impoundment. Meanwhile, should you have any question regarding this matter, please address them to Mr. Al Navidi at (609) 984-4791.

Very truly yours,

Frank Coolick

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP12:kdp

c: Arthur Gusmano
Pfister Chemicals
Ridgefield, New Jersey 07657

REFERENCE NO. 18

BERGEN COUNTY UTILITIES AUTHORITY
Box 122, Foot of Meadow Road, Little Ferry, New Jersey 07643

JOHN G. COSTELLO
Executive Director

LOUIS RAFFIANI
Secretary
ROBERT J. MURPHY
Treasurer
STEPHEN P. SINISI
Counsel
JEROME F. SHEEHAN
Chief Engineer
RICHARD F. KILLEEN
Director-Solid Waste Management
JAMES P. MAY
Personnel Director
A. RICHARD ORIGON
Director of Finances
STEVEN M. MIZEREK
Staff Engineer

April 14, 1986

[illegible] Hoffman
[illegible] Deputy Director
[illegible] Defense and Disaster Control
[illegible] Avenue
Ridgefield, NJ 07657

Dear Mr. Hoffman:

This is to advise that the employees of the Bergen County Utilities Authority [illegible] a reaction to an environmental condition on the site of PFISTER [illegible] on 04/08/86 were a JOHN BIRKNER and WALTER FARRIOR. They obtained emergency treatment at the Hackensack Medical Center, Hackensack, NJ. [illegible] required additional care by an opthamologist. The matter is being formally reported to our Workers' Compensation insurance carrier as required by NJ law.

[illegible] was not at the site at the time and was merely involved in [illegible] the administrative handling of the matter.

Very truly yours,

JEROME A. TOZZI,
Safety Director

REFERENCE NO. 19

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
METRO BUREAU OF REGIONAL ENFORCEMENT
2 BABCOCK PLACE
WEST ORANGE, NEW JERSEY 07052

02-49-01

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

M E M O R A N D U M

TO: Frank Coolick, Chief
Bureau of Hazardous Waste Engineering
Division of Waste Management

FROM: Thomas McKee through Stefan Sedlak,
Assistant Chief Metro Bureau of
Regional Enforcement
Division of Water Resources

DATE: April 16, 1986

SUBJECT: [redacted].
[redacted], Bergen County
NJD001293216

The subject company notified the USEPA that it was conducting RCRA regulated hazardous waste treatment activities at its Ridgefield facility in its original Part A application which was filed in 1980. The hazardous waste treatment activity described therein was the neutralization of an acid waste in a large unlined lagoon covering 2.5 acres in the rear of the facility. The lagoon is no longer in use but contains a large volume of sludge, approximately 7500 cubic yards of a purple chemical precipitate. Since its initial filing of the part A application Pfister has attempted to delist the lagoon as a RCRA treatment unit in order to avoid having to comply with the RCRA closure requirements.

Please inform this Bureau of whether any determination concerning Pfister's request for delisting the treatment lagoon has been made. If it is determined that the lagoon is not to be regulated under RCRA then the Division of Water Resources will impose requirements for closure of the lagoon under the NJPDES program. Should you have any additional question regarding this matter, please address them to Tom McKee at (201) 669-3900.

cc: Kevin Krauss, BFO-Metro
Peter Sugarman, DWR-BGWQM

REFERENCE NO. 20

Rcn
02-49-01

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

[redacted] SADAT, P.E.
[redacted]

RICHARD C. SALKIE, P.E.
ASSOCIATE DIRECTOR

MEMORANDUM

[redacted] Stefan Sedlak, Assistant Chief
Metro Bureau of Regional Enforcement

[redacted] Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

[redacted]: [redacted]
Ridgefield, N.J.
EPA ID No. NJD001 293 216
Response to April 16, 1986 Memo

JUN 3 1986

[redacted] Bureau requested a status determination of the subject facility's lagoon from both the Bureau of Hazardous Waste Planning and Classification ("[redacted]") of DWM and the Bureau of Ground Water Quality Management ("[redacted]") of DWR, on March 18, 1986. The response from BGWQM has not been received to date. However, BHWP&C submitted their response on March [redacted], 1986, and according to them, the aforementioned lagoon is considered hazardous. A copy of the letter is enclosed pursuant to your request.

[redacted] you have any questions, please contact Al Navidi, at 4-4791.

Very truly yours,

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

[redacted]
[redacted]
[redacted] Thomas McKee,
[redacted], Metro
[redacted] Siet

REFERENCE NO. 21

Let's protect our earth

Ron
File
02-49-01

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
John J. Trela, Ph.D., Acting Director
CN 028
Trenton, N.J. 08625
609 - 292 - 1250

9 OCT 1986

Mr. Gage Andretta
Kimmelman, Wolff & Samson
280 Corporate Center
5 Becker Farm Road
Roseland, NJ 07062

Dear Mr. Andretta:

RE: Facility Status of Pfister Chemical, Ridgefield, EPA ID NO. NJD 001 293 216

This letter is in response to the letter submitted by you dated March 31, 1986, concerning the facility status of Pfister Chemical. This Bureau wishes to inform you that NJDEP is in disagreement with the USEPA's determination that the surface impoundment can be delisted. In order for the Department to make its own determination, as to the regulatory requirements, the following information shall be submitted to this Bureau, concerning the surface impoundment at the referenced facility:

1. Results of EP Toxicity tests for heavy metals and pesticides.

2. Results of RCRA tests for ignitability, corrosivity and reactivity.

3. Assay for any organic compound which appears to be a constituent of the waste stream (if applicable).

4. Definition of process which produced the waste stream.

5. Estimate of waste stream quantity on a monthly and annual basis.

Please note that all the information requested above is required for the liquid contents of the surface impoundment. Similar analytical information is required for the settled sludge except for corrosivity and ignitability tests.

This information was initially requested in the Bureau of Hazardous Waste Engineering's (the Bureau) letter dated January 27, 1986, addressed to Pfister Chemical, Inc. However, response concerning these items was not submitted by the company.

9 OCT 1986

In regards to hazardous waste drum storage S01 activity, this Bureau has determined that Pfister Chemicals included this activity in its original Part A application as a protective filer, and that no drums of hazardous wastes were ever stored at the facility under existing status.

Therefore, the revised Part A application that Pfister submitted on June 15, 1983 with S01 activity deleted is accepted. Since this activity has no existing status as it was never implemented, a closure plan for S01 activity will not be required.

This determination is based on the information contained in your 3/31/86 letter, and RCRA inspection report of 10/1/81 which indicated that materials shipped offsite since 11/19/80 were listed as non-hazardous.

This letter makes no claims as to the extent and physical condition of any hazardous waste activities conducted by Pfister. It is the company's responsibility to operate within the conditions as stated above. To operate a hazardous waste facility, or accept off-site generated waste, without prior approval from the DEP, is a violation of the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq.

The above mentioned information, concerning the status of the surface impoundment, is needed to evaluate the delisting request for the referenced facility. This information shall be submitted to this Bureau within thirty (30) days of the date of this letter.

Unless and until you submit adequate response to this letter, Pfister Chemical will continue to be considered a TSD facility and shall comply with the standards and requirements of TSD facilities.

Should you have any questions regarding this matter, please address them to Mr. Al Navidi at (609) 292-9880.

Very truly yours,

Ernest J. Kuhlwein, Jr.

Ernest J. Kuhlwein, Jr.
Acting Chief
Bureau of Hazardous Waste Engineering

EP12/slw

cc: Arthur Gusmano
Angel Chang, USEPA

REFERENCE NO. 22

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DUTY OFFICER NOTIFICATION REPORT

Region I

CASE NO. 88 - 08 - 09 - 1323 (Yr) (Mo) (Day) (Time)

DATE 08-09-88 (Mo Day Yr) REC'D BY Pals/Roger TIME 1330

REPORT BY: Carl Pellizzi Phone 201-321-6797

Name: USEPA

City: State:

INCIDENT LOCATION: Transportation ___ Facility X Other: ___

Name (Plant): Pfister Chemical Phone:

Street: Rt 46 East

City: Ridgefield County: Bergen State: NJ Zip Code:

Date of Incident: 08-09-88 (Mo Day Yr) Time: 1310

IDENTITY OF SUBSTANCE(S) SPILLED, RELEASED, ETC.: X Suspected ___ Unknown

Name of Substance(s) (Gas, Liquid, Solid): oil and other chemicals

Amount Released/Spilled: Unk ___ Actual ___ Potential ___ Estimated Substance Contained Y X U

Type of Release/Spill: ___ Terminated X Continuous ___ Intermittent Hazardous Material X N U

INCIDENT DESCRIPTION:

___ Fire ___ Explosion ___ Air Rel X Spill ___ MVA ___ Derailment ___ Smoke/Dust

___ Odors ___ Sewage ___ NJPDES ___ Noise ___ Wildlife X Illegal Dumping ___ Drums

___ Equip Start-Up/Shutdown, Equip Fail/Upset, etc.

___ Other (specify)

Injuries Y X U

Facility Evacuation Y X U

Population Evacuation Y X U

Potable Water Source Y X U

Contamination of ___ Air ___ Land X Water

Receiving Water Unknown / Ground

Public Exposure Y X U

Fire Department at Scene Y X U

Police at Scene Y X U

Assistance Requested X N U

Precipitation Y N U

Wind Direction/Speed ___ / ___

Location Type: ___ Residential X Industrial ___ Commercial ___ Rural ___ Sensitive Population (Hosp., School, Nurs. Home)

STATUS AT INCIDENT SCENE: Material is a pool 500-1000' in diameter and 2a feet wide. No cleanup being performed and is ongoing problem. length

RESPONSIBLE PARTY: ___ Suspected ___ Unknown

Company Name: Phone:

Contact: SAME AS IN ABOVE Title:

Street:

City: County: State: Zip Code:

OFFICIALS NOTIFIED (Name/Title):

NJSP: VIA TB / ___ Phone ___ Date/Time ___ / ___ (T/M)

Local Health: Lt Storm / County OEM Phone 646-2719 Date/Time 8/9 / 1340 (T/M)

REFERENCE NO. 23

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Spill File D.O.

DATE August 22, 1988

Dave Oster through Dave Beeman

Inspection of Pfister chemical

[redacted]

Pfister Chemical, Rt. 46 East, Ridgefield, was inspected on 8/10/88 after MBFO received an incident report indicating "oil and other chemicals" in a "pool". Joining me on the inspection was Jim Taradash of Bergen County Health Services. Taradash and I met with Arthur Gusmano (945-5400) Vice President of Pfister who showed us the oil/chemical "pool."

The pool is actually a former surface impoundment which according to Mr. Gusmano has not been used for years. He further informed us that Pfister is about to receive an ACO from Bureau of Case Management which incorporates appropriate remedial measures. (A file review prior to the inspection indicated that delisting of the impoundment has been a subject of controversy between the DEP, EPA and Pfister). The impoundment currently contains both clear water and black, oily sludge, but does not receive any water except for stormwater. Runoff from stormwater goes to Bergen County Sewerage Authority. Pfister monitors the impoundment on a regular basis. Pfister also does [illegible] monitoring. On the day of our visit, with temperatures in the 90's, material in the impoundment was volatilizing rapidly, producing a strong chemical odor which prompted us to move back from the edge. Mr. Gusmano indicated that the lagoon contained primarily VO's and PHC's. Both Taradash and the writer agreed that we would not want to expose ourselves to these fumes for any length of time.

Mr. Gusmano indicated that Pfister has been working with Carol Graubart of BCM with respect to the ACO. In June 1988 the company received a letter stating that the ACO was being mailed out, however, it has apparently not yet been received and is not signed. Although Case Management has the lead in this case it should be noted that the Pfister impoundment currently poses a number of potential threats to the environment. These include the above-noted volatilization to the atmosphere, as well as run-off to the sewer system (which Bergen County Sewerage Authority apparently finds acceptable), possible contamination of groundwater, and possible movement of contaminants via groundwater to the Hackensack River, located about 30' from the impoundment. Overflow into the river during heavy rain is another possibility, although Mr. Gusmano assured us that this has never happened. In consideration of the above Metro should continue to monitor the situation of Pfister, in contact with BCM.

Dave - Please forward copy to BCM

Thx D.B.

LAGOON

REFERENCE NO. 24

U.S. ROUTE 46
HACKENSACK MEADOWLANDS
OVERPECK CREEK
SCALE 1:2400
200 100 0 200 400 600 800 FEET

REFERENCE NO. 25

Pfister Chemical
Aerial Photos

4/7/51 - no lagoon, there appears to be a drainage pathway in surrounding area north of site.

2/23/54 - lagoon west of facility / 90' x 400'.

4/7/59 - there appears to be a narrow lagoon south and southeast of facility. Lagoon snakes around on outermost boundary.

/23/66 - facility holds three (3) apparent lagoons; west and southwest. The smallest lagoon located in center is approximately 75' x 150'. The lagoon southwest of facility is approximately 150' x 700'. Lagoon adjacent to facility is approx. 90' x 400'.

8/25/77 - facility holds three (3) lagoons; west and southwest of facility. The lagoon southwest of facility has expanded, now displays the eastern leg of the U-shaped lagoon. The middle of this lagoon has been partially filled in.

/25/74 - It appears to be identical to the Aerial photo taken in 8/25/77.

4/8/79 - Middle lagoon appears to be filled. The southern lagoon appears to be partially filled in leaving a narrow pathway on outer boundary circling from the western leg to eastern leg.

3/16/85 - Lagoons are now connected. Middle lagoon appears to be draining to main lagoon (south), circling around to the eastern leg. Pathway very narrow.

3/28/90 - Middle lagoon appears to be filled with exception of narrow pathway leading to main lagoon (south). Main lagoon almost totally filled.

Aerial Photo on Scale 1:2400

Lagoon West of Facility : 175' x 400'
Middle Lagoon : 50' x 200'
Southwestern Lagoon : 150' x 1200'

REFERENCE NO. 26

0054F
02-904-13

NUS CORPORATION

II

0505

PFISTER CHEMICAL
TDD MGR.-D. LAMOND
02-9001-13
LOGBOOK #0505
FEBRUARY 14, 1990

PFISTER CHEMICAL, INC.
RIDGEFIELD, NJ (BERGEN COUNTY)
TDD # 02-9001-13
BRICS # NJDJ

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PFISTER CHEMICAL, INC.
RECON 2-16-90
02-9001-13 NJDJ&I
RINGEFIELD, NJ

0950 ARRIVE PFISTER. NUS PERSONNEL:
M. COLER - BACK-UP 2-16-90
J. HARRISON - SSO 2-16-90
D. LAMOND - SM 2-16-90

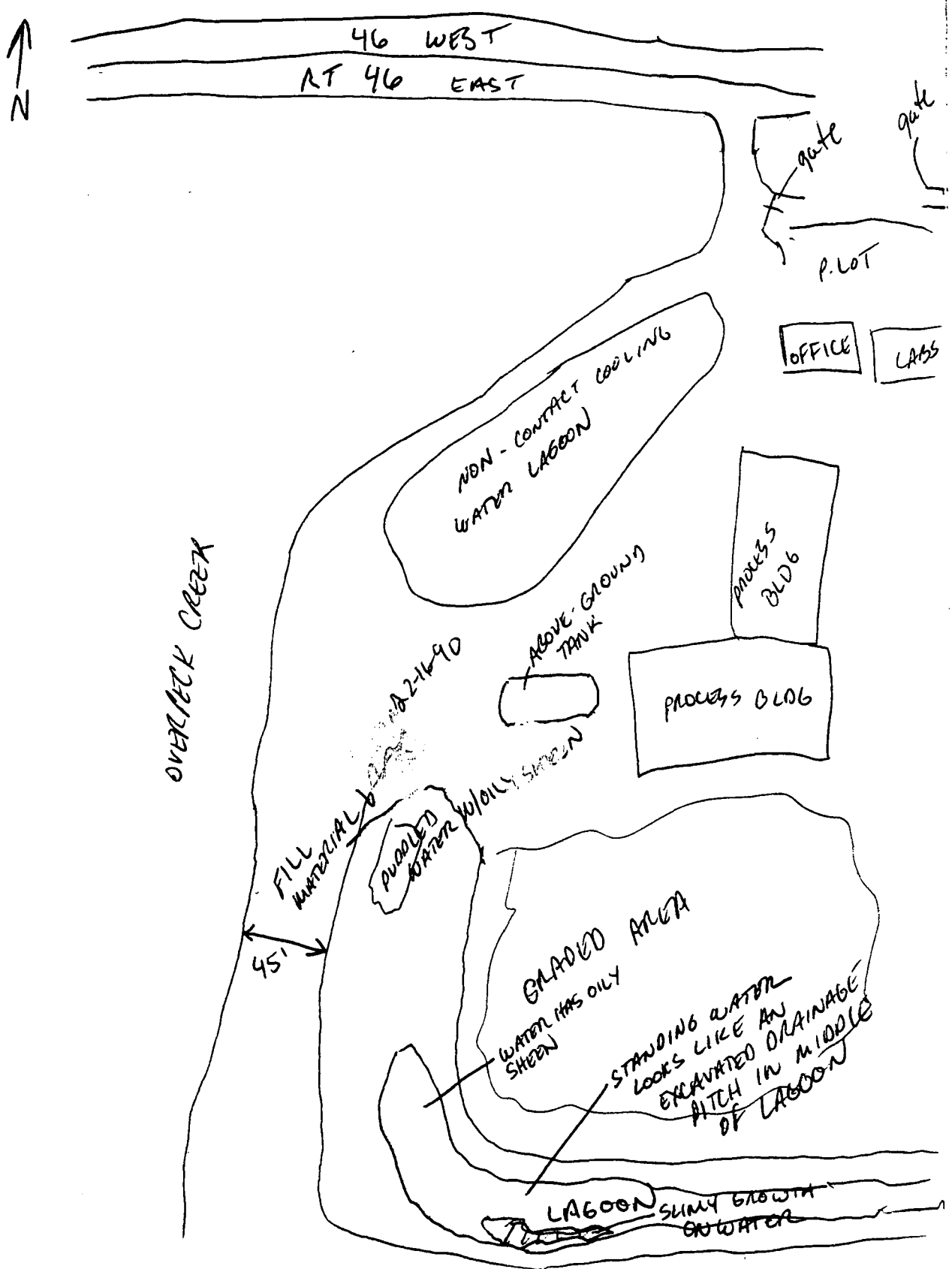
ABOVE HAVE READ AND UNDERSTAND
WORKPLAN # 02-9001-13-W2

WEATHER: CLOUDY, SOME INTERMITTENT DRIZZLE
TEMP ≈ 52°F, SLIGHT BREEZE FROM
SOUTH ~~WEST~~ EAST 2-16-90

0957 MEET MR. ROGER HUTH, PFISTER CHEMICALS
REGULATORY AFFAIRS MGR. MR. HUTH
DIRECTS US TO REAR OF PLANT WHERE
UNION IS LOCATED.

1004 SET-UP DERON, COMMAND POST ON
DIRT AREA WHERE SCRAP METAL, OTHER
DEBRIS STORED (UNUSED REACTION VESSELS,
MOTORS, ETC.). AREA IS FAIRLY WELL-KEPT
~~FOR~~ 2-16-90
OVA 469783
HNU 307140
CAMERA (SLIDES) 307127 2-16-90 307148
CAMERA (PRINTS) ~~307148~~ 2-16-90 307127
MINI-RAD 428604
DRAGER PUMP 192105

2-16-90 2/15/90


N
46 WEST
RT 46 EAST
gate
gate
P. LOT
OFFICE
LABS
NON - CONTACT COOLING WATER LAGOON
PROCESS BLDG
PROCESS BLDG
ABOVE-GROUND TANK
OVERMECK CREEK
FILL MATERIAL
PUDDLED WATER W/OILY SHEEN
45'
GRADED AREA
WATER HAS OILY SHEEN
STANDING WATER LOOKS LIKE AN EXCAVATED DRAINAGE DITCH IN MIDDLE OF LAGOON
LAGOON
SLIMY GROWTH ON WATER

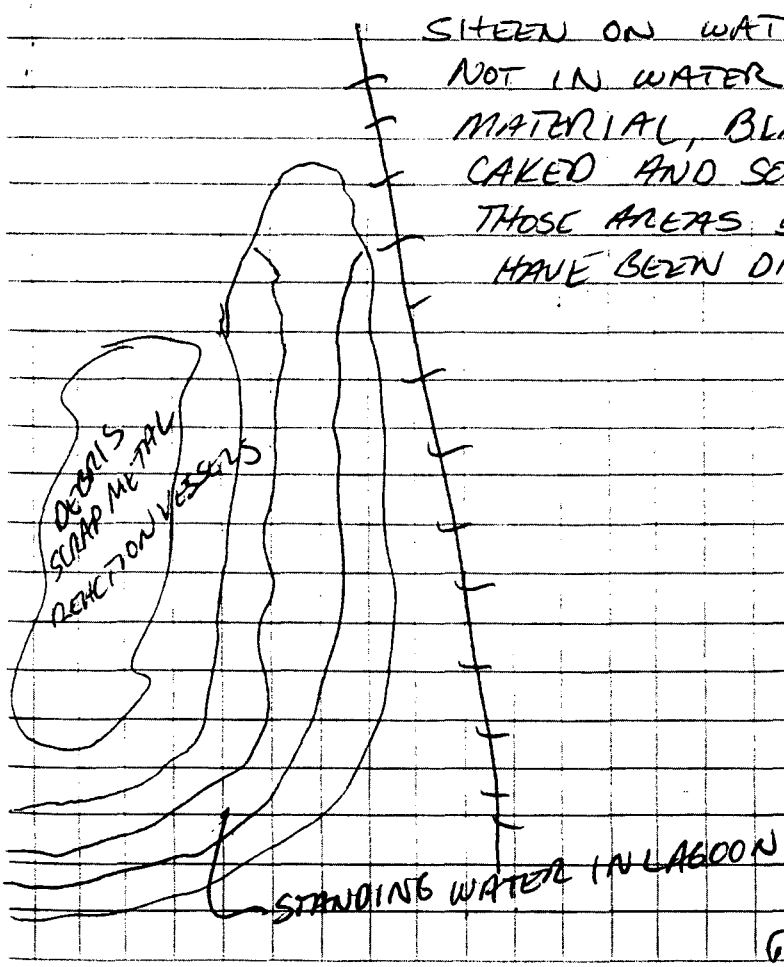
PFISTER CHEMICAL, INC RECON
02-16-90 02-9001-13 NJDJ
RIDGEFIELD, NJ

1027 1P, 1S - LOOKING ~~NW~~ 2-16-90 NORTHWEST AT START OF LAGOON. THIS IS START OF LAGOON WHERE DISCHARGE WAS FIRST RECEIVED FROM PROCESSING.

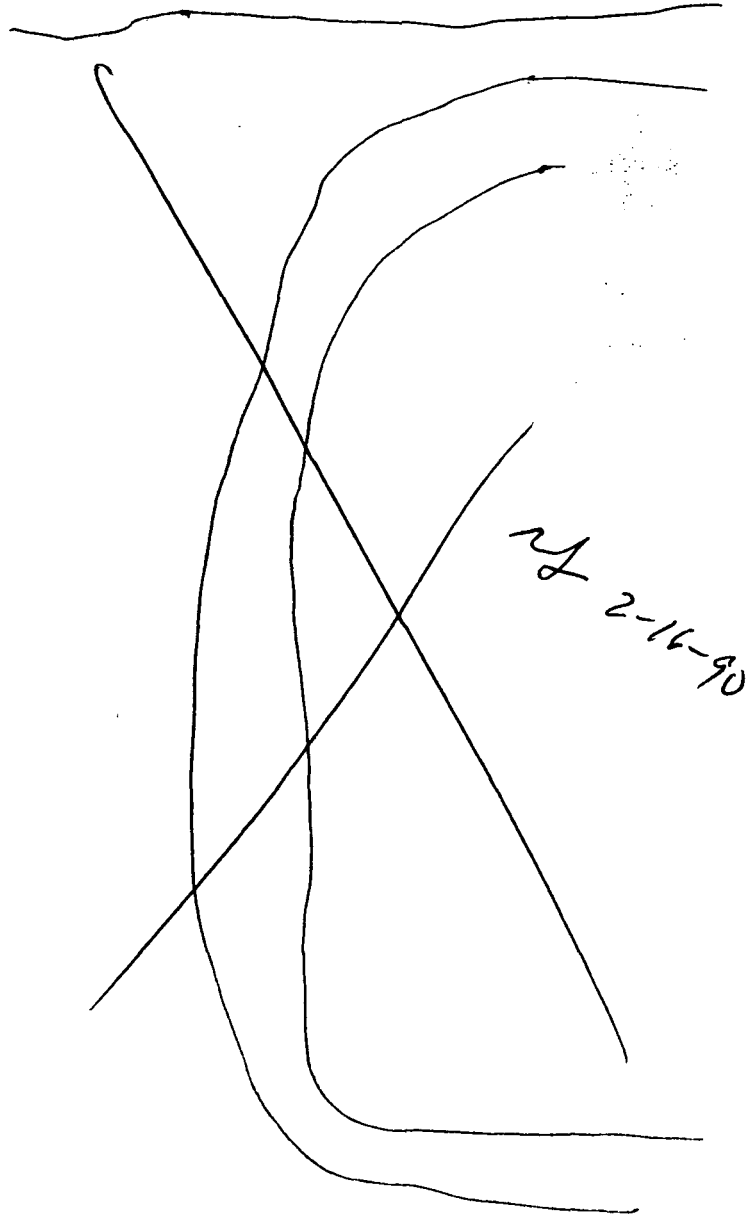
OVA - No readings above background in ~~HNU~~ 2-16-90 area of lagoon. J. Harrison will get closer to lagoon for readings.

Please note: all readings ABOVE BACKGROUND ON OVA & HNU APPROXIMATE.

1031 2P, 2S - LOOKING SOUTH DOWN WESTERN PORTION (LEG) OF LAGOON. PUDDLED WATER IN LAGOON AT BEGINNING THEN STANDING WATER IN WHAT LOOKS LIKE AN EXCAVATED DRAINAGE DITCH. THERE IS AN OILY SHEEN ON WATER. OTHER MATERIAL NOT IN WATER, THAT IS SLUDGE MATERIAL, BLACKISH-BROWN. SOME CAKED AND SOME IS BROKEN UP. THOSE AREAS BROKEN UP LOOK TO HAVE BEEN DISTURBED.

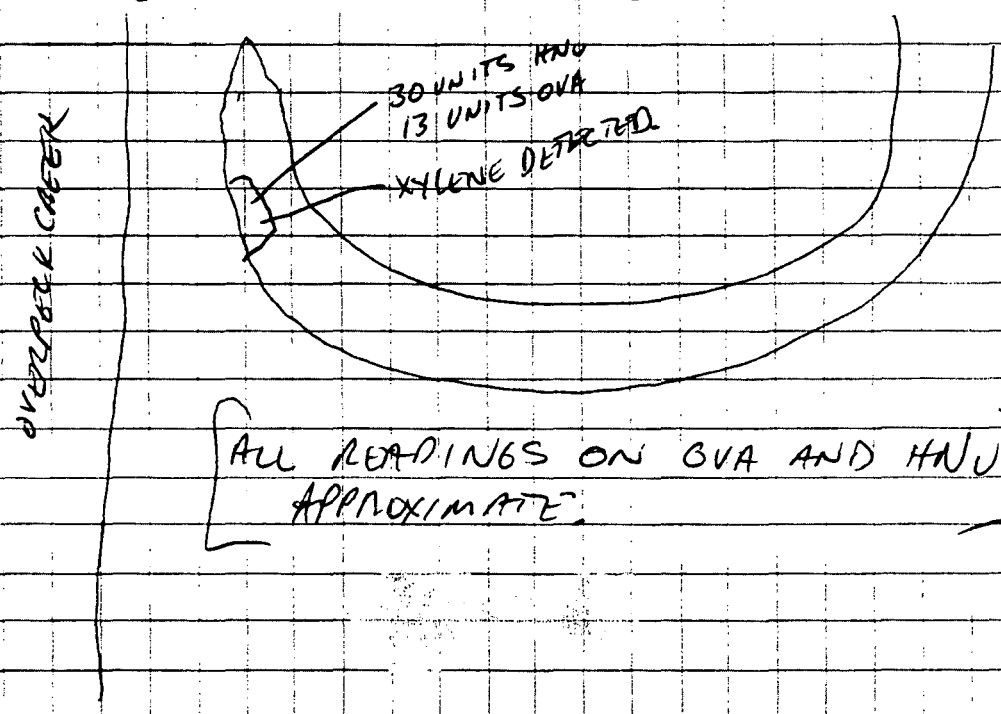


Deborah E. [signature]
2-16-90


2-16-90

PEISTER CHEMICAL, INC REZON
RIDGEFIELD, NJ 02-9001-13
2-16-90

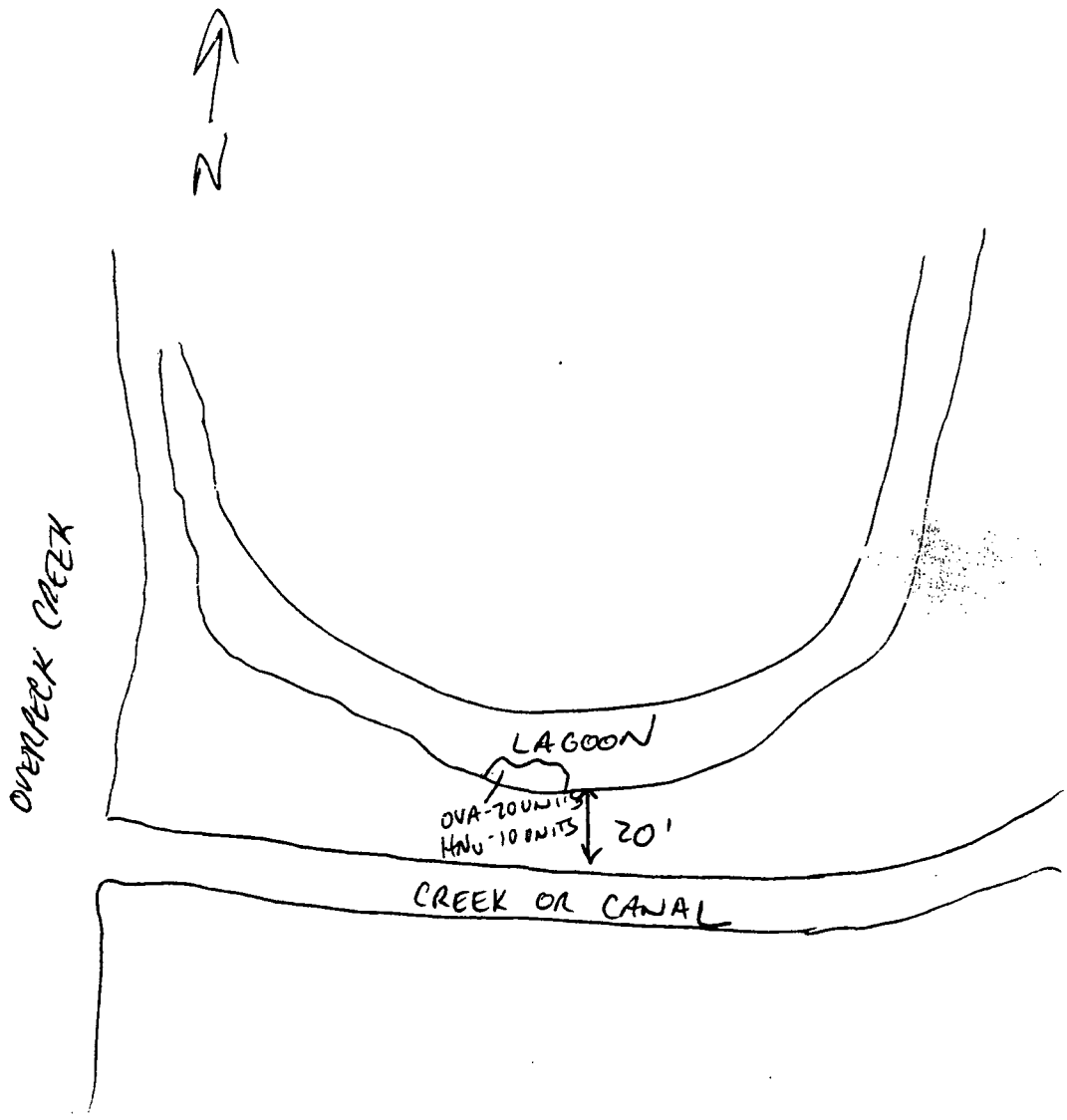
1032 J. HARRISON STARS UP LAGOON SLUDGE WITH TROWEL. 30 UNITS ON HNU, 13 ~~0~~ 2-16-90 UNITS ON OVA JUST ABOVE DISTURBED SLUDGE.



[ALL READINGS ON OVA AND HNU APPROXIMATE.]

1036 J. HARRISON TO TAKE DRAGER TUBE SAMPLES.
1038 3P, 3S - ~~JAH~~ 2-16-90 J. HARRISON TAKING TOLUENE DETECTOR TUBE SAMPLE. NO DETECTION.
1040 4P, 4S - J. HARRISON TAKING CHLOROBENZENE DETECTOR TUBE SAMPLE. NO DETECTION.
1043 5P, 5S - J HARRISON TAKING XYLENE DETECTOR TUBE SAMPLE. TUBE SATURATED. ~~LF~~ 2-16-90 COLOR CHANGE EXTENDS COMPLETE LENGTH OF TUBE.

Deborah E. [illegible] 2-16-90
D. Herman 3/15/90


N
OVERPECK CREEK
LAGOON
OVA-20 UNITS
HNU-10 UNITS
20'
CREEK OR CANAL

PFISTER CHEMICAL, INC. REZON
RIDGEFIELD, NJ D 2-9001-13
2-16-90

1048 LAMOND + HARRISON WALK DOWN WESTERN BOUNDARY OF LAGOON BETWEEN ~~LOO~~ 2-16-90 LAGOON AND CREEK. THIS CORRIDOR SEEMS TO HAVE LOOSE-PACKED FILL MATERIAL IN SOME PLACES. THESE AREAS DO NOT HAVE VEGETATION. OTHER AREAS ON THIS CORRIDOR CONTAIN TALL (2') HAY-LIKE GRASSES AND PHRAGMITES. THIS MIGHT INDICATE THAT AREAS WITHOUT VEGETATION HAVE RECENTLY BEEN DISTURBED BY FILLING AND/OR GRADING

1052 6P, 6S - CORRIDOR OF LAND BETWEEN LAGOON AND CREEK (WEST BORDER OF LAGOON)

1056 7P, 7S - CREEK BANK APPROXIMATELY 45 ft. from lagoon (eastern bank of Overpeck). OVA - 20 UNITS ABOVE BACKGROUND, HNU - 10 UNITS ABOVE BACKGROUND IN LAGOON (DISTURBED SLUDGE) APPROXIMATELY HALFWAY DOWN WESTERN SIDE OF LAGOON.

1058 8P, 8S - LOOKING NORTHWEST. OVA - 20 UNITS ABOVE BACKGROUND, HNU - 10 UNITS ABOVE BACKGROUND ON SOUTH PORTION OF LAGOON (DISTURBED SLUDGE). LOOKS AS IF A DRAINAGE DITCH HAS BEEN EXCAVATED IN MIDDLE OF LAGOON. ALSO, THERE IS A CREEK OR CANAL APPROX. 20 ft SOUTH OF SOUTH LEG OF LAGOON WHICH EMPTIES INTO OVERPECK CR.

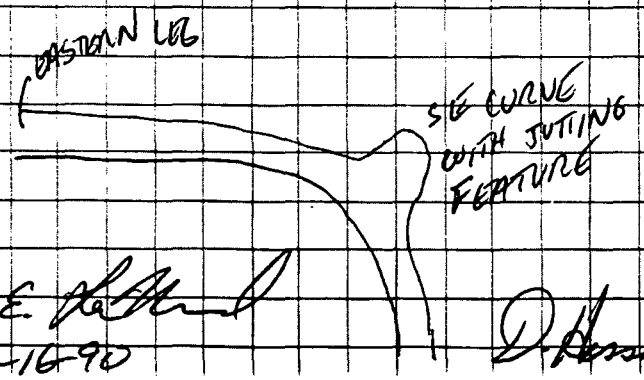
Deborah E. [illegible] 2-16-90 D. [illegible] 3/15/90

PFISTER CHEMICAL, INC. RECON
RIDGEFIELD, NJ 02-9001-13
2-16-90

1059 9P,9S, - LOOKING EAST ALONG SOUTH PORTION OF LAGOON AT "DRAINAGE DITCH" ALONG CENTER. OILY SHEEN ON WATER. ALSO SOME TYPE OF SLIME (LIGHT BROWNISH-ORANGE) ALONG EDGES OF DITCH IN LAGOON. ~~(6~~ 2-16-90 SLIME IS ON WATER SURFACE.

1100 10P,10S - LOOKING NORTH AT PLANT WORKS AND FLAT AREA WHICH LOOKS FRESHLY GRADED. THIS AREA ALSO CONTAINS SCRAP METAL AND OTHER DISCARDED ITEMS, SUCH AS REACTION VESSELS, ON EASTERN 1/3 ADJACENT TO EASTERN LEG OF CREEK.

1111 11P,11S - LOOKING SOUTH DOWN EASTERN LEG OF LAGOON. MUCH STANDING WATER. OILY SHEEN ON TOP. THERE IS A PORTION OF ~~SOUTHEAST~~ 2-16-90 LAGOON LOCATED ON SOUTHEAST CURVE THAT LOOKS AS IF A TRIBUTARY MIGHT BE ENTERING OR LAGOON EMPTYING. IT IS, HOWEVER, A JUTTING-OUT OF LAGOON. DOES NOT SEEM TO GO ANYWHERE

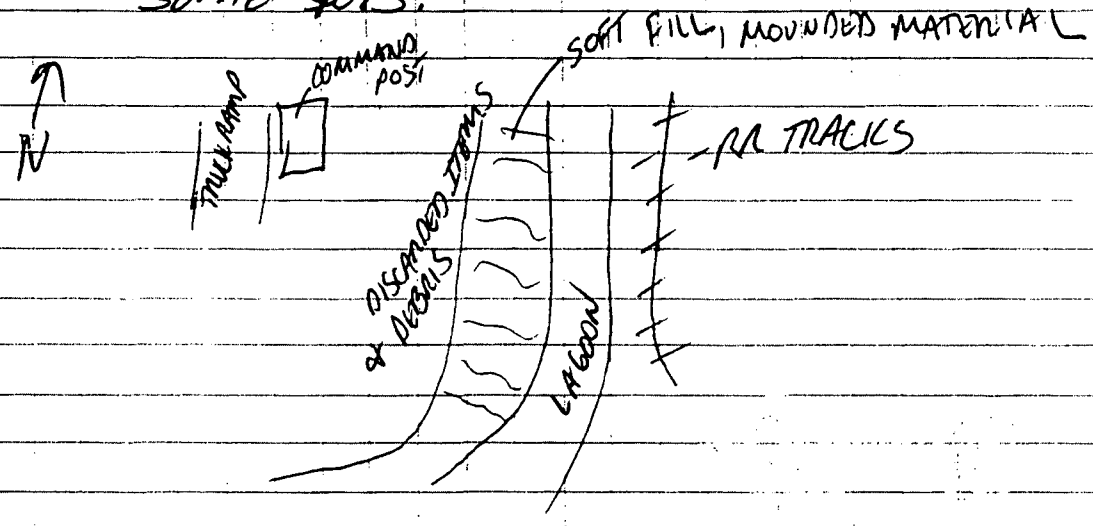


Deborah E. [illegible]
2-16-90

D. [illegible] 3/15/90

PFISTER CHEMICAL, INC. RECON
RIDGEFIELD, NJ 02-9001-13
2-16-90

1112 12P, 12S - NORTHEAST END OF LAGOON. RAILROAD TRACKS DIRECTLY EAST OF THIS LEG OF LAGOON. READINGS ARE 20 UNITS ON OVA AND 10 UNITS ON HNU ABOVE BACKGROUND. AT 2-16-90 THE AREA OR BANK LEADING FROM PFISTER PROPERTY (BETWEEN GRADED AREA AND LAGOON) CONTAINS SOFT FILL MATERIAL WHICH IS MOUNDED IN SOME SPOTS.



1125 FINISH RECON OF LAGOON. 2-16-90 ASK LAGOON HUTH ABOUT WATER IN LAGOON. HUTH SAYS IT IS RAINWATER WHICH WILL EVENTUALLY EVAPORATE WHEN WEATHER MORE CONDUCIVE. WHEN QUESTIONED ABOUT DRAINAGE DITCH IN LAGOON, HUTH SAID HE'S NOT SURE IF IT WAS DUG PURPOSELY FOR DRAINAGE BUT IT MAY HAVE BEEN.

1130 13P, 13S - PLANT WORKS LOOKING NORTHEAST.

1135 LEAVE SITE.

Deborah E. [illegible] 2-16-90 D. Hessen 3/15/90

PFISTER CHEMICAL SI RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDT

0809 ARRIVE PFISTER. SUNNY, COLD, TEMP. APPROX. 30-35°F. SLIGHT BREEZE FROM NW. WAITING FOR SUBURBAN TO ARRIVE.

0812 FOLLOWING NUS PERSONNEL HAVE READ AND UNDERSTAND WORKPLAN # 02-9001-13-W3:

D. LAMOND	PM/SIM	[illegible]	3-7-90
J. TECSON	SSO	[illegible]	3-7-90
M. COLER	SAMPLER	Maria [illegible]	3-7-90
B. FARRELL	SAMPLER	[illegible]	3/7/90
S. LENCZYK	SMO	[illegible]	3/7/90

OVA F 307131
HNU 469746
MINI-ALERT 469786
CAMERA (S) AE-1 307128
CAMERA (P) AE-1 307127
COMPASS (POCKET TRANSIT) NO EPA #

0814 LAMOND MEETS WITH ROGER HUTH, PFISTER MGR. REGULATORY AFFAIRS. HUTH WOULD LIKE TO SPLIT SAMPLES BUT IS NOT SURE HE CAN GET CONTAINERS READY. HE SAYS TO GO AHEAD AND START SAMPLING, NOT TO WAIT FOR HIM.

Deborah E. [illegible]
3-7-90

D. Hessman 3/16/90

PFISTER CHEMICAL SI, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

0840 CURRENTLY PRESENT NUS PERSONNEL ARE J. TECSON SSO & D LAMOND SM. STILL WAITING FOR OTHER NUS PERSONNEL TO ARRIVE IN SUBURBAN. OTHER SI PERSONNEL TOOK ALTERNATE ROUTE TO SITE TO PICK UP S. LENCYZK-SMO.

0845 OTHER PERSONNEL ARRIVE:
B. FARRELL
S. LENCZYK
M. COLER
ABOVE PERSONNEL SIGN PG. 11 ACKNOWLEDGING UNDERSTANDING WORKPLAN.

0902 SET UP DECON AREA. WIND FROM NORTH GUSTING 5-7 MPH.

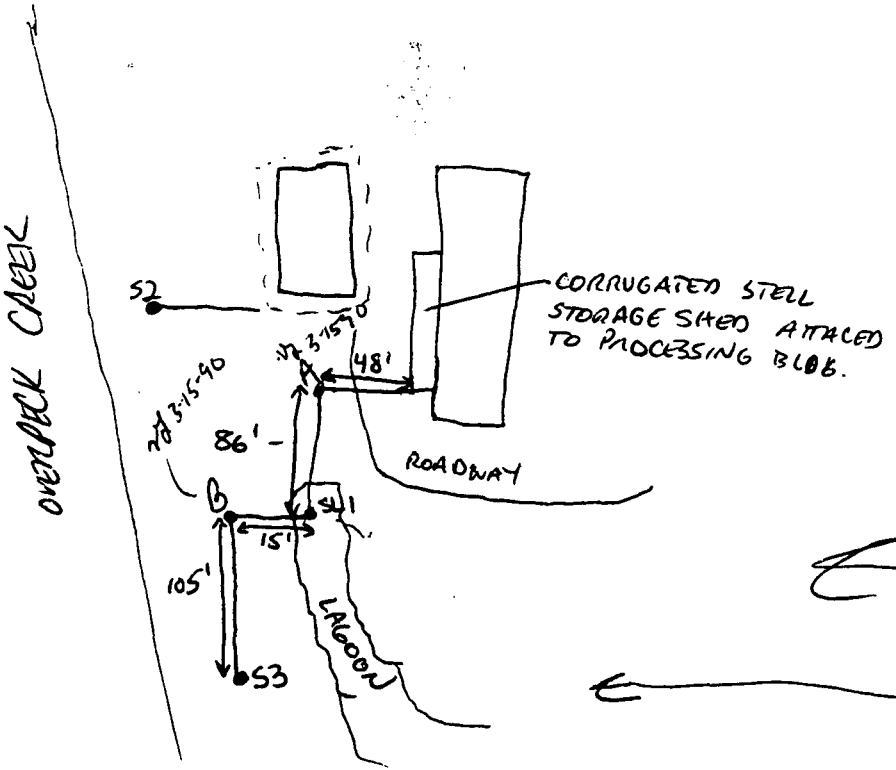
0947 LAMOND & TECSON PROCEED TO ESTABLISH SAMPLING LOCATIONS WHILE EQUIPMENT IS DECONNED. RI WORK DONE SO FAR INCLUDES TEST PIT DIGGING & SAMPLING ACCORDING TO ROGER HUTH. EVIDENCE OF TEST PITS ARE PINK FLAGS ~~WITH~~ 3-7-90 WITH "TP" AND SAMPLE NUMBER WRITTEN ON THEM. THESE FLAGS ARE IN VARIOUS LOCATIONS AROUND THE BACKFILLED LAGOON AREAS.

Deborah E. [illegible] 3-7-90

D. Hessen 3/16/90

N

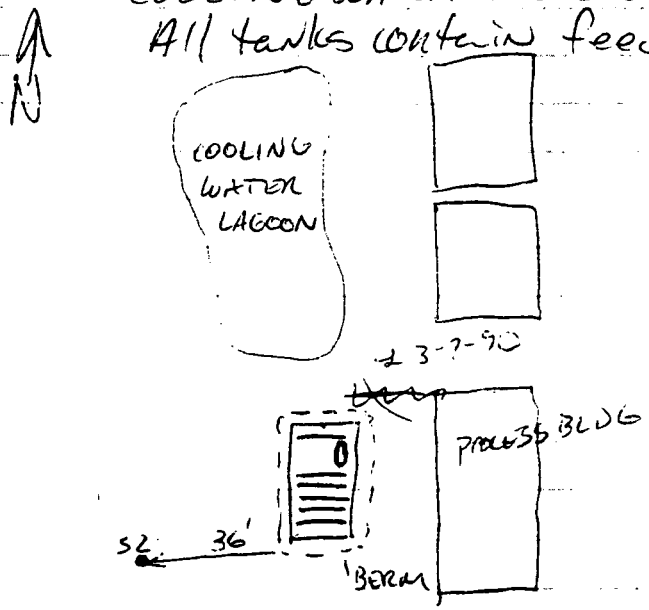
Deborah E. [illegible]
3-7-90



PFISTER CHEMICAL SI, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

1004 S2 LOCATION WILL BE 36' DIRECTLY WEST OF ~~Cor~~ 3-7-90 SOUTHWEST CORNER OF CEMENT BERM WHICH SURROUNDS 68 3-7-90 HORIZONTAL AND ONE VERTICAL STORAGE TANKS. THIS GROUP OF TANKS IS SOUTH OF THE FIRST GROUP OF TANKS LOCATED ADJACENT TO AND JUST SOUTH OF THE PROCESS ~~WA~~ 3-7-90 COOLING WATER LAGOON (VERT. TANKS). All tanks contain feedstocks. 6-25-90

3-7-90



COMPASS SEEMS TO BE STICKING. USING POCKET TRANSIT COMPASS (NO EPA #). WORKED IN OFFICE ON 3-6-90. MAY BE DUE TO COLD.

STELL
ED ATTACED
G BLDG.

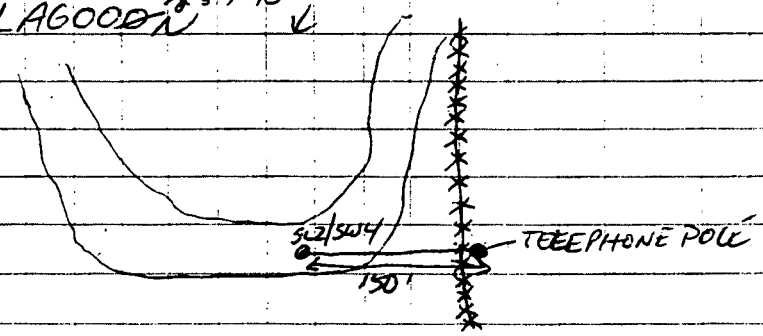
1010 SL1 LOCATION WILL BE APPROX. LOCATED ACCORDING TO DIAGRAM ON FACING PAGE

1018 S3 LOCATION ALSO APPROXIMALY LOCATED ACCORDING TO MAP

D. Hansener 3/16/90 Deborah E. [illegible] 3-7-90

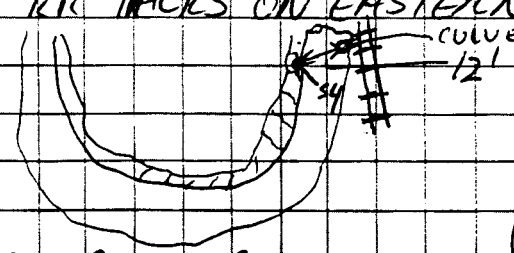
PFISTER CHEMICAL ST, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJ DJ $I

1022 SL2/SW4 MAY BE DIFFICULT TO OBTAIN DUE TO ICE COVER. ICE IS APPROX. 0.75" ~~THICK~~ 3-7-90 THICK. WILL ATTEMPT TO BREAK ICE WITH SAMPLE BOTTLE. TENTATIVE SAMPLE LOCATION IS APPROXIMATELY (NO BENCHMARK NEARBY) 150' WEST OF TELEPHONE POLE LOCATED OUTSIDE OF EASTERN FENCE BOUNDARY. TEL. POLE IS ON LINE WITH LAGOON 3-7-90



SAMPLE WILL BE TAKEN AS FAR AWAY FROM ~~NORTHERN~~ BANK AS POSSIBLE (i.e: AS CLOSE TO MIDDLE OF LAGOON AS POSSIBLE).

1028 SAMPLE S4 ALSO LACKS GOOD BENCHMARK. S4 WILL BE LOCATED ON DECLINE OF WESTERN BANK OF ~~LAGOON~~ 3-7-90 EASTERN LEG OF LAGOON ACROSS FROM CEMENT CULVERT WHICH RUNS UNDER RR TRACKS ON EASTERN BANK OF LAGOON.



Deborah E. [illegible] 3-7-90 D. [illegible] 3/16/90

PFISTER CHEMICAL SI RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

1032 WILL LOCATE SW/SED.1 AND S1 LATER AT TIME SAMPLES WILL BE TAKEN. THESE ARE UPSTREAM + BACKGROUND SAMPLES AND SUBURBAN WILL BE USED TO GET TO LOCATIONS WHICH WILL BE IN EXTREME NORTHERN SECTION OF SITE.

1040 M. COLER, B. FARRELL STILL DECONNING (IS,P) SAMPLING EQUIPMENT. S. LENCZYK PREPARES TRIP BLANK.

1102 SAMPLE EQUIPMENT DECON COMPLETED. S. LENCZYK BEGINS TAKING RINSATE SAMPLES. SAMPLERS WILL WARM HANDS IN SUBURBAN PRIOR TO 1ST SAMPLE.

1132 PROCEED TO SW4 LOCATION.

1142 2P,S - B. FARRELL TAKING SW4 BELOW ICE LAYER. WATER IS BROWNISH-RED IN COLOR. LOCATION IS APPROXIMATELY AS STATED ON PG. 14 AND 1' SOUTH OF NORTHERN LAGOON BANK IN STANDING WATER.

1145 VOA'S FOR SW4 pH 5.0 WITHOUT HCl. pH approximately 2.0 after HCl added.

Deborah E. McMond 3-7-90
D. Dressman 3/16/90

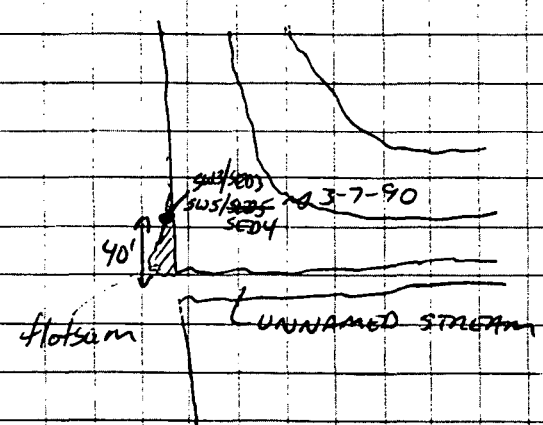
PFISTER CHEMICAL ST, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

1203 B. FARRELL COLLECTS SL2 (3P,S).
SL2 IS S6 ON LABEL & SMO PAPERWORK.

1212 COMPLETE SAMPLING SL2 AND SW4. ~~RETTE~~ 3-7-90
RETURN TO COMMAND POST (CP).

1216 DECON SAMPLES.

1233 ARRIVE LOCATION ON OVERPECK CREEK FOR SW/SED3. SW5/SED4 3-7-90 WILL ALSO BE TAKEN (DUPLICATES FOR SOLID & AQUEOUS MATRICES). SAMPLES LOCATED ~~ON EASTER~~ 3-7-90 ADJACENT TO EASTERN BANK OF CREEK. SAMPLES ARE DOWNSTREAM SAMPLES. AGAIN, BENCHMARKS DON'T REALLY EXIST. LOCATION IS APPROX. 40' NORTH OF CONFLUENCE OF UNNAMED STREAM WHICH FORMS SOUTHERN BORDER OF SITE.



WATER BROWNISH IN COLOR.

Deborah E. LaMond 3-7-90
D. Jessener 3/16/90

PFISTER CHEMICAL SI, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJOJ$I

1237 4P,S - B. FARRELL TAKING SW3. pH is 6.0. WILL ADD HCl to < 2.0(pH).

1245 5P,S - B. FARRELL TAKING SW5 (DUP).

1250 M. COLER TAKING SED3 (6P,S). SEDIMENT IS PINK COLOR ON SURFACE AND VERY CLAYEY IN CONSISTENCY. SAMPLE CONTAINS BLACK COLOR SEDIMENT UNDER PINK. SEA GULLS CAN BE OBSERVED FLOATING IN CREEK & FLYING OVERHEAD. A DEAD FISH WAS OBSERVED ALONG THE CREEK BANK FURTHER SOUTH OF SAMPLE LOCATION ON FLOTSAM WHICH HAS COLLECTED NEAR THE CONFLUENCE OF OVERPECK CREEK AND THE UNNAMED STREAM.

1300 B. FARRELL PUTTING SED3 INTO SAMPLE CONTAINERS (7P,S).

1304 M. COLER PUTTING SED4 INTO SAMPLE CONTAINERS (8P,S). SED4 IS A DUPLICATE OF SED3.

1312 COMPLETE COLLECTION OF SW/SED3 & SW5 (DUP), SED4 (DUP.)

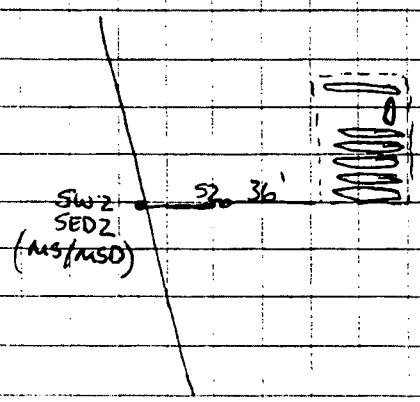
Deborah E. [illegible]
3-7-90

D. [illegible]
3/16/90

PFISTER CHEMICAL SI RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ SI

1320 TAKING BREAK TO WARM UP.

1346 M. COLER COLLECTING SW2 (9P,S). SW2 LOCATED WEST OF S2 (IN LINE WITH S2) ON EAST BANK OF OVERPECK CREEK, ~~AT~~ 2 3-7-90 APPROX. 1' INTO WATER FROM BANK.



1358 (10P,S) B. FARRELL COLLECTING SED2. SED IS SANDY ON SURFACE & LIGHT BROWN IN COLOR WITH DARK BROWN TO BLACK UNDER SURFACE LAYER. SW/SED2 ARE MS/MSD FOR SOLID & AQUEOUS MATRICES.

1408 COMPLETE TAKING SW/SED2. PROCEED TO CP.

1415 DECON SAMPLES.

1425 (11S,P) - B. FARRELL COLLECTS SL1 (S5 ON SMO PAPERWORK). SLUDGE IS DEEP PURPLISH/RED AND ALMOST BLACK IN COLOR. (CONT'D)

Deborah E. [illegible] 2-7-90

D. [illegible] 3/16/90

PFISTER CHEMICAL ST, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

1425 (CONT'D) AFTER DISTURBING AREA FOR SAMPLE, PUDDLED WATER TURNED RED + BLACK ON SURFACE WITH A SLICK-LIKE APPEARANCE. OVA 80 methane-equivalent units. HNu not operational.

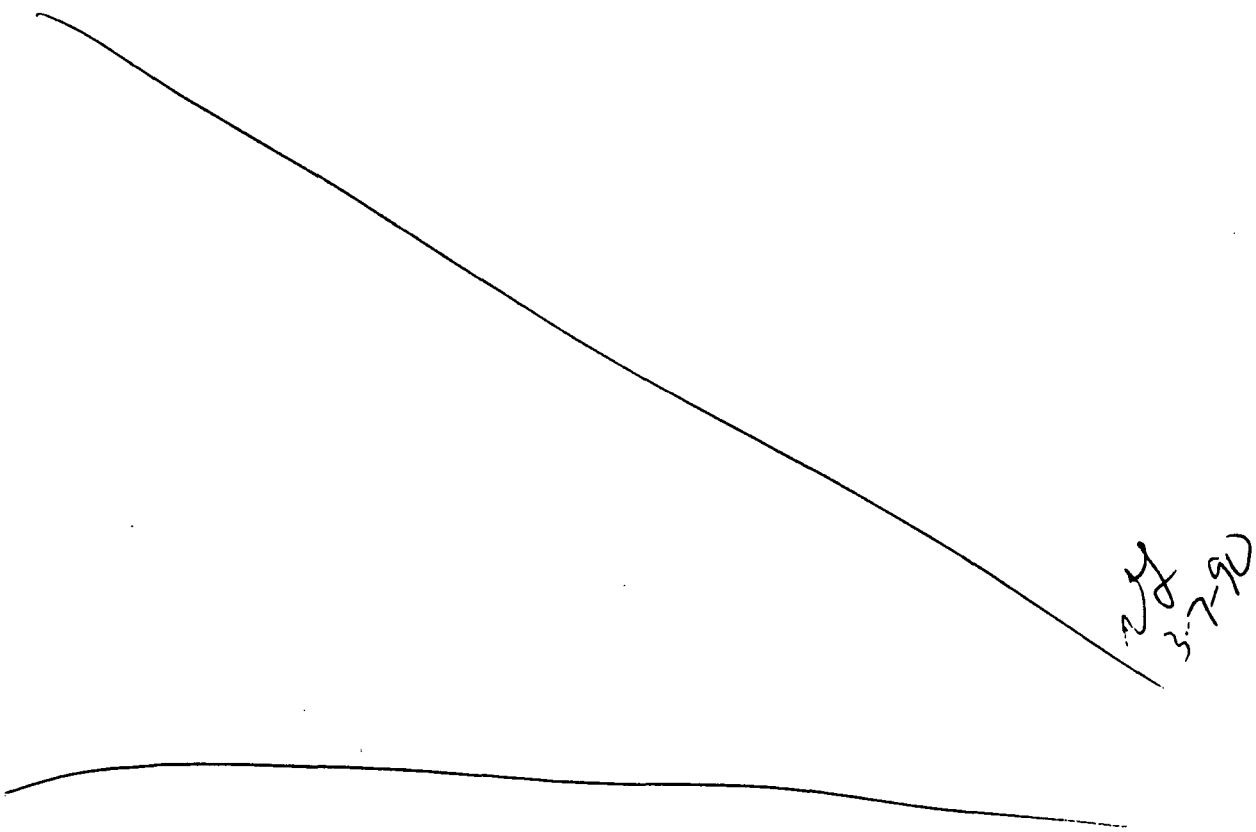
1442 B. FARRELL BEGINS AUGERING S3. MEETS RESISTANCE APPROX. 4" DOWN. STARTS NEW HOLE.

1448 AFTER SEVERAL ATTEMPTS AT AUGERING IN THE AREA OF THE INTENDED S3 LOCATION, IT IS ~~DISCOVERED~~ DECIDED 3-7-90 THAT MATERIAL USED TO FILL AREA CONTAINS TOO MUCH CONSTRUCTION DEBRIS (BRICK, CEMENT PIECES) TO AUGER BEYOND 6". S3 ~~to~~ 3-7-90 IS COMPOSITE OF 0-6". LOCATION IS 6' SOUTH OF LOCATION NOTED ON PG. 13.

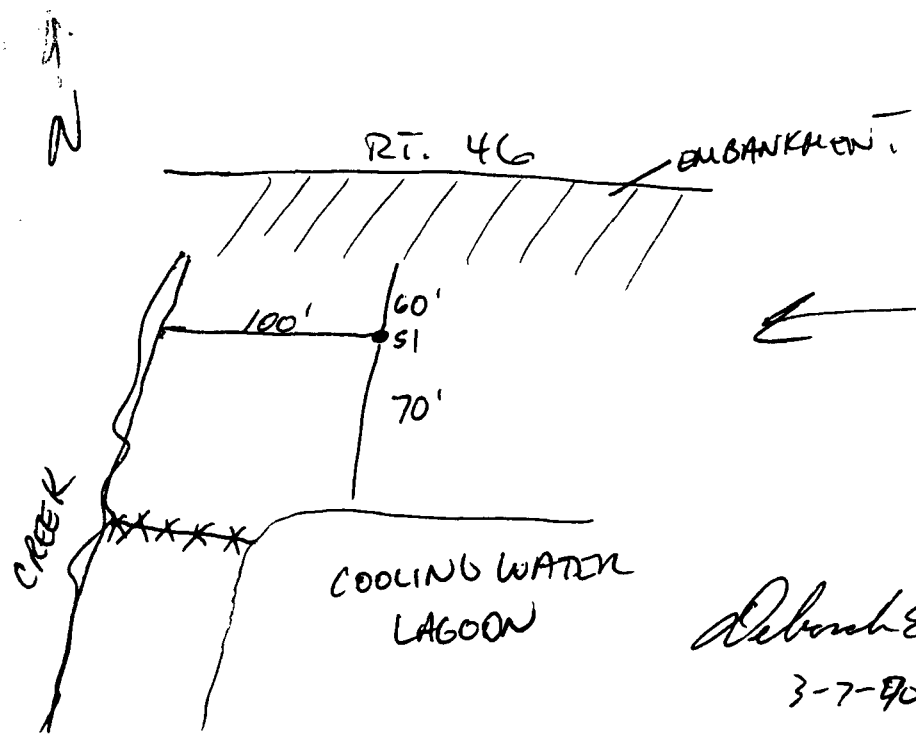
1453 B. FARRELL COLLECTS S3 (12S,P). SOIL LT. BROWN.

1458 PROCEED TO LOCATION FOR S2. AGAIN, FILL MATERIAL TOO MUCH BROKEN BRICK BITS AND CONCRETE BITS TO AUGER BEYOND 6". S2 WILL BE TAKEN 12' WEST OF LOCATION NOTED ON PG. 13. A TEST PIT WAS DUG APPROX. 30' NORTH OF S2. PIT WAS BACKFILLED WITH SAME MATERIAL.

Deborah E. Lahm 3-7-90 D. Hessemer 3/16/90



3-7-90



Deborah E. Richard

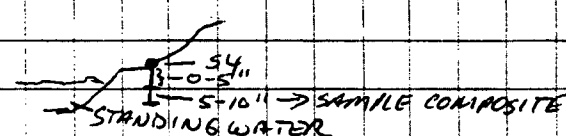
3-7-90

PFISTER CHEMICAL $I, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ$I

1506 13P,S - M. COLER COLLECTS S2. SOIL IS BROWN TO DARK BROWN. 5 GEESE ARE FROLICKING ATACENT TO THE EXISTING COOLING WATER LAGOON (BETWEEN CREEK AND LAGOON).

1520 S4 LOCATED AS DESCRIBED ON PG. ~~102~~ 14. 3-7-90

1523 14P,S - B. FARRELL COLLECTING S4. SAMPLE CONSISTS OF HUMIC MATERIAL WITH DETRITUS, ROOTS, INTERSPERSED. SAMPLE TAKEN AT 5 - 10" (COMPOSITE OF 5-10" FROM SURFACE).



10 methane equivalent UNITS ON OVA ON SAMPLE IN BOWL. MIGHT BE METHANE DUE TO HUMIC NATURE OF MATERIAL.

1552 S1 LOCATED APPROX. 60' SOUTH OF RT. 46 AND 100' FEET EAST OF CREEK AND 70' NORTH OF NW CORNER OF LAGOON. SOIL IS DARK BROWN TOPSOIL MATERIAL. COMPOSITE OF 4-10" DEPTH.

1558 15P,S - B. FARRELL TAKING S1.

1600 16P,S - LOOKING SOUTH ACROSS COOLING WATER LAGOON AT SITE. PHOTO TAKEN FROM FOOT OF RT. 46 EMBANKMENT.

Deborah E. [signature] 3-7-90

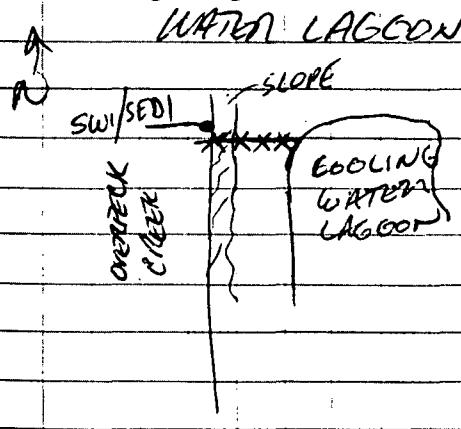
D. Hessemer 3/16/90

PFISTER CHEMICAL SI, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ&I

1602 17P,S - LOOKING SE AT SITE ACROSS COOLING WATER LAGOON @ 3-7-90 FROM FOOT OF 46 EMBANKMENT.

1604 18P,S - LOOKING EAST FROM FOOT OF 46 EMBANKMENT. WATER BODY IS COOLING WATER LAGOON.

1610 SW1/SED1 ADJACENT TO FENCE WHICH EXTENDS FROM COOLING WATER LAGOON TO EDGE OF CREEK (NORTH END OF COOLING WATER LAGOON) SAMPLE AT WATER'S EDGE ON EAST BANK OF CREEK.



1612 19P,S - B. FARRELL COLLECTING SW1.

1625 20P,S - M. COLER COLLECTING SED1.

1641 FINISH SAMPLING. BEGIN DECON AND SMO WRAP-UP.

[illegible]
3-7-90

D. Hessemer
3/16/90

PFISTER CHEMICAL SI - RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ&F

1715 FINISH DECON. GIVE SAMPLE ~~NUMBERS~~ TIMES TO SMD. CHECK SAMPLE COOLERS. 3-7-90

1728 TAPE COOLERS W/ CUSTODY SEALS

1748 CP CLEANED UP. DISPOSE OF DECON FLUIDS ON-SITE. SAMPLE COOLERS LOADED.

1758 D. LAMOND SPEAKS TO ROGER HUTH ABOUT SAMPLING LOCATIONS AND DRAFT SI REPORT AVAILABILITY. WILL SEND SAMPLE RECIEPT TO HUTH W/ SKETCH OF APPROXIMATE SAMPLE LOCATIONS SINCE HUTH DID NOT ACCOMPANY NUS PERSONNEL DURING SAMPLING. HUTH ALSO EXPLAINED THAT HE GOT TOO BUSY WITH OTHER WORK AND COULDN'T GET SAMPLE CONTAINERS FOR SPLITTING.

1802 LEAVE SITE.

MJ 3-7-90

Robert E. [illegible]
3-7-90

D. Hansen
3/16/90

PFISTER CHEMICAL SI, RIDGEFIELD, NJ
3-7-90
02-9001-13 NJDJ8 I
CASE NO. 13670
SAMPLE MANAGEMENT INFORMATION

ALL SAMPLES COLLECTED ON MARCH 7, 1990
(3-7-90)

INORGANIC SAMPLES SHIPPED TO:

WEYERHAUSER COMPANY
32901 WEYERHAUSER WAY
WTC ~~3F25~~ 2F25 3-16-90
FEDERAL WAY, WA 98003
ATTN: BONNIE CHAPPELL

ORGANIC SAMPLES SHIPPED TO:

CEINIC CORP
100 DERN KNAUSS DR.
S. TERRY INDUSTRIAL PARK
NARRAGANSETT, RI 02882
ATTN: VERONICA MORETTI

Deborah E. [illegible]
3-7-90

FISTER CHEMICAL SI, RIDGEFIELD, NJ
02-9001-13 NJDJ
3-7-90 CASE NO. 13670
SAMPLE MANAGEMENT INFORMATION (CONT'D)

NOTE: NUS SAMPLE NUMBERS PRECEDED BY NJDJ

NUS SAMPLE #	ORGANIC TRAFFIC #	INORGANIC TRAFFIC #	TIME OF COLLECTION	SAMPLE TYPE	LOCATION
-S1	AS273	MBAX12	1558	SOIL	SEE DIAGRAM PG. 20
-S2	AS274	MBAX13	1506	SOIL	SEE DIAGRAM PG. 13 (ADD 12' FURTHER WEST)
-S3	AS275	MBAX14	1453	SOIL	" " PG. 13 (ADD 6' FURTHER SOUTH)
-S4	AS276	MBAX15	1523	SOIL	" " PG. 14.
(S5) -SL1	AS277	MBAX16	1425	SLUDGE	" " PG. 13.
(S6) -SL2	AS278	MBAX17	1203	SLUDGE	" " PG. 14.
-SW1	AS279	MBAX18	1612	SURFACE WATER	" " PG. 21.
(MS/MSD) -SW2	AS280	MBAX19	1346	SURFACE WATER	" " PG. 18.
-SW3	AS281	MBAX20	1237	SURFACE WATER	" " PG. 16.
-SW4	AS282	MBAX21	1142	SURFACE WATER	" " PG. ~~16~~ 14. ~3-7-90
(DUP) -SW5	AS283	MBAX22	1245	SURFACE WATER	" " PG. 16 (DUP OF SW3).
-SED1	AS284	MBAX23	1625	SEDIMENT	" " PG. 21.
(MS/MSD) -SED2	BCY92	MBAX24	1358	SEDIMENT	" " PG. 18.
-SED3	BCY93	MBAX25	1250	SEDIMENT	" " PG. 16.
(DUP) -SED4	BCY94	MBAX26	1302	SEDIMENT	" " PG. (DUP OF SED3).
-RIN1	BCY95	MBBC96	1030	RINSATE	~~TWO~~ ~3-7-90 TROWEL RINSATE.
-RIN2	BCY96	MBBC97	1100	RINSATE	BOWL RINSATE.
-RIN3	BCY97	MBBC98	1120	RINSATE	SCOOP RINSATE.
-RIN4	BCY98	MBBC99	1140	RINSATE	AUGER RINSATE.
TRIP BLANK (TRBLK)	BCY99	—	1040	TRIP BLANK	TRIP BLANK FOR VOA'S.

3-7-90

D. Hessen 3/16/90

REFERENCE NO. 27

APPRAISAL OF WATER RESOURCES IN THE HACKENSACK RIVER BASIN, NEW JERSEY

By L. D. Carswell

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations 76–74

Prepared in cooperation with
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL
PROTECTION, DIVISION OF WATER RESOURCES

June 1976

Lockatong Formation

The Lockatong Formation has been identified at only one location, North Bergen, in the Hackensack River basin. Here it consists of argillite that has been altered to hornsfels during the emplacement of the adjacent diabase sill (Van Houten, 1964, p. 500).

The Lockatong overlies the Stockton Formation and is overlain by the Brunswick Formation. Laterally it intertongues with both the Brunswick and the Stockton Formations.

The Lockatong Formation is composed of cyclic units of chemical and detrital origin that average 15 feet in thickness. The detrital deposits are mudstones composed of abundant sodium feldspar, calcite, illite, and chlorite with very little quartz and potassium feldspar. In the chemical deposits the mudstone contains abundant analcime, albite, dolomite, calcite, illite, and chlorite. Dolomite and analcime casts of skeletal glauberite (and possibly anhydrite) crystals are common in some of the chemical deposits (Van Houten, 1965).

The formation is 90 feet thick at North Bergen. It thins northward and is entirely missing at the New York-New Jersey State line. It presumably thickens south of North Bergen and is 3,750 feet thick in western New Jersey and adjacent Pennsylvania.

Brunswick Formation

The Brunswick Formation overlies the Stockton Formation and forms the bedrock throughout most of the Hackensack River basin. It is reddish-brown and composed of mudstone, siltstone, sandstone, and conglomerate. In the southern part of the basin mudstone is the dominant lithology. The deposits gradually become coarser grained northward (Kümmel, 1898, p. 43 and Savage, 1968) so that in the northern part of the basin in New York the Brunswick consists largely of sandstone and commonly contains beds of conglomerate.

Gypsum and glauberite are reported to occur in the Brunswick Formation. Herpers and Barksdale (1951, p. 37) have reported the presence of gypsum from well borings in the Newark area just south of the Hackensack River basin. Glauberite has long been known to be present locally in the Brunswick Formation. Van Houten (1965, p. 834) reports that some beds enclose large complete molds of glauberite, as well as rosettes of elongate calcite casts. The coarser deposits are fledspathic and are commonly cemented by calcite (Van Houten, 1965, p. 834).

The thickness of the Brunswick Formation in the Hackensack River basin is unknown. Herpers and Barksdale (1951, p. 23) estimated the Brunswick to be about 6,000 to 7,000 feet thick in the Newark area just south of the Hackensack River basin.

Diabase

Sills and dikes of diabase (commonly called traprock) intruded the strata of the Newark Group. They are relatively resistant to erosion and form the Palisades ridge, Laurel Hill, and Little Snake Hill. Minor intrusive bodies of diabase are found at North Arlington and Bogota. The diabase dikes at Laurel Hill, Little Snake Hill, and Bogota cut the Brunswick Formation at high angles. The diabase at North Arlington is a sill, and that which forms the Palisades is a semiconcordant sill. The latter sill was fed by dikes and the upper and lower contacts of the sill locally cut across the bedding of the Stockton Formation. The Palisades diabase is 1,200 feet thick north of Englewood and thins southward to Jersey City (Darton, in Merrill and others, 1902, p. 9).

Diabase is a black, hard, dense rock composed of about equal amounts of plagioclase fledspar and augite. The texture ranges from finely crystalline in small dikes or chilled border zones of large intrusions to coarsely crystalline in the center of large intrusions where the rock solidified slowly thus giving the crystals a longer time to grow. Diabase is extensively quarried for road metal, particularly the dike at Laurel Hill and along the west flank of the ridge formed by the Palisades sill.

Quaternary Deposits

Pleistocene Deposits

Unconsolidated deposits overlying the Newark Group consist of sand, gravel, silt, and clay, that were deposited largely during the last (Wisconsin) glaciation of the Pleistocene Epoch. These deposits are generally thickest in the valleys and are thin or absent on hill crests. The deposits can be broadly subdivided into till and stratified drift. Till is an unsorted mixture of sand, gravel, silt, and clay deposited directly from the ice. It covers almost all the bedrock in the Hackensack River basin. The thickness of the till is variable; it averages 25 feet and is known to exceed 165 feet locally in the meadows area. Stratified drift consists of sand, gravel, silt, and clay which has been transported by water; it is poorly to well sorted. The stratified drift was deposited in contact with the ice or as outwash in flood plains, deltas, and as fine sediment in lakes during and after the retreat of the ice.

Stratified drift deposits of varved silt and clay, as much as 300 feet thick in the meadows, occur in two troughs (fig. 4) which roughly parallel the sides of the basin and probably connect a few miles south of the New York State line. Perlmutter (1959, p. 25) has reported similar deposits of laminated clay continuous with those of New Jersey in southern Rockland County, New York. Because of their varved character and lack of marine fossils, the silt and clay are presumed

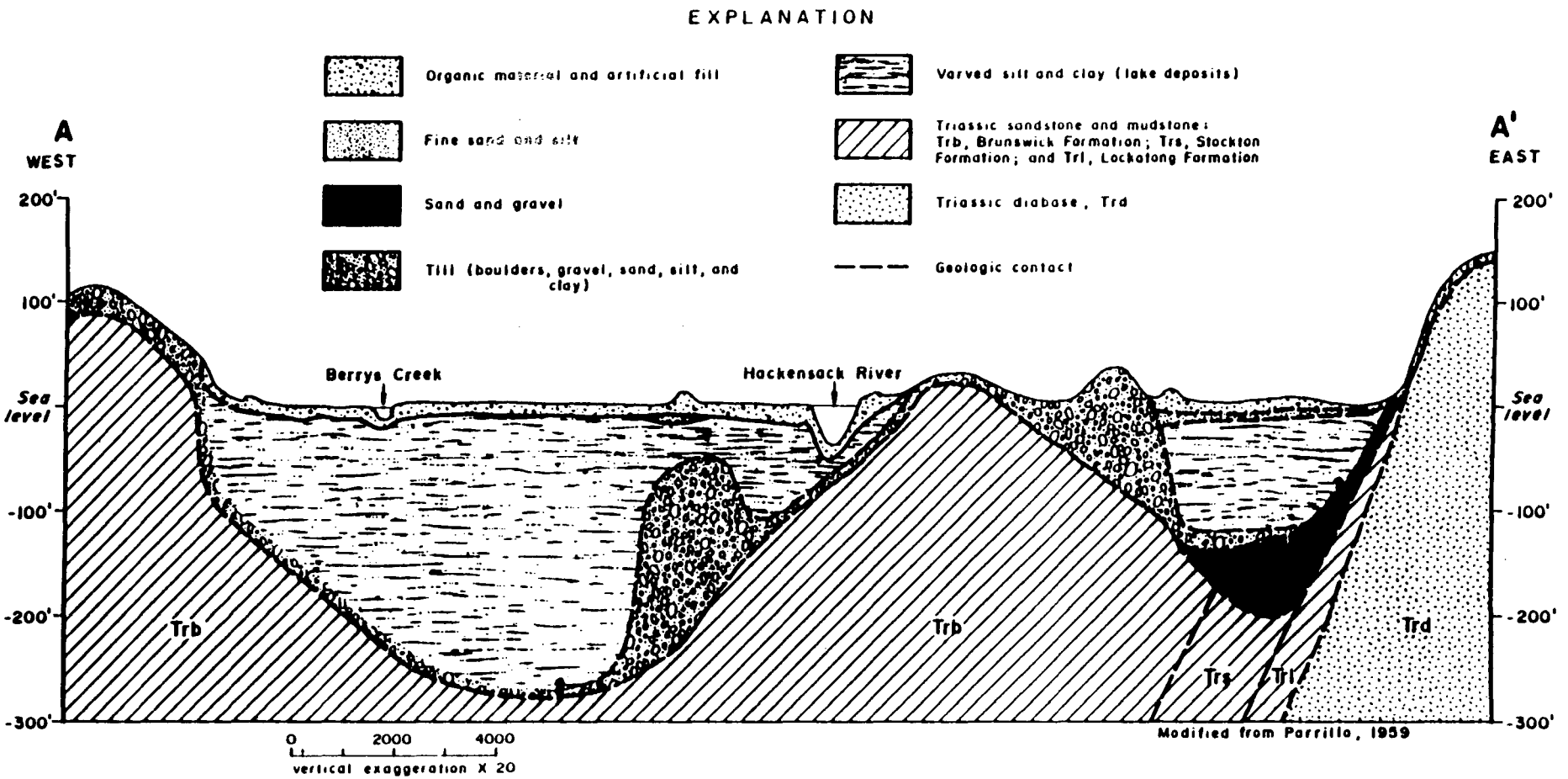


Figure 4.--Geologic section across the Hackensack Meadows area.

to have been deposited in fresh-water lakes (Lake Hackensack) which formed as the ice retreated. The varved silt and clay overlie till or bedrock and underlie Holocene deposits. In the eastern trough, from Jersey City northward to Ridgefield Park, however, the varved silt and clay overlies coarse sand and gravel also.

Coarse sand and gravel in the eastern trough underlie both till and lakebeds and are as much as 50 feet thick. They are fluvial deposits formed prior to the last glacial advance across the area. They were probably more extensive in the eastern trough and were deposited also in the western trough, but most of the materials have been removed by glacial scour. Thin deposits of stratified coarse sand and gravel underlie terraces along the sides of the valleys north of the Hackensack Meadows. Also several small hills of coarse sand and gravel, called kames, were formed in contact with the retreating ice north of the meadows.

In seven small areas (shown on figure 5), a part of the interval normally containing lakebeds is composed of beds of sand and gravel deposited as small deltas. The streams that built these deltas flowed eastward either in contact with the ice as the glaciers retreated or in Lake Hackensack. The valleys formed by these streams probably represent successively more southerly routes of the Passaic and Saddle River prior to the establishment of their present course.

Holocene Deposits

In the upper part of the basin, Holocene deposits are thin and of small areal extent. In the lower part of the basin, deposits of sand, gravel, silt, clay, peat, and root mat (decayed vegetation) of Holocene age directly underlie the Hackensack Meadows. Here fine-grained sand and silt overlie till and varved silt and clay of Pleistocene age. The sand deposits are lenticular and thicken to 50 feet downstream. Root mat overlies the sand and silt in most of the meadowland and is about 10 feet thick, but locally is 50 feet thick. Artificial fill consisting largely of trash and rubbish overlies the natural deposits in parts of the Hackensack Meadows.

HYDROLOGY

Surface Water

The Hackensack River basin can be divided into two areas which differ markedly in their hydrologic characteristics. The division arbitrarily set at the north edge of New Milford, New Jersey, separates the basin into an upper (northern) 113-square mile area and a lower (southern) 84-square mile area.

In the interval between 1927 and 1963 the average yearly total dissolved solids content of the Hackensack River in the upper area increased from 104 mg/l to 184 mg/l and the hardness calculated as calcium carbonate increased from 37 mg/l to 77 mg/l (analyses by the Hackensack Water Company). Some of the increased dissolved solids content resulted from cycling water through municipal and domestic sewage systems.

The Hackensack Meadows in the lower area of the basin are utilized for the disposal of 57 mgd of treated municipal sewage effluent and industrial waste, rich in nitrates and phosphates. During summer months, particularly when precipitation is deficient, brackish water from Newark Bay flows up the Hackensack River. The chloride concentration in Newark Bay is approximately 10,000 mg/l. In the late summer of 1961 concentrations as high as 4,000 mg/l were found in the Hackensack River as far north as Hackensack and concentrations of several hundred milligrams per liter occurred near the northern part of the area below New Milford. This high concentration of chloride makes the water in the lower Hackensack unsuitable for municipal and industrial processes although it is usable for cooling purposes.

Ground Water in Consolidated Rock

Stockton and Lockatong Formations

The Stockton Formation underlies a small area on the west side of the Palisades in the Hackensack River basin. Because of its limited areal extent in the basin and because it has hydrologic properties similar to those of coarser parts of the Brunswick Formation, the hydrology of the Stockton Formation is not discussed separately in this section.

The Lockatong Formation is thin and is known from only one exposure in the basin. No wells are known to penetrate it within the basin. Based on studies made elsewhere in New Jersey, the Lockatong can be expected to yield considerably smaller quantities of water than the finer-grained parts of the Brunswick Formation.

Brunswick Formation

Occurrence and Movement of Ground Water

Ground water in the Brunswick Formation occurs in a network of interconnected openings formed along joints, fractures, and solution channels. The intervening unfractured rock has negligible capacity to store and transmit ground water. The openings which contain ground water decrease in size and number with increasing depth below land surface. As some beds within the formation contain more openings than others, the ground-water system consists of a series of alternating tabular aquifers and aquicludes several tens of feet thick and dipping

to the northwest at approximately 10 degrees. The water-bearing fractures in each tabular aquifer are more or less continuous, but hydraulic connection between individual tabular aquifers is poor. These tabular aquifers generally extend downdip for a few hundred feet and are continuous along strike for thousands of feet.

In an areally extensive, homogeneous, and isotropic aquifer, drawdown caused by pumping a well is equal at all points equidistant from the pumped well. This is not true, however, in a consolidated rock aquifer, such as the Brunswick Formation, where water is stored in and transmitted through secondary openings, which generally have some preferential alinement and are better developed in some beds than they are in others. In the Newark area, Herpers and Barksdale (1951, p. 29) observed a drawdown in an observation well located 2,400 feet from a pumped well in a direction parallel to the strike of the beds, whereas no distinct drawdown was evident in observation wells 600 feet from a pumped well in a direction transverse to the strike. They also observed that as a consequence of heavy pumping, high-chloride water from Newark Bay intruded the aquifer farthest along the strike of the beds. Similar observations on the anisotropism of the Brunswick Formation have been documented by Vecchioli (1967) and Vecchioli and others (1969). Their pumping-test data indicate that the direction of highest permeability and of the movement of water in response to pumping characteristically parallels the strike of the beds. Therefore, well fields, wherever possible, should be designed with wells alined transverse to the strike of the beds in order to minimize interference.

Thickness and Distribution of Water-Producing Zones

Estimates of the thickness of the ground water producing zone in the Brunswick Formation have been based typically on review of drilling records and on the observation that when a well has not successfully tapped a water-yielding zone in the first 400 feet of drilling, water-yielding zones are not likely to be penetrated by drilling deeper.

The zone in the Brunswick Formation containing joints and fractures that are capable of storing and transmitting fresh water has been variously estimated to be between 200 and 600 feet thick (Herpers and Barksdale, 1951, p. 27; Greenman, 1955; Rima, 1955; Perlmutter, 1959; and Parker and others, 1964). The depth and distribution of water-producing zones in the Brunswick Formation were determined at Lansdale, Pennsylvania, by Rima (1955) who injected water into several wells and traced the flow of the injected water by means of a flow meter. Rima concluded that the Brunswick in the Lansdale area contains an upper water-table aquifer of low permeability occurring at depths of less than 250 feet below land surface; below this depth there are one or more artesian or semiartesian aquifers of high permeability, generally less than 20 feet thick each, and occurring at depths as great as 600 feet.

The zone of fresh ground water in the Hackensack River basin locally appears to be thinner than 200 feet. Injected slugs of salt water were traced with an electric logger in seven wells, 400 to 500 feet deep, in the main valleys of the Hackensack River and Pascack Brook. When the wells were pumped at 25 to 35 gpm with a drawdown of about 5 feet, about 60 percent of the water entered the wells from above a 100-foot depth; about 90 percent entered from above a 200-foot depth. Below a depth of 200 feet, the maximum yield was 2 gallons for 5 feet of drawdown for the entire lower part of the well (fig. 10). Although none of these wells penetrated high-yielding zones below a depth of 200 feet, other wells in the main valleys reportedly have penetrated high-yielding zones below a depth of 200 feet. The relatively small thickness of the zone containing water-bearing openings in the seven wells shown on figure 10 may be a result of the removal by glacial scour of a considerable thickness of rock containing water-bearing openings.

Where there are differences in hydraulic head between water-bearing openings internal flow occurs under nonpumping conditions within the well from the zone of higher head to the zone of lower head. In upland areas where recharge is dominant, hydraulic heads generally decrease with increasing depth and internal flow is downward in the wells. In lowland areas where discharge is dominant, heads increase with increasing depth and flow is upward in wells. In some wells the water may flow at the surface.

To confirm this flow pattern borehole-velocity measurements were made under nonpumping conditions in seven wells in the valleys of the Hackensack River and Pascack Brook. In four of the wells no internal movement of injected brine slugs could be measured during a half hour or more of observation. Two wells (Emerson 3 and Hillsdale 6) flowed at the surface and upward internal flow occurred also in the third well (Harrington Park 6) although the well did not flow at the surface (fig. 11).

Borehole-velocity measurements were made under nonpumping conditions in six wells located in the upland valleys near minor tributaries of Pascack Brook and in one well on the divide between the Hackensack and Saddle River drainages. Figure 12 shows borehole flow from water-yielding zones in the upper 175 to 200 feet downward to "thieving" zones extending to within 50 feet of the bottom of the wells. These wells range in depth from 270 to 350 feet. This downward flow is a consequence of penetrating water-bearing beds having successively lower hydraulic heads with increasing depth.

Two of the six wells in upland valleys, which showed downward internal flow at depth, simultaneously flowed at the surface at 10 to 15 gpm. Three of the six wells were subsequently pumped at rates from 35 to 100 gpm and additional borehole velocity measurements were made while pumping. In each case the water pumped from the well

came from a zone 50 to 100 feet below land surface. Below this depth the internal flow was downward but at a lower rate than under nonpumping conditions. Figure 13 shows the downward internal flow of water in Park Ridge well No. 16 under nonpumping conditions and the simultaneous upward and downward internal flow when the well was pumped at 100 gpm.

When the water level in a pumping well declines below the top of a water-producing zone the rate of drawdown can increase because that part of the producing zone which is above the water level in the well no longer contributes as much water to the well. Figure 14 shows the time-drawdown relation during a pumping test on Emerson well No. 3. When the well was pumped at 250 gpm the water level in the well declined at a constant rate until the water level dropped below the base of the casing and into the zone which was transmitting water to the well. When this occurred the rate of drawdown increased markedly.

Wells having downward internal flow under nonpumping conditions may not have penetrated to the maximum depth of the fresh-water circulation system. In the seven wells in which measurements were made (fig. 12), no measurable flow was found near the bottom of the well regardless of the depth of the wells. This lower zone of no flow may result from either plugging of fractures during drilling or lack of adequate development near the bottom of the borehole. The maximum velocity of the water moving down the borehole of most of the wells was near a depth of 200 feet below land surface. The lower or "thieving" zone in the deepest wells appear to be as thick or thicker than the producing zones (fig. 12). The zone which thieves under nonpumping conditions may become a producing zone while pumping, provided that there is sufficient drawdown in the well. Therefore, the potential yielding zone in the uplands or in small valleys in the uplands is probably more than 300 feet thick and may be as great as 400 to 500 feet thick. The difference in head between the top producing zone and the base of the lowest thieving zone is not known, but a suggestion of its magnitude is provided by data from a well in Park Ridge. Deepening the well from 200 to 500 feet caused a drop of 30 feet in the water level. This new water level in the well represents a composite of all heads at the well and is presumably higher than the head in the lowest water-bearing zone.

The internal flow in wells under nonpumping conditions results from the penetration of a hydrologic system having hydraulic gradients that have vertical components. Flow through the borehole therefore is a short-circuiting of natural flow. One effect of this short-circuiting is to accelerate the movement of water from areas of recharge to areas of discharge. The effects of short-circuiting can be put in perspective when related to recharge. For example, precipitation at a rate of 45 inches per year averages about 3,340 gallons per day per acre. If one half of the precipitation is

evaporated or transpired, 1,670 gallons remain to run off directly to streams and to enter the ground-water system. A well having downward internal outflow of only 1 gallon a minute, or 1,440 gpd, is accelerating the movement of all the recharge available from about one to two acres of land. A number of such wells in an area with downward flow can result in a substantial water-table decline.

Another consequence of downward internal flow in wells is that the cleaning and development of the lower part of a well is made difficult or impossible unless the head relations in the well are artificially reversed because any surging action will tend to move drilling mud out into fractures in the "thieving zone" in the well. However, the downward flow assists in the cleaning and development of the upper part of the hole where there is a gradient toward the borehole. Well development generally increases the yield of a consolidated rock well; but which zones are actually developed is rarely known.

Yields and Specific Capacities of Wells

In most of the Hackensack River basin and Bergen County, the Brunswick Formation yields only small to moderate supplies of ground water to wells. A few wells outside the study area in Ridgewood, N. J., have yields of 500 to 1,000 gpm.

The frequency of occurrence of yields, specific capacities, and depths from available data on wells tapping the Brunswick Formation in Bergen County are shown on figures 15, 16, and 17. In general for the same frequency of occurrence, industrial and municipal-supply well yields are 10 times as great as domestic well yields. Industrial and municipal-supply wells are at least twice as deep and have twice the specific capacity of domestic wells. The median industrial or municipal-supply well is 260 feet deep, yields 100 gpm, and has a specific capacity of 1.5 gpm per foot of drawdown; the median domestic well is 120 feet deep, yields about 10 gpm, and has a specific capacity of about 0.7 gpm per foot of drawdown.

The difference between yields of industrial and municipal-supply wells and those of domestic wells result from the vastly different requirements of the owner, and the economics of well construction and development. For most domestic purposes small-diameter (6-inch) wells are drilled and the well is typically located for convenience and low costs. A well yield of a few gallons a minute is adequate and when such a yield is obtained drilling is stopped. Little effort is expended in developing the maximum potential yield of the well. In contrast, a maximum supply of ground water is sought for industrial or municipal-supply wells. Such wells are of large diameter (8 to 12 inches) and may be located utilizing the advice of a ground-water consultant. The consultant may specify and supervise drilling techniques and the extensive development and testing of the completed well.

Ground Water in Unconsolidated Deposits

Ground water occurs in the interstices, or pores, between grains in unconsolidated deposits. Unconsolidated deposits in the Hackensack River basin consist of till, varved silt and clay, alluvium, sand and gravel. Small quantities of ground water are stored in till which overlies the bedrock throughout most of the basin. Till characteristically has low permeability because of its poorly sorted nature and does not yield water to wells in sufficient quantities for other than domestic use. Deposits of varved silt and clay such as the lake beds that overlie bedrock and till in most of the meadows, are poorly permeable and impede the movement, discharge, and recharge of water. Alluvium is thin, not widely distributed, and has little value as a source of ground water.

Sand and gravel may store and transmit large quantities of ground water where they are coarse, saturated, and near a source of recharge. However, areas in the Hackensack River basin where large supplies of ground water may be developed from coarse sand and gravel are limited. In the upper area of the basin only small quantities of ground water have been developed from unconsolidated deposits with the exception of a few wells at Park Ridge where recharge is induced from Pascack Brook. Furthermore, large-scale ground-water development in the limited areas along stream valleys would reduce streamflow which is currently utilized for water supply at Oradell Reservoir.

Coarse sand and gravel deposited in deltas at the mouths of streams that entered Lake Hackensack (fig. 5), yield large supplies of ground water at Hackensack, Rutherford, and Newark. Deltaic deposits at Westwood, Ridge Edge, Lyndhurst, and in the southern part of Hackensack have not been outlined by drilling and may be small and thus have little potential as sources of ground-water.

In a narrow area between the eastern buried valley and the Palisades Ridge is a poorly defined but probably continuous sequence of coarse sand and gravel that extends at least as far north as Englewood and possibly as far north as Closter (fig. 5). Near North Bergen, wells yielding more than 300 gpm derive water from the sand and gravel where they are in hydraulic connection with the Hackensack River.

The chemical quality of ground water in the unconsolidated deposits in the Hackensack Meadows is highly influenced by the quality of water in the Hackensack River and waters that flood the meadows as a result of tides. Pumping has reversed the natural gradients and induced recharge from these generally highly mineralized sources. For example, heavy pumping at Hackensack and near North Bergen has induced recharge of poor chemical quality from the Hackensack River into the sand and gravel aquifers.

As the upper area of the basin has become more urbanized and water demands have increased, progressively smaller quantities of fresh water have been permitted to enter the meadows from upstream sources of the Hackensack River. During the drought from 1960 to 1965 practically no fresh water flowed into the meadows. Furthermore, the lower area is used for disposal of 57 mgd of sewage and industrial wastes, an amount equivalent to about one third the average precipitation that falls on the area. The preceding combination of factors makes surface water of poor quality available for induced recharge to the unconsolidated deposits in the meadows. This water is suitable for cooling if precautions are taken to prevent corrosion by water that may have a chloride content of several thousand milligrams per liter.

SUMMARY AND CONCLUSIONS

Bedrock in the Hackensack River basin is composed of sedimentary and igneous rocks of the Newark Group of Triassic age. The Brunswick Formation of the Newark Group is composed of mudstone, siltstone, and sandstone and is the most important bedrock aquifer in the basin. Water occurs in this formation in a network of interconnected openings formed along joints, fractures, and solution openings. Because of preferential alinement of these openings the formation is anisotropic: greatest permeability and the major component of water movement in response to pumping is parallel to the strike of the beds. Consequently, well fields designed with wells alined transverse to the strike would have minimum interference between wells.

The zone in the Brunswick Formation that contains fresh-water-bearing openings is generally less than 200 feet thick in the main valleys of the Hackensack River and Pascack Brook. In upland areas the zone is greater than 300 feet thick and may be as much as 400 to 500 feet thick.

The median reported yield of industrial and public supply wells tapping the Brunswick Formation in Bergen County, which includes most of the Hackensack River basin is 100 gpm. The median specific capacity of wells tapping the Brunswick is 1.5 gpm per ft drawdown. The most productive wells (300 to 600 gpm) are located in narrow belts on the east and west flanks of the Hackensack Meadows where the Brunswick Formation is hydraulically connected to coarse-grained, highly permeable, unconsolidated deposits.

The Stockton and Lockatong Formations of the Newark Group have very limited areal extent and are not important aquifers in the basin. Diabase, an igneous rock, yields small quantities of water to wells; generally less than 35 gpm to industrial wells.

Overlying the Newark Group throughout the basin are unconsolidated deposits consisting of alluvium of Holocene age and till, varved silt and clay, and sand and gravel of Pleistocene age. The sand and gravel have value as a source of ground water, yielding large supplies (greater than 300 gpm) of ground water locally.

Ground water from the Brunswick Formation in the upper area of the basin is relatively low in mineral content and of moderate hardness. Water from the Brunswick in the lower area is hard to very hard and highly mineralized. Here the water quality in both the Brunswick and unconsolidated deposits is influenced by water quality of the Hackensack River and Newark Bay. Heavy pumpage has induced recharge of poor quality water, high in chloride, from these sources. Both surface and ground-water quality in the lower area is influenced by the disposal of large quantities of sewage and industrial wastes in the Hackensack Meadows.

Utilization of surface water in the Hackensack River basin above Oradell Reservoir is approaching its maximum limit. Consequently, development of additional water supplies from the ground water reservoir is limited, because it would decrease surface-water supplies. Ground-water development is limited also by the small amount of ground water stored in the basin and by the intrusion of surface water of poor quality into the ground-water reservoir in the lower area of the basin.

TABLES

Table 1 indicates the construction and yield characteristics of selected wells in the Hackensack River basin. Aquifer designations are: Trb Brunswick Formation, Trdb diabase, Q Quaternary deposits. The use of the well is indicated by letter symbols which are: A abandoned, C commercial, D domestic, I industrial, and T test well. In the remarks column the current status and use of the well and quality of produced water is further defined where known. The letters BT indicate that borehole velocity measurements were made in the well during the course of this investigation. The location of the wells is shown on figure 2. The wells are numbered serially in each political subdivision. Table 2 is a compilation of chemical data on water from wells in the New Jersey part of the basin.

Table 1.--RECORDS OF SELECTED WELLS IN THE HACKENSACK RIVER BASIN

	Owner or Tenant	New Jersey Grid No.	Driller	Year Drilled	Altitude above msl (ft)	Total depth drilled below lsd (ft)	Depth to bedrock below lsd (ft)	Diameter of well (in)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below lsd (ft)	Yield (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Use	Remarks
	HUDSON COUNTY-N. BERGEN-Cont.																
3	Neer Corp.	26.14.1.5.5	Kindrand	9-14-60	15	303	14	8	21	--	Trdb	30	35	270	.1	I	
4	Consolidated Bleaching Co.	26.14.1.8.3	Storbott	7-31-50	10	528	93	10-8	93	--	Trdb	Flows	44	155	.3	I	
5	Gibralter Paper Co.	26.14.1.4.6	Borrows	11-10-51	5	278	120	8	120	?	Q-Trdb	12	10	82	.12	T	Abandoned
6	do.	do.	do.	1-23-52	1	170	118	6	136	--	--	--	--	--	--	T	
7	Grand City Cont. Corp	26.13.6.8.9	Artesian	4-5-51	5	[illegible]	225	6	--	--	--	--	--	--	--	--	
8	Armour & Co.	26.14.1.7.3	----	--	5	30.	--	--	--	--	Trb	--	98	--	--	I	
9	do.	do.	----	--	5	358	40	8	--	--	Trb	--	15	--	--	I	
10	do.	do.	----	1930	5	138	--	12	--	--	Q	--	250	--	--	I	33 ppm cl 1933 230 " cl 1937 440 " cl 1938
	do.	do.	----	1933	5	113	113	24-12	--	--	Q	--	325	--	--	I	
	do.	do.	----	1937	5	108	--	12	--	--	Q	--	--	--	--	I	
	do.	do.	----	1937	5	113	113	24-12	--	--	Q	--	--	--	--	I	
	do.	do.	----	1937	5	106	106	18-12	--	--	Q	12.5	100	63.5	4.7	I	

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Well	Owner or Tenant	New Jersey Grid No.	Driller	Year Drilled	Altitude above msl (ft)	Total depth drilled below lsd (ft)	Depth to bedrock below lsd (ft)	Diameter of well (in)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below lsd (ft)	Yield (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Use	Remarks
	BERGEN COUNTY-WOODCLIFF LK-Cont.																
9	Hackensack W C	23.33.9.6.4	Artesian	4-65	105	400	112	8	113	--	Trb	21	55	179	.3	T	BT
10	Boro of Park Ridge	23.33.5.6.7	Rinbrand	1965	450	300	--	8	60	--	Trb	26	30	--	--	T	
	HUDSON COUNTY-HARRISON																
1	Worthington Pump & M Co.	26.12.9.5.9	----	--	15	400	295	9	--	--	Trb	80	250	40	6.3	I	
2	Harmon Color Wks. Inc.	26.12.9.5.9	----	1910	10	362	--	8	--	--	Trb	100	200	100	2.0	I	Cl 1,800 in 1950
3	T. Schriver Co	26.12.9.5.5	----	--	15	40	--	8	--	?	Q	29	46	--	--	I	
4	do.	do.	----	--	15	40	--	6	--	?	Q	29	30	--	--	I	
5	Liquid Carbonic Corp.	26.12.9.8.1	----	1938	20	489	307	8	--	--	Trb	67	225	87	2.6	I	
6	do.	do.	----	[illegible]	20	465	320	8-6	--	--	Trb	67	90	90	1.0	I	
7	Hyatt Roller Bearing Co.	26.12.9.8.4	----	[illegible]	9	950	277	8-6	395	--	Trb	79	336	--	--	I	
8	do.	do.	----	1913	9	987	282	8	--	--	Trb	--	347	--	--	I	
9	do.	do.	----	[illegible]	8	241	--	8		--	Trb	--	--	--	--	I	

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	Owner or Tenant	New Jersey Grid No.	Driller	Year Drilled	Altitude above msl (ft)	Total depth drilled below lsd (ft)	Depth to bedrock below lsd (ft)	Diameter of well (in)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below lsd (ft)	Yield (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Use	Remarks
	HUDSON COUNTY-HARRISON-Cont																
0	Hyatt Roller Bearing Co.	26.12.9.8.4	----	--	8	90	--	8	--	--	Q(?)	11.5	150	--	--	I	
1	Driver Harris Co.	26.12.9.7.6	----	--	9	337	292	12	--	--	Trb	76	600	--	--	I	Cl 1.680 1948
2	do.	do.	----	1946	9	300	279	8	--	--	Trb	18	469	41	11.4	I	
3	Pub. Serv. & Gas Co.	26.12.9.7.9	----	1932	11	699	218	12	--	--	Trb	37	406	139	2.9	I	
4	Crucible Steel Co. of America	26.12.9.8.4	----	1943	10	600	160	16-10	--	--	Trb	134	600	66	9.1	I	
5	Delaware & Western RR	26.12.9.8.3	H. W. Smith	8-27-52	20	225	--	6	115	--	Trb	96	18	--	--	I	
	JERSEY CITY																
1	Dodge & Bliss	26.13.8.9.5	----	1920	20	80	--	--	--	--	Q	--	50	--	--	I	
2	Spalding & Jennings	26.23.2.5.7	----	--	20	422	57	--	--	--	Trs	--	75	--	--	I	
3	Crucible Steel Co. of America	26.23.1.9.3	----	1925	12	210	--	--	--	--	Trb	--	100	--	--	I	
	KEARNY																
1	Wilpet Tool Mfg. Co.	26.12.9.6.4	Rinbrand	4-26-61	10	700	--	10	290	--	Trb	40	520	135	3.8	I	
2	Pratt Tool & Mfg. Co.	26.12.6.9.9	Frank Bott	2-16-60	8	590	46	8	54	--	Trb	67	185	113	1.6	I	

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Well No.	Owner or Tenant	New Jersey Grid No.	Driller	Year Drilled	Altitude above msl (ft)	Total depth drilled below lsd (ft)	Depth to bedrock below lsd (ft)	Diameter of well (in)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below lsd (ft)	Yield (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Use	Remarks
	HUDSON COUNTY-KEARNY-Cont.																
3	Pfaft Tool & Mfg. Co.	26.12.6.9.9	Frank Bott	1963	8	740	60	8	--	--	Trb	80	145	120	1.2	I	
4	E. I. DuPont	26.12.6.8.9	Stothoff	10-9-20	20	401	166	10-4	175	--	Trb	29	148	156	1.0	I	
5	do.	26.12.9.3.3	do.	10-30-20	5	202	124	10	130	--	Trb	--	174	--	--	I	
6	do.	26.13.4.7.7	do.	[illegible]-9-21	5	504	185	10	221	--	Trb	28	124	40	3.1	I	
7	E. I. DuPont	26.12.6.9.8	do.	[illegible]-16	70	802	47	10	49	--	Trb	25	90	--	--	I	
8	Joe Davis Plastics Co.	26.12.9.5.3	----	930	10	350	17	8	--	--	Trb	17	168	54	3.1	I	
9	do.	26.12.9.5.3	----	[illegible]8	10	400	26	--	--	--	Trb	--	20	--	--	I	
10	Lawter Chem.	26.13.7.8.9	----	1939	8	200	112	8	--	--	Trb	--	--	--	--	I	Abandoned
11	American Stores	26.13.7.9.8	----	1941	8	1041	82	8	--	--	Trb	28	60	322	.2	I	
12	Koppers Gas & Coke Co., Inc.	26.13.8.8.2	----	1915	5	--	--	--	--	--	Trb	--	53	--	--	--	
13	N. Verzalero	26.12.9.6.1	Burrows	--	5	235	145	6	146	--	Trb	100	150	15	10	I	
	N. BERGEN																
1	Meer Corp.	26.14.1.5.6	Burrows	6-6-50	4	153	32	8	32	--	Trdb	2	100	22	4.5	I	
2	do.	26.14.1.5.3	do.	9-56	5	200	--	8	33	--	Trdb	--	60	--	--	I	

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	HUDSON COUNTY-N. BERGEN-Cont.																
15	Nat. Cylinder Gas Co.	26.14.1.8.2	----	1935	5	--	70	--	--	--	Trb	--	75	--	--	I	685 ppm cl 1938 430 ppm cl 1960
16	Monder Cork	26.14.1.8.7	----	1954	50	65.5	--	12	--	--	Q	13	305	15	20.3	I	
17	W. Bergen Realty Co.	26.13.6.6.6	----	1962	8	72	--	16-12	--	--	Q	20	90	50	1.8	C	Brackish
18	DeAngelis Packing Co.	26.13.9.2.4	----	1947	10	60	60	10	--	--	Q	5	15	23	.7	I	
19	Chas. Miller & Co.	26.13.9.2.4	----	1956	5	35	--	12	--	--	Q	.5	700	14.5	48.3	I	
	SECAUCUS																
1	L. Vander Wall	26.13.1.7.6	Rinbrand	[illegible]	5	200	17	6	17	--	Trb	5	20	5	4.0	I	
2	Keystone Metal	26.13.6.4.2	do.	[illegible]	10	200	18	8	18	--	Trb	Flows	76	101	.8	I	
3	do.	do.	do.	8-[illegible]-60	10	150	--	8	21	--	Trb	35	150	110	1.4	I	
4	Erie Railroad	26.13.8.1.1	----	[illegible]	15	184	15	10	--	--	Trb	6	200	18	5.3	A	Water unsuitable for boiler use
5	do.	do.	----	[illegible]	15	182	16	10	--	--	Trb	--	5	--	--	A	
6	Charles Bray, Inc.	26.13.6.7.6	----	1915	10	465	--	--	--	--	Trb	--	36	--	--	A	

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Well	Owner or Tenant	New Jersey Grid No.	Driller	Year Drilled	Altitude above msl (ft)	Total depth drilled below lsd (ft)	Depth to bedrock below lsd (ft)	Diameter of well (in)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below lsd (ft)	Yield (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)	Use	Remarks
	HUDSON COUNTY-N. BERGEN-Cont.																
7	Charles Haag, Inc.	26.13.6.7.6	Stothoff Co	5-1-53	10	294	20	10	31.6	--	Trb	12	65	138	.5	A	
8	Gateway Motor Inn.	26.13.6.5.1	----	1962	8	160	--	6	--	--	Trb	8	55	7	7.[illegible]	C	

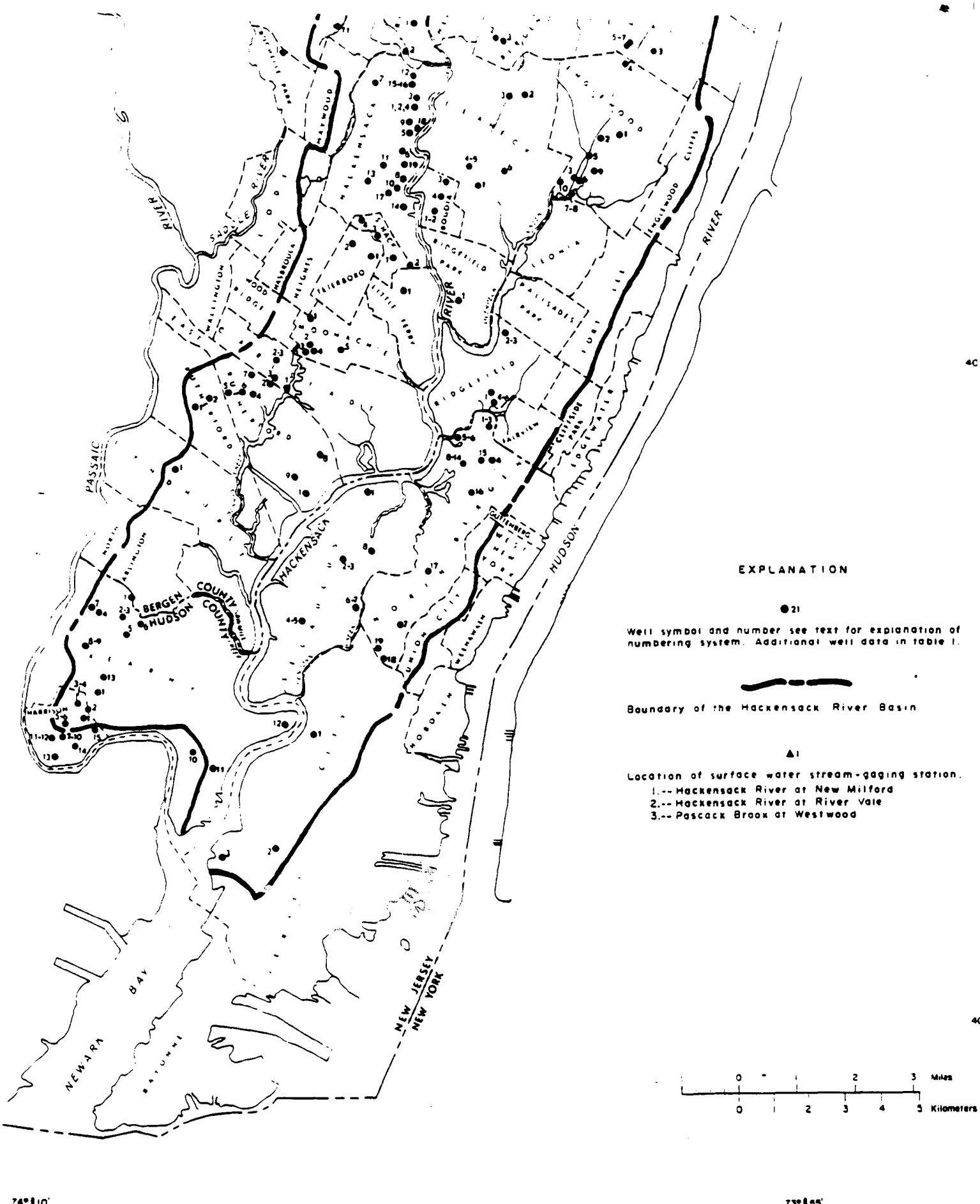

Figure 2.-- Well location map of the Hackensack River basin.

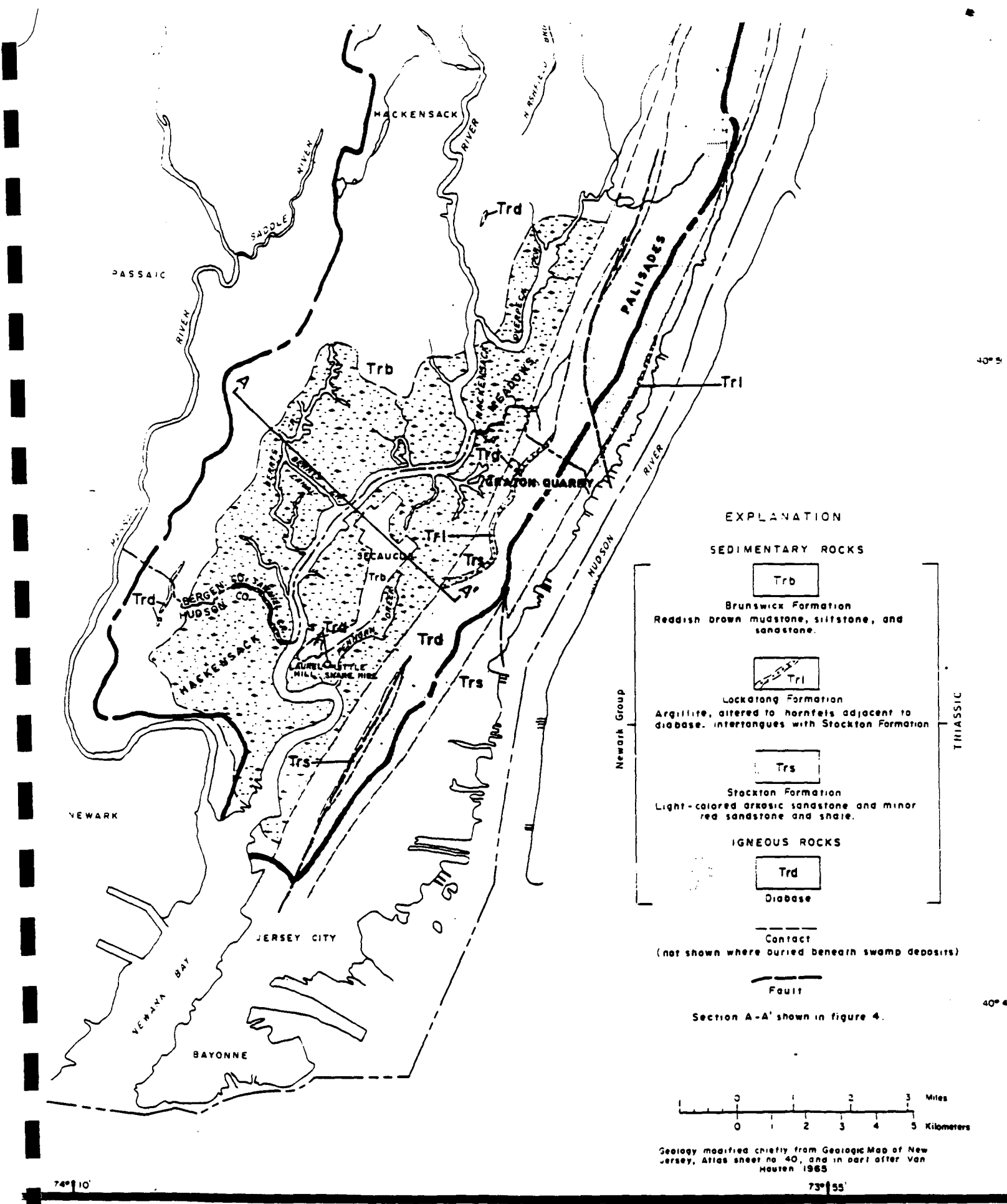

Figure 3.-- Geologic map of consolidated rock units in the Hackensack River basin

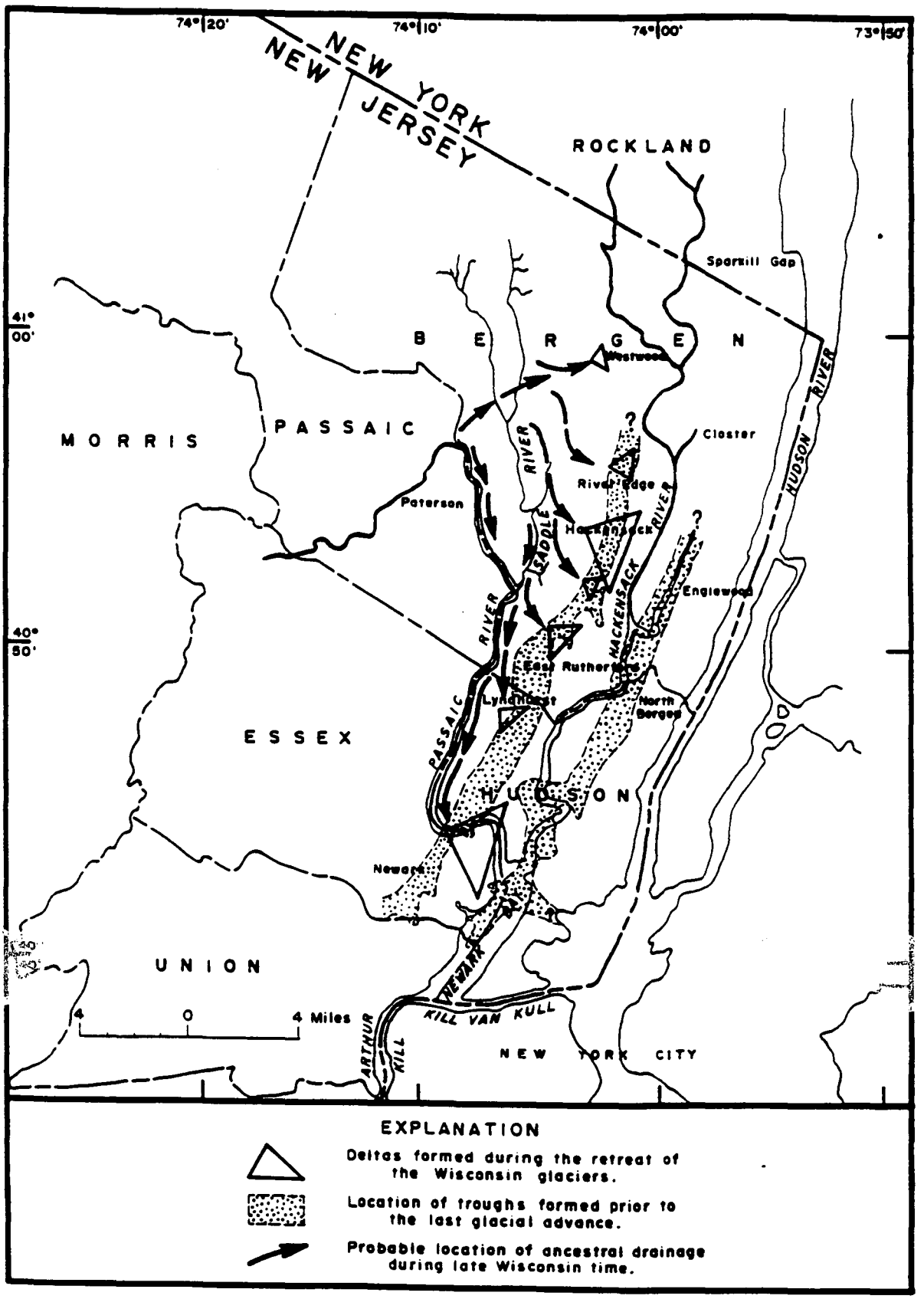

Figure 5.--Map showing the location of drainage and deltas formed during the retreat of the Wisconsin Glaciation.

REFERENCE NO. 28

A GERAGHTY & MILLER SPECIAL REPORT

The New Jersey Ground-Water Situation

by David W. Miller

August, 1979 (see telecon note - 02-880332-SI ~~02-8805-01~~ 5/12/88

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SUMMARY

Total ground-water pumpage in New Jersey is on the order of 750 mgd (million gallons per day), with almost 450 mgd withdrawn from the unconsolidated Coastal Plain aquifers of southern New Jersey, and 300 mgd from the sand and gravel and rock aquifers of northern New Jersey.

Because the Coastal Plain aquifers have a great areal extent, high recharge rate, and tremendous storage capacity, the ground-water potential for this region is at least several times the present rate of pumpage. Constraints on the future use of this resource will be caused by the impact of pumpage on streamflow, the severity of contamination from man's activities, and the economic and institutional feasibility of transporting ground water from undeveloped aquifer areas to water-short localities.

In some areas of heavy pumpage, such as eastern Monmouth and Ocean Counties, the development of surface-water sources to supplement ground-water supplies will be necessary. Other overstressed areas, such as western Camden and northeastern Middlesex Counties, can be served by regional well fields located outside of the heavy demand centers.

In several northern New Jersey counties, such as Bergen, Essex, southern Passaic, Union and eastern Morris, heavy pumpage from the Brunswick shale and the stratified drift deposits, together with consumptive water use, has overstressed aquifers locally. Some potential for developing new supplies does exist at points distant from present demand.

In western Morris, northern Passaic, northern Hunterdon, Sussex, and Warren Counties, ground-water development has not been extensive because of the area's rural nature. However, except for some limestones, the area's rock aquifers are relatively poor. Stratified drift deposits offer a greater potential, but they have not been sufficiently explored. Their full development would tend to diminish streamflow.

Urbanization and industrial activities have degraded ground-water quality, and will continue to limit the development of ground-water resources. The discovery of heavy metals and organic chemicals in ground-water supplies has forced the restriction and closing of public supply and domestic wells. Much of this contamination is related to land disposal of industrial and municipal waste and leaks and spills of petroleum and chemical products.

In spite of numerous local and some regional problems related to over-pumping and contamination, New Jersey's dependency on ground water for public supply, industry, and agriculture will increase in the future. This will be due, in large measure, to the economic, environmental, and institutional problems related to securing, transporting, treating and storing large volumes of surface water.

THE AQUIFER SYSTEMS

For a general discussion of ground-water conditions in New Jersey, the state can be divided into three broad geographic areas based on the distinctive rock types that occur in each (Figure 1). The Coastal Plain physiographic province is the largest area, and encompasses more than 5,000 square miles in the southern portion of the state. The geology of the Coastal Plain is characterized by a southeasterly dipping and thickening sequence of unconsolidated sediments.

The Triassic Lowlands are underlain by thousands of feet of red shale, with some sandstone, siltstone, conglomerate, basalt and diabase. The geologic formations in the Highlands region consist of hard crystalline rocks such as the Precambrian gneisses and quartzites; carbonates, such as the Kittatinny limestone; and relatively dense sandstones, conglomerates and shales, such as the Martinsburg.

Bedrock in both the Triassic Lowlands and the Highlands is overlain by unconsolidated deposits of glacial origin. In places, these surficial deposits are thick and permeable, and are commonly in direct hydraulic connection with the underlying bedrock and adjacent streams, rivers, and lakes.

In general, the principal water-bearing zone of the Triassic rocks ranges from less than 200 feet to 600 feet in depth. The median depth of industrial and municipal supply wells in Bergen County is 260 feet. High-yield wells tapping this aquifer in Essex County are between 300 and 400 feet deep. There appears to be a direct relationship between well yield and thickness of overlying unconsolidated glacial deposits. Wells generally produce more where the overlying deposits are relatively thick, stratified, and coarse-grained. These surface deposits are often in direct hydraulic connection with the bedrock, and act as a source of recharge because of their greater capacity to receive and store precipitation (Figure 12).

A number of high capacity wells tap the Triassic rocks. In Essex County, yields of 35 public supply, industrial, and commercial wells range from 35 to 820 gpm (gallons per minute) and average 364 gpm. Wells over 300 feet deep and larger than 8 inches in diameter have a median yield of 230 gpm in Passaic County. However, the ability to develop high capacity wells is not uniform throughout the region. Many wells drilled during exploration programs are never equipped as production wells because of poor yields.

Igneous rocks associated with the sedimentary formations, principally diabase and basalts, are highly resistant to erosion and form the ridges of the Watchung Mountains and the Palisades. They are poor aquifers, tapped primarily for domestic purposes by wells yielding 5 gpm or less.

Precambrian Rocks and Paleozoic Sediments: The Highlands Region is underlain by dense bedrock of limited ground-water potential. Rocks in the area immediately adjacent to the Triassic Lowlands, and situated in a northeast-southwest band through the central portion of northern New Jersey, consist chiefly of Precambrian gneisses (Figure 11). These crystalline rock formations contain ground water in joints and fractures of limited extent and storage capability. Well yields are relatively small, seldom over 150 gpm. In Sussex County, 45 percent of the domestic wells tapping the Precambrian gneiss yield 5 gpm or less.

Several very dense limestone formations containing solution cavities are associated with the Precambrian gneisses. In rare instances where these cavities have been penetrated by wells, yields can exceed several hundred gpm. In most cases, ground water is contained in joints and fractures which typically yield 15 gpm or less to wells.

The northwestern portion of the state is characterized by a parallel series of valleys and ridges composed of Paleozoic age sedimentary rocks (Figure 11). The ridges are resistant limestones, sandstones, and conglomerates. The valleys are underlain by softer shales, siltstones, calcareous shales, and limestones. Although these rocks are not good aquifers, they are an important source of water for domestic wells. The only exception is the Kittatinny Limestone, which underlies portions of Sussex, Warren, and Hunterdon Counties. In Hunterdon County, industrial wells tapping this formation and penetrating solution cavities typically yield 400 gpm; a few produce as much as 1,500 gpm.

Glacial Sediments: Unconsolidated deposits overlying rock in northern New Jersey consist generally of till, clay, or stratified drift. These deposits are thickest in the valleys and thin or absent in upland areas. Permeable sands and gravels contained within the valley fill sediments that are suitable for ground-water development range in thickness from 50 to several hundred feet. Individual beds that can support high capacity wells are not extensive, and lithology may change radically over as little as 100 feet within the same valley. Well yields commonly reported for the glacial sediments represent successful wells located from a program of test drilling and pumping.

Although the rock aquifers have been mapped in some detail throughout both the Triassic Lowlands and the Highlands Region, the areal extent of important glacial aquifers is relatively unknown except in some of the more heavily developed areas of eastern Morris and western Essex Counties, Union County, the Ramapo River subbasin, and the Rockaway River subbasin (Figure 12).

Public supply and industrial wells tapping the more permeable stratified drift are almost uniformly capable of producing several hundred thousand gpd to more than one mgd. For example, yields of wells completed in Union County in 50 to 200 feet of sand and gravel sediments in Kenilworth-Newark Valley, Summit Valley, Union Valley, and Rahway Valley, average approximately 400 gpm. Wells in Essex and Morris Counties tapping glacial sands and gravels adjacent to the Passaic River and its tributaries produce one to 1.5 mgd. Total pumpage from the system of buried valleys in this latter area is about 20 mgd, with the highest yields from formations receiving recharge from adjacent streams.

Relationship Between Ground and Surface Water

Little effort has been devoted to establishing the relationship between ground-water withdrawals and streamflow in northern New Jersey. Many planners and regulatory personnel consider surface water and ground water as different resources. In fact, diversions have been awarded individually for either surface-water rights or ground-water rights in the same basin. The impacts of the aggregate diversion of the two interrelated resources are rarely investigated in detail.

Studies of the Ramapo River subbasin indicate that the Ramapo River is a losing stream during part of the year over a portion of its reach; at times it is a losing stream for its entire length from the state line to Pompton Lake. Generally, this seepage loss extends further downstream as the summer season continues. Much of the loss is attributable to ground-water pumpage along the Ramapo channel, substantiating the ability of ground-water pumpage within the basin to reduce river flow and at times actually cause river water to recharge the aquifer.

The Rockaway River subbasin, like the Ramapo, is an area where ground-water pumpage from the stratified drift along the river has an effect on streamflow during dry periods. Jersey City diverts water for public supply from the Boonton Reservoir on the Rockaway River downstream of these ground-water diversions, and a planned expansion of the area's sewage treatment plant will increase the consumptive use of ground water by 2020. Domestic sewage previously discharged back into the ground-water system via

cesspools and septic tanks will be discharged downstream of the reservoir, and will reduce ground-water recharge and streamflow.

There are several other locations where ground-water pumpage may be contributing to low streamflow. In the Whippany, Upper Passaic, and Lower Passaic River subbasins, the volume of reported public supply and industrial ground-water pumpage, together with grandfather rights pumpage, significantly affect the streams during low flow periods. The problem also is aggravated by the diversion of potential recharge out of the area through sewer systems. Surface-water resources in these basins are extensively developed for supply and receive and dilute waste water.

Other factors also distort the natural water balance between streams and aquifers. Intensive urbanization, e.g., widespread paving of aquifer recharge areas and construction of storm drains, reduces ground-water recharge and makes less water available to streams between periods of rainfall. The interrelationship of all factors must be considered in order to manage ground-water withdrawals where they are likely to impact surface-water resources.

Ground-Water Availability

The recharge of ground-water systems by precipitation in northern New Jersey is highly variable, and depends on factors such as the nature of surficial deposits, topography, rock lithology, and structural features. The storage capacity of rocks of the Triassic Lowlands, as well as most of the Precambrian and Paleozoic age rocks of the Highlands Region is low and

unevenly distributed: these rocks can be dewatered much more easily than the Coastal Plain sands. This is especially true if the water level in the rocks drops below the fractures which serve as major water producing zones.

Under pumping conditions some of the rock aquifers in northern New Jersey exhibit directional hydraulic behavior. At a given distance from a pumping well. water-level drawdowns are usually greater parallel to the strike, or bedding, of the rocks, than perpendicular to it. These factors make the prediction of maximum yields in the northern part of the state more difficult; detailed site-specific data are necessary in most areas.

Natural recharge rates to valley fill sediments may be as high as one mgd per square mile and additional recharge may be induced from an adjacent stream. Since many streams in northern New Jersey are utilized for community supply, and much of their flow is already committed to present or future river intake systems and impoundments, management decisions regarding greatly increased pumpage from alluvial deposits must be made with great care on an individual case-by-case basis.

Although the glacial deposits represent a major aquifer system and can generally yield larger quantities of water than rock aquifers, they are relatively thin and limited in extent. Thus, where recharge from surface-water bodies is not sufficient to meet the demands of local heavy pumpage, dewatering of these aquifers can take place, resulting in lowered water levels and declining yields.

Ground-water availability and problems resulting from excessive withdrawals are usually discussed in terms of an aquifer's "safe yield". Studies done for various counties have attempted to estimate this value for each county. However, from a planning viewpoint, safe yield should be considered as the greatest amount of ground water that can be used consumptively over a long term without causing undesirable effects. Depending on the area, these effects may include reducing streamflow, lowering lake levels, and dewatering shallow wells as a result of a falling water table.

Most reports equate safe yield with the pumpage which will approach, but not exceed, the average recharge rate for the study area. While maintaining the amount of pumpage below the average recharge rate will not cause ground-water mining (loss of ground water from storage for an indefinite period), it can result in a temporary loss of storage and in water-level declines until a new equilibrium elevation is reached. Actually, maximum potential yield depends on a wide range of prevailing hydrologic and environmental relationships in a particular area.

Another complicating factor in the intelligent management of the resource is consumptive use of ground water, i.e., where water is not returned to the ground-water system from which it was removed. On-lot septic systems and wells which recharge industrial process or cooling waters return water to the ground and do not represent consumptive uses. Wastewater discharges to sewers, which in turn discharge to surface waters, are assumed to be consumptive, and are an important factor in reducing ground-water availability, especially in northeastern New Jersey (Figure 13).

Finally, land-use planning in the heavily urbanized northeast portion of the Triassic Lowlands has generally failed to consider the adverse effects of paving potential recharge areas, and/or the impact of construction of regional sewers on ground-water availability. In addition, many communities wholly dependent on ground water are so built up that there is not enough remaining open space to carry out the exploration necessary to locate additional production well sites.

In the preparation of this special report, factors affecting ground-water availability such as recharge rates, pumpage, diversion rights, consumptive use, and interference with surface-water supplies were evaluated on a county-by-county basis. This information was supported by interviews with ground-water users and public agency personnel, and review of data from organizations involved in water-resource management (state, USGS, interstate agencies, and private consultants). Table 2 summarizes ground-water pumpage in northern New Jersey.

Bergen County: Generally, the eastern section of the county is supplied by surface water and the western section by ground water. Portions of the central and southwestern sections are served by both.

Because yields are generally higher, about 75 percent of the pumpage in the Ramapo River basin is from stratified drift, even though it underlies only a small percentage of the total basin area. Wells in valley-fill deposits supply most of Mahwah and all of Oakland.

Industrial and public supply pumpage is concentrated in a central

north-south band, east of the Passaic River, and near the Saddle River. Most of the southern and central part of the county is sewered: only public supply pumpage in the extreme northern section of the county is not used consumptively. The percentage of industrial pumpage used consumptively is unknown, but many of the industrial plants along the Passaic and Saddle Rivers discharge to the rivers, and the water is essentially lost from the ground-water system. There are indications of areawide water-level declines in southern Bergen County from overpumping the Triassic shales.

The opportunity for further development of ground water depends to a great degree on the future industrial pumpage, and the ability to develop surface water and ground water conjunctively in basins containing significant glacial deposits. The bedrock aquifer already appears to be overstressed in areas of concentrated pumpage.

Essex County: Ground water accounts for about 28 percent of the total water used in the county. More than 80 percent of the 35 mgd pumped for public supply is obtained from stratified drift deposits, mostly in the western portion of the county. This heavy pumpage and urbanization in the Livingston-Florham Park-Millburn area have resulted in severe water-level declines in both the unconsolidated and sandstone aquifers, which function as a single hydraulic unit in the area (Figure 12).

Heavy pumpage from the Triassic sediments in the Newark area has exceeded the average recharge to the system, and water levels have been declining for years with serious salt-water intrusion from Newark Bay and the Passaic River. Newark and the western valley-fill aquifer areas are of

mineralized water is found in stratified drift underlain by Precambrian rocks than in stratified drift underlain by shales and sandstones of the Triassic Lowlands. Where there is pumpage from deposits associated with streams, the water induced from the stream significantly affects the quality of ground water pumped from wells.

Salt-water encroachment has been noted in the Triassic shales of the Newark area where heavy industrial pumpage lowered water levels more than 100 feet. Data on the current status of this problem are not readily available. Saline water is also encountered in some unconsolidated deposits adjacent to estuaries.

Summary

Ground water serves as a major municipal, industrial, and domestic source in northern New Jersey. Where surface-water sources are being used to their capacity, even greater dependence will be placed on ground water. However, there are a number of significant constraints on continued development of ground water. In counties such as Bergen, Essex, southern Passaic, Union, and eastern Morris, heavy pumpage of the Brunswick shale and the stratified drift deposits together with consumptive use, has overstressed aquifers on a local basis and limited the availability of new ground-water supplies. In addition, the high degree of urbanization has eliminated many potential sites for new wells and has reduced recharge to the aquifer. In many cases, the large-scale development of particular aquifer areas has undoubtedly resulted in substantial impacts on surface-water sources. Some potential for developing new supplies does exist, but

typically, the sites are distant from points of present demand.

In western Morris, northern Passaic, northern Hunterdon, Sussex, and Warren Counties, ground-water development has not been extensive because of the rural nature of the area. However, the rock aquifers are relatively poor and cannot sustain high capacity well fields or concentrated pumpage. The area's stratified drift deposits do offer this potential, but they have not been explored, and the development of their full potential would diminish streamflow.

Another constraint on the ground-water resources of northern New Jersey is the relatively poor capacity of the various aquifers to store water. Usable water storage in the bedrock aquifers is limited to the first few hundred feet of joints and fractures. Unconsolidated aquifers are thin and of limited areal extent. Thus, unlike the Coastal Plain aquifers where huge volumes of water are stored in thick sand and gravel formations covering hundreds and even thousands of square miles, water-level declines in the northern counties due to heavy pumpage and/or drought conditions can reduce ground-water availability significantly, and result in water supply shortages. Monitoring ground-water levels in key areas of northern New Jersey is essential. Observation wells used for long-term water level monitoring should be located near centers of pumping and should provide the data necessary to estimate aquifer conditions in areas of heavy withdrawal.

Until now, ground-water development in northern New Jersey has been on a well-by-well basis as additional water supplies are needed by individual, municipal and industrial diverters. This strictly local approach has op-

erated for many years without any significant form of long-term planning or management. Ground water has been used to meet local needs with little consideration of regional effects, resulting in costly, unproductive disputes among individual ground-water diverters, inefficient use of the resource, and a general failure to protect its quantity or quality. Regional studies of ground-water resources designed to support management plans should be carried out in key ground-water use areas.

Municipalities and industries dependent on this resource should be cognizant of potential sources of contamination that may degrade the aquifer they tap and should participate in local land-use planning that may affect the long-term yield of their ground-water resource. Finally, establishment of local ordinances covering such activities as underground storage of chemicals and hydrocarbons can assist in protecting the resource.

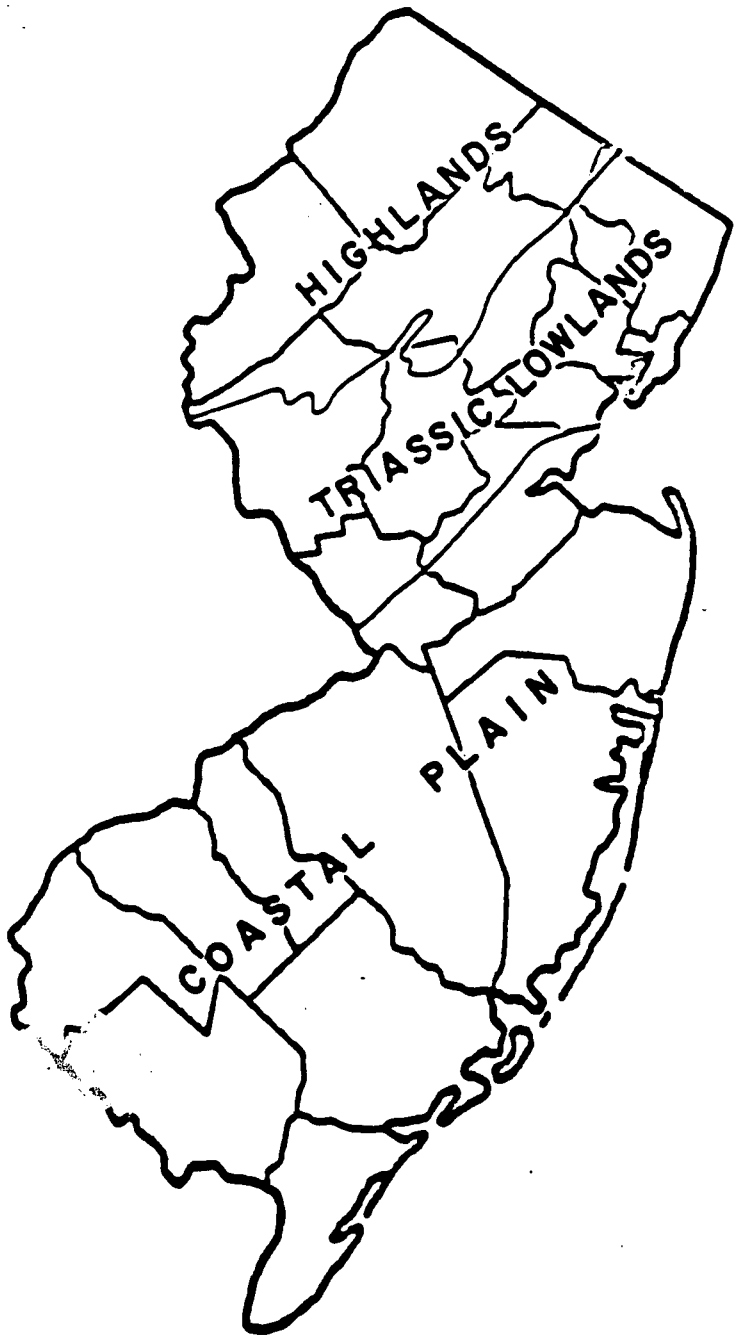

Figure 1 - PRINCIPAL GEOLOGIC REGIONS

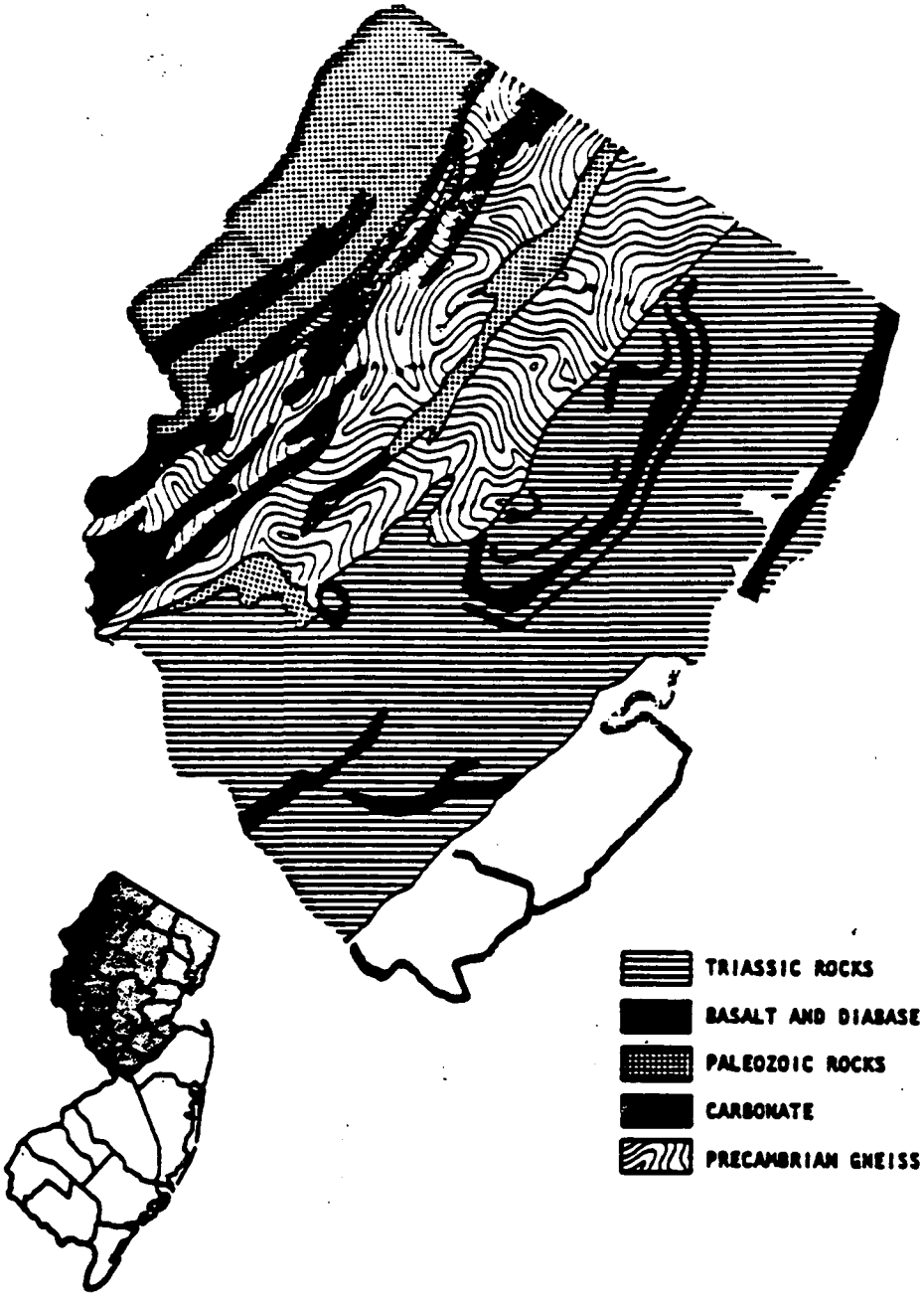

Figure 11 - BEDROCK GEOLOGY IN NORTHERN NEW JERSEY

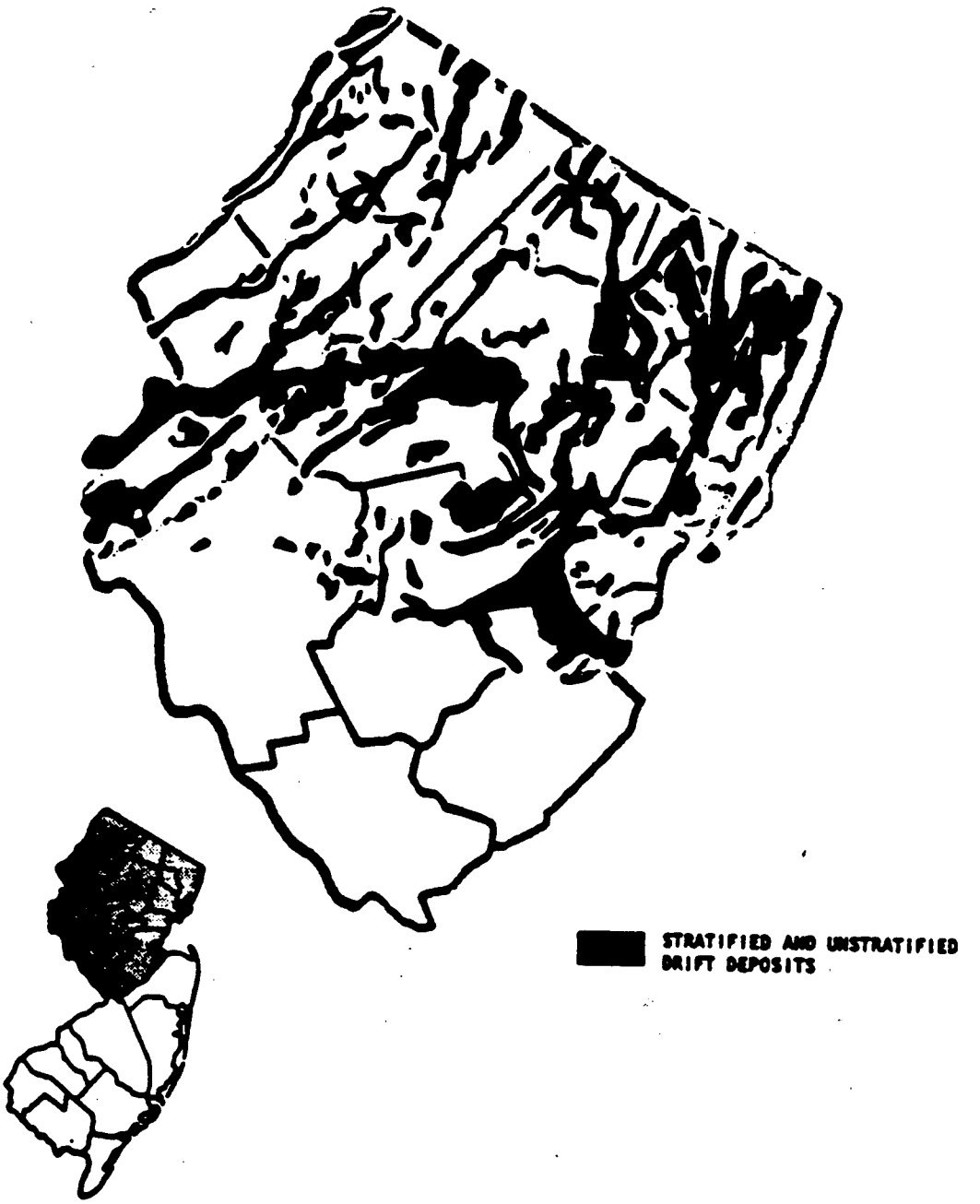

Figure 12 - POTENTIAL UNCONSOLIDATED AQUIFERS IN NORTHERN NEW JERSEY

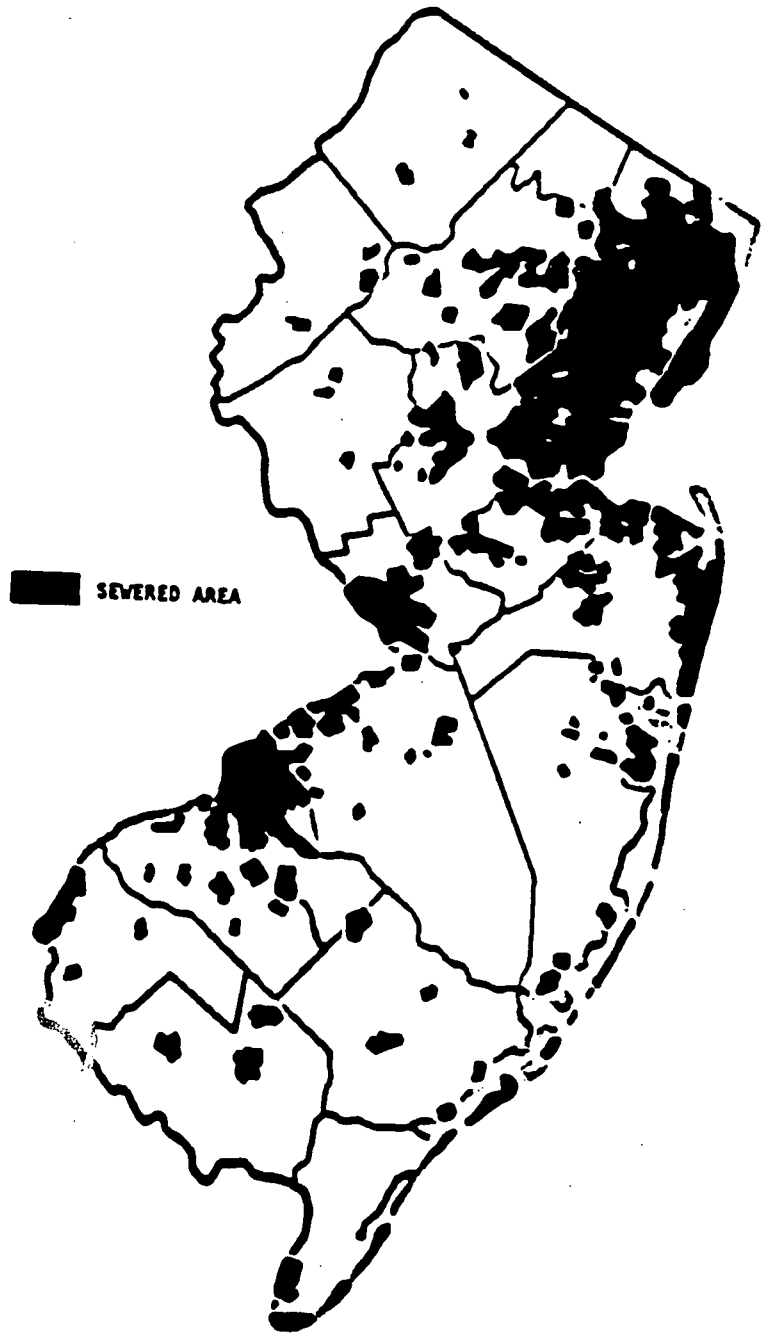

Figure 13 - EXTENT OF SEWERED AND UNSEWERED AREAS

REFERENCE NO. 29

THE LATEST TRIASSIC AND EARLY JURASSIC FORMATIONS OF THE NEWARK BASIN (EASTERN NORTH AMERICA, NEWARK SUPERGROUP): STRATIGRAPHY, STRUCTURE, AND CORRELATION

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ABSTRACT. *Newark Supergroup deposits of the Newark Basin (New York, New Jersey, and Pennsylvania) are here divided into nine formations called (from the bottom up): Stockton Formation (maximum 1800 m); Lockatong Formation (maximum 1150 m); Passaic Formation (maximum 6000 m); Orange Mountain Basalt (maximum 200 m); Feltville Formation (maximum 600 m); Preakness Basalt (maximum +300 m); Towaco Formation (maximum 340 m); Hook Mountain Basalt (maximum 110 m); and Boonton Formation (maximum +500 m). The latter seven formations are new and result from subdividing the Brunswick Formation and Watchung Basalt of Kümmel and Darton. Each formation is characterized by its own suite of lithologies, the differences being especially obvious in the number, thickness, and nature of their gray and black sedimentary cycles (or lack thereof).*

Newark Basin structure still escapes comprehensive understanding, although it is clear that faults (predominantly normal) and onlaps bound both the eastern and western edges of the basin. The cumulative thickness of formations and the apparent movement of the faults is greater on the western than the eastern side, however.

Fossils are abundant in the sedimentary formations of the Newark Basin and provide a means of correlating the sequence with other early Mesozoic areas. The Stockton, Lockatong, and most of the Passaic Formation are Late Triassic (?Middle and Late Carnian — Rhaetic) while the uppermost Passaic Formation (at least locally) and younger beds appear to be Early Jurassic (Hettangian and Sinemurian) in age. The distribution of kinds of fossils is intimately related to sequences of lithologies in sedimentary cycles.

Manuscript received 2 Jan 1980.
Manuscript accepted 14 Jan 1980
Revised manuscript received 16 Sep 1980.

INTRODUCTION

Despite well over a century of interest in the early Mesozoic Newark Supergroup of eastern North America, many fundamental aspects of its historical and structural geology remain unexplored. In part, this is due to the complexity of stratigraphic and structural relations in the individual basins, coupled with the rarity of continuous exposures. As a result, much of our accepted understanding of the Newark Supergroup has been based on incomplete observations and opinion. The purpose of this paper is to provide a more thorough observational foundation against which past hypotheses may be assessed and on which future work may be based. Emphasis is placed on the younger beds of the Newark Basin, for they have never been examined in detail, and a new stratigraphic framework is proposed. These younger Newark Basin beds provide us with a key to understanding the entire basin column, which in turn is crucial to the context in which early Mesozoic organic evolution, continental sedimentation, and tectonic development are to be studied.

REGIONAL SETTING

Triassic and Jurassic Newark Supergroup rocks (Figure 1) (Olsen, 1978; Van Houten, 1977) occupy numerous elongate basins in eastern North America and consist of predominantly detrital fill locally more than 10,000 m thick. In most

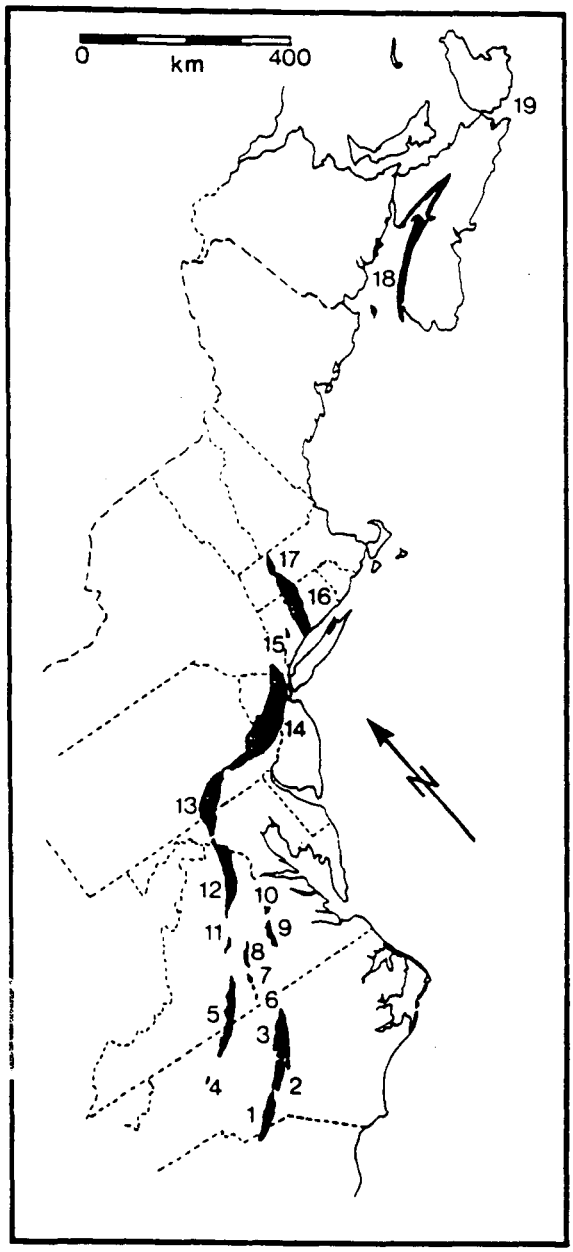

FIG. 1. Newark Supergroup deposits exposed in eastern North America: 1. Wadesboro Basin of Chatham Group; 2. Sanford Basin of Chatham Group; 3. Durham Basin of Chatham Group; 4. Davie County Basin; 5. Dan River — Danville Basins of Dan River Group; 6. Scottsburg Basin; 7. Basins south of the Farmville Basin; 8. Farmville Basin. 9. Richmond Basin; 10. Taylorsville Basin; 11. Scotsville Basin; 12. Culpeper Basin (Culpeper Group; 13. Gettysburg Basin; 14. Newark Basin; 15. Pomperaug Basin; 16. Hartford Basin; 17. Deerfield Basin; 18. Fundy Basin (Fundy Group); 19. Chedabucto Basin (= Orpheus Graben?). Data primarily from Calver, 1963, King, *et al.*, 1944; Van Houten, 1977; and Olsen, 1978.

areas, red clastics are the dominant sedimentary rocks and tholeiitic, intrusive and extrusive diabases and basalts are the most common volcanics. These unconformably overlie (or rarely intrude) Precambrian and Palaeozoic rocks and are overlain by post-Jurassic rocks of the Coastal Plain, or alluvium and soils.

The Newark Basin is the most northerly of three Newark Supergroup basins lying in an arcuate belt stretching from southern New York to central Virginia (Figure 2). The region has attracted the attention of researchers since the beginnings of North American geological work (Kalm, 1753-1761; Schopf, 1783-1784); by about 1890 the deposit had been mapped out (Lyman, 1895; Cook, 1868) and by 1900 the currently used rock-stratigraphic framework was established (Table 1). Kümmel (1897) divided the Newark Basin sequence into three formations: the Stockton, Lockatong, and Brunswick. As recognized by Kümmel, the Stockton Formation (maximum thickness 1800 m) is the basal deposit consisting of thick beds of buff or cream colored conglomerate and sandstone, and red siltstone and sandstone. Throughout the exposed central portion of the Newark Basin, Kümmel recognized the Lockatong Formation (maximum thickness 1150 m) which is made up of gray and black siltstone arranged, as later shown by Van Houten (1969), in distinctive sedimentary cycles (Figure 4). The youngest formation Kümmel called the Brunswick. Throughout the Newark Basin, the lower Brunswick consists of sandstone and conglomerate and clusters of laterally persistent cycles of gray and black siltstone similar to the Lockatong Formation (Kümmel, 1897, 1898; McLaughlin, 1943; Van Houten, 1969). The upper Brunswick, on the other hand, is made up of three major extrusive basalt sheets which Darton (1890) called the Watchung Basalt, two major interbedded sedimentary units, and a thick overlying sedimentary unit. The latter sedimentary sequences have escaped even preliminary lithologic description.

Field work by this author during the past few years has shown that Kümmel's Brunswick For-

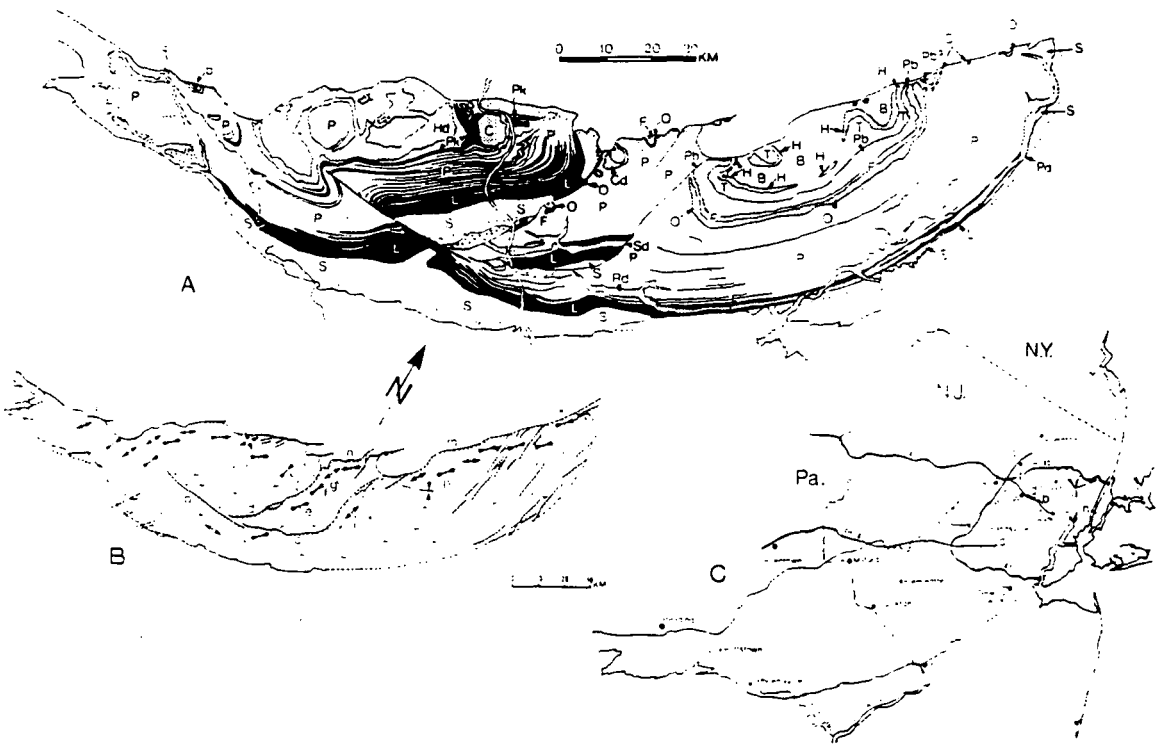

FIG. 2. The Newark Basin. A. geologic map showing distribution of formations, conglomerate facies (irregular stipple), and major clusters of detrital cycles in Passaic Formation (black lines). Abbreviations of formations and intrusive bodies as follows: B. Boonton Formation; C. Coffman Hill Diabase; Cd. Cushetunk Mountain Diabase; F. Feltville Formation; H. Hook Mountain Basalt; Hd. Haycock Mountain Diabase; Jb. Jacksonwald Basalt; L. Lockatong Formation; O. Orange Mountain Basalt; P. Passaic Formation; Pb. Preakness Basalt; Pd. Palisade Diabase; Pk. Perkasie Member of Passaic Formation; Rd. Rocky Hill Diabase; S. Stockton Formation; Sd. Sourland Mountain Diabase; T. Towaco Formation.

B. Structural diagram of Newark Basin (note — parts of basin margin not mapped as faults should be regarded as onlaps, faults with teeth on downthrown side): a. Jacksonwald Syncline; b. Chalfont Fault; c. Hopewell Fault; d. Flemington Fault; e. Sand Brook Syncline; f. Flemington Syncline; g. Cushetunk Mountain Anticline; h. New Germantown Syncline; i. Somerville Anticline; j. New Vernon Anticline; K. Ladentown Syncline; l. Watchung Syncline; m. Ramapo Fault.

C. Geographic map of Newark Basin showing locations of type sections of formations proposed in this paper: a. type section of Passaic Formation; b. type section of Orange Mountain Basalt; c. type section of Feltville Formation; d. type section of Preakness Basalt; e. type section of Towaco Formation in Roseland, New Jersey; f. type section of Hook Mountain Basalt in Pine Brook, New Jersey; g. type section of Boonton Formation in Boonton, New Jersey; h. Lincoln Tunnel, Weehawken, New Jersey.

Data for A, B, and C from original observation and Kümmel, 1897, 1898; Lewis and Kümmel, 1910-1912; Darton, 1890, 1902; Darton *et al.*, 1908; Glaeser, 1963; Sanders, 1962; Van Houten, 1969; McLaughlin, 1941, 1943, 1944, 1945, 1946a, 1946b; Bascom *et al.*, 1909a, 1909b; Bailey *et al.*, 1914; Willard *et al.*, 1959; Manspiezer; pers. comm.

mation consists of a heterogenous mix of major units of differing and distinctive lithology, each as distinct and perhaps originally as widespread as the Stockton or Lockatong; further, each "Watchung Basalt" and the interbedded and overlying sedimentary beds are lithologically distinct from the lower Brunswick. In addition, Cornet, McDonald, and Traverse (1973), Cornet and Traverse (1975), Cornet (1977), and Olsen and Galton (1977) have shown that much of the

upper Brunswick is Early Jurassic rather than Late Triassic as had been assumed. It now seems clear that these Jurassic rocks are in many ways different from the Late Triassic lower Brunswick, Lockatong, or Stockton formations. For these reasons, I propose the terms Brunswick Formation (Kümmel, 1897) and Watchung Basalt (Darton, 1890) be dropped and their components subdivided to form seven new formations (Table 1) in parallel with Lehmann's (1959) widely used divisions of the Hartford Basin and Klein's (1962) divisions of the Fundy Group in accord with the American Code of Stratigraphic Nomenclature and the International Stratigraphic

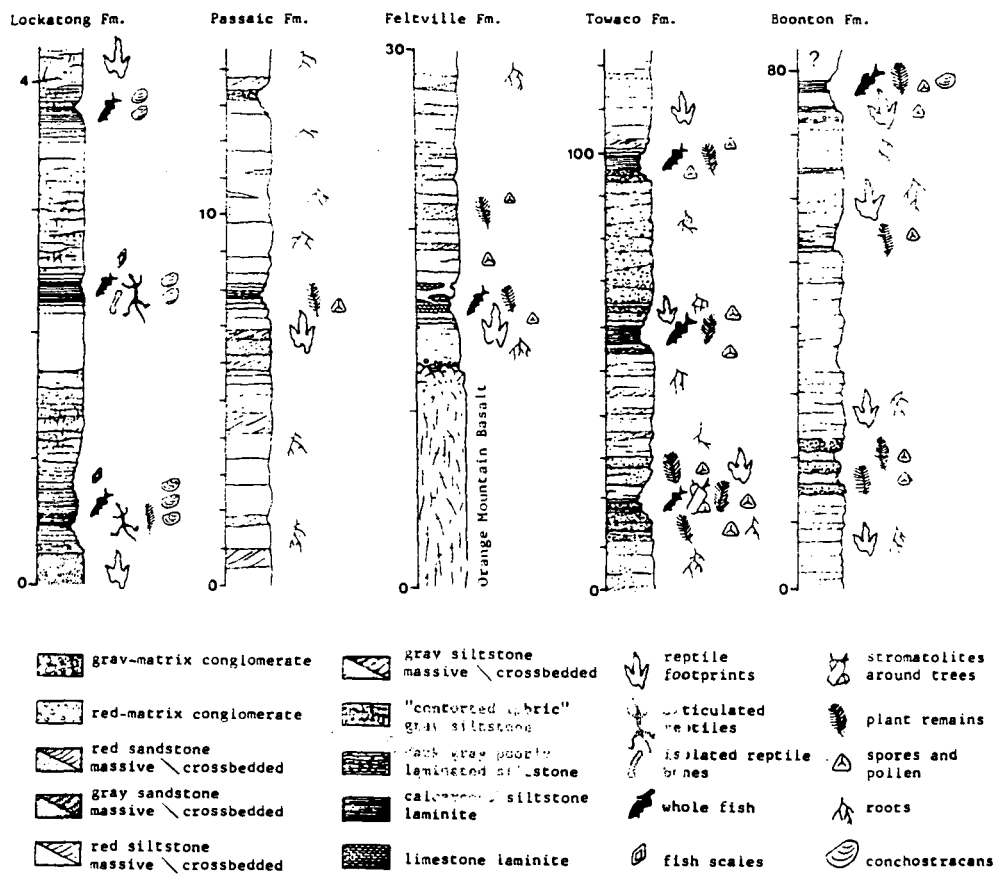

FIG. 3. Major types of sedimentary cycles of the formations of the Newark Basin. Note that the approximate center of the symbols for the major types of fossils is placed about where they occur in the section to the left. Note the change in scale (in meters) from section to section.

Lockatong Formation section measured at Kings Bluff, Weehawken, New Jersey, and represents three detrital cycles. The Passaic Formation section measured along Nishisakawick Creek and Little Nishisakawick Creek, northeast of Frenchtown, New Jersey; the two cycles shown represent the lower portion of McLaughlin's Graters Member (i.e., Member G) and are characteristic of most of the detrital cycles of the Passaic Formation. The upper cycle develops a dark gray siltstone a kilometer to the south. Feltville Formation section measured along East Branch of Middle Brook, Martinsville, New Jersey — there is only one such "cycle" in the Feltville Formation. Towaco Formation section measured along stream 2 km southwest of Oakland, New Jersey; three cycles are shown. Boonton Formation section is upper part of type section (see Figure 12); section not clearly cyclic.

Guide. In this way, nominal status is given to beds critical to the overall pattern of Newark Basin historical geology.

DESCRIPTIVE STRATIGRAPHY OF THE POST-LOCKATONG FORMATIONS

The Passaic Formation

The name Passaic Formation is proposed for the predominantly red siltstone, sandstone, and conglomerate which conformably overlie the Lockatong Formation and which underlie the Orange Mountain and Jacksonwald basalts. It is equivalent to the pre-basalt part of Kümmel's Brunswick Formation (Table 1). The type section (Figure 4) consists of intermittent exposures of red siltstone and sandstone along interstate Route 80 near Passaic, New Jersey (Figure 2 and Appendix).

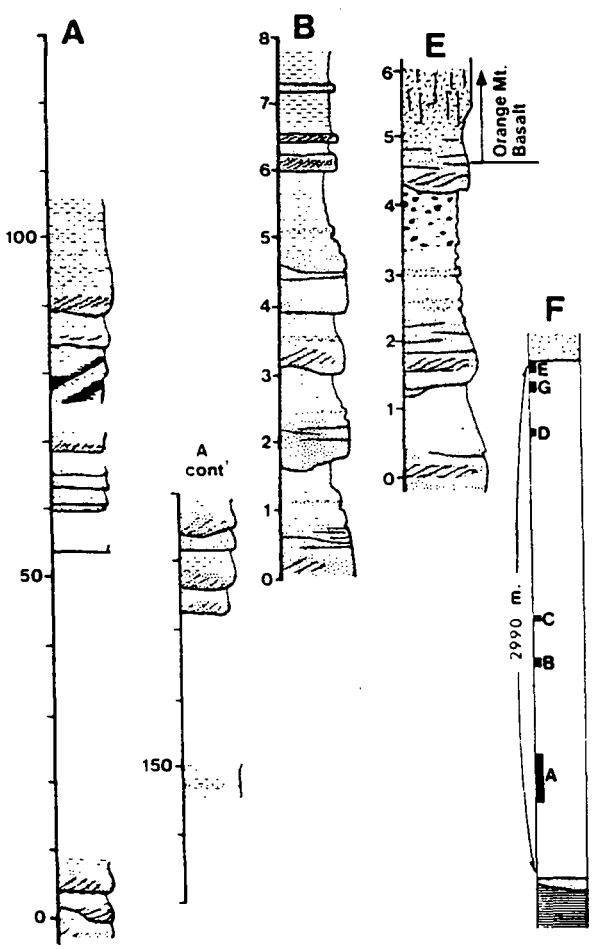

FIG. 4. A - E, type section of Passaic Formation (see Appendix for description); F, diagram showing positions of sections A - E in Passaic Formation.

As is the case for all Newark formations, the estimation of stratigraphic thicknesses in the Passaic Formation is hampered by the presence of a series of faults with variable amounts of dip-slip displacement cutting much of the Newark Basin. The exact distribution of these faults is poorly known and thus many trigonometrically computed thicknesses in the Passaic Formation are probably overestimations. This is especially true in the northern and southern portions of the Newark Basin. The field relationship of mapped gray siltstones in the central Newark Basin, however, shows that in broad areas these smaller faults are missing and the calculated stratigraphic thickness is probably correct (McLaughlin, 1943). Instead of a large number of small faults, the central Newark Basin is cut by several very large faults (Figure 2).

In spite of these mensuration problems, it is clear that the Passaic Formation is the thickest, coherent lithologic unit in the Newark Basin, reaching a maximum calculated stratigraphic thickness of over 6,000 m (Jacksonwald Syncline). The formation outcrops throughout the Newark Basin although its upper beds are preserved only in the Watchung Syncline (Figure 2), in the smaller synclines preserved along the eastern side of the Flemington Fault, and in the Jacksonwald Syncline. In all other areas, the upper Passaic Formation has been removed by post-Newark erosion.

While in most areas the Passaic Formation rests conformably on Lockatong Formation, in several areas on the western margin of the Newark Basin, the Passaic directly onlaps the step-faulted basement without any intervening Stockton or Lockatong. In these areas (see Figure 5), the thickness of upper Passaic Formation present below the Orange Mountain Basalt is comparatively slight. One area where these relationships can be clearly seen is near Cushetunk Mountain (Figure 5) in central New Jersey. In the New Germantown Syncline, the stratigraphic distance from the Palaeozoic basement to the Orange Mountain Basalt is about 800 m. Less than 30 km to the southwest, over 1,000 m of Passaic is

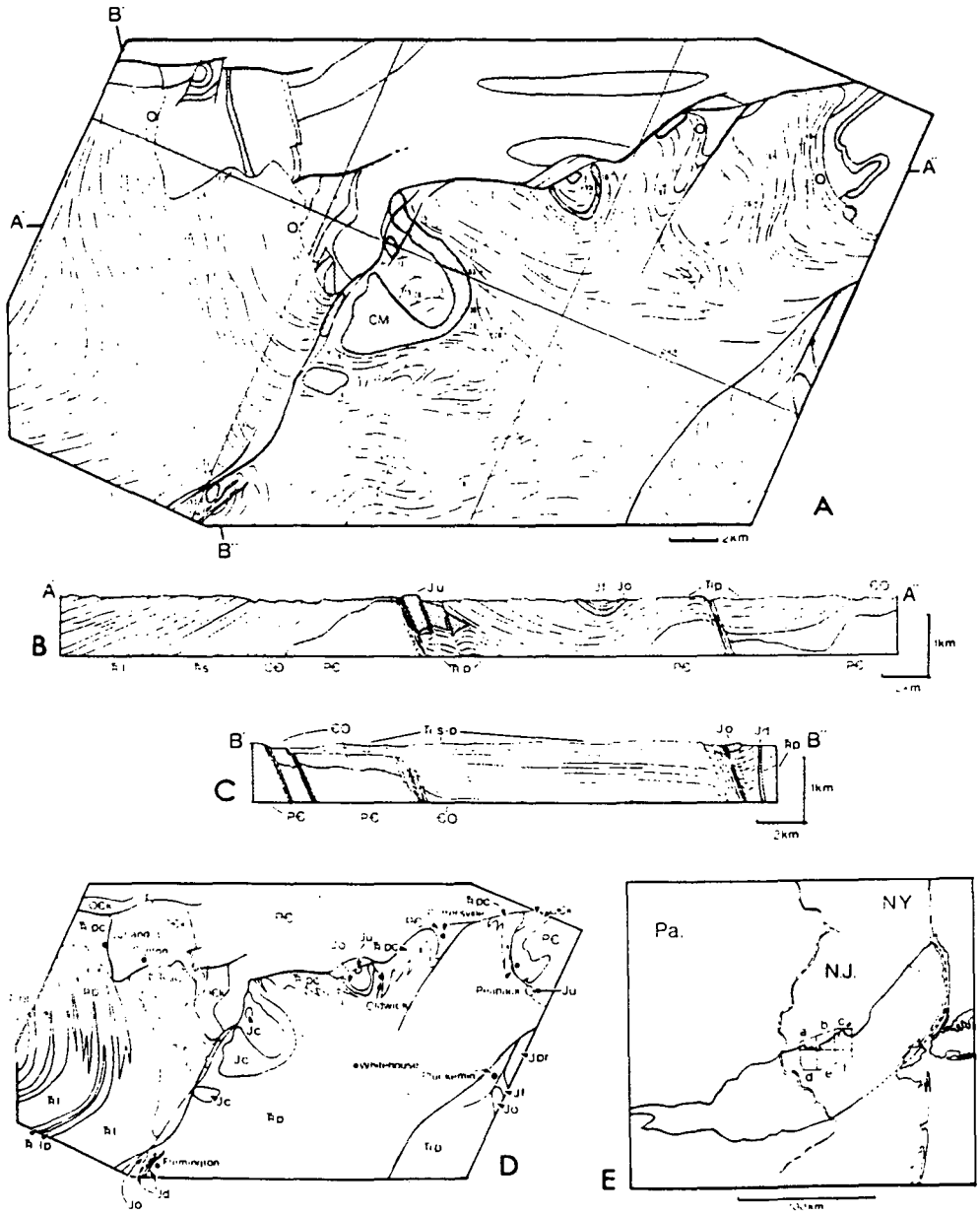

FIG. 5. Cushetunk Mountain area: A, map showing strike lines, degree of dip, major faults and onlaps (o) — diabase and basalt represented by dark gray shading while light gray shading represents Palaeozoic and PreCambrian basement rocks — CM is Cushetunk Mountain; B, cross section of area in A (above) along line A'-A" — note vertical exaggeration; C, section of area in A (above) along B'-B"; D, geologic map of Cushetunk Mountain area (Oek, Cambrian and Ordovician sedimentary rocks of the Kittatinny carbonate terrane) O, allochthonous peltic and minor carbonate rocks; eO, combined Oek and O; Pe, Precambrian crystalline rocks; T lp, tongues of Triassic Passaic Formation lithology within main mass of Lockatong Formation; T pc, Triassic Passaic Formation, conglomeratic facies; T p, Triassic Passaic Formation; T pl, Triassic Passaic Formation, Lockatong-like clusters of detrital sedimentary cycles; T s, Triassic Stockton Formation; T sc, Triassic Stockton Formation, a conglomeratic facies identical to T pc; JF, Jurassic Feltville Formation; Jc, Jurassic Cushetunk Mountain

present above 2,000 m of Stockton plus Lockatong, and in the latter area the top of the Passaic Formation is not preserved. In less well exposed areas, or where the strike parallels the basin margin, such onlap and step-faulted relationships cannot be observed without geophysical techniques or analysis of well records (McLaughlin, 1943, 1944; Dunleavy, 1975).

Facies patterns of the Passaic Formation are a modified continuation of those of the Lockatong, and different from all younger Newark Basin deposits. Laterally persistent and periodically spaced clusters of gray and black siltstone cycles characterize both formations, the Lockatong being composed almost entirely of such repetitive units (see Figure 3). According to Van Houten (1962, 1964, 1965, 1969), the great majority of the Lockatong cycles fall into two broad classes which he terms chemical and detrital (Figure 3). The most laterally continuous are detrital and these generally occur in bundles. Each bundle is separated from the next (in vertical succession) by a series of chemical cycles; the distance from the center of one detrital cycle bundle to the next being about 110-125 m in the central Newark Basin (Van Houten, 1969). This figure decreases to the basin margins. Chemical cycles are characterized by the presence of abundant analcime and are for the most part restricted to the center of the basin, giving way in all directions to red clastics. The lateral edges of the Lockatong thus consist of bundles of detrital cycles separated by red siltstone and sandstone. It follows that the boundary between the Passaic Formation and the Lockatong can be operationally defined (both horizontally and vertically) as where the thicknesses of beds of red clastics dominate gray and black. It further follows that where gray and black detrital cycle clusters do not occur, as in Rockland County, New York, the Passaic Formation rests directly on the Stockton.

Bundles of detrital cycles occur through most of the thickness of the Passaic Formation, periodically spaced, as in the Lockatong. The great majority of these cyclic non-red units, however, are not as laterally continuous as those of at least the lower Lockatong, and generally the number of cycles involved in these clusters decrease in frequency through the Passaic Formation. For the lower and middle Passaic, McLaughlin (1933, 1943, 1945, 1946, 1948) has succeeded in mapping out the distribution of these non-red units over most of the central Newark Basin. A detailed stratigraphic framework has developed around these beds, each detrital cycle bundle being designated by a letter (A, B, C, ...). The extension of McLaughlin's units outside of the areas he mapped is a principle aim of ongoing research (Figure 2).

The highest of McLaughlin's mapped units (134 m above members L and M) join with other cycles to the southwest to form a large body of gray and black siltstone called the Perkasie Member (McLaughlin, 1946). Unlike the Lockatong Formation, however, the thickest section of the Perkasie Member is in the southwestern portion of the Newark Basin rather than near its geographic center. Due to repetition by major faults (Figure 2) and changes in strike along folds, the broader aspects of the three-dimensional relationships of most Passaic dark clastic units can be observed. Looking over the bulk of the Passaic Formation (Figure 2), there is no evidence that the rest of the detrital cycle clusters of the Passaic (i.e., other than lateral equivalents of the Lockatong Formation or Perkasie Member) represent the remnants of a large, now eroded, gray and black siltstone body as Glaeser (1963) has suggested.

There are major masses of red-matrix conglomerate at both the northern and southern ends of the Newark Basin (Figure 2). These grade nearly imperceptively into the red clastics of the Passaic Formation and are here considered facies of it. Other much smaller areas of conglomerate occur along the western border of the Newark Basin; these are especially prevalent where Passaic

Diabase: Jd, Jurassic diabase dikes; Jo, Jurassic Orange Mountain Basalt; Jpr, Jurassic Preakness Mountain Basalt; Ju, Jurassic basalt, undefined; E, geographic position and quadrangle maps of Cushetunk Mountain area (a, High Bridge Quadrangle; b, Califon Quadrangle; c, Gladstone Quadrangle; d, Pittstown Quadrangle; e, Flemington Quadrangle; f, Raritan Quadrangle).

Formation onlaps basement rocks (Figures 2 and 5).

A point of general applicability to perhaps most Newark Supergroup deposits and particularly relevant to Passaic Formation conglomerates is the lack of objective lithologic distinction between basal and border conglomerates. The small bodies of conglomerate present along the western border of the Newark Basin (so called fanglomerates) have traditionally been interpreted as genetically related to the presence of border faults and the presence of such conglomerates was often used as evidence for the faults themselves (Russell, 1922; Barrell, 1915; Sanders, 1963; Van Houten, 1969). It appears from relations presented in Figure 5 and geophysical evidence (Dunleavy, 1975) that many of these "border conglomerates" are in fact basal (see Sanders, 1974 and Faill, 1973). Conglomerates present in the basal Stockton Formation in the same area (west of Cushetunk Mountain, Figure 5) are lithologically indistinguishable from these Passaic conglomerates. The relationship of these conglomerates to the inferred syndepositional topography of the basin is not at all obvious and, thus, for the present, interpretive designations such as fanglomerate, basal conglomerate, and border conglomerate should probably be avoided.

Massive diabase intrusions are implaced through the upper Passaic Formation in the west central portions of the Newark Basin and in the lower Passaic Formation in the northern Newark Basin. These intrusions generally parallel the distribution of major bodies of gray and black siltstone: thus, the largest intrusions are broadly concordant (but locally discordant) with the Lockatong Formation (i.e., Palisades, Rocky Hill, and Sourland Mountain Sills) or the Perkasie Member of the Passaic (Haycock Mountain, Coffman Hill, and possibly Cushetunk Mountain diabases; see Figure 5). The general pattern seems to be for these intrusions to be implaced progressively higher in the Newark Basin section from east to west.

The Passaic Formation, like most Newark Supergroup deposits, is cut by a series of narrow, often nearly straight and vertical diabase dikes trending north and northeast. The mapping of the distribution of these intrusives is still very incomplete.

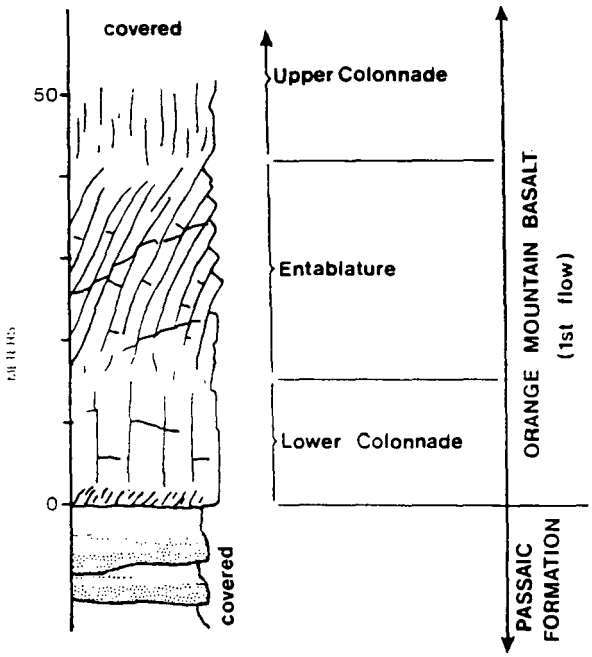

FIG. 6. Type section of the Orange Mountain Basalt; exposure along Interstate Route 280 in East Orange, New Jersey. In Passaic Formation, stipple represents red sandstone and plain area represents red sandstone.

Orange Mountain Basalt

Orange Mountain is the local name of the First Watchung Mountain in Essex County, New Jersey, long known for its spectacular exposures of columnar basalt (Cook, 1884); the name Orange Mountain is, therefore, suggested for these multiple (at least two), tholeiitic, basalt flows and interbedded volcanoclastic units above the Passaic Formation and below the Feltville Formation. The type section, exposing about 40% (50 m) of the formation's total thickness, is along Interstate Route 280 at its cut through Orange Mountain in East Orange, New Jersey (Figure 7). According to Puffer and Lechler (1980) the Orange Mountain Basalt belongs to the high-TiO_2 type of basalt of Weigand and Ragland (1970) and is chemically very similar to the Palisade Diabase.

The Orange Mountain Basalt is the oldest Newark Basin Formation thought to be wholly

will serve as a reference standard for comparison with other early Mesozoic areas.

The basic biostratigraphic framework for Newark Basin deposits has been outlined by Olsen and Galton (1977) and Cornet (1977) and the details of this correlation will be given elsewhere (Olsen, McCune, and Thomson, in press; Olsen, Baird, and Salvia, MS; and Colbert and Olsen, MS). At this time it is necessary to present the distribution of taxa within the Passaic through Boonton formations and tie these in with the regional correlation (Figure 15).

For regional correlation, relatively strong emphasis has been placed on the distribution of palynomorph taxa (Cornet, 1977, and pers. comm.). This reliance has been especially strong for correlation between the upper Newark and the European Early Jurassic (see Figure 15). Tetrapod data, both in the form of skeletal remains and footprints, parallel the palynomorph data, and have been essential in correlating regions from which floral data is not available (such as the upper Stormberg — J. M. Anderson, pers. comm.). For fine internal correlation of the Early Jurassic portions of the Newark, however, the biostratigraphic subdivisions based on pollen and spores have proved too broad (Cornet, 1977). In these areas, fossil fish have provided a means of correlation (Olsen, McCune, and Thomson, in press).

The broad aspects of this biostratigraphic correlation are in agreement with most geophysical data, significantly the paleomagnetic work of McIntosh (1976) and Reeve and Helsley (1972) on the Newark Basin section and the Chinle Formation (southwestern United States), as well as with the paleomagnetic work of DeBoer (1968). In addition, radiometric dates available for Newark Basin basalts are in agreement with a Jurassic age for these units (Armstrong and Besancon, 1970; Dallmeyer, 1975; Sutter and Smith, 1979; W. D. Masterson and K. K. Turekian, pers. comm.). It must be noted, however, that the geophysical techniques used to date may be too inconsistent for the data to be used in fine scale correlation among the various individual formations of the Newark Supergroup.

ACKNOWLEDGEMENTS

For the original impetus for this work I thank Donald Baird, Bruce Cornet, Nicholas G. McDonald, John Rodgers, Bobb Schaeffer, Keith Thomson, Franklin Van Houten, and Karl Waage. In addition to these same people, I thank George Bain, John Hubert, Anthony Lessa, Amy Litt, Amy McCune, Warren Manspiezer, John Ostrom, Wallace Phelps, Stan Rachootin, William Sacco, Robert Salvia, and Peter Stringer. Field work for this study was supported by the Peabody Museum of Yale University and grants from the National Science Foundation (numbers BMS 75-17096, BMS 74-07759, GS-28823X, and DEB 77-08412 to Keith Thomson). Finally, I thank Donald Baird, Amy Litt, Amy McCune, Kevin Padian, Stan Rachootin, John Rodgers, Bruce H. Tiffany, and an anonymous reviewer for reading the manuscript and suggesting changes which substantially improved it. Naturally any opinions and errors of commission or omission are my own.

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APPENDIX

Type Section of the Passaic Formation

Thickness (m)	Description
Section A	Base of section A is 427 m above and 3.4 km west of last exposures of Lockatong along Rt. 80 (all sections measured from top down).
1.2	red blocky siltstone
1.8	red massive feldspathic sandstone
.6	red siltstone
1.2	red massive feldspathic sandstone, fining-upwards
3.1	red blocky siltstone
3.0	red fine feldspathic sandstone, fining-upwards
1.5	red blocky siltstone
1.8	red cross-bedded feldspathic sandstone, fining-upwards
26.0	covered
4.6	red siltstone
41.0	covered
6.1	red fissile siltstone
4.6	red interbedded sandstone and siltstone
3.0	red siltstone
0.6	red feldspathic sandstone, fining-upwards
0.3	red blocky siltstone
1.8	red feldspathic sandstone, white near diabase, fining upwards
1.5	diabase dike
+3	red blocky siltstone, black near diabase
5.0	covered

Thickness (m)	Description
.9	red cross-bedded sandstone and siltstone, fining-upwards
.8	red planer, thin-bedded sandstone
4.0	covered
4.6	red interbedded siltstone and sandstone
2.0	covered
1.2	red burrowed sandstone and siltstone
48.0	covered
.8	red blocky siltstone
1.5	red feldspathic sandstone, strongly downcutting, fining-upwards
3.4	red blocky siltstone
.7	red feldspathic sandstone, fining-upwards, deeply downcutting
.3	red blocky siltstone, covered in places
+1	red fine feldspathic sandstone
Section B	Base of exposure 488 m above and 3.4 km west of top of section A, along Rt. 80 (section measured from top down).
.61	red fissile siltstone
.15	yellow-orange planer-bedded coarse siltstone
.91	red blocky siltstone
.15	yellow-orange cross-bedded base, planer-bedded top, fine sandstone
.20	red blocky siltstone
.30	yellow-orange cross-bedded base, planer-bedded top, fine sandstone
.90	red fissile siltstone
.93	red blocky siltstone, fining-upwards
.32	red fissile siltstone
.60	red siltstone
.76	red fissile siltstone
.60	red coarse feldspathic sandstone, fining-upwards
.30	red blocky siltstone
1.32	red very fine sandstone, fining-upwards
+1.52	red blocky siltstone
Section C	Base of exposure 244 m above and 1.8 km west of top of section B, along Rt. 80 (sections measured from top down).
1.5	red, very irregular, trough cross-bedded sandstone grading upwards into siltstones, laminated carbonate-rich oblong chips and concentric accretions at base
1.5	same as above
Section D	Base of exposure 1320 m above and 6.9 km west of top of section C (section measured from top down).
3.0	red massive, cross-bedded sandstone
Section E	Base of exposure 554 m above and 2.9 km west of top of section D (section measured from top down).
+10.0	massive basalt — base of Orange Mountain Basalt
.9	brown massive sandstone welded to basalt
1.8	red siltstone with numerous small carbonate nodules
.93	red siltstone
1.5	red sandstone, fining-upwards

Type section of the Feltville Formation and key to figure 7. Section exposed along Blue Brook about 1 km southwest of the dam for Lake Surprise in Watchung Reservation, Union County, New Jersey (sections measured from top down).

Unit letter in Figure 7	Thickness (m)	Description
Section A of Figure 7		
a	+1	buff to pink, cross and planer-bedded feldspathic sandstone with interbeds of red siltstone upward grading into
b	+1	red siltstone in thin beds, upper contact sharp
c	+1	same as unit a
d	+1	same as unit b
e	9	< 1 meter thick beds of buff and red sandstone, grading upwards into red blocky siltstone
f	1.5	beds of red siltstone and sandstone with varying amounts of basalt breccia
Section B of Figure 7		
a	.5	greenish-red, slightly micaceous with small scale ripple-bedded siltstone
b	.05	gray, aphanitic, calcareous siltstone
c	.08	same as above with a thin unit of red siltstone between it and unit b
d	.25	red and green, fine bedded siltstone
e	.20	reddish green fine bedded siltstone
f	.05	gray indistinctly bedded very calcareous siltstone
g	.02	gray well bedded calcareous siltstone
h	.08	gray well bedded limestone laminae alternating with siltstone to form 5 mm thick couplets. *Semionotus* common
i	.06	gray aphanitic limestone
j	.05	gray graded beds (1010 mm) of calcareous siltstone
k	.05	similar to unit h, but couplets 2-3 mm *Semionotus* common
l	.06	similar to above but more silty
m	.08	gray laminated siltstone with limestone laminae present occasionally
n	.46	mottled gray and red clayey siltstone with thin fossil roots. Palyniferous (W. B. Cornet, pers. comm.)
o	.03	gray coarse siltstone
p	.18	gray small scale cross-bedded coarse siltstone with numerous natural casts of reptile footprints on lower contact
q	.18	gray ripple-bedded fine siltstone with numerous reptile footprints
r	.31	gray ripple-bedded coarse siltstone grading into unit q. Reptile footprints common.
s	.08	same as p
t	.14	gray and reddish siltstone with numerous reptile footprints
u	.44	red and gray claystone
v	.05	gray and red siltstone with large dinosaur footprints
w	.13	gray and red siltstone with numerous reptile footprints

Type Section of the Towaco Formation
(measured from top down)
(see Figure 11)

Basal Hook Mountain Basalt and cycle A of Towaco Formation exposed in the "Dinosaur Tract" of the Essex County Park Commission adjacent to the "Nob Hill" condominium project, where cycle B and the upper part of cycle C were exposed prior to 1977 (Olsen, 1975). All these exposures were part of the Roseland Quarry, Roseland, New Jersey.

Unit letter from Figure 16	Thickness	Description
Hook Mountain Basalt, 1st flow	35.0	Tholeiitic Basalt. Massive at base, columnar jointed in middle, vesicular at top.
Towaco Formation Volcanoclastic bed		
a	.9	Brown, badly weathered palagonitic unit consisting of shards of altered glass in a matrix of brown ?radial natrolite when fresh.
Upper Cycle (A)		
b	.5	Light gray and lavender siltstone, locally laminated with small scale crossbedding. May contain volcanoclastic component.
c	1.2	Dark lavender and maroon siltstone with small scale crossbedding. Small orange crystals (weathered) along fracture planes.
d	1.8	Deep red, hard siltstone grading into units above and below. Contains one fining-upwards cycle with reptile footprints common.
e	29.3	10 red fining-upwards cycles, each a mean of 2.9 m thick and composed of thick beds of red sandstone or coarse siltstone with prominent slip-off surfaces grading up into beds of ripple-bedded siltstone and blocky siltstone. Lowest cycle contains buff intraformational breccia with coprolites, reptile bone fragments, and fish scales. Lower cycles contain numerous calcareous lenticular concretions most common in coarse parts of cycles. Fine parts of middle cycles contain numerous small dolomitic concretions and deep mud cracks. Reptile footprints common in lower and upper cycles, as are root casts.
f	3.4	Gray and buff fining-upwards cycles consisting of a lower, cross-bedded sandstone grading up into lavender and gray siltstone. Reptile footprints and carbonized plants common.
g	1.1	Gray-green fine siltstone massive and indistinctly bedded. Small bits of carbonized stems and leafy twigs common. Palyniferous (Cornet, 1977).
h	.6	Dark to light gray, very fine and fine siltstone with massive to fine bedding and local load casts and ?gypsum crystal impressions. Good plant fragments including several conifer species, *Semionotus* scales and coprolites, and a single beetle elytron.
i	.4	Black, slickensided very fine siltstone with common chert nodules with a globular fabric.
j	.2	Black laminate. Black carbonaceous siltstone and white carbonate couplets .42 mm thick. Upper part of unit has several 5 mm thick graded, black siltstone layers. Grades into unit i.
k	.3	Light gray clayey siltstone, soft with black laminae becoming common upwards. Grades into unit j.
l	2.5	Gray fining-upward cycle composed of a lower cross-bedded sandstone containing numerous tree limbs, branches and roots grading upwards into a fine, well-bedded siltstone, locally ripple-bedded with numerous reptile footprints. Uppermost portion contains gray-green massive siltstone.
m	.9	Gray-buff, well bedded siltstone with dinosaur footprints and plant roots preserved both as carbonized impressions and natural casts.
Cycle B		
n	4.2	Red, thick fining-upward cycle. Lower part consists of thick beds of red sandstone with slip-off surfaces, local intraformational conglomerates and natural casts of large tree limbs or roots and a possible large reptile jaw. Middle part composed of 5 cm ± fine graded beds with very rare bone fragments and ?dinosaur teeth and exceptionally good reptile footprints. Plant fragments common and preserved as impressions or natural casts. Upper part is fine siltstone and plant remains present either as natural casts or carbonized compressions surrounded by gray-green halos. Grades upward into unit m.

Unit letter from Figure 16	Thickness	Description
All but the top of the following are no longer exposed.		
o	16.8	6. red fining-upwards cycles. Each cycle similar to unit n but a mean thickness of less than 1 meter. Middle 3 cycles contain numerous round dolomitic concretions and deep mudcracks in the fine portions. Reptile footprints common: plant remains (twigs and roots) present as impressions and natural casts.
p	5.2	2 or 3 gray fining-upwards cycles pinching out to the south where only one remains. Lower part of cycle consists of gray and buff cross-bedded sandstone grading upward into fine gray-blue or gray-green siltstone. Uppermost cycle composed of gray sandstones and red siltstones. Plant remains common as carbonized compressions. fine units palyniferous and reptile footprints common.
q	.8	Basal portion is a laminate composed of laminae of dark organic-rich siltstone alternating with light carbonate laminae forming couplets 0.4 mm thick. Upper part of laminate has 5 mm black graded beds. Upper part of unit consists of beds of graded sandstones and siltstones with minor intraformational conglomerate made up of the laminite. *Semionotus* abundantly preserved as articulated compressions in laminite and in three dimensions in the sandstones. Carbonized plant compressions common.
r	.2	Black indistinctly-bedded siltstone. Gradational with unit s.
s	4.9	Olive massive slurried and convoluted bedded coarse poorly sorted siltstones grading upwards into poorly bedded gray-blue siltstones with numerous clasts of unit t throughout. Some recumbent folds over a meter between limbs.
t	.5	Black laminite very similar to laminite of unit q but without *Semionotus*.
u	.6	Light gray or buff clayey siltstone grading into units t and v. Black laminae common upward.
v	3.0	Gray fining-upwards cycle composed of basal coarse. cross-bedded siltstone grading up into fine siltstone. Carbonized fragments of plants present.
w	1.0	Gray small-scale cross-bedded siltstone, grades downward into unit x.
Cycle C		
X	4.3	Red small-scale cross-bedded siltstone.

Table 6

Type section of the Boonton Formation

Top of section exposed just east of the dam for the Jersey City Reservoir in Boonton. New Jersey. Section measured from top down (see Figure 20).

Thickness (m)	Description
+1	Gray coarse to fine siltstone and sandstone (now covered)
+1	Gray laminite composed of laminae of gray siltstone alternating with laminae of carbonate forming couplets of a mean of 2.5 mm. Unit also contains coarse to fine graded siltstones 1 mm to 2.5 cm thick. Fossil fish of 4 genera (see Figure 15) present along with numerous carbonized plant compressions and conchostracans. This is the famous Boonton Fish Bed (unit now covered).
.5	Gray clayey siltstone with common carbonized plant compressions (mostly conifers). Unit palyniferous (Cornet, 1977).
1.2	Gray fining-upwards cycle made up of coarse to fine cross-bedded sandstone grading up into small-scale cross-bedded siltstone. Reptile footprints common.
15.7	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common. Dolomitic concretions and reptile footprints present.
3.4	Gray coarse siltstone grading up into fine gray siltstone. Carbonized plant compressions present. Unit palyniferous.
+5	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common. Dolomitic concretions present.
ca.20	covered

Thickness (m)	Description
+5	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common (mostly covered).
1.1	Gray fine sandstone to fine conglomerate. Cross-bedded (tongue of Morristown facies).
2.6	Gray clayey siltstone with carbonized plant fragments.
1.4	Gray fine sandstone to conglomerate, cross-bedded with fine siltstone interbeds and carbonized plant fragments (tongue of Morristown facies).
1.6	Gray clayey siltstone with groove casts. Carbonized plant remains present.
+1.5	Gray sandstone and conglomerate, cross-bedded (tongue of Morristown facies).
ca.30	covered
+17.0	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common. Dolomitic concretions and reptile footprints present.
.9	Red and gray fine siltstone.
.9	Gray fine siltstone.
1.4	Gray fine sandstone and coarse siltstone: small-scale cross-bedding and carbonized plant fragments present.
+.9	Gray fine siltstone with carbonized plant fragments.
ca.20	covered
+7.9	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common. Dolomitic concretions and reptile footprints present.
1.5	Gray fine siltstone with carbonized plant fragments.
3.1	Red siltstone with dolomitic concretions and small-scale cross-bedding.
ca.1	Gray fine siltstone (poorly exposed).
13.8	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding common. Dolomitic concretions present.
ca.1	Gray fine siltstone (poorly exposed).
1.5	Red siltstone with small-scale cross-bedding.
.8	Gray coarsening upwards siltstone.
6.1	Red sandstone and siltstone in indistinct fining-upwards cycles. Small-scale cross-bedding and dolomitic concretions common.

REFERENCE NO. 30

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	1-30-90	0855 00/9C 22-9001-13

DISTRIBUTION: file, PFISTER CHEMICAL, INC.

BETWEEN:	OF:	PHONE:
GARY ~~LIPSIUS~~ LIPSIUS MJ 1-30-90	NJDEP BUREAU OF CASE MGMT (BCM)	(609) 633-0719

AND: D. LAMOND, NUS

DISCUSSION:

RE: STATUS OF STATE ACTION AT PFISTER.

BCM IS OFFICE FOR CASES WHICH ARE UNDER AN AMINISTRATIVE CONSENT ORDER (ACO) BUT THE PRP IS HANDLING THE COMPLIANCE WITH THE ACO. THESE ARE STATE "LEAD" CASES IN CLEANUP ENFORCEMENT; NOT ASSOCIATED WITH ECRA OR RCRA (RCRA SITES ARE UNDER "FEDERAL SITES" WITH STATE LEAD).

LIPSIUS SAID PFISTER ~~SUBMITTED~~ SIGNED MJ 1-30-90 THE ACO ON 1/3/89 BUT AS YET HAS NOT INITIATED WORK ON THE REMEDIATION SPECIFIED IN THE ACO. ACO REQUIRES INSTALLATION OF 7 MONITORING WELLS AND A NUMBER OF SOIL BORINGS IN THE LAGOON. WORK SHOULD BEGIN IN MARCH. LIPSIUS SAID THAT PFISTER HAS BEEN "DRAGGING THEIR FEET"

ACTION ITEMS:

CALL GUSMANO, PFISTER PLANT MGR., AND INFORM HIM THAT WE WILL BE CONDUCTING SI AS ASSIGNED. COPY LIPSIUS IF ACCESS OBTAINED.

ON IMPLEMENTING THE ACO BUT FINALLY SUBMITTED A WORKPLAN AFTER DEP THREATENED FINES. A GEOPHYSICAL SURVEY HAS BEEN DONE OF THE LAGOON AREA AND SOME SLUDGE SAMPLES WERE TAKEN. LIPSIUS SAID THIS INFORMATION IS AVAILABLE IN HIS OFFICE AT 401 E. STATE ST. IN TRENTON (5TH FL). LIPSIUS ALSO SAID THERE IS A 350' PRODUCTION WELL ON-SITE WHICH IS CONTAMINATED. LIPSIUS ALSO GAVE HIS OPINION THAT THIS IS A "NASTY" SITE. HE WOULD LIKE TO BE COPIED ON CORRESPONDANCE WITH PFISTER IF WE ARE GIVEN ACCESS TO SAMPLE. SEE ACTION ITEMS.

REFERENCE NO. 31

Date: _____
Company
By: _____
Date: _____
Contractor
By: _____
Date: _____

[FR Doc. 84-1432 Filed 1-23-84; 8:45 am]
BILLING CODE 6560-50-M

[OW-FRL-2460-3]

Brunswick Shale and Sandstone Aquifer of the Ridgewood Area, New Jersey; Final Determination

AGENCY: U.S. Environmental Protection Agency.

ACTION: Notice.

SUMMARY: Pursuant to Section 1424(e) of the Safe Drinking Water Act, the Administrator of the U.S. Environmental Protection Agency (EPA), has determined that the Brunswick Shale and Sandstone Aquifer, underlying the Ridgewood Area, is the sole or principal source of drinking water for Ridgewood, Midland Park, Glen Rock, and Wyckoff, New Jersey, and that the aquifer, if contaminated, would create a significant hazard to public health. As a result of this action, Federal financially assisted projects constructed in the Ridgewood Area and its streamflow source zone (upstream portions of Ho Ho Kus Brook and Saddle River Run drainage basins) will be subject to EPA review to ensure that these projects are designed and constructed so that they do not create a significant hazard to public health.

ADDRESSES: The data on which these findings are based are available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Water Supply Branch, 26 Federal Plaza, New York, New York 10278.

FOR FURTHER INFORMATION CONTACT: Damina J. Duda, Water Supply Branch, 26 Federal Plaza, New York, New York 10278 (212) 264-1800.

SUPPLEMENTARY INFORMATION: Notice is hereby given that pursuant to Section 1424(e) of the Safe Drinking Water Act (42 U.S.C., 300f, 300h-3(e), Pub. L. 93-523), the Administrator of the U.S. Environmental Protection Agency (EPA) has determined that the Brunswick Shale and Sandstone aquifer of the Ridgewood Area is the sole or principal source of drinking water for Ridgewood, Midland Park, Glen Rock, and Wyckoff, New Jersey. Pursuant to Section 1424(e), Federal financially assisted projects constructed in the Ridgewood Area and its streamflow source zone (upstream portions of Ho Ho Kus Brook, and

Saddle River Run drainage basins) will be subject to EPA review.

I. Background

Section 1424(e) of the Safe Drinking Water Act state:

(e) If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

On July 4, 1979, the Committee to keep Our Water Pure petitioned EPA to designate the Brunswick Shale and Sandstone Aquifer of the Ridgewood Area as sole source aquifer. On January 15, 1980, EPA published a notice in the Federal Register announcing a public comment period and setting a public hearing date. A public hearing was conducted on February 28, 1980, and the public was allowed to submit comments on the petition until March 28, 1980.

II. Basis for Determination

Among the factors to be considered by the Administrator in connection with the designation of an under Section 1424(e) are: (1) Whether the aquifer is the area's sole or principal source of drinking water, and (2) whether contamination of the aquifer would create a significant hazard to public health.

On the basis of information available to this Agency, the Administrator has made the following findings, which are the basis for the determination noted above:

1. The Brunswick Shale and Sandstone Aquifer of the Ridgewood Area is the "sole source" of drinking water for the approximately 68,820 residents of Ridgewood, Midland Park, Glen Rock, and Wyckoff, New Jersey.

2. There is no existing alternative drinking water source or combination of sources which provides fifty percent or more of the drinking water to the designated area.

3. The Brunswick formation is a soft red shale interbedded with coarse grained sandstone. The aquifer is overlain by permeable unconsolidated glacial and recent deposits. As a result of permeable soil characteristics, the Brunswick Shale and Sandstone Aquifer of the Ridgewood Area is highly susceptible to contamination through its recharge zone from a number of sources, including but not limited to, chemical spills, leachate from landfills, stormwater runoff, highway deicers, faulty septic systems, wastewater treatment systems, and waste disposal lagoons. The aquifer is also susceptible to contamination to a lesser degree from the same sources, through its streamflow source zone. Since ground water contamination can be difficult or impossible to reverse and since the aquifer in this area is solely relied upon for drinking water purposes by the population of the Ridgewood Area, contamination of the aquifer could pose a significant hazard to public health.

III. Description of the Brunswick Shale and Sandstone Aquifer of the Ridgewood Area, Its Recharge Zone and Its Streamflow Source Zone

The Brunswick Shale and Sandstone Aquifer is a soft red shale interbedded with coarse grained sandstone. The formation, located in northern New Jersey, is fairly large, extending south into Pennsylvania and north into New York. Igneous intrusions which form the Watchung Mountains and the Palisades, also form the western and eastern boundaries of the Burnswick formation, respectively. The area in which Federal financially assisted projects will be subject to review is the portion of the Brunswick Shale and Sandstone Aquifer in the Ridgewood Area, its streamflow source zone, and its recharge zone.

For the purposes of this designation, the Brunswick Shale and Sandstone Aquifer of the Ridgewood Area is considered to include the entire municipalities of Ridgewood, Midland Park, Glen Rock, and Wyckoff, New Jersey. It's recharge zone is considered to be one and the same with this area. The streamflow source zone is that portion of the drainage basins of Ho Ho Kus Brook and Saddle River Run located upstream of the Ridgewood area. This includes all or a portion of the following New Jersey municipalities: Waldwick, Allendale, Ramsey, Mahwah, Franklin Lakes, Ho Ho Kus, Saddle River, Upper Saddle River, Woodcliff Lake, Hillside, Washington, Montvale, as well as Ramapo Township, New York.

IV. Information Utilized in Determination

The information utilize in this determination includes the petition, written and verbal comments submitted by the public, and various technical publications. The above data is available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Region II, Water Supply Branch, 26 Federal Plaza, New York, New York 10278.

V. Project Review

EPA Region II is working with the Federal agencies that may in the future provide financial assistance to projects in the area of concern. Interagency procedures have been developed through which EPA will be notified of proposed commitments by Federal agencies for projects which could contaminate the Brunswick Shale and Sandstone Aquifer, upon which the Ridgewood Area is dependent for its sole source water supply. EPA will evaluate such projects and, where necessary, conduct an in-depth review, including soliciting public comments where appropriate. Should the Administrator determine that a project may contaminate the aquifer through its recharge zone so as to create a significant hazard to public health, no commitment for Federal financial assistance may be entered into. However, a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

Although the project review process cannot be delegated, the U.S. Environmental Protection Agency will rely to the maximum extent possible on any existing or future State and local control mechanisms in protecting the ground water quality of the Brunswick Shale and Sandstone Aquifer on which the Ridgewood Area is dependent for its sole source water supply. Included in the review of any Federal financially assisted project will be coordination with the State and local agencies. Their comments will be given full consideration and the Federal review process will attempt to complement and support State and local ground water protection mechanisms.

VI. Summary and Discussion of Public Comments

Most comments were generally in favor of designation. Two local governments submitted resolutions in support of designation. Only two commenters expressed any reservations regarding the designation.

One commenter expressed concern that the proposed designation would provide protection which is duplicative of State and local controls and may lead to unnecessary bureaucratic delays of

projects. Although a number of ground water protection measures are available at the Federal, State and local level, none of these, either, individually or collectively, permit EPA to act as directly as would a sole source designation in the review and approval of Federal financially assisted projects. In addition, EPA feels that the sole source project review process will foster integration rather than duplication of environmental review efforts. Memoranda of Understanding have been negotiated with various Federal agencies, with the purpose of streamlining the review process and minimizing project delays.

One commenter expressed concern that the area proposed for sole source designation could be an arbitrary political subdivision of the larger Brunswick aquifer system. The commenter questioned whether sufficient consideration had been given to the physical limits of the hydrologic system. The EPA recognizes that the aquifer does indeed cover a large area. However, a significant portion of the population in these other areas utilize other sources of water supply or have alternative sources available.

Concern was also raised that the Ridgewood Area may have alternative water supply available through adjacent water purveyors; specifically, the Passaic Valley Water Commission or the Hackensack Water Company. EPA has reviewed this matter and determined that either insufficient supply is currently available (in one case) or interconnections between the Ridgewood Area and the purveyor are currently not adequate to handle the Area's demand. Furthermore, the Brunswick Shale and Sandstone Aquifer in the Ridgewood Area is a source of water for export to adjacent purveyors during drought conditions.

The area considered for designation was determined to meet the criteria of an area which depends upon an aquifer for its sole or principal drinking water source and which, if contaminated, would pose a serious threat to the health of the Ridgewood Area residents.

VII. Economic and Regulatory Impact

Pursuant to the provisions of the Regulatory Flexibility Act (RFA), 5 U.S.C. 605(b), I hereby certify that the attached rule will not have a significant impact on a substantial number of small entities. For purposes of this Certification the "small entity" shall have the same meaning as given in Section 601 of the RFA. This action is only applicable to the Ridgewood Area.

The only affected entities will be those Area-based businesses, organizations or governmental jurisdictions that request Federal financial assistance for projects which have the potential for contaminating the aquifer so as to create a significant hazard to public health. EPA does not expect to be reviewing small isolated commitments of financial assistance on an individual basis, unless a cumulative impact on the aquifer is anticipated; accordingly, the number of affected small entities will be minimal.

For those small entities which are subject to review, the impact to today's action will not be significant. Most projects subject to this review will be proceded by a ground water impact assessment required pursuant to other Federal laws, such as the National Environmantal Policy Act, as amended (NEPA), 42 U.S.C. 4321, et seq. Integration of those related review procedures with sole source aquifer review will allow EPA and other Federal agencies to avoid delay or duplication of effort in approving financial assistance, this minimizing any adverse effect on those small entities which are affected. Finally, today's action does not prevent grants of Federal financial assistance which may be available to any affected small entity in order to pay for the redesign of the project to assure protection of the aquifer.

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it will not have an annual effect of $100 million or more on the economy, will not cause any major increase in costs or prices, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States enterprises to compete in domestic or export markets. Today's action only affects the Brunswick Shale and Sandstone Aquifer of the Ridgewood Area. It provides an additional review of ground-water protection measures, incorporating State and local measures whenever possible, for only those projects which request Federal financial assistance.

Dated: January 12, 1983.

William D. Ruckelshaus,
Administrator.

[FR Doc. 84-1887 Filed 1-23-84; 8:45 am]
BILLING CODE 6560-50-M

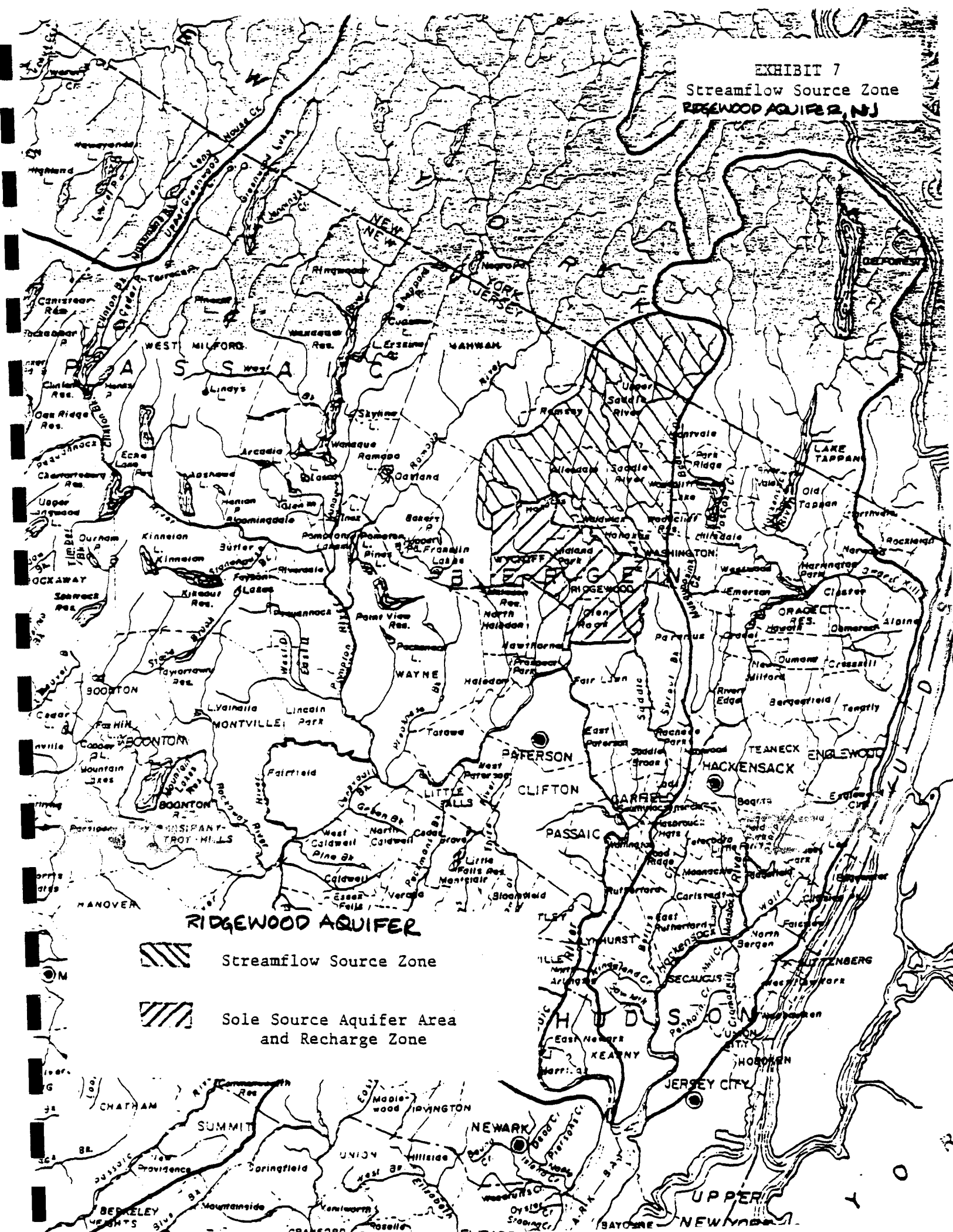


EXHIBIT 7
Streamflow Source Zone
RIDGEWOOD AQUIFER, NJ
RIDGEWOOD AQUIFER
Streamflow Source Zone
Sole Source Aquifer Area
and Recharge Zone
PASSAIC
BERGEN
HUDSON
NEW YORK
NEW JERSEY
WEST MILFORD
MAHWAH
WYCKOFF
RIDGEWOOD
WASHINGTON
WAYNE
BOONTON
MONTVILLE
PATERSON
CLIFTON
LITTLE FALLS
GARFIELD
PASSAIC
HACKENSACK
TEANECK
ENGLEWOOD
LAKE TAPPAN
DELFOREST
SECAUCUS
KEARNY
JERSEY CITY
HOBOKEN
NEWARK
IRVINGTON
UNION
SUMMIT
CHATHAM
HANOVER
BERKELEY HEIGHTS
UPPER NEW YORK

SOLE SOURCE AQUIFERS IN REGION II

Name	State	Citation	Publication Date
Nassau/Suffolk	NY	43 FR 26611	06/21/78
Buried Valley Aquifer System (AS)	NJ	45 FR 30357	05/08/80
Ridgewood Area	NJ	49 FR 2943	01/24/84
Upper Rockaway River Basin	NJ	49 FR 2946	01/24/84
Brooklyn/Queens	NY	49 FR 2950	01/24/84
Schenectady/Niskayuna	NY	50 FR 2022	01/14/85
Clinton Street-Ballpark AS	NY	50 FR 2025	01/14/85
Cattaraugus Creek AS	NY	52 FR 36100	09/25/87
Highlands AS	NJ/NY	52 FR 37213	10/05/87
Cortland-Homer-Preble AS	NY	53 FR 22045	06/13/88
Northwest New Jersey Fifteen Basin AS	NJ/NY	53 FR 23685	06/23/88
New Jersey Coastal Plain AS	NJ	53 FR 23791	06/24/88

REFERENCE NO. 32

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual

(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

TABLE 2

PERMEABILITY OF GEOLOGIC MATERIALS*

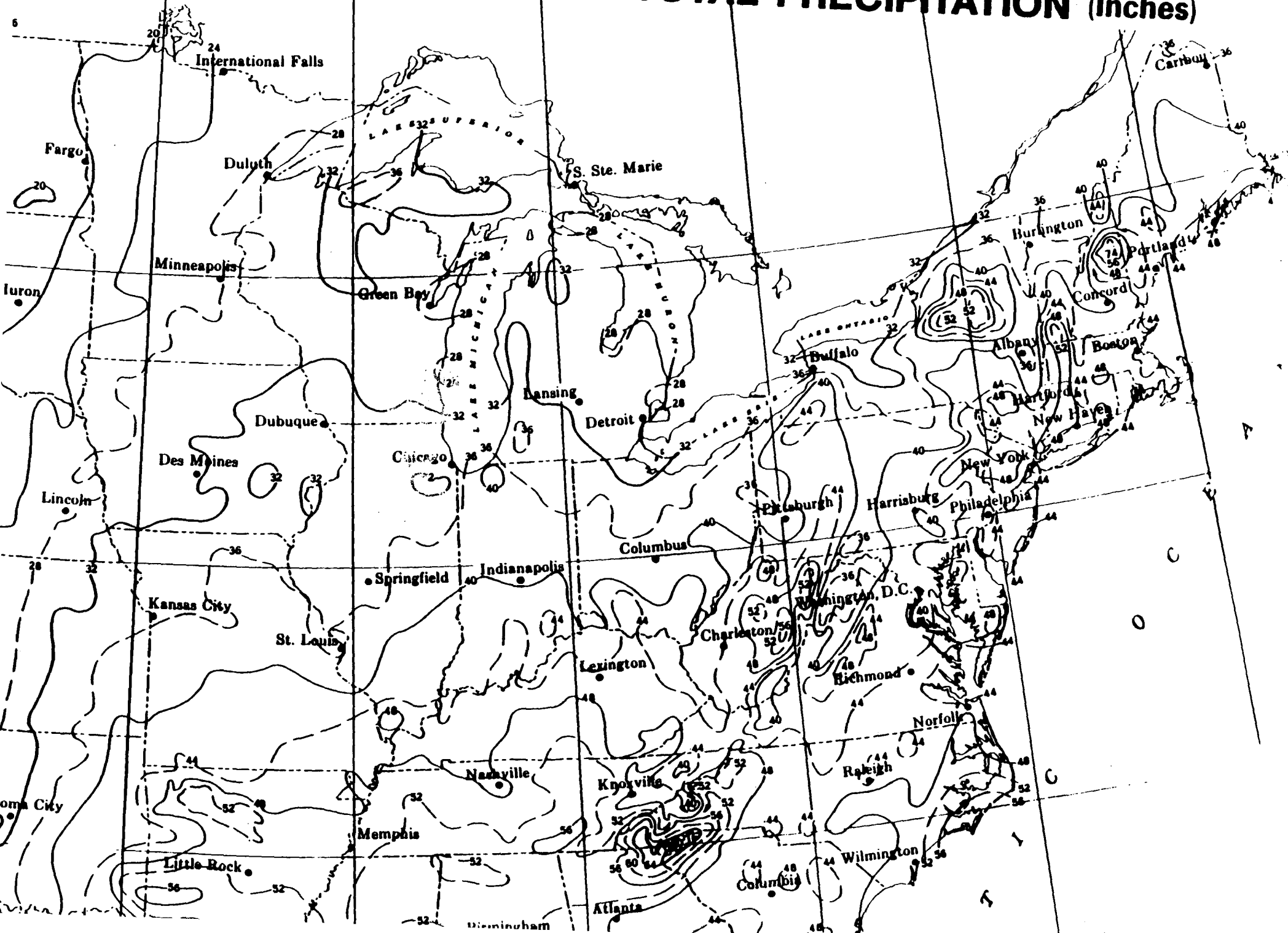
Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$10^{-5} - 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$10^{-3} - 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$>10^{-3}$ cm/sec	3

*Derived from:

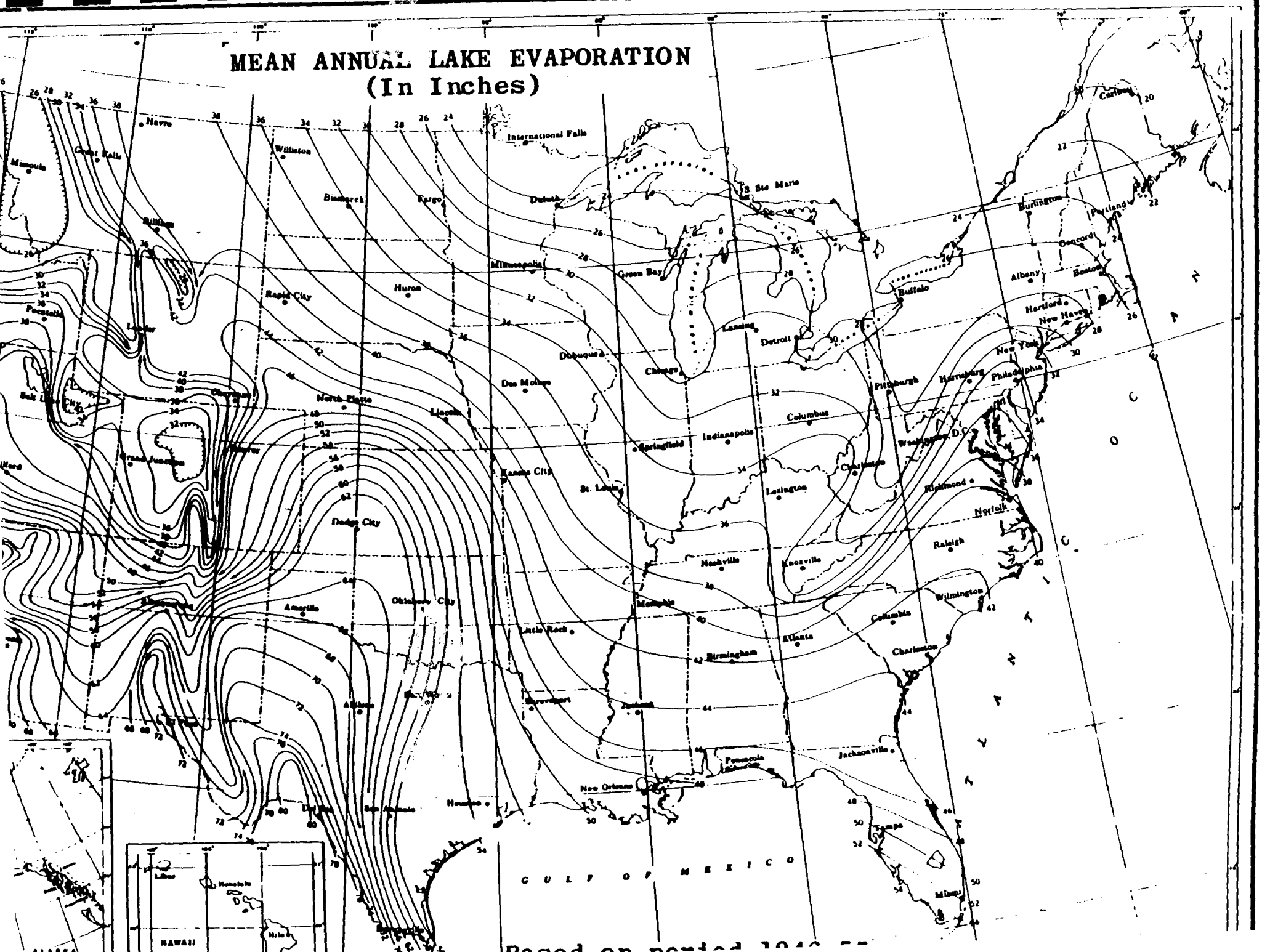
Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

NORMAL ANNUAL TOTAL PRECIPITATION (Inches)

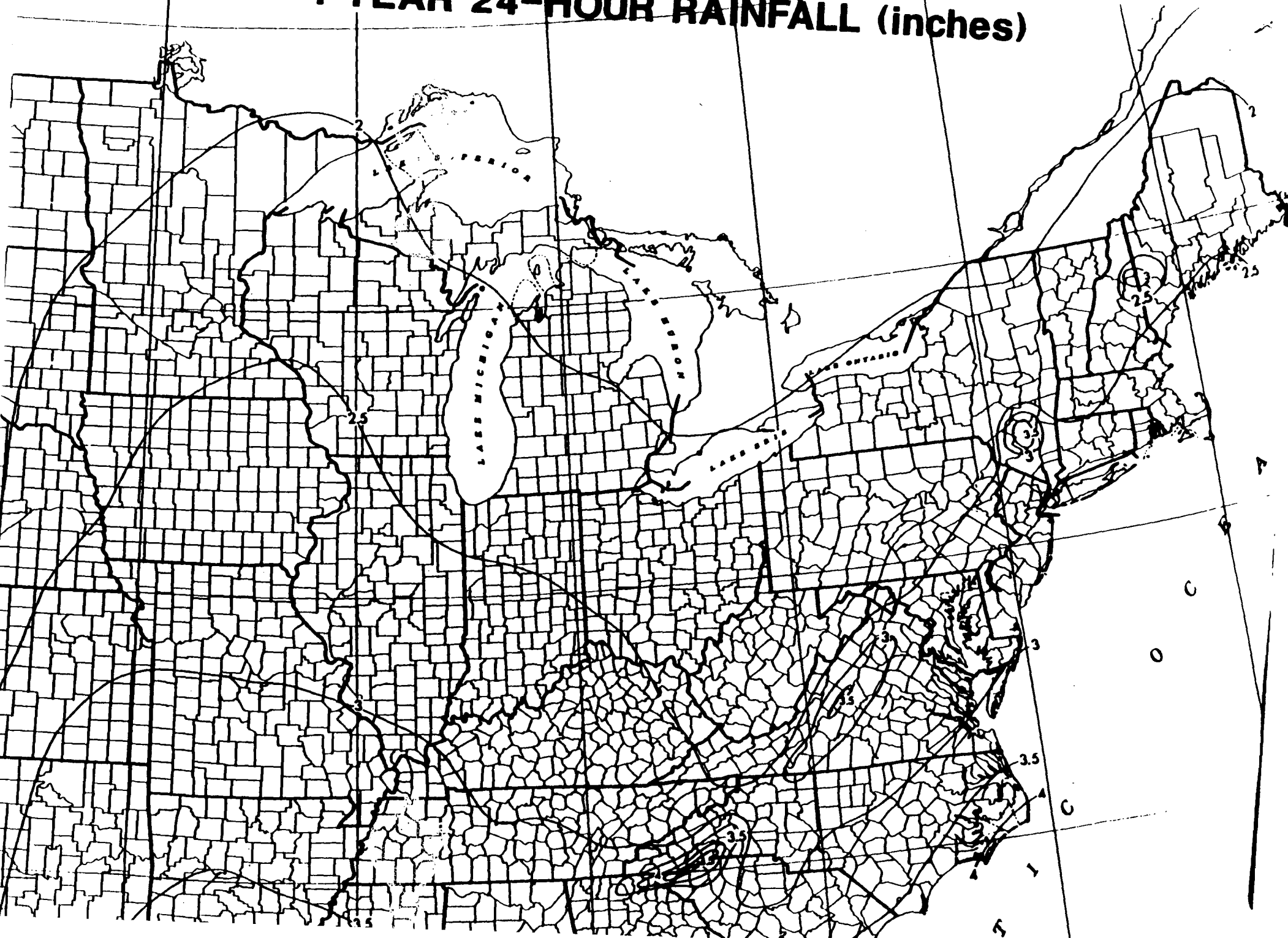


MEAN ANNUAL LAKE EVAPORATION
(In Inches)



Based on period 1946-55

1 YEAR 24-HOUR RAINFALL (inches)



REFERENCE NO. 33

HACKENSACK
TENAFLY
ENGLEWOOD
BOGOTA
TEANECK
LEONIA
RIDGEFIELD PARK
PALISADES PARK
FORT LEE
RIDGEFIELD
CLIFFSIDE PARK
FAIRVIEW
NORTH BERGEN
SECAUCUS
LITTLE FERRY
Moonachie
Teterboro
BROUCK HEIGHTS
SOUTH HACKENSACK
West New York
Edgewater
Grantwood
Morsemere
Babbitt
Nearest Potable well
Septic water entry point
INTERCHANGE 68
INTERCHANGE 18W
INTERCHANGE 16W
HUDSON RIVER
BERGEN CO
HUDSON CO
NEW JERSEY
NEW YORK
SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 2 FEET
4 FEET IN THE HUDSON RIVER AND 5.7 FEET IN THE EAST RIVER
NUS CORPORATION
TITLE: THREE MILE VICINITY MAP
SITE :
PFISTER CHEMICAL,
RIDGEFIELD, N.J.
DATE : 01-18-90
TDD : 02-9001-13
QUAD :
FIGURE NUMBER:
SCALE: 1"=2000'

REFERENCE NO. 34

0014 N
02-9001-13

GEMS> I

pfister chemical
LATITUDE 40:50:33 LONGITUDE 74: 0:33 1980 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	1477	17919	71070	79877	442669	613012
RING TOTALS	0	1477	17919	71070	79877	442669	613012

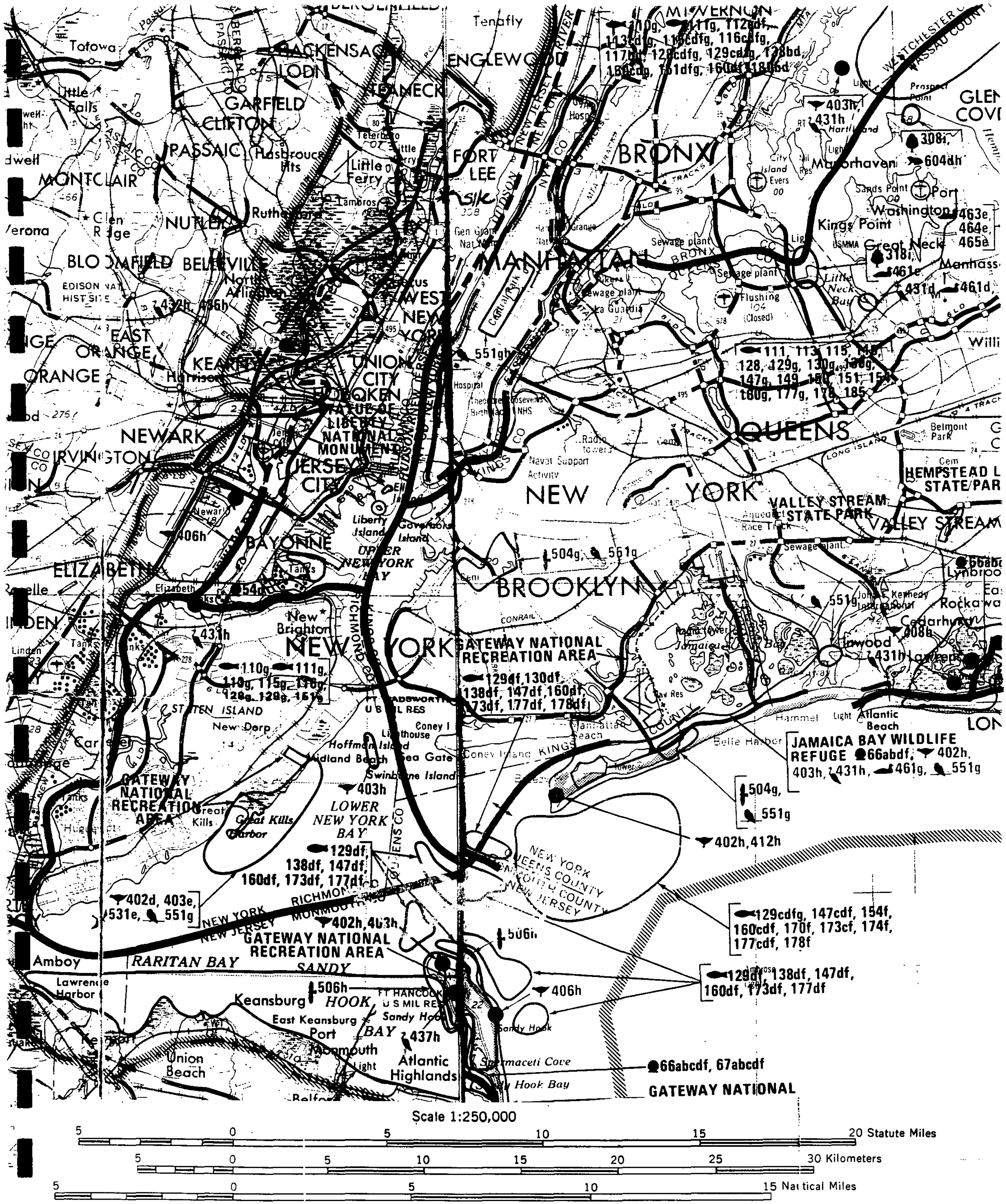
GEMS> I

pfister chemical
LATITUDE 40:50:33 LONGITUDE 74: 0:33 1980 HOUSING

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	579	7152	28782	32170	181367	250050
RING TOTALS	0	579	7152	28782	32170	181367	250050

Miles	Population	Housing
1/4	0	0
1/2	1477	579
1	19396	7731
2	90466	36513
3	170343	68683
4	613012	250050

REFERENCE NO. 35



TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METER UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 18

FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092, OR DENVER, COLORADO 80225

TERRESTRIAL ORGANISMS

[illegible] in BROWN: species with special status shown
[illegible]-(F) or (S) indicates species protected by
[illegible]al or State Legislation (see text)

SYMBOL SPECIES

PLANTS (301-350)

- 301 Eastern hemlock
- 302 Spleenwort (S)
- 303 Spider lily (S)
- 304 Pond bush (S)
- 305 Watermilfoil (S)
- 306 Hooded pitcher plant (S)
- 307 Tree
- 308 Prickly pear cactus (S)
- 309 Trailing arbutus (S)
- 310 Eastern bumelia
- 311 Pitcher plant
- 312 Baldcypress
- 313 Redbay
- 314 Seaside alder
- 315 Box huckleberry
- 316 Purple fringeless orchid
- 317 Pink lady's slipper
- 318 Ebony spleenwort (S)
- 319 Orchids (S)
- 320 Golden club (S)
- 321 Florida beargrass
- 322 East-coast coontie
- 323 Fall-flowering ixia
- 324 Jackson-vine
- 325 Spoon-flower
- 326 Curtiss milkweed
- 327 Sea lavender
- 328 Hand fern
- 329 Needle palm
- 330 Yellow squirrel-banana
- 331 Beach creeper
- 332 Florida coontie
- 333 Four-petal pawpaw
- 334 Bird's nest spleenwort
- 335 Burrowing four-o'clock
- 336 Beach star
- 337 Silver palm
- 338 Dancing lady orchid
- 339 Tamarindillo
- 340 Fuch's bromeliad
- 341 Everglades peperomia
- 342 Buccaneer palm
- 343 Slender spleenwort
- 344 Pineland jacquemontia
- 345 Mangoany mistletoe
- 346 Florida thatch
- 347 Twisted air plant
- 348 Long's bittercress
- 349 Venus's flytrap

INVERTEBRATES (351-400)

- 351 Monarch butterfly
- 352 Zebra butterfly

BIRDS (401-600)

SHOREBIRDS (401-430)

- 401 Shorebirds
- 402 Terns
- 403 Gulls
- 404 Forster's tern
- 405 Arctic tern
- 406 Least tern (S)
- 407 Roseate tern (S)
- 408 Common tern
- 409 Great black-backed gull
- 410 Herring gull
- 411 Laughing gull
- 412 Black skimmer (S)
- 413 Turnstones
- 414 Plovers
- 415 Piping plover
- 416 American oystercatcher (S)

WADING BIRDS (431-460)

- 431 Wading birds
- 432 Herons
- 433 Egrets
- 434 Rails
- 435 Ibises
- 436 Bitterns
- 437 Great blue heron (S)
- 438 Wood ibis (S)
- 439 Anhinga
- 440 Little blue heron (S)
- 441 Yellow-crowned night heron (S)
- 442 Black-crowned night heron
- 443 Florida sandhill crane (S)
- 444 Louisiana heron (S)
- 445 Limpkin (S)
- 446 Roseate spoonbill (S)
- 447 Snowy egret (S)
- 448 Magnificent frigate-bird (S)
- 449 Reddish egret (S)
- 450 Clapper rail
- 451 King rail
- 452 Virginia rail
- 453 Sora rail

WATERFOWL (461-500)

- 461 Waterfowl
- 462 Swans
- 463 Geese
- 464 Dabbling ducks
- 465 Diving ducks
- 466 Common eider
- 467 Harlequin duck
- 468 Wood duck
- 469 Fulvous tree duck
- 470 Loons
- 471 Grebes
- 472 Brant geese
- 473 Snow goose
- 474 Gadwall
- 475 Black duck

RAPTORS (501-530)

- 501 Raptors
- 502 Owls
- 503 Kites
- 504 Hawks
- 505 Bald eagle (F)
- 506 Osprey (S)
- 507 Peregrine falcon (F)
- 508 Cooper's hawk (S)
- 509 Swallow-tailed kite
- 510 Marsh hawk (S)
- 511 Southeastern American kestrel (S)
- 512 Florida burrowing owl (S)

SEABIRDS (531-550)

- 531 Seabirds
- 532 Petrels, shearwaters, and albatrosses
- 533 Pelican and allies
- 534 Alcids
- 535 Brown pelican (F)
- 536 Black guillemot
- 537 Leach's petrel
- 538 Razorbill
- 539 Common puffin
- 540 Double-crested cormorant
- 541 Gannet
- 542 Wilson's petrel
- 543 Northern phalarope
- 544 Audubon's shearwater
- 545 Greater shearwater
- 546 Shearwaters
- 547 Petrels
- 548 Jaegers
- 549 White pelican

SONGBIRDS AND OTHERS (551-600)

- 551 Songbirds and others
- 552 Red-cockaded woodpecker (F)
- 553 Chachalaca
- 554 Bachman's warbler (F)
- 555 Wild turkey
- 556 American woodcock
- 557 Pileated woodpecker
- 558 Swainson's warbler
- 559 Ruffed grouse
- 560 Bobwhite
- 561 Mourning dove
- 562 Warblers
- 563 Ring-necked pheasant
- 564 Bank swallow
- 565 Dusky seaside sparrow (F)
- 566 White-crowned pigeon (S)

REPTILES AND AMPHIBIANS (601-700)

- 601 Eastern narrow-mouthed toad (S)
- 602 Eastern indigo snake (F)
- 603 American alligator (F)
- 604 Northern diamondback terrapin
- 605 Amphibians
- 606 Greater siren
- 607 Bog turtle (S)
- 608 Gopher tortoise (S)
- 609 Eastern tiger salamander (S)
- 610 Northern fence lizard
- 611 Five-lined skink
- 612 Map turtle
- 613 Plymouth red-bellied turtle (F)
- 614 Eastern diamondback rattlesnake
- 615 Carolina gopher frog
- 616 Florida gopher frog (S)
- 617 Atlantic salt marsh watersnake (F)
- 618 American crocodile (F)
- 619 Florida keys mole skink (S)
- 620 Florida black-headed snake (S)
- 621 Pine barrens tree frog (S)
- 622 Northern pine snake (S)
- 623 Corn snake (S)
- 624 Timber rattlesnake (S)
- 625 Southern gray tree frog (S)

MAMMALS (701-800)

- 701 Beaver
- 702 Whitetail deer
- 703 European fallow deer
- 704 Blackbeard Island deer
- 705 Opossum
- 706 Marsh rabbit
- 707 Rice rat
- 708 Raccoon
- 709 St. Simon Island raccoon
- 710 Mink
- 711 River otter (F)
- 712 Feral hog
- 713 Feral cow
- 714 Cumberland Island pocket gopher
- 715 Anastasia Island cotton mouse
- 716 Aquatic furbearers
- 717 Black bear (S)
- 718 Bobcat
- 719 Eastern gray squirrel
- 720 Eastern fox squirrel
- 721 Eastern cottontail
- 722 Delmarva fox squirrel (F)
- 723 Muskrat
- 724 Red fox
- 725 Bats
- 726 Gray fox
- 727 Striped skunk
- 728 Nutria
- 729 Longtail weasel
- 730 Colonial pocket gopher (S)
- 731 Wild ponies
- 732 Sika deer
- 733 Beach meadow vole
- 734 Block Island meadow vole
- 735 Pallid beach mouse (S)
- 736 Florida mouse (S)
- 737 Florida mouse (S)
- 738 Florida panther (F)
- 739 Goff's pocket gopher (S)
- 740 Key Largo wood rat (S)
- 741 Lower keys cotton rat (S)
- 742 Key Largo cotton mouse (S)

PLANTS (1-50)

- 1 Irish moss
- 2 Rockweed

INVERTEBRATES (51-100)

- 51 Crabs
- 52 Mussels
- 53 Oysters
- 54 Scallops
- 55 Clams
- 56 Worms
- 57 Shrimp
- 58 American lobster
- 59 Blue crab
- 60 Eastern oyster
- 61 European oyster
- 62 Bay scallop
- 63 Deep-sea scallop
- 64 Calico scallop
- 65 Surf clam
- 66 Hard clam
- 67 Soft shell clam
- 68 Brackish-water clam
- 69 Bloodworm
- 70 Sandworm
- 71 White shrimp
- 72 Brown shrimp
- 73 Northern shrimp
- 74 Rock crab
- 75 Jonah crab
- 76 Whelk
- 77 Ocean quahog
- 78 Pink shrimp
- 79 Stone crab
- 80 Spiny lobster

FISH (101-200)

- 101 Sharks, skates, rays
- 102 Herring
- 103 Salmon and trout
- 104 Catfish
- 105 Cod
- 106 Sunfish and bass
- 107 Drum
- 108 Flatfish
- 109 Longnose gar
- 110 Shortnose sturgeon (F)
- 111 Atlantic sturgeon (S)
- 112 American eel
- 113 Blueback herring
- 114 Hickory shad
- 115 Alewife
- 116 American shad (S)
- 117 Atlantic menhaden
- 118 Atlantic herring
- 119 Gizzard shad
- 120 Tarpon
- 121 Atlantic salmon
- 122 White catfish
- 123 Channel catfish
- 124 Yellow bullhead
- 125 Brown bullhead
- 126 Flat bullhead
- 127 Sea catfish
- 128 White perch
- 129 Striped bass
- 130 Black sea bass
- 131 Redbreast sunfish
- 132 Warmouth
- 133 Bluegill
- 134 Largemouth bass
- 135 Black crappie
- 136 Sheepshead
- 137 Spotted seatrout
- 138 Weakfish
- 139 Spot
- 140 Atlantic croaker
- 141 Southern kingfish
- 142 Northern kingfish
- 143 Gulf kingfish
- 144 Red drum
- 145 Star drum
- 146 Black drum
- 147 Summer flounder
- 148 Southern flounder
- 149 Winter flounder
- 150 Rainbow smelt
- 151 Atlantic tomcod
- 152 Threadfin shad
- 153 Carp
- 154 Atlantic mackerel
- 155 Chain pickerel
- 156 White bass
- 157 Northern puffer
- 158 Silver perch
- 159 Florida pompano
- 160 Bluefish
- 161 Spanish mackerel
- 162 Cobia
- 163 Mullet
- 164 White crappie
- 165 Redear sunfish
- 166 Smallmouth bass
- 167 Yellow perch
- 168 Pumpkinseed
- 169 Atlantic halibut
- 170 Atlantic cod
- 171 Pollock
- 172 Haddock
- 173 Hake
- 174 Bluefin tuna
- 175 Walleye

176 Northern pike
177 Scup
178 Tautog
179 Atlantic spadefish
180 Bay anchovy
181 Butterfish
182 Little tunny
183 Atlantic bonito
184 Brown trout
185 Cunner
186 Yellowtail flounder
187 Gulf flounder
188 Pinfish
189 King mackerel
190 Pigfish
191 White grunt
192 Tripletail
193 Ladyfish
194 Snook
195 Jack
196 Snapper
197 Grouper
198 Sailfish
199 Great barracuda
200 Maryland darter (F)

REPTILES AND AMPHIBIANS (201-250)

201 Green sea turtle (F)
202 Loggerhead sea turtle (F)
203 Hawksbill turtle (F)
204 Atlantic ridley turtle (F)
205 Leatherback turtle (F)

MAMMALS (251-300)

251 Florida manatee (F)
252 Atlantic bottlenose dolphin
253 Pigmy sperm whale
254 Short-finned pilot whale
255 Harbor seal
256 Gray seal
257 Right whale (F)
258 Atlantic spotted dolphin

HABITAT USE

Shown in RED for species with special status, BLUE for aquatic organisms and BROWN for terrestrial organisms

a Spawning ground
b Nursery
c Commercial harvesting area
d Adult concentration
e Overwintering area
f Sport fishing/hunting area
g Migratory area
h Nesting area
i Unusual distribution or specimen

High salinity estuarine habitat (generally 16.5 to 30 parts per thousand); arrows used for wide estuaries.

Mid salinity estuarine habitat (generally 5 to 16.5 parts per thousand).

Low salinity estuarine habitat (generally 0.5 to 5 parts per thousand) and

Non-tidal freshwater riv

POINT AND AREA FEATURE SYMBOLS

(shown in RED for species with special status; shown in BLUE for aquatic organisms; and shown in BROWN for terrestrial organisms)

Localized concentration of species 500h

General habitat boundary for indicated species; may be superceded by special land use boundary 100d

LAND USE–LAND COVER SYMBOLS

Study area (coastal zone boundary to three-mile limit) .....

Special land use areas, including refuges and wildlife management areas, parks and seashores; may be used in lieu of habitat boundary .....

Subdivision of a special land use area into more than one designation .....

Swamp .....

Marsh .....

Beach/Dunes .....

Seagrass .....

Reef .....

Scale 1:250,000

5 0 5 10 15 Statue Miles 20

5 0 5 10 15 20 25 Kilometres 30

5 0 5 10 Nautical Miles 15

TRANSVERSE MERCATOR PROJECTION

BLACK NUMBERED LINES INDICATE THE 10,000 METRE UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 18

FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092, OR DENVER, COLORADO 80225

NOTES

GENERAL

Brigantine Wilderness is a Class I air quality area.

SPECIES WITH SPECIAL STATUS

Shortnose sturgeon (110) is found in coastal and estuarine waters depicted on the Wilmington sheet.

American shad (116) is threatened in New Jersey.

Coastal marshes from Lakes Bay to Cape May (grid reference WU45 to WU01) are concentration areas for osprey nesting (506h)

Osprey, peregrine falcon, and Cooper's hawk (506, 507, 508) migrate in fall along the Delaware Bay coast to Cape May Point; peregrine falcon also migrates along the Atlantic coast depicted on the Wilmington sheet.

Pine barrens tree frog (621) is found in freshwater habitats along the Atlantic coast depicted on the Wilmington sheet.

AQUATIC ORGANISMS

Due to scale limitations, only representative estuarine and riverine systems are shown.

Species that can be found from the shoreline to the three-mile limit depicted on the Salisbury sheet include:

110g, 116g, 57cdf, 59de, 65abcdf, 66df, 111g, 113g, 115g, 117cd, 129cdfg, 130cdf, 138acdf, 139d, 140cd, 142adf, 147bcdf, 149df, 154cdf, 157f, 158a, 160cdf, 173cdf, 177cdf, 180ad, 181cd.

Generally includes the following species:

or

116dg, 59abcdef, 101f, 111g, 112cd, 113dg, 115dg, 117cd, 128cdg, 129cdfg, 138acdf, 139df, 140cdf, 142f, 146af, 147bcdf, 149bdf, 157f, 158abf, 160cdf, 173cdf, 177cdf, 178f, 180ad.

Generally includes the following species:

116dg, 59bcf, 111g, 112cd, 113g, 114, 115g, 117c, 128cfg, 129cdfg, 138bcf, 139bd, 140bcdf, 146bf, 147b, 149b, 158b, 160bcdf, 180abd.

Species limited mainly to the higher salinities of this habitat:

117b, 128b, 167b.

Generally includes the following species:

116g, 111g, 112bcd, 113abcfg, 114, 115abcfg, 119abd, 122cf, 125cf, 128abcdfg, 129cfg, 133df, 135df, 137, 159df.

Species limited mainly to the higher salinities of this habitat:

59cf, 117b, 129b, 138b, 139b, 140b, 147b, 160b, 180bd.

Species limited mainly to the lower salinities of this habitat:

129a, 134df, 153f, 155f, 164df, 167ab.

Generally includes the following species:

116cfg, 112cf, 113cfg, 114, 115cfg, 119abcf, 122abcf, 125abcf, 128f, 129f, 131f, 133f, 134f, 135f, 153f, 155f, 167fg, 168f.

Species limited mainly to the higher salinities of this habitat:

116a, 113ab, 115ab, 167ab.

Species of importance in a particular river, creek, or sound are denoted on the map.

TERRESTRIAL ORGANISMS

TERRESTRIAL ORGANISMS

High densities (3000 +/1000 acres) of geese and ducks (463ef, 464ef, 465ef) occur along the shores of Delaware Bay.

Waterfowl (461e), particularly loons and grebes (470, 471), and seabirds (531e), particularly gannet, Wilson's petrel, and greater shearwater (541e, 542e, 545e), occur in the Delaware Bay area depicted on the Wilmington sheet.

During migration and winter, large numbers of waterfowl and seabirds, especially diving ducks, Brant geese, alcids, and gannets (465, 472, 534, 541), also concentrate along the Intracoastal Waterway and coastal bays depicted on the Wilmington sheet; particularly high concentrations can be found on both sides of Long Beach Island.

High densities (25 +/100 acres) of bobwhite (560f) occur in the coastal zone depicted on the Salisbury sheet south of Dover.

In addition to mapped areas, high densities of whitetail deer (702) occur along the Delaware shore of Delaware Bay east of highway 113.

Commercially valuable furbearers common in marshes throughout the coastal zone depicted on the Wilmington sheet include:

708, 710, 711, 723.

REFERENCE NO. 36

0033-C
02-F810-17

United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 534
705 White Horse Pike
Absecon, New Jersey 08201
(609) 646-9310

November 14, 1988

Mr. Stanley B. Shulfer
NUS Corporation
1090 King Georges Post Road, Suite 1103
Edison, New Jersey 08837

Dear Mr. Shulfer:

This is in regard to your October 18, 1988 request to the Fish and Wildlife Service (Service) for information on the presence of federally listed endangered or threatened species within a 1-mile radius of seven Bergen County sites in the following municipalities: Ramsey, Mahwah, Teaneck, Lyndhurst, Closter and Fairview.

The peregrine falcon (Falco peregrinus) has been noted from the Avon Landfill, Lyndhurst, New Jersey. Falcons breeding on the Verranzano Bridge are thought to use portions of the Hackensack Meadowlands for feeding. The landfill probably represents one of these areas; however, the few occurrences over the past several years suggests it is not a favored site.

Aside from the peregrine falcon or other occasional transient species, no federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the study areas. Therefore, no biological assessment or further Section 7 consultation under the endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the Service. If additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of federally endangered and threatened species in New Jersey is enclosed for your information.

Although no federally listed or proposed species are known to occur with regularity at the seven sites, State listed endangered or threatened species may occur there. To confirm the presence of these species, please contact the following individuals:

Mr. Thomas Breden
Natural Heritage Program
Division of Parks and Forestry
CN 404
Trenton, New Jersey 08625
(609/984-0097)

Ms. JoAnn Frier-Murza, Chief
N.J. Division of Fish, Game and Wildlife
Endangered and Nongame Species Program
CN 400
Trenton, New Jersey 08625
(609/292-9101)

This letter is provided pursuant to the Endangered Species Act to ensure the protection of endangered and threatened species and their supporting ecosystems, and does not address Service concerns for other fish and wildlife resources. This information and additional information obtained from the aforementioned State sources represents the public interest for fish and wildlife resources and should warrant full consideration in the preparation of your report. Accordingly, the Service requests that no part of this letter be taken out of context, and if reproduced it should appear in its entirety.

If you would like to discuss this matter further, please contact Lynn Wilson of my staff.

Sincerely,

Clifford G. Day
Supervisor

Enclosure

ENDANGERED AND THREATENED SPECIES IN NEW JERSEY

species is any species which is in danger of extinction or a significant portion of its range.

species is any species which is likely to become an endangered within the foreseeable future throughout all or a significant portion its range.

COMMON NAME	SCIENTIFIC NAME	STATUS	DISTRIBUTION
Fishes:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Hudson, Delaware and Atlantic coastal rivers
Reptiles:			
Turtle, Atl. Ridley*	Lepidochelys kempii	E	Oceanic, summer resident coastal waters
Turtle, green*	Chelonia mydas	T	Oceanic, summer visitor coastal waters
Turtle, hawksbill*	Eretmochelys imbricata	E	Oceanic, summer visitor coastal waters
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic, summer visitor coastal waters
Turtle, loggerhead*	Caretta caretta	T	Oceanic, summer resident coastal waters, rarely nests: Atlantic and Cape May Counties
Birds:			
Eagle, bald	Haliaeetus leucocephalus	E	Entire state
Falcon, Am. peregrine	Falco peregrinus anatum	E	Entire state, re-establishment to former breeding range in progress
Falcon, Artic peregrine	Falco peregrinus tundrius	T	Entire state migratory
Plover, piping	Charadrius melodus	T	Entire state
Tern, roseate	Sterna dougallii dougallii	E	Entire state

Mammals:			
Cougar, eastern	Felis concolor couguar	E	Entire state, probably extinct
Whale, blue*	Balaenoptera musculus	E	Oceanic
Whale, finback*	Balaenoptera physalus	E	Oceanic
Whale, humpback*	Megaptera novaeangliae	E	Oceanic
Whale, right*	Balaena glacialis	E	Oceanic
Whale, sei*	Balaenoptera borealis	E	Oceanic
Whale, sperm*	Physeter catodon	E	Oceanic
Plants:			
Pogonia, small whorled	Isotria medeoloides	E	Sussex County
Swamp pink	Helonias bullata	T	Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Middlesex, Monmouth, Morris, Ocean, and Salem Counties

E: endangered species
T: threatened species

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service.

REFERENCE NO. 37

Surface Water Classifications

Surface Water Quality Standards
N.J.A.C. 7:9-4

Index D-
Surface Water Classifications of the Passaic, Hackensack and N.Y. Harbor Complex Basin

July 1985

State of New Jersey Department of Environmental Protection, Division of Water Resources

COOLEY BROOK	
(W. Milford) - Entire length, except segments described below	FW2-TP(C1)
(Hewitt) - Segments of the brook and all tributaries located entirely within Hewitt State Forest	FW1 [tp]
CORYS BROOK (Warren) - Entire length	FW2-NT
CRESSKILL BROOK	
(Alpine) - Source to Duck Pond Rd. bridge, Demarest	FW2-TP(C1)
(Demarest) - Duck Pond Rd. bridge to Tenakill Brook	FW2-NT
CUPSAW BROOK	
(Skylands) - Source to Cupsaw Lake dam, except segment described below	FW2-NT
(Skylands) - That segment of Cupsaw Brook above the dam and within the boundaries of Ringwood State Park	FW2-NT(C1)
(Skylands) - Cupsaw Lake dam to mouth	FW2-TM
DEAD RIVER (Liberty Corners) - Entire length	FW2-NT
DEN BROOK (Denville) - Entire length	FW2-NT
DUCK POND (Ringwood)	FW2-NT(C1)
ELIZABETH RIVER	
(Elizabeth) - Source to Broad St. bridge, Elizabeth and all freshwater tributaries	FW2-NT
(Elizabeth) - Broad St. bridge to mouth	SE3
FOX BROOK (Mahwah) - Entire length	FW2-NT
GLASMERE POND (Ringwood)	FW2-NT(C1)
GOFFLE BROOK (Hawthorne) - Entire length	FW2-NT
GRANNIS BROOK (Morris Plains) - Entire length	FW2-NT
GREAT BROOK	
(Chatham) - Entire length, except segment described below	FW2-NT
(Great Swamp) - Segment within the boundaries of the Great Swamp National Wildlife Refuge	FW2-NT(C1)
GREEN BROOK	
(W. Milford) - Entire length, except those segments described below	FW2-TP(C1)
(Hewitt) - Those segments located entirely within the Hewitt State Forest boundaries	FW1 [tp]
GREEN POND (Rockaway)	FW2-TM
GREEN POND BROOK (Picatinny Arsenal) - Green Pond outlet to Rockaway River	FW2-NT
GREENWOOD LAKE (W. Milford)	FW2-TM
→HACKENSACK RIVER	
(Oradell) - Source to Oradell dam	FW2-NT
→(Oradell) - Main stem and saline tributaries from Oradell dam to the confluence with Overpeck Creek	SE1
(Little Ferry) - Main stem and saline tributaries from Overpeck Creek to confluence with Berrys Creek	SE2
(Secaucus) - Main stem from Berrys Creek to Route 1 & 9 crossing	SE2
(Kearny Point) - Main stem downstream from Route 1 & 9 crossing	SE3

TRIBUTARIES	
(Oradell) - Tributaries joining the main stem between Oradell dam and the confluence with Overpeck Creek	FW2-NT/SE1
(Little Ferry) - Tributaries joining the main stem downstream of Overpeck Creek	FW2-NT/SE2
HANKS POND (Clinton) - Pond and all tributaries	FW1
HARMONY BROOK (Brookside) - Entire length	FW2-TP(C1)
HARRISONS BROOK (Bernards) - Entire length	FW2-NT
HAVEMEYER BROOK (Mahwah) - Entire length	FW2-TP(C1)
HEWITT BROOK (W. Milford) - Entire length	FW2-TP(C1)
HIBERNIA BROOK	
(Hibernia) - Entire length, except tributary described separately below	FW2-TM
(Rockaway) - Entire length of tributary at Rockaway	FW2-TP(C1)
HIGH MOUNTAIN BROOK (Ringwood) - Source to, but not including, Skyline Lake	FW2-TP(C1)
HOHOKUS BROOK (Hohokus) - Entire length	FW2-NT/SE2
HUDSON RIVER	
(Rockleigh) - River and saline portions of New Jersey tributaries from the N.J.-N.Y. boundary line in the north to its confluence with the Harlem River, N.Y.	SE1
(Englewood Cliffs) - River and saline portions of New Jersey tributaries from the confluence with the Harlem River, N.Y. to a north-south line connecting Constable Hook (Bayonne) to St. George (Staten Island, N.Y.)	SE2
TRIBUTARIES	
(Rockleigh) - Freshwater portions of tributaries to the Hudson River in New Jersey	FW2-NT
INDIAN GROVE BROOK (Somersetin) - Entire length	FW2-TM
JACKSON BROOK	
(Mine Hill) - Source to the boundary of Hurd Park, Dover	FW2-TP(C1)
(Dover) - Hurd Park to Rockaway River	FW2-NT
JENNINGS CREEK (W. Milford) - State line to Wanque River	FW2-TP(C1)
JERSEY CITY RESERVOIR (Boonton)	FW2-TM
KANOUSE BROOK (Newfoundland) - Entire length	FW2-TP(C1)
KIKEOUT BROOK (Butler) - Entire length	FW2-NT
KILL VAN KULL (Bayonne) - Westerly from a north-south line connecting Constable Hook (Bayonne) to St. George (Staten Island, N.Y.)	SE3
LAKE RICKONDA OUTLET STREAM (Monks) - That segment of the outlet stream from Lake Rickonda within Ringwood State Park	FW2-TM(C1)
LAKE STOCKHOLM BROOK	
(Stockholm) - Entire length, except tributaries described separately below	FW2-TM
(Stockholm) - Westerly tributary located entirely within the boundaries of the Newark Watershed	FW1 [tm]

(Stockholm) - Brook between Hamburg Turnpike and Williamsville-Stockholm Rd. to its confluence with Lake Stockholm Brook, north of Rt. 23	FW1 [tm]
LITTLE POND BROOK (Oakland) - Entire length	FW2-TP(C1)
LOANTAKA BROOK	
(Green Village) - Entire length, except segment described below	FW2-NT
(Great Swamp) - Brook and all tributaries within the boundaries of Great Swamp National Wildlife Refuge	FW2-NT(C1)
LUD-DAY BROOK	
(Camp Garfield) - Source to confluence with a tributary from Camp Garfield	FW1
MACOPIN RIVER	
(Newfoundland) - Source to Echo Lake dam	FW2-NT
(Newfoundland) - Echo Lake dam to Pequannock River	FW2-TM
MEADOW BROOK (Wanaque) - Skyline Lake to Wanaque River	FW2-NT
MILL BROOK	
(Randolph) - Source to Rt. 10 bridge	FW2-TP(C1)
(Randolph) - Rt. 10 bridge to Rockaway River	FW2-NT
MORSES CREEK - Entire length	FW2-NT/SE3
MOSSMAN'S BROOK - See CLINTON BROOK	
MT. TABOR BROOK (Morris Plains) - Entire length	FW2-NT
NEWARK BAY (Newark) - North of an east-west line connecting Elizabethport with Bergen Pt., Bayonne up to the mouths of the Passaic and Hackensack Rivers	SE3
NOSENZO POND (Upper Macopin)	FW2-NT(C1)
OAK RIDGE RESERVOIR (Oak Ridge)	FW2-TM
OAK RIDGE RESERVOIR (Oak Ridge) - Northwestern tributary to Reservoir	FW1 [tm]
OVERPECK CREEK (Palisades Park) - Entire length	FW2-NT/SE2
PECKMAN RIVER (Verona) - Entire length	FW2-NT
PACACK BROOK	
(Stockholm) - Source to Pequannock River, excluding Canistear Reservoir, except segments described separately below	FW2-NT
(Canistear) - Brook and tributaries upstream of Canistear Reservoir located entirely within the boundaries of the Newark Watershed	FW1
PASSAIC RIVER	
(Mendham) - Source to Rt. 202 bridge (Van Doren's Mill), except tributaries described separately below	FW2-TM
(Paterson) - Rt. 202 bridge to Dundee Lake dam	FW2-NT
(Little Falls) - Dundee Lake dam to confluence with Second River	FW2-NT/SE2
(Newark) - Confluence with Second River to mouth	SE3

SURFACE WATER QUALITY STANDARDS

N.J.A.C. 7:9-4.1 et seq.

May 1985

propagation of fish, shellfish, and wildlife, and recreation in and on the water, which are not included in the designated uses listed in this subchapter are attainable.

(f) A reclassification for more restrictive uses may be made when:

1. It is demonstrated to the satisfaction of the Department that the waters should be set aside to represent the natural aquatic environment and its associated biota; or

2. It is demonstrated to the satisfaction of the Department that a more restrictive use is necessary to protect a unique ecological system or threatened/endangered species.

(g) In those cases in which a thermal discharge is involved, the procedures for reclassifying segments for more restrictive uses shall be consistent with section 316 of the Federal Clean Water Act.

7:9-4.12 Designated uses of FW1, PL, FW2, SE1, SE2, SE3, and SC Waters

(a) In all FW1 waters the designated uses are:

1. Set aside for posterity to represent the natural aquatic environment and its associated biota;

2. Primary and secondary contact recreation;

3. Maintenance, migration and propagation of the natural and established aquatic biota; and

4. Any other reasonable uses.

(b) In all PL waters the designated uses are:

1. Cranberry bog water supply and other agricultural uses;

2. Maintenance, migration and propagation of the natural and established biota indigenous to this unique ecological system;

3. Public potable water supply after such treatment as required by law or regulations;

4. Primary and secondary contact recreation; and

5. Any other reasonable uses.

(c) In all FW2 waters the designated uses are:

1. Maintenance, migration and propagation of the natural and established biota;

2. Primary and secondary contact recreation;

3. Industrial and agricultural water supply;

4. Public potable water supply after such treatment as required by law or regulation; and

5. Any other reasonable uses.

(d) In all SE1 waters the designated uses are:

1. Shellfish harvesting in accordance with N.J.A.C. 7:12;

2. Maintenance, migration and propagation of the natural and established biota;

3. Primary and secondary contact recreation; and

4. Any other reasonable uses.

(e) In all SE2 waters the designated uses are:

1. Maintenance, migration and propagation of the natural and established biota;

2. Migration of diadromous fish;

3. Maintenance of wildlife;

4. Secondary contact recreation; and

5. Any other reasonable uses.

(f) In all SE3 waters the designated uses are:

1. Secondary contact recreation;

2. Maintenance and migration of fish populations;

3. Migration of diadromous fish;

4. Maintenance of wildlife; and

5. Any other reasonable uses.

(g) In all SC waters the designated uses are:

1. Shellfish harvesting in accordance with N.J.A.C. 7:12;

REFERENCE NO. 38

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DAVID J. BARDIN, COMMISSONER

LEGEND

AREA SERVED BY PRIVATE WATER SERVICE COMPANIES

AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES

AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES

AREA NOT PRESENTLY SERVED BY WATER SERVICE

PUBLIC SUPPLY WELLS

SURFACE WATER INTAKE

—W— MAJOR WATER MAINS

TOWNSHIP BOUNDARIES

COUNTY BOUNDARIES

STATE BOUNDARIES

ALL MAP COORDINATES ARE FOR THE LOWER LEFT HAND CORNER.

BUREAU OF GEOLOGY AND TOPOGRAPHY
KEMBLE WIDMER, STATE GEOLOGIST
1980

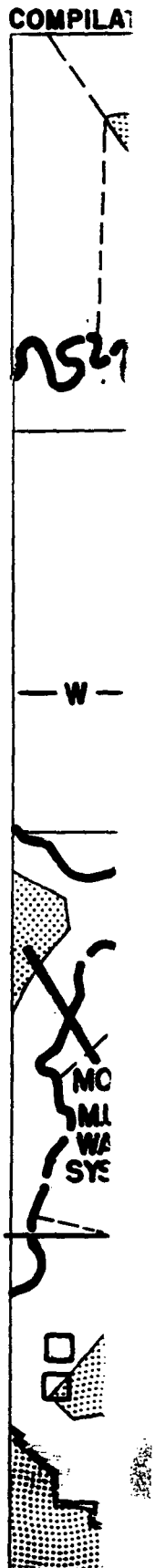
Scale: 1:63,360

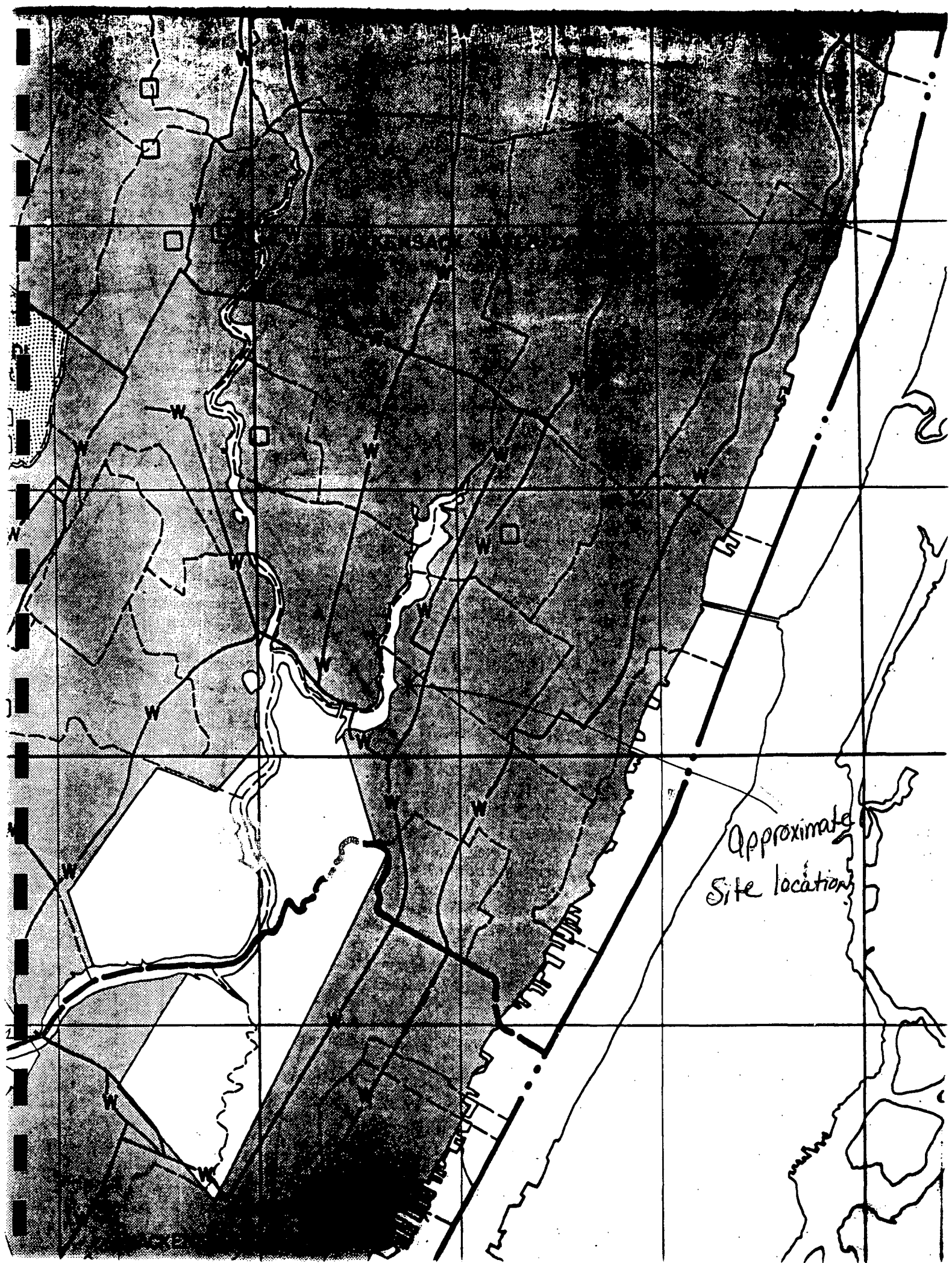
1 ½ 0 1 2 3 Kilometers

1 ¾ ½ ¼ 0 1 2 3 Miles

SUPERVISED BY GEORGE J. HALASI-KUN, TOPOGRAPHIC ENGINEER
DRAFTED BY JOHN F. OLSCHEWSKI

ANY CORRECTIONS OR ADDITIONAL INFORMATION WILL BE APPRECIATED




Approximate
Site location

REFERENCE NO. 39

SAMPLING TRIP REPORT

SITE NAME:	Pfister Chemical, Inc.
TDD NO.:	02-9001-13
SAMPLING DATE:	March 7, 1990
EPA CASE NO.:	13670

1. Site Location: Refer to Figure 1
2. Sampling Locations: Refer to Figure 2
3. Sample Descriptions: Refer to Table 1
4. Laboratories Receiving Samples:

Sample Type	Name and Address of Laboratory
Organic (Aqueous and Soil)	Ceimic Corp. 100 Dean Knauss Dr. S. Terry Industrial Park Narragansett, RI 02882
Inorganic (Aqueous and Soil)	Weyerhauser Company 32901 Weyerhauser Way WTC 2F25 Federal Way, WA 98003

5. Sample Dispatch Data:

A total of ten aqueous and ten soil/sediment samples for low concentration organic analysis were shipped by FIT 2 personnel via Federal Express under Airbill No. 6097383040 to Ceimic Corp. on March 7, 1990 at 1835 hours.

A total of nine aqueous and ten soil/sediment samples for low concentration inorganic analysis were shipped by FIT 2 personnel via Federal Express under Airbill No. 6097383036 to Weyerhouser Company on March 7, 1990 at 1835 hours.

6. Sampling Personnel:

Name	Organization	Duties on Site
Debbie LaMond	NUS Corporation, FIT 2	Site Manager, Written and Photographic Documentation
Jess Tecson	NUS Corporation, FIT 2	Site Safety Officer
Sue Lenczyk	NUS Corporation, FIT 2	Sample Management Officer
Brian Farrell	NUS Corporation, FIT 2	Sampler
Maria Coler	NUS Corporation, FIT 2	Sampler

7. Weather Conditions:

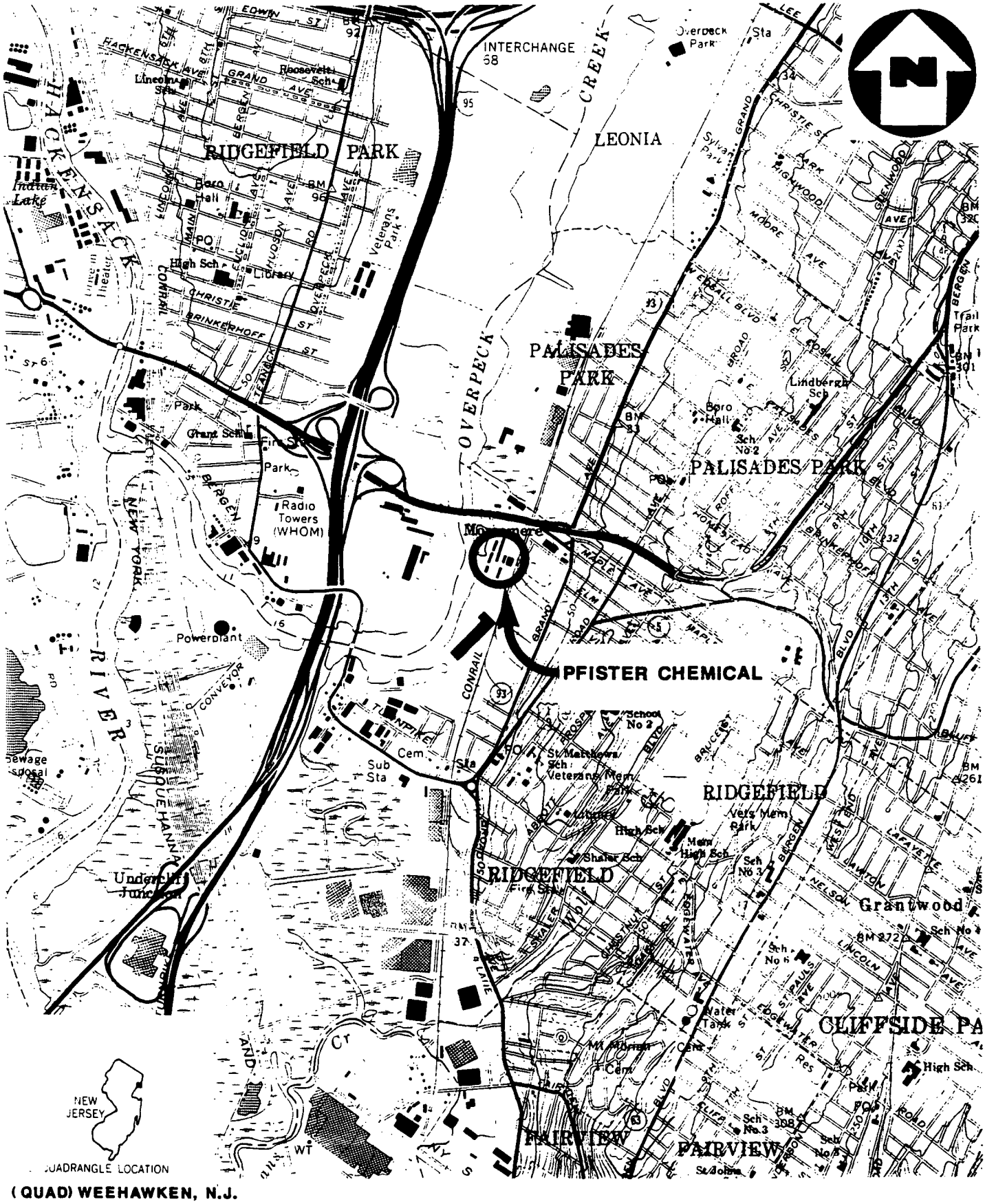
Sunny, 30-35° F, wind from the north estimated at 5-7 mph.

8. Additional Comments:

All samples, with the exception of the trip blank, will be analyzed for Target Compound List (TCL) organic compounds and TCL total metals, excluding cyanide. The trip blank will be analyzed for volatile organic compounds only. Samples NJDJ-SL1 and NJDJ-SL2 are designated as NJDJ-S5 and NJDJ-S6, respectively, in the sample management summary documented in Field Notebook #0505.

9. Report Prepared By: Deborah LaMond Date: April 24, 1990

10. Approved By: RM Naman Date: 4/26/90



(QUAD) WEEHAWKEN, N.J.

FIGURE 1

SITE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

SCALE: 1" = 2000'

NUS CORPORATION

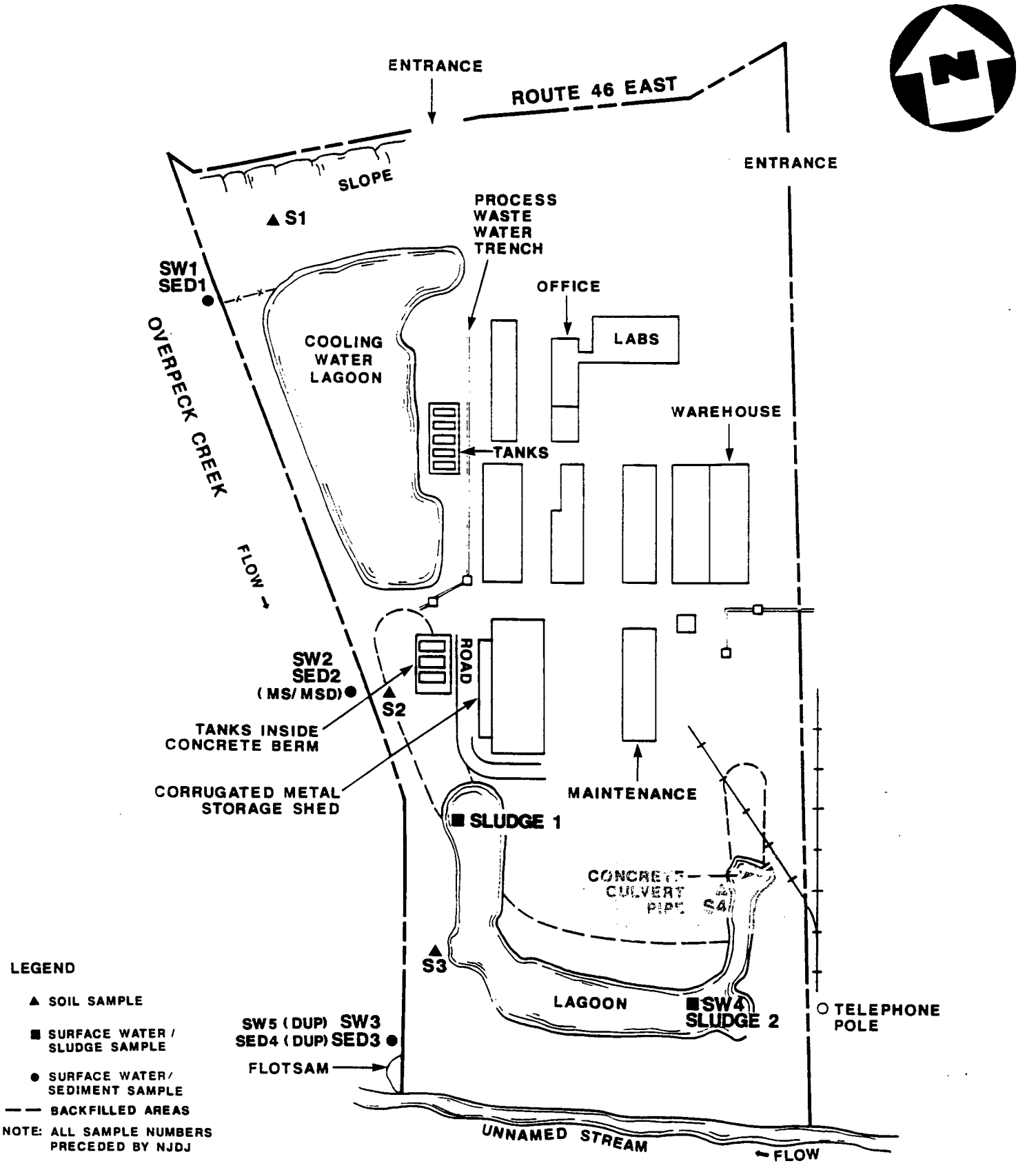


FIGURE 2

SAMPLE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

NOT TO SCALE

NUS CORPORATION

TABLE I
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-SW1	AS279 BEN49	MBAX18	1612	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek north of and adjacent to fence line running east-west at northwest corner of cooling water lagoon.
NJDJ-SW2*	AS280 BEN50	MBAX19	1346	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek in line with location of soil sample S2.
NJDJ-SW3	AS281 BEN51	MBAX20	1237	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek approximately 40 feet north of confluence of unnamed stream, which forms southern boundary of site, and Overpeck Creek.
NJDJ-SW4	AS282 BEN52	MBAX21	1142	Aqueous	Surface water sample collected in southeast corner of lagoon and one foot in from northern bank approximately 150 feet west of telephone pole located just outside of eastern border of site.

* MS/MSD - Indicates that additional sample volume was collected and shipped to the laboratory for matrix spike (MS) and matrix spike duplicate (MSD) analysis.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-SW5**	AS283 BEN53	MBAX22	1245	Aqueous	Surface water sample collected from same location as SW3.
NJDJ-SED1	AS284 BEN54	MBAX23	1625	Sediment	Sediment sample collected from same location as SW1.
NJDJ-SED2*	BCY92	MBAX24	1358	Sediment	Sediment sample collected from same location as SW2.
NJDJ-SED3	BCY93	MBAX25	1250	Sediment	Sediment sample collected from same location as SW3.
NJDJ-SED4**	BCY94	MBAX26	1302	Sediment	Sediment sample collected from same location as SW3.
NJDJ-SL1	AS277 BEN47	MBAX16	1425	Sludge	Sludge sample collected from northwest corner of western leg of lagoon 86 feet south of benchmark A. Benchmark A is 48 feet west of southwest corner of corrugated steel storage shed attached to southwesternmost process building.
NJDJ-SL2	AS278 BEN48	MBAX17	1203	Sludge	Sludge sample collected from same location as SW4.

* MS/MSD - Indicates that additional sample volume was collected and shipped to the laboratory for matrix spike (MS) and matrix spike duplicate (MSD) analysis.

** Duplicate - Indicates that sample was designated for duplicate analysis.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-S1	AS273 BEN43	MBAX12	1558	Soil	Soil sample collected at a depth of 4 to 10 inches, approximately 60 feet south of the Rt. 46 embankment and approximately 100 feet east of Overpeck Creek.
NJDJ-S2	AS274 BEN44	MBAX13	1506	Soil	Soil sample collected at a depth of 0 to 6 inches approximately 48 feet west of southwest corner of concrete berm surrounding storage tanks.
NJDJ-S3	AS275 BEN45	MBAX14	1453	Soil	Soil sample collected at a depth of 0 to 6 inches approximately 111 feet south of benchmark B. Benchmark B is approximately 15 feet west of sample NJDJ-SL1 location.
NJDJ-S4	AS276 BEN46	MBAX15	1523	Soil	Soil sample collected at EN46a depth of 5 to 10 inches from west bank of eastern leg of lagoon approximately 12 feet west of concrete culvert pipe which runs under railroad tracks located east of eastern leg of lagoon.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-RIN1	BCY95	MBBC96	1030	Aqueous Rinsate Blank	Trowel rinsate collected at the command post.
NJDJ-RIN2	BCY96	MBBC97	1100	Aqueous Rinsate Blank	Bowl rinsate collected at the command post.
NJDJ-RIN3	BCY97	MBBC98	1120	Aqueous Rinsate Blank	Scoop rinsate collected at the command post.
NJDJ-RIN4	BCY98	MBBC99	1140	Aqueous Rinsate Blank	Auger rinsate collected at the command post.
NJDJ-TRBLK	BCY99	N/A	1040	Aqueous Trip Blank	Trip Blank; demonstrated analyte-free water obtained from NUS Corp. Region 2 FIT, Edison, New Jersey.

- COPY OF CLP DATA

(REDLINED AND MARKED)

- COMPUTER QA'd PRINTOUT

SITE NAME: Pristen Chemical

CASE# AND/OR SAS#: 13670

BRICS#: NJDJ

TDD#: 02-9001-13

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Feb. 1990
Number: HW-2
Revision: 10

Case# 13670 Site PFISTER CHEMICAL Matrix: Soil 10

SDG# MBAX 12 Lab WEYER Water 9

Contractor ROY. F. WESTON ESAT Reviewer Vasu Desikan Other

A.2.1 The case description and exceptions, if any, are noted below with reason(s) for rejection or qualification as estimated value(s) J.

This case consists of 10 soil samples (numbered MBAX 12 → MBAX 17 & MBAX 23 → MBAX 26) and 9 water samples (numbered MBAX 18 → MBAX ~~24~~ 22 & MBAX 96 → MBAX99) collected at the Pfister Chemical Site on March 7, 1990.

The Field duplicates were identified as MBAX 20 & MBAX 22 for the water samples and as MBAX 25 & MBAX 26 for the soil samples.

Matrix spike and laboratory duplicate analysis was performed on sample MBAX 19 and MBAX 24, for the water and soil matrices respectively. Serial dilution analysis was performed on these samples as well. (i.e. MBAX 19 & MBAX 24).

There were four field blanks collected numbered MBBC 96 → MBBC99. The various types of field blanks collected and the samples

A.2.1 (continuation)

associated with them are listed below:

MBBK96: Trowel Rinsate ⇒ All soils & sludges
soils: MBAX 12 → MBAX 15
sludges: MBAX 16 → MBAX 17.

MBBK97: Bowl Rinsate ⇒ All soil & sludges
Soil: MBAX 12 → MBAX 15
sludges: MBAX 16 → MBAX 17

MBBC98: Scoop Rinsate ⇒ All sediments
sediments: MBAX 23 → MBAX 26

MBBK99: Auger Rinsate ⇒ All soils
soils: MBAX 12 → MBAX 15

The data presented in this data package is acceptable with the exceptions noted in the following data assessment narrative.

A.2.1 (continuation)

1. CRDL Standards:

(a) The % recovery for the CRDL standard for Pb in the first furnace run was 130.0%. For % recoveries in the 121-150% range all positive data in the >U → 2CRDL range (i.e. 2.0 - 6 ug/L) must be estimated.

∴ 'J' Pb in MBAX18, 19, 20, 22.

(b) The % recovery for the initial CRDL standard for Ni was 123.5%. As per the above mentioned criterion all positive data in the >U → 4CRDL (i.e. 7.0 - 160 ug/L) must be estimated.

∴ 'J' Ni in MBAX12 → 25 & MBBK97

(c) The % recovery of the CRDL standard for Pb in the second furnace run was 56.7%. For all % recoveries in the 50-79% range all data must be estimated in the 0 - 2CRDL range. Therefore all associated Pb data in the 0 - 6 ug/L range must be flagged & a J.

'J' Pb in MBBK98 & MBBK99

A.2.1 (continuation)

2.9) Matrix Spike Recovery: (Soils)

(i) The % recovery for the Antimony matrix spike was 50.4%. For spike recoveries in the range of 10-74% all associated data must be estimated.

'J' Sb in MBAX 12 → MBAX17
MBAX 23 → MBAX26

(ii) The matrix spike recovery for Copper was 141.1%. For % recoveries 126-200% all data not flagged as 'ii' must be estimated.

'J' Cu in MBAX12 → MBAX17
MBAX23 → MBAX26

(iii) The % recovery of the Lead matrix spike by ICP was 127%. As per the above mentioned (ii) criterion all positive data must be estimated.

'J' Pb in MBAX 12 → MBAX17
MBAX23 → MBAX25

A.2.1 (continuation)

2 b. Matrix Spike Recovery (Water)

(i) The % recovery of the lead matrix spike by furnace was 52.0%. For % recoveries in the 30-74% range, all associated data must be estimated

'J' Pb in MBAX 21, MBBC 96 & 97.

Pb results in MBAX 18, 19, 20, 22 & MBBC 98, & 99 were already flagged 'J' due to CRDL standard criteria ∴ no further action was taken for these samples.

(ii) The matrix spike recovery for Hg was 0.0%. For % recoveries less than 30% all associated data must be rejected.

∴ Hg in MBAX 18 → MBAX 22
MBBC 96 → MBBC 99 are rejected.

3 Field Duplicates: (Water)

The difference between the sample and duplicate for Aluminum was 693 − 413 = 280 µg/L which is greater than CRDL (200 µg/L) when both the sample and duplicate are less than 5 x CRDL. Hence the Al data in these samples must be estimated. However ~~for~~ since Al in MBAX 20 & MBAX 22 is to be

A.2.1 (continuation)

rejected due to Serial Dilution criteria, no action is taken for Al in these samples.

4. Serial Dilution: (Soil)

(a) The % difference for Ni was found to be 15.1%. For % difference >10% but <100% all results greater than or equal to 10×IDL must be estimated. The samples affected are:

Ni in MBAX 12, 13, 14, 15, 16, 23 & 24

All these results have been previously flagged 'J' based on CRDL Standard criteria, and hence no further action was needed.

(b) The % difference for K was found to be 41.0%. As per the above mentioned criteria all results ≥ 10×IDL must be flagged 'J'.

'J' K in MBAX 12, 13, 14, 16, 23, 24, 25 & 26

(c) The % difference for Na was found to be 72.1%.

∴ 'J' Na in MBAX 12 → MBAX 17
& MBAX 23 → MBAX 26

A.2.1 (continuation)

4. Serial Dilution (Soils) continued...

(d) The % difference for Zn was 14.4%. Hence all Zn results ≥ 10×IDL must be estimated.

'J' Zn in MBAX 12 → MBAX 17

MBAX 23 → MBAX 26

5. Serial Dilution (Water):

(a) The % difference for Al was 162.8%. For % differences >100% all results must be rejected.

∴ Al in MBAX 18, 19, 20, 21 & 22 is rejected.

(b) The % difference for Fe was 20.7%. For % differences >10% but <100% all results >10×IDL must be estimated

∴ 'J' Fe in MBAX 18, 19, 20, 21, & 22.

(c) The % difference for K was 18.6%. Hence as per the above mentioned criterion (5b) all results >10×IDL must be estimated

∴ 'J' K in MBAX 18, 19, 20, 21 & 22.

A.2.1 (continuation)

6. Instrument Calibration:

A 2 point calibration was used in the second Pb run by furnace. The following two standards at 35.0 µg/L & 75 µg/L were both out by 20.8% and 22% respectively. If these additional standards are out by 10% or more all data falling in the range of the standards that are out of control must be estimated. (i.e. All data > 3.0 µg/L) must be estimated, in this case).

∴ 'J' Pb in MBAX26

Pb in MBAX24 has already been estimated based on matrix spike recovery criteria - hence no further action is needed.

HS 5/11/

8. The soil content in samples MBAX 15, 17, & 23 was <50% at 29.8%, 48.9% & 45.1%. For % solids <50% all data must be flagged as estimated. Hence all results were estimated in these 3 samples with the exception of:

Sb, Cu, Pb, Ni, Na & Zn in MBAZ 15

Sb, Cu, Pb, Ni, Na & Zn in MBAZ 17

Sb, Cu, Pb, Ni, K, Na & Zn in MBAZ 23

as these results had already been estimated based on other previously mentioned criteria.

A.2.2 Contract-Problems/Non-Compliance

1. Instrument Calibration: The additional standards run after the initial 2 point calibration for Pb by furnace in the second run were off by 20.8% and 22%. As per contract (SOW 7/88), if these additional standards are off by more than 5% all analyses should be terminated and the instrument recalibrated after the problem is corrected before proceeding further. This was not done.

2. On p. 349 in the raw data - there is no header information it should read MBAX 25.

MB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: V. Desikan Date: May 2/1990
Signature

Verified by: [illegible] Date: May 14/90

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: TOTAL VALIDATION Date: May 2/1990 Case #: 13670

Site: PFISTER CHEMICAL Lab Name: WEYER

Reviewer's Initials: VASUD Number of Samples: 9WATER/10SOILS

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration CRDL	Calibration Instr.	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP												5			
Flame AA															
Furnace AA															
Mercury							9								
Total															
Other															

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*

	% solids														
ICP	41	16					29					38			
Flame AA															
Furnace AA	9	6	1				3								
Mercury															
Total															
Other															

Note:
Asterisk (*) Indicates additional exceedances of review criteria.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.7: CLP Data Assessment Checklist
Inorganic Analysis

Date: Feb. 1990
Number: HW-2
Revision: 10

INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. 13670

SITE PFISTER CHEMICAL

NO. OF SAMPLES/ 9 WATER
MATRIX 10 SOILS

LABORATORY WEYER

SDG# MBAX12

REVIEWER (IF NOT ESD)

SOW# 7/88

REVIEWER'S NAME Vasu Desikan

DPO: ACTION FYI

COMPLETION DATE May 2/1990

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES				N/A
2.	CALIBRATIONS	M	M	–	N/A
3.	BLANKS	–	–		N/A
4.	ICS				
5.	LCS				
6.	DUPLICATE ANALYSIS	M			N/A
7.	MATRIX SPIKE	M	M	M	N/A
8.	MSA				
9.	SERIAL DILUTION	M			
10.	SAMPLE VERIFICATION				N/A
11.	OTHER QC Instr. cal.		M		N/A
12.	OVERALL ASSESSMENT	M	M	M	N/A

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS:

AREAS OF CONCERN:

NOTABLE PERFORMANCE:

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

SOW No.: 7/88

EPA Sample No.	Lab Sample ID.
MBAX12	46035
MBAX13	46036
MBAX14	46037
MBAX15	46038
MBAX16	46039
MBAX17	46040
MBAX18	46041
MBAX19	46042
MBAX19D	46042D
MBAX19S	46042S
MBAX20	46043
MBAX21	46044
MBAX22	46045
MBAX23	46046
MBAX24	46047
MBAX24D	46047D
MBAX24S	46407S
MBAX25	46048
MBAX26	46049
MBBC96	46050

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes, were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms, and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Kari Doxsee Name: Kari Doxsee

Date: 4-12-90 Title: Lab Mgr

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

SOW No.: 7/88

EPA Sample No.	Lab Sample ID.
MBBC97	46051
MBBC98	46052
MBBC99	46053

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes, were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms, and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

1-G

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX18

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46041

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~325~~			P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	81.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	50700			P
7440-47-3	Chromium	8.6	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.6	B		P
7439-89-6	Iron	793		E J	P
7439-92-1	Lead	2.4	B	NW J	F
7439-95-4	Magnesium	26600			P
7439-96-5	Manganese	268			P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	11.8	B	J	P
7440-09-7	Potassium	9040		J	P
7782-49-2	Selenium	1.0	U	W	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	208000			P
7440-28-0	Thallium	[illegible]	B	W	F
7440-62-2	Vanadium	[illegible]	U		P
7440-66-6	Zinc	[illegible]			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1-H

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX19

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46042

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~197~~	~~B~~		P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	78.9	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	50600			P
7440-47-3	Chromium	2.1	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	4.2	B		P
7439-89-6	Iron	630		E J	P
7439-92-1	Lead	2.3	B	NW J	F
7439-95-4	Magnesium	27800			P
7439-96-5	Manganese	264			P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	11.1	B	J	P
7440-09-7	Potassium	9770		J	P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	215000			P
7440-28-0	Thallium	1.2	B		P
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	18.2	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1-I

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX20

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46043

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~693~~			P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	B		F
7440-39-3	Barium	83.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	52500			P
7440-47-3	Chromium	10.2			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.7	B		P
7439-89-6	Iron	1760		E J	P
7439-92-1	Lead	4.1		NW J	F
7439-95-4	Magnesium	28600			P
7439-96-5	Manganese	296			P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	19.5	B	J	P
7440-09-7	Potassium	10300			P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	227000			P
7440-28-0	Thallium	1.2	B	W	F
7440-62-2	Vanadium	2.4	B		P
7440-66-6	Zinc	25.3			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX21

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46044

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~670~~			P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	10.0			F
7440-39-3	Barium	30.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	151000			P
7440-47-3	Chromium	79.0			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	28.1			P
7439-89-6	Iron	4890		E J	P
7439-92-1	Lead	20.0	U	NW J	F
7439-95-4	Magnesium	42600			P
7439-96-5	Manganese	2170			P
7439-97-6	Mercury	~~6.7~~		~~N~~	CV
7440-02-0	Nickel	42.4		J	P
7440-09-7	Potassium	26100		J	P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	547000			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	19.3	B		P
7440-66-6	Zinc	215			P
	Cyanide				NR

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

U.S. EPA - CLP

1-K

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX22

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46045

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	~~413~~			P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U	W	F
7440-39-3	Barium	77.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	51400			P
7440-47-3	Chromium	7.7	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	3.5	B		P
7439-89-6	Iron	1230		E J	P
7439-92-1	Lead	4.4		NW J	F
7439-95-4	Magnesium	28300			P
7439-96-5	Manganese	285			P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	9.0	B	J	P
7440-09-7	Potassium	9880		J	P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	222000			P
7440-28-0	Thallium	1.0	U	W	F
7440-62-2	Vanadium	1.9	B		P
7440-66-6	Zinc	20.8			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX23

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46046

Level (low/med): LOW Date Received: 03/08/90

% Solids: 45.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10300		J	P
7440-36-0	Antimony	7.5	U	N J	P
7440-38-2	Arsenic	23.9		J	F
7440-39-3	Barium	116		J	P
7440-41-7	Beryllium	0.86	B	J	P
7440-43-9	Cadmium	0.88	B	J	P
7440-70-2	Calcium	1760	B	J	P
7440-47-3	Chromium	66.7		J	P
7440-48-4	Cobalt	7.1	B	J	P
7440-50-8	Copper	54.5		N J	P
7439-89-6	Iron	21400		J	P
7439-92-1	Lead	175		N J	P
7439-95-4	Magnesium	3200		J	P
7439-96-5	Manganese	186		J	P
7439-97-6	Mercury	0.78		* J	CV
7440-02-0	Nickel	27.4		J	P
7440-09-7	Potassium	1150	B	J	P
7782-49-2	Selenium	0.62	B	J	F
7440-22-4	Silver	2.2	B	J	P
7440-23-5	Sodium	626	B	E J	P
7440-28-0	Thallium	0.32	U	W J	F
7440-62-2	Vanadium	35.7		J	P
7440-66-6	Zinc	102		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX24

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46047

Level (low/med): LOW Date Received: 03/08/90

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5810			P
7440-36-0	Antimony	4.0	U	N J	P
7440-38-2	Arsenic	6.9			F
7440-39-3	Barium	118			P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium	0.46	U		P
7440-70-2	Calcium	825	B		P
7440-47-3	Chromium	284			P
7440-48-4	Cobalt	3.9	B		P
7440-50-8	Copper	118		N J	P
7439-89-6	Iron	17500			P
7439-92-1	Lead	151		N J	P
7439-95-4	Magnesium	1250			P
7439-96-5	Manganese	138			P
7439-97-6	Mercury	0.89		*	CV
7440-02-0	Nickel	16.7		J	P
7440-09-7	Potassium	824	B	J	P
7782-49-2	Selenium	0.41	B	W	F
7440-22-4	Silver	2.2			P
7440-23-5	Sodium	415	B	E J	P
7440-28-0	Thallium	0.24	U		F
7440-62-2	Vanadium	31.7			P
7440-66-6	Zinc	46.3		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX25

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46048

Level (low/med): LOW Date Received: 03/08/90

% Solids: 68.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5670			P
7440-36-0	Antimony	4.2	U	N J	P
7440-38-2	Arsenic	2.0	B		F
7440-39-3	Barium	83.8			P
7440-41-7	Beryllium	0.34	B		P
7440-43-9	Cadmium	0.53	B		P
7440-70-2	Calcium	667	B		P
7440-47-3	Chromium	129			P
7440-48-4	Cobalt	3.9	B		P
7440-50-8	Copper	27.8		N J	P
7439-89-6	Iron	18000			P
7439-92-1	Lead	29.5		N J	P
7439-95-4	Magnesium	712	B		P
7439-96-5	Manganese	69.6			P
7439-97-6	Mercury	0.37		*	CV
7440-02-0	Nickel	11.2		J	P
7440-09-7	Potassium	786	B	J	P
7782-49-2	Selenium	0.52	B		F
7440-22-4	Silver	1.4	B		P
7440-23-5	Sodium	479	B	E	P
7440-28-0	Thallium	0.25	B		F
7440-62-2	Vanadium	72.1			P
7440-66-6	Zinc	28.0		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX26

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46049

Level (low/med): LOW Date Received: 03/08/90

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7620			P
7440-36-0	Antimony	4.5	U	N J	P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	96.7			P
7440-41-7	Beryllium	0.27	B		P
7440-43-9	Cadmium	0.53	U		P
7440-70-2	Calcium	678	B		P
7440-47-3	Chromium	107			P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	24.0		N J	P
7439-89-6	Iron	17600			P
7439-92-1	Lead	26.2		J	F
7439-95-4	Magnesium	854	B		P
7439-96-5	Manganese	59.5			P
7439-97-6	Mercury	0.35		*	CV
7440-02-0	Nickel	8.7		J	P
7440-09-7	Potassium	909	B	J	P
7782-49-2	Selenium	0.45	B		F
7440-22-4	Silver	1.2	B		P
7440-23-5	Sodium	495	B	E J	P
7440-28-0	Thallium	0.40	B		F
7440-62-2	Vanadium	78.0			P
7440-66-6	Zinc	28.6		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX16

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46039

Level (low/med): LOW Date Received: 03/08/90

% Solids: 61.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5020			P
7440-36-0	Antimony	4.6	U	N J	P
7440-38-2	Arsenic	3.4			F
7440-39-3	Barium	70.5			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	6.7			P
7440-70-2	Calcium	7720			P
7440-47-3	Chromium	909			P
7440-48-4	Cobalt	7.1	B		P
7440-50-8	Copper	399		N J	P
7439-89-6	Iron	13000			P
7439-92-1	Lead	98.6		N J	P
7439-95-4	Magnesium	2530			P
7439-96-5	Manganese	274			P
7439-97-6	Mercury	29.3		*	CV
7440-02-0	Nickel	38.3		J	P
7440-09-7	Potassium	1070	B		P
7782-49-2	Selenium	1.1	B		F
7440-22-4	Silver	1.7	B		P
7440-23-5	Sodium	3200		E J	P
7440-28-0	Thallium	0.28	U		F
7440-62-2	Vanadium	29.9			P
7440-66-6	Zinc	324		E J	P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: BLACK Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX17

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46040

Level (low/med): LOW Date Received: 03/08/90

% Solids: 48.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2740			P
7440-36-0	Antimony	6.9	U	N	P
7440-38-2	Arsenic	3.2	B		F
7440-39-3	Barium	80.7			P
7440-41-7	Beryllium	0.33	U		P
7440-43-9	Cadmium	0.85	B		P
7440-70-2	Calcium	2000			P
7440-47-3	Chromium	408			P
7440-48-4	Cobalt	1.8	B		P
7440-50-8	Copper	208		N	P
7439-89-6	Iron	6650			P
7439-92-1	Lead	75.7		N	P
7439-95-4	Magnesium	689	B		P
7439-96-5	Manganese	87.2			P
7439-97-6	Mercury	86.1		*	CV
7440-02-0	Nickel	11.0	B		P
7440-09-7	Potassium	147	B		P
7782-49-2	Selenium	0.48	B		F
7440-22-4	Silver	1.4	B		P
7440-23-5	Sodium	1540	B	E	P
7440-28-0	Thallium	0.37	B		F
7440-62-2	Vanadium	9.7	B		P
7440-66-6	Zinc	73.7		E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BLACK Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX12

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46035

Level (low/med): LOW Date Received: 03/08/90

% Solids: 59.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14800			P
7440-36-0	Antimony	5.6	U	N J	P
7440-38-2	Arsenic	17.0			F
7440-39-3	Barium	130			P
7440-41-7	Beryllium	0.74	B		P
7440-43-9	Cadmium	1.1	B		P
7440-70-2	Calcium	1790			P
7440-47-3	Chromium	66.4			P
7440-48-4	Cobalt	8.8	B		P
7440-50-8	Copper	138		N J	P
7439-89-6	Iron	27800			P
7439-92-1	Lead	328		N J	P
7439-95-4	Magnesium	3590			P
7439-96-5	Manganese	228			P
7439-97-6	Mercury	1.0		*	CV
7440-02-0	Nickel	29.4		J	P
7440-09-7	Potassium	1400		J	P
7782-49-2	Selenium	1.1	B	W	F
7440-22-4	Silver	3.5			P
7440-23-5	Sodium	387	B	E J	P
7440-28-0	Thallium	0.29	B		F
7440-62-2	Vanadium	51.1			P
7440-66-6	Zinc	155		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX13

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46036

Level (low/med): LOW Date Received: 03/08/90

% Solids: 89.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10400			P
7440-36-0	Antimony	3.7	U	N J	P
7440-38-2	Arsenic	3.3			F
7440-39-3	Barium	73.0			P
7440-41-7	Beryllium	0.63	B		P
7440-43-9	Cadmium	0.39	B		P
7440-70-2	Calcium	14000			P
7440-47-3	Chromium	59.5			P
7440-48-4	Cobalt	7.2	B		P
7440-50-8	Copper	50.2		N J	P
7439-89-6	Iron	18800			P
7439-92-1	Lead	78.4		N J	P
7439-95-4	Magnesium	4110			P
7439-96-5	Manganese	386			P
7439-97-6	Mercury	3.7		*	CV
7440-02-0	Nickel	17.3		J	P
7440-09-7	Potassium	721	B	J	P
7782-49-2	Selenium	0.18	U	W	F
7440-22-4	Silver	1.2	B		P
7440-23-5	Sodium	894		E J	P
7440-28-0	Thallium	0.18	U	W	F
7440-62-2	Vanadium	29.3			P
7440-66-6	Zinc	87.0		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MBAX14

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46037

Level (low/med): LOW Date Received: 03/08/90

% Solids: 82.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19300			P
7440-36-0	Antimony	4.1	U	N J	P
7440-38-2	Arsenic	4.2		S	F
7440-39-3	Barium	175			P
7440-41-7	Beryllium	1.0			P
7440-43-9	Cadmium	0.39	U		P
7440-70-2	Calcium	2890			P
7440-47-3	Chromium	306			P
7440-48-4	Cobalt	17.0			P
7440-50-8	Copper	65.7		N J	P
7439-89-6	Iron	33900			P
7439-92-1	Lead	51.7		N J	P
7439-95-4	Magnesium	5200			P
7439-96-5	Manganese	829			P
7439-97-6	Mercury	0.65		*	CV
7440-02-0	Nickel	27.8		J	P
7440-09-7	Potassium	3200		J	P
7782-49-2	Selenium	9.2		S	F
7440-22-4	Silver	2.8			P
7440-23-5	Sodium	230	B	E J	P
7440-28-0	Thallium	0.19	U	W	F
7440-62-2	Vanadium	64.6			P
7440-66-6	Zinc	66.1		E J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBAX15

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): SOIL Lab Sample ID: 46038

Level (low/med): LOW Date Received: 03/08/90

% Solids: 29.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5720		J	P
7440-36-0	Antimony	12.4	U	N J	P
7440-38-2	Arsenic	4.6	B	J	F
7440-39-3	Barium	85.3	B	J	P
7440-41-7	Beryllium	0.59	U	J	P
7440-43-9	Cadmium	1.2	B	J	P
7440-70-2	Calcium	13100		J	P
7440-47-3	Chromium	401		J	P
7440-48-4	Cobalt	6.2	B	J	P
7440-50-8	Copper	127		N J	P
7439-89-6	Iron	35500		J	P
7439-92-1	Lead	99.5		N J	P
7439-95-4	Magnesium	2180	B	J	P
7439-96-5	Manganese	786		J	P
7439-97-6	Mercury	11.2		* J	CV
7440-02-0	Nickel	87.2		J	P
7440-09-7	Potassium	734	B	J	P
7782-49-2	Selenium	1.2	B	J	F
7440-22-4	Silver	3.1	B	J	P
7440-23-5	Sodium	2210	B	E J	P
7440-28-0	Thallium	0.57	U	W J	F
7440-62-2	Vanadium	143		J	P
7440-66-6	Zinc	94.2		E J	P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: BLACK Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1-ℓ

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBBC96

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46050

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	81.3	B		P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U	W	F
7440-39-3	Barium	1.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	15.1	B		P
7440-47-3	Chromium	5.6	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.0	U		P
7439-89-6	Iron	14.6	B	E	P
7439-92-1	Lead	2.0	U	NW J	F
7439-95-4	Magnesium	297	U		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	7.0	U		P
7440-09-7	Potassium	271	U		P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	330	B		P
7440-28-0	Thallium	1.0	U	W	F
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	2.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

017

U.S. EPA - CLP

1-Q

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBBC97

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46051

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	96.3	B		P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U	W	F
7440-39-3	Barium	1.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	15.0	U		P
7440-47-3	Chromium	3.1	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.0	U		P
7439-89-6	Iron	12.1	B	E	P
7439-92-1	Lead	2.0	U	N	F
7439-95-4	Magnesium	381	B		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	9.0	B		P
7440-09-7	Potassium	271	U		P
7782-49-2	Selenium	1.0	U	W	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	451	B		P
7440-28-0	Thallium	1.0	U	W	F
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	2.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1-R

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBBC98

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46052

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	104	B		P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	1.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	21.8	B		P
7440-47-3	Chromium	4.0	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.0	U		P
7439-89-6	Iron	13.3	B	E	P
7439-92-1	Lead	2.0	U	N	F
7439-95-4	Magnesium	427	B		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	7.0	U		P
7440-09-7	Potassium	271	U		P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	446	B		P
7440-28-0	Thallium	1.4	B	W	F
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	2.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1-δ

INORGANIC ANALYSIS DATA SHEET

MBBC99

Lab Name: WEYERHAEUSER COMPANY Contract: 68-D9-0080

Lab Code: WEYER Case No.: 13670 SAS No.: SDG No.: MBAX12

Matrix (soil/water): WATER Lab Sample ID: 46053

Level (low/med): LOW Date Received: 03/08/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	85.7	B		P
7440-36-0	Antimony	21.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	1.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	17.6	B		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	2.0	U		P
7439-89-6	Iron	7.6	B	E	P
7439-92-1	Lead	2.0	U	N	F
7439-95-4	Magnesium	297	U		P
7439-96-5	Manganese	1.0	U		P
7439-97-6	Mercury	~~0.20~~	~~U~~	~~N~~	CV
7440-02-0	Nickel	7.0	U		P
7440-09-7	Potassium	271	U		P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	375	B		P
7440-28-0	Thallium	1.0	U	W	F
7440-62-2	Vanadium	1.0	U		P
7440-66-6	Zinc	2.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

020

SAMPLING TRIP REPORT

note: Change MBAX16 & 17 to Sludge in organic spreadsheet
Rite Margin = 185

SITE NAME:	Pfister Chemical, Inc.
TDD NO.:	02-9001-13
SAMPLING DATE:	March 7, 1990
EPA CASE NO.:	13670

1. Site Location: Refer to Figure 1
2. Sampling Locations: Refer to Figure 2
3. Sample Descriptions: Refer to Table 1
4. Laboratories Receiving Samples:

Sample Type	Name and Address of Laboratory
Organic (Aqueous and Soil)	Ceimic Corp. 100 Dean Knauss Dr. S. Terry Industrial Park Narragansett, RI 02882
Inorganic (Aqueous and Soil)	Weyerhauser Company 32901 Weyerhauser Way WTC 2F25 Federal Way, WA 98003

STRI + d ent. 3/28 ✓

SS gen. 3/28/90 ✓

5. Sample Dispatch Data:

A total of ten aqueous and ten soil/sediment samples for low concentration organic analysis were shipped by FIT 2 personnel via Federal Express under Airbill No. 6097383040 to Ceimic Corp. on March 7, 1990 at 1835 hours.

A total of nine aqueous and ten soil/sediment samples for low concentration inorganic analysis were shipped by FIT 2 personnel via Federal Express under Airbill No. 6097383036 to Weyerhouser Company on March 7, 1990 at 1835 hours.

6. Sampling Personnel:

Name	Organization	Duties on Site
Debbie LaMond	NUS Corporation, FIT 2	Site Manager, Written and Photographic Documentation
Jess Tecson	NUS Corporation, FIT 2	Site Safety Officer
Sue Lenczyk	NUS Corporation, FIT 2	Sample Management Officer
Brian Farrell	NUS Corporation, FIT 2	Sampler
Maria Coler	NUS Corporation, FIT 2	Sampler

7. Weather Conditions:

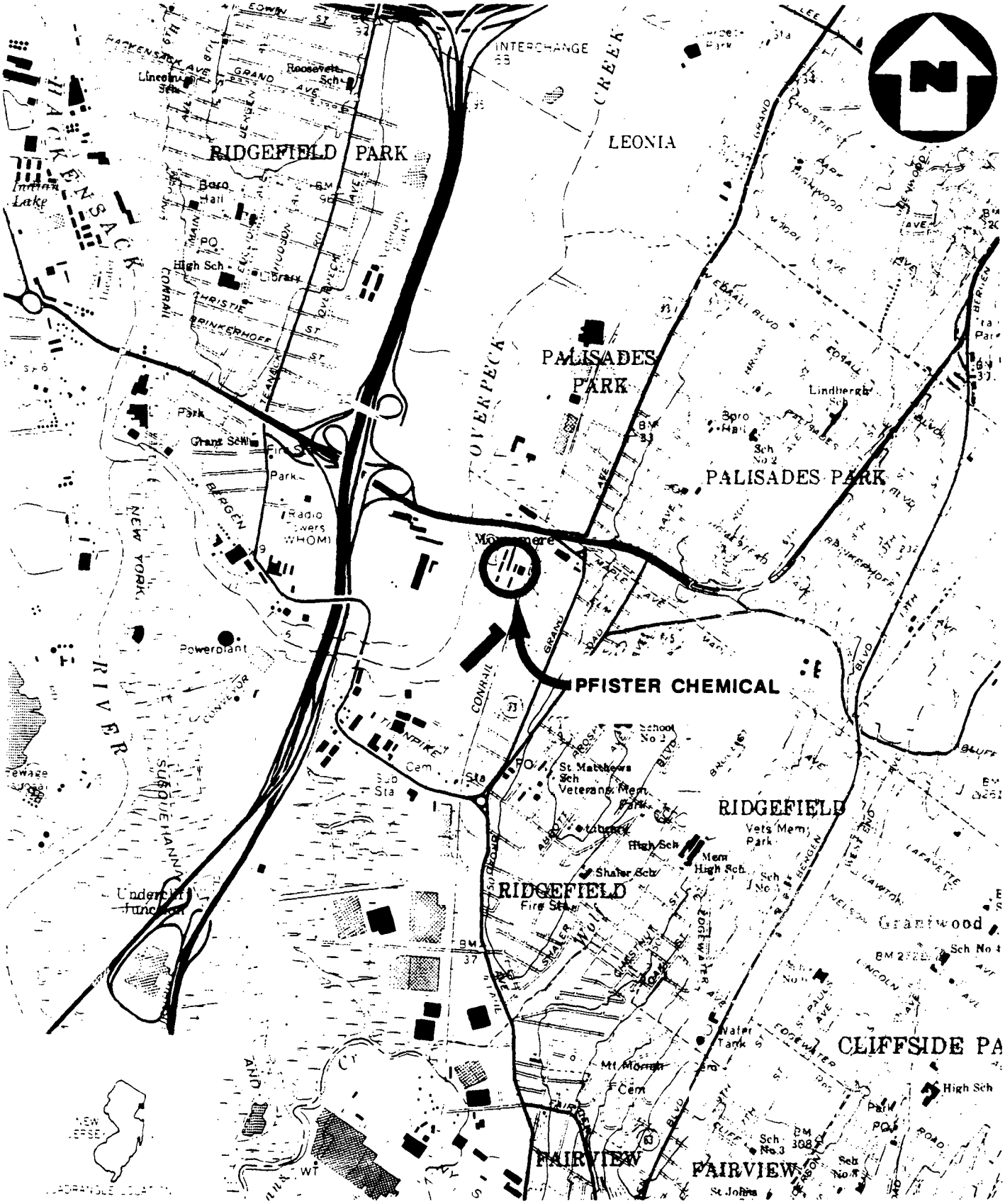
Sunny, 30-35° F, wind from the north estimated at 5-7 mph.

8. Additional Comments:

All samples, with the exception of the trip blank, will be analyzed for Target Compound List (TCL) organic compounds and TCL total metals, excluding cyanide. The trip blank will be analyzed for volatile organic compounds only. Samples NJDJ-SL1 and NJDJ-SL2 are designated as NJDJ-S5 and NJDJ-S6, respectively, in the sample management summary documented in Field Notebook #0505.

9. Report Prepared By: Deborah LaMond Date: March 12, 1990

10. Approved By: RM Norman Date: 3/19/90



(QUAD) WEEHAWKEN, N.J.

SITE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

SCALE: 1" = 2000'

FIGURE 1

NUS CORPORATION

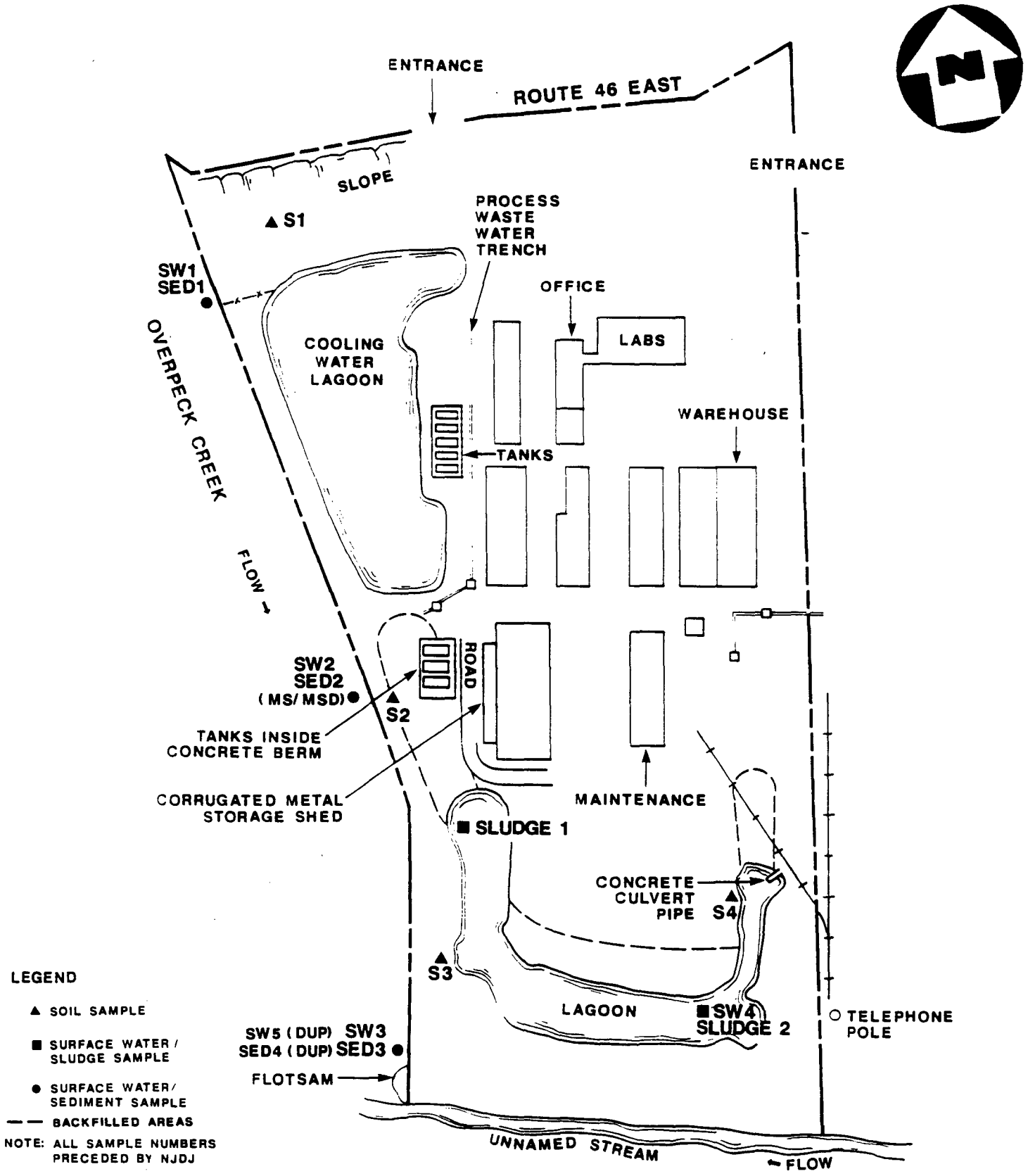


FIGURE 2

SAMPLE LOCATION MAP

PFISTER CHEMICAL, RIDGEFIELD, N.J.

NOT TO SCALE

NUS CORPORATION

TABLE I
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-SW1	AS279 BEN49 1-1-1	MBAX18	1612	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek north of and adjacent to fence line running east-west at northwest corner of cooling water lagoon.
NJDJ-SW2*	AS280 BEN50 1-1-1	MBAX19	1346	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek in line with location of soil sample S2.
NJDJ-SW3	AS281 BEN51 1.7-1-1	MBAX20	1237	Aqueous	Surface water sample collected at eastern edge of Overpeck Creek approximately 40 feet north of confluence of unnamed stream, which forms southern boundary of site, and Overpeck Creek.
NJDJ-SW4	AS282 BEN52 125-10-300	MBAX21	1142	Aqueous	Surface water sample collected in southeast corner of lagoon and one foot in from northern bank approximately 150 feet west of telephone pole located just outside of eastern border of site.

* MS/MSD - Indicates that additional sample volume was collected and shipped to the laboratory for matrix spike (MS) and matrix spike duplicate (MSD) analysis.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-SW5**	AS283	MBAX22	1245	Aqueous	Surface water sample collected from same location as SW3.
	BEN53 2.5-1-1	—			
NJDJ-SED1	AS284	MBAX23	1625	Sediment	Sediment sample collected from same location as SW1.
	BEN54 1-5-2	58-43-43			
NJDJ-SED2*	BCY92	MBAX24	1358	Sediment	Sediment sample collected from same location as SW2.
	10(med)-40-5	30-32-32			
NJDJ-SED3	BCY93	MBAX25	1250	Sediment	Sediment sample collected from same location as SW3.
	5-10-5	31-33-33			
NJDJ-SED4**	BCY94	MBAX26	1302	Sediment	Sediment sample collected from same location as SW3.
	5-10-5	34-33-33			
NJDJ-SL1	AS277	MBAX16	1425	Sludge	Sludge sample collected from northwest corner of western leg of lagoon 86 feet south of benchmark A. Benchmark A is 48 feet west of southwest corner of corrugated steel storage shed attached to southwesternmost process building.
	BEN47 2000(med)-400-1000	41-41-41			
NJDJ-SL2	AS278	MBAX17	1203	Sludge	Sludge sample collected from same location as SW4.
	BEN48 100(med)-200-50	61-62-62			

* MS/MSD - Indicates that additional sample volume was collected and shipped to the laboratory for matrix spike (MS) and matrix spike duplicate (MSD) analysis.

** Duplicate - Indicates that sample was designated for duplicate analysis.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-S1	AS273 BEN43 1-2,7-1	MBAX12 45-49-49	1558	Soil	Soil sample collected at a depth of 4 to 10 inches, approximately 60 feet south of the Rt. 46 embankment and approximately 100 feet east of Overpeck Creek.
NJDJ-S2	AS274 BEN44 1-10-10	MBAX13 12-11-11	1506	Soil	Soil sample collected at a depth of 0 to 6 inches approximately 48 feet west of southwest corner of concrete berm surrounding storage tanks.
NJDJ-S3	AS275 BEN45 1-10-100	MBAX14 17-24-24	1453	Soil	Soil sample collected at a depth of 0 to 6 inches approximately 111 feet south of benchmark B. Benchmark B is approximately 15 feet west of sample NJDJ-S1 location.
NJDJ-S4	AS276 BEN46 4 (mid)-80-10	MBAX15 77-60-60	1523	Soil	Soil sample collected at a depth of 5 to 10 inches from west bank of eastern leg of lagoon approximately 12 feet west of concrete culvert pipe which runs under railroad tracks located east of eastern leg of lagoon.

TABLE I (CONT'D)
SAMPLE DESCRIPTIONS
PFISTER CHEMICAL, INC.
RIDGEFIELD, NEW JERSEY
CASE NO. 13670
MARCH 7, 1990

NUS Sample ID Number	CLP Organic Sample Number	CLP Inorganic Sample Number	Collection Time	Sample Type	Sample Location
NJDJ-RIN1	BCY95	MBBC96	1030	Aqueous Rinsate Blank	Trowel rinsate collected at the command post.
NJDJ-RIN2	BCY96	MBBC97	1100	Aqueous Rinsate Blank	Bowl rinsate collected at the command post.
NJDJ-RIN3	BCY97	MBBC98	1120	Aqueous Rinsate Blank	Scoop rinsate collected at the command post.
NJDJ-RIN4	BCY98	MBBC99	1140	Aqueous Rinsate Blank	Auger rinsate collected at the command post.
NJDJ-TRBLK	BCY99 N/A	N/A N/A	1040	Aqueous Trip Blank	Trip Blank; demonstrated analyte-free water obtained from NUS Corp. Region 2 FIT, Edison, New Jersey.

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 13670 SDG No. BCY92 LABORATORY CEIMK SITE Pfister Chemical

DATA ASSESSMENT:

The current functional guidelines (1988) for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: [signature] Date: 5/9/1990

Verified By: [signature] Date: 6/11/1990

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non- detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

BN- Bis(diethylhexyl)phthalate was flagged non-detect in BEN 49, 50, 51 + 53.

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

VOA- Methylene chloride was flagged non-detect (U) in BCY92 + BEN 48

BN- Bis(diethylhexyl)phthalate was flagged non-detect in BCY93 + 94, BEN 44, 47, 48 + 54.

C) Trip blank contamination

VOA - The analytes listed below were flagged non-detect (U):

Chloromethane: BEN 49, 50, 51, 52 + 53
bromomethane: BEN 49 + 50
methylene chloride: BEN 49

DATA ASSESSMENT:

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be $\geq$ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected ("R").

VOA - 2-Butanone was rejected (R) in BEN47 due to RRF <.05 in continuing calibration.

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ" (if %D or RSD >50%). If there is a gross deviation of %RSD and %D, the non-detects may be rejected ("R").

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

A - Benzoic acid was flagged estimated (J) in BCY 95, 96, 97 + 98, + BEN 49, 50, 51 + 53 due to %D > 50.

DATA ASSESSMENT:

6. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

VOA- The surrogates for BEN47 + 48 were diluted out. No action was taken.

BNA - The surrogates for BCY92, BEN46, 47 + 48 were diluted out. No action was taken.

PEST - The surrogates for BEN52, BCY92DL, BCY93DL, BCY94DL, BEN45, 47 + 48 were diluted out. No action was taken

- High DBC recovery for BEN44 + 46. ~~No action taken~~ ~~due to coelution~~. Therefore Aroclor 1248 in both samples was flagged estimated (J), as was endosulfan sulfate in BEN46.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.

VOA - Total xylene was flagged "J" in BCY92 + BEN47 because the analyte was out of linear range and no diluted analysis was perform therefore it is estimated.

PEST/PCB - Aroclor 1248 was rejected in BEN44, 45 + 48 because they fell outside the retention time windows, also no GC/MS confirmation was performed

- Aroclor 1248 was rejected in BCY92, 93, 94, BEN46, 47 + 54 due to no GC/MS confirmation performed.

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

VOA - All analytes in BEN46 were flagged estimated due to % moisture
PEST+BNA >50%. (~~PEST data was~~

VOA - BEN48 had a % moisture of 61 but this was a sludge sample
BNA+PEST therefore a 75% moisture criteria was used & no action was taken.

VOA - BEN 54 had a % moisture of 58 but this was a sediment sample therefore the 75% moisture criteria was used & no action was taken.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

The pesticide chromatography is illegible.

12. CONTRACT PROBLEMS____NON-COMPLIANCE:

VOA - Total xylene in samples BCY92+BEN47 were out of linear range & no ~~re~~ dilution was performed.

PEST - There was no qualifiers in Aroclor 1248 in samples BCY 92,93+94 to designate a diluted analysis needed because analyte was outside linear range.

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

PEST - BCY92,93+94 were diluted due to Aroclor 1248 out of linear range. The diluted values were transferred to the original data & the original data will be used.

DPO: [ ] ACTION [ ] FYI

Region 2

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 13670

LABORATORY CEIMIC

SDG NO. BCY92

DATA USER FIT2

SOW

REVIEW COMPLETION DATE 5/9/90

NO. OF SAMPLES 10 WATER 10 SOIL ____ OTHER

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR FIT2

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	O	O	O	
2. GC-MS TUNE/ GC PERFORMANCE	O	O	O	
3. INITIAL CALIBRATIONS	O	O	O	
4. CONTINUING CALIBRATIONS	X	O	O	
5. FIELD BLANKS ("F" = not applicable)	X	X	O	
6. LABORATORY BLANKS	X	O	O	
7. SURROGATES	O	O	X	
8. MATRIX SPIKE/DUPLICATES	O	O	O	
9. REGIONAL QC ("F" = not applicable)	F	F	F	
10. INTERNAL STANDARDS	O	O		
11. COMPOUND IDENTIFICATION	X	O	X	
12. COMPOUND QUANTITATION	O	O	O	
13. SYSTEM PERFORMANCE	O	O	X	
14. OVERALL ASSESSMENT	X	X	X	

O = No problems or minor problems that do not affect data usability.
X = No more than *about* 5% of the data points are qualified as either estimated or unusable.
M = More than *about* 5% of the data points are qualified as estimated.
Z = More than *about* 5% of the data points are qualified as unusable.

DPO ACTION ITEMS:

AREAS OF CONCERN:

No. of Compounds/No. of Fractions (Samples) Date: February 1989

Type of Review: total Date: 5/9/90 Case #: 13670

Project: Pfister Chemical Lab Name: CEIMIC

Reviewer's Initials: JS Number of Samples: 10w, 10s

Analytes Rejected Due to Exceeding Review Criteria:

% Moisture

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)							19	0 / 285
B/N (50)				4/4			19	4 / 950
VOA (35)			1/1				20	1 / 700
PEST (20)							19	0 / 380
PCB (7)					9/9		19	9 / 133
TCDD (1)							0	0 / 0

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)			8/8			15/1	19	23 / 285
B/N (50)						50/1	19	50 / 950
VOA (35)					2/2	35/1	20	37 / 700
PEST (20)	2/2					20/1	19	22 / 380
PCB (7)	1/1					7/1	19	8 / 133
TCDD (1)							0	0 / 0

The submitted data covers the analysis of the volatile (VOA), Semivolatile (SV) and Pesticides/PCB (Pest) fractions and their associated blanks and QA/QC. CEIMIC would like to highlight the following points pertaining to the analyses performed for this case:

(1) INSTRUMENTATION AND COLUMN IDENTIFICATION

The following instruments are used for the analyses:

GC/MS ANALYSIS

a. VOA

MS2 : HP 5970B GC/MS using 6' x 2 mm ID SP-1000 packed column

MS3 : HP 5970B GC/MS using 30 m x 0.53 mm ID DB-624 megabore column

b. SV

MS1 : HP 5970B GC/MS using 30 m x 0.25 mm ID DB-5 fused silica capillary column

MS4 : HP 5970B GC/MS using 30 m x 0.25 mm ID DB-5 fused silica capillary column

GC ANALYSIS

GC1 : HP 5890 GC with ECD

GC4 : HP 5890 GC with ECD

Confirmation column : DB-608

30 m x 0.53 mm ID DB-608 megabore column

Primary colum :

1. DB-5
   30 m x 0.53 mm ID DB-5 megabore column

2. OV-1
   6' x 2 mm ID 3% OV-1 glass packed column

(2) SAMPLE INFORMATION

Additional Qualifier : None

The pH for Sample BCY92 was low. This was reported to SMO (Monica, 3/19/90) and CEIMIC was authorized to proceed with the analysis.

The EPA ID of most of the samples were changed per instruction from SMO (Ann, 3/19/90).

A. VOA

A megabore column was used for MS2. Although the 1,2-dichloroethene isomers (cis and trans-) were chromatographically resolved, the cis isomer was looked for and if detected, quantitated using the trans isomer, and they were reported as the total concentration.

The surrogates were diluted out in Samples BEN47 and BEN48.

The % RPD was out of limits for several of the spike compounds for Sample BEN43MS and MSD.

The VOA reconstructed ion chromatograms are labelled as:

IS1	Bromochloromethane	IS
IS2	Difluorobenzene	IS
IS3	Chlorobenzene-d5	IS
SS1	Dichloroethane-d4	SS
SS2	Toluene-d8	SS
SS3	Bromofluorobenzene	SS

B. SVOA Fraction

The final volume of the SVOA extracts were 1 mL.

The surrogates were diluted out in Samples BEN46, BCY92 BEN47 and BEN48.

The SV reconstructed ion chromatograms are labeled as :

S-1	2-Fluorophenol	SS
S-2	Phenol-d5	SS
IS-1	1,4-Dichlorobenzene-d4	IS
S-3	Nitrobenzene-d5	SS
IS-2	Naphthalene-d8	IS
S-4	2-Fluorobiphenyl	SS
IS-3	Acenaphthene-d10	IS
S-5	Tribromophenol	SS
IS-4	Phenanthrene-d10	IS
S-6	Terphenyl-d14	SS
IS-5	Chrysene-d12	IS
IS-6	Perylene-d12	IS

IS = Internal standard
SS = Surrogate standard

C. PEST Fraction

DBC was diluted out in many sample extracts, therefore the % D and recovery of DBC could not be determined.

Coelution of several of the spiked compounds with Aroclor 1248 present in Samples BCY92MS and BCY92MSD resulted in the % recovery and RPD of these spiked compounds out of the limits.

The matrix spiked compounds were diluted out in Samples BCY92MSDL and BCY92MSDDL.

DEVIATIONS FROM THE SOW

None

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Kin S. Chiu
Program Manager
April 5, 1990

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4123

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	10 ~~1~~	~~J~~ U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~1~~	~~J~~ U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4123

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN50

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4120

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	160	U
74-83-9	Bromomethane	~~10~~	~~5~~ U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN50

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4120

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN51

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4138

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/09/90

Column: (pack/cap) CAP Dilution Factor: 1.7

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	300	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	8	U
67-64-1	Acetone	17	U
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	17	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	17	U
591-78-6	2-Hexanone	17	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	13	
100-41-4	Ethylbenzene	11	
100-42-5	Styrene	8	U
1330-20-7	Total Xylenes	54	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN51

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4138

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/09/90

Column (pack/cap) CAP Dilution Factor: 1.7

Number TICs found: 2

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	8.44	17	~~N~~ R
2. 96377	Methylcyclopentane	9.57	13	J N

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4140

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/09/90

Column: (pack/cap) CAP Dilution Factor: ~~1250~~ 125

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1200 ~~240~~	J U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	620	U
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	620	U
75-35-4	1,1-Dichloroethene	620	U
75-34-3	1,1-Dichloroethane	620	U
540-59-0	1,2-Dichloroethene (total)	620	U
67-66-3	Chloroform	620	U
107-06-2	1,2-Dichloroethane	620	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	620	U
56-23-5	Carbon Tetrachloride	620	U
108-05-4	Vinyl Acetate	1200	U
75-27-4	Bromodichloromethane	620	U
78-87-5	1,2-Dichloropropane	620	U
10061-01-5	cis-1,3-Dichloropropene	620	U
79-01-6	Trichloroethene	620	U
124-48-1	Dibromochloromethane	620	U
79-00-5	1,1,2-Trichloroethane	620	U
71-43-2	Benzene	620	U
10061-02-6	Trans-1,3-Dichloropropene	620	U
75-25-2	Bromoform	620	U
108-10-1	4-Methyl-2-Pentanone	1200	U
591-78-6	2-Hexanone	1200	U
127-18-4	Tetrachloroethene	620	U
79-34-5	1,1,2,2-Tetrachloroethane	620	U
108-88-3	Toluene	620	U
108-90-7	Chlorobenzene	2300	
100-41-4	Ethylbenzene	1700	
100-42-5	Styrene	620	U
1330-20-7	Total Xylenes	10000	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4140

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/09/90

Column (pack/cap) CAP Dilution Factor: 125

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN53

ab Name: CEIMIC CORP Contract: 68D90028

b Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

trix: (soil/water) WATER Lab Sample ID: 900146-11

ample wt/vol: 5.0 (g/mL) ML Lab File ID: B4139

vel: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/09/90

umn: (pack/cap) CAP Dilution Factor: 2.5

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	280	N
74-83-9	Bromomethane	25	U
75-01-4	Vinyl Chloride	25	U
75-00-3	Chloroethane	25	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	25	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	25	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	25	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	25	U
591-78-6	2-Hexanone	25	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	13	[illegible]
100-41-4	Ethylbenzene	11	J
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	55	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN53

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-11

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4139

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/09/90

Column (pack/cap) CAP Dilution Factor: 2.5

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1/87 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4030

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 58 Date Analyzed: 03/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	24	U
74-83-9	Bromomethane	24	U
75-01-4	Vinyl Chloride	24	U
75-00-3	Chloroethane	24	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	24	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	24	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	24	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	24	U
591-78-6	2-Hexanone	24	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Total Xylenes	12	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4030

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 58 Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY92

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4072

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 30 Date Analyzed: 03/13/90

Column: (pack/cap) PACK Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18000	U
74-83-9	Bromomethane	18000	U
75-01-4	Vinyl Chloride	18000	U
75-00-3	Chloroethane	18000	U
75-09-2	Methylene Chloride	31000	UL
67-64-1	Acetone	18000	U
75-15-0	Carbon Disulfide	8900	U
75-35-4	1,1-Dichloroethene	8900	U
75-34-3	1,1-Dichloroethane	8900	U
540-59-0	1,2-Dichloroethene (total)	8900	U
67-66-3	Chloroform	8900	U
107-06-2	1,2-Dichloroethane	8900	U
78-93-3	2-Butanone	18000	U
71-55-6	1,1,1-Trichloroethane	8900	U
56-23-5	Carbon Tetrachloride	8900	U
108-05-4	Vinyl Acetate	18000	U
75-27-4	Bromodichloromethane	8900	U
78-87-5	1,2-Dichloropropane	8900	U
10061-01-5	cis-1,3-Dichloropropene	8900	U
79-01-6	Trichloroethene	8900	U
124-48-1	Dibromochloromethane	8900	U
79-00-5	1,1,2-Trichloroethane	8900	U
71-43-2	Benzene	8900	U
10061-02-6	Trans-1,3-Dichloropropene	8900	U
75-25-2	Bromoform	8900	U
108-10-1	4-Methyl-2-Pentanone	18000	U
591-78-6	2-Hexanone	18000	U
127-18-4	Tetrachloroethene	8900	U
79-34-5	1,1,2,2-Tetrachloroethane	8900	U
108-88-3	Toluene	8900	U
108-90-7	Chlorobenzene	47000	
100-41-4	Ethylbenzene	71000	
100-42-5	Styrene	8900	U
1330-20-7	Total Xylenes	500000	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY92

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4072

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 30 Date Analyzed: 03/13/90

Column (pack/cap) PACK Dilution Factor: 10

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Dichlorobenzene isomer	32.97	77000	J N

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 1.0 (g/mL) G Lab File ID: C4031

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 31 Date Analyzed: 03/09/90

Column: (pack/cap) PACK Dilution Factor: ~~1.0~~ 5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	72	U
74-83-9	Bromomethane	72	U
75-01-4	Vinyl Chloride	72	U
75-00-3	Chloroethane	72	U
75-09-2	Methylene Chloride	36	U
67-64-1	Acetone	200	
75-15-0	Carbon Disulfide	36	U
75-35-4	1,1-Dichloroethene	36	U
75-34-3	1,1-Dichloroethane	36	U
540-59-0	1,2-Dichloroethene (total)	36	U
67-66-3	Chloroform	36	U
107-06-2	1,2-Dichloroethane	36	U
78-93-3	2-Butanone	72	U
71-55-6	1,1,1-Trichloroethane	36	U
56-23-5	Carbon Tetrachloride	36	U
108-05-4	Vinyl Acetate	72	U
75-27-4	Bromodichloromethane	36	U
78-87-5	1,2-Dichloropropane	36	U
10061-01-5	cis-1,3-Dichloropropene	36	U
[illegible]	Trichloroethene	36	U
[illegible]	Dibromochloromethane	36	U
79-00-[illegible]	1,1,2-Trichloroethane	36	U
71-43-2	Benzene	36	U
10061-02-6	Trans-1,3-Dichloropropene	36	U
75-25-2	Bromoform	36	U
108-10-1	4-Methyl-2-Pentanone	72	U
591-78-6	2-Hexanone	72	U
127-18-4	Tetrachloroethene	36	U
79-34-5	1,1,2,2-Tetrachloroethane	36	U
108-88-3	Toluene	36	U
108-90-7	Chlorobenzene	300	
100-41-4	Ethylbenzene	120	
100-42-5	Styrene	36	U
1330-20-7	Total Xylenes	570	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 1.0 (g/mL) G Lab File ID: C4031

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 31 Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY94

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4058

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 34 Date Analyzed: 03/12/90

Column: (pack/cap) PACK Dilution Factor: 0.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	950	U
74-83-9	Bromomethane	950	U
75-01-4	Vinyl Chloride	950	U
75-00-3	Chloroethane	950	U
75-09-2	Methylene Chloride	470	U
67-64-1	Acetone	950	U
75-15-0	Carbon Disulfide	470	U
75-35-4	1,1-Dichloroethene	470	U
75-34-3	1,1-Dichloroethane	470	U
540-59-0	1,2-Dichloroethene (total)	470	U
67-66-3	Chloroform	470	U
107-06-2	1,2-Dichloroethane	470	U
78-93-3	2-Butanone	950	U
71-55-6	1,1,1-Trichloroethane	470	U
56-23-5	Carbon Tetrachloride	470	U
108-05-4	Vinyl Acetate	950	U
75-27-4	Bromodichloromethane	470	U
78-87-5	1,2-Dichloropropane	470	U
10061-01-5	cis-1,3-Dichloropropene	470	U
79-01-6	Trichloroethene	470	U
124-48-1	Dibromochloromethane	470	U
79-00-5	1,1,2-Trichloroethane	470	U
71-43-2	Benzene	470	U
10061-02-6	Trans-1,3-Dichloropropene	470	U
75-25-2	Bromoform	470	U
108-10-1	4-Methyl-2-Pentanone	950	U
591-78-6	2-Hexanone	950	U
127-18-4	Tetrachloroethene	470	U
79-34-5	1,1,2,2-Tetrachloroethane	470	U
108-88-3	Toluene	470	U
108-90-7	Chlorobenzene	3000	
100-41-4	Ethylbenzene	1500	
100-42-5	Styrene	470	U
1330-20-7	Total Xylenes	7000	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY94

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4058

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 34 Date Analyzed: 03/12/90

Column (pack/cap) PACK Dilution Factor: 0.5

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4082

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 41 Date Analyzed: 03/14/90

Column: (pack/cap) PACK Dilution Factor: 2000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	4200000	U
74-83-9	Bromomethane	4200000	U
75-01-4	Vinyl Chloride	4200000	U
75-00-3	Chloroethane	4200000	U
75-09-2	Methylene Chloride	2100000	U
67-64-1	Acetone	4200000	U
75-15-0	Carbon Disulfide	2100000	U
75-35-4	1,1-Dichloroethene	2100000	U
75-34-3	1,1-Dichloroethane	2100000	U
540-59-0	1,2-Dichloroethene (total)	2100000	U
67-66-3	Chloroform	2100000	U
107-06-2	1,2-Dichloroethane	2100000	U
78-93-3	2-Butanone	4200000	~~U~~ R
71-55-6	1,1,1-Trichloroethane	2100000	U
56-23-5	Carbon Tetrachloride	2100000	U
108-05-4	Vinyl Acetate	4200000	U
75-27-4	Bromodichloromethane	2100000	U
78-87-5	1,2-Dichloropropane	2100000	U
10061-01-5	cis-1,3-Dichloropropene	2100000	U
79-01-6	Trichloroethene	2100000	U
124-48-1	Dibromochloromethane	2100000	U
79-00-5	1,1,2-Trichloroethane	2100000	U
71-43-2	Benzene	2100000	U
10061-02-6	Trans-1,3-Dichloropropene	2100000	U
75-25-2	Bromoform	2100000	U
108-10-1	4-Methyl-2-Pentanone	4200000	U
591-78-6	2-Hexanone	4200000	U
127-18-4	Tetrachloroethene	2100000	U
79-34-5	1,1,2,2-Tetrachloroethane	2100000	U
108-88-3	Toluene	2100000	U
108-90-7	Chlorobenzene	47000000	
100-41-4	Ethylbenzene	18000000	
100-42-5	Styrene	2100000	U
1330-20-7	Total Xylenes	110000000	~~E~~ J

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4082

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 41 Date Analyzed: 03/14/90

Column (pack/cap) PACK Dilution Factor: 2000

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4071

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 61 Date Analyzed: 03/13/90

Column: (pack/cap) PACK Dilution Factor: 100

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	320000	U
74-83-9	Bromomethane	320000	U
75-01-4	Vinyl Chloride	320000	U
75-00-3	Chloroethane	320000	U
75-09-2	Methylene Chloride	160,000 ~~55000~~	XU
67-64-1	Acetone	160000	J
75-15-0	Carbon Disulfide	160000	U
75-35-4	1,1-Dichloroethene	160000	U
75-34-3	1,1-Dichloroethane	160000	U
540-59-0	1,2-Dichloroethene (total)	160000	U
67-66-3	Chloroform	160000	U
107-06-2	1,2-Dichloroethane	160000	U
78-93-3	2-Butanone	320000	U
71-55-6	1,1,1-Trichloroethane	160000	U
56-23-5	Carbon Tetrachloride	160000	U
108-05-4	Vinyl Acetate	320000	U
75-27-4	Bromodichloromethane	160000	U
78-87-5	1,2-Dichloropropane	160000	U
10061-01-5	cis-1,3-Dichloropropene	160000	U
79-01-6	Trichloroethene	160000	U
124-48-1	Dibromochloromethane	160000	U
79-00-5	1,1,2-Trichloroethane	160000	U
71-43-2	Benzene	160000	U
10061-02-6	Trans-1,3-Dichloropropene	160000	U
75-25-2	Bromoform	160000	U
108-10-1	4-Methyl-2-Pentanone	320000	U
591-78-6	2-Hexanone	320000	U
127-18-4	Tetrachloroethene	160000	U
79-34-5	1,1,2,2-Tetrachloroethane	160000	U
108-88-3	Toluene	160000	U
108-90-7	Chlorobenzene	52000	J
100-41-4	Ethylbenzene	110000	J
100-42-5	Styrene	160000	U
1330-20-7	Total Xylenes	610000	

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4071

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 61 Date Analyzed: 03/13/90

Column (pack/cap) PACK Dilution Factor: 120 00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4019

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 45 Date Analyzed: 03/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	9	U
67-64-1	Acetone	18	U
75-15-0	Carbon Disulfide	9	U
75-35-4	1,1-Dichloroethene	9	U
75-34-3	1,1-Dichloroethane	9	U
540-59-0	1,2-Dichloroethene (total)	9	U
67-66-3	Chloroform	9	U
107-06-2	1,2-Dichloroethane	9	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	9	U
56-23-5	Carbon Tetrachloride	9	U
108-05-4	Vinyl Acetate	18	U
75-27-4	Bromodichloromethane	9	U
78-87-5	1,2-Dichloropropane	9	U
10061-01-5	cis-1,3-Dichloropropene	9	U
79-01-6	Trichloroethene	9	U
124-48-1	Dibromochloromethane	9	U
79-00-5	1,1,2-Trichloroethane	9	U
71-43-2	Benzene	9	U
10061-02-6	Trans-1,3-Dichloropropene	9	U
75-25-2	Bromoform	9	U
108-10-1	4-Methyl-2-Pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	9	U
79-34-5	1,1,2,2-Tetrachloroethane	9	U
108-88-3	Toluene	9	U
108-90-7	Chlorobenzene	9	U
100-41-4	Ethylbenzene	9	U
100-42-5	Styrene	9	U
1330-20-7	Total Xylenes	9	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4019

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 45 Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN44

Name: CEIMIC CORP Contract: 68D90028

Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4021

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 12 Date Analyzed: 03/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	2	J
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Total Xylenes	5	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN44

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: S4021

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 12 Date Analyzed: 03/08/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4023

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 17 Date Analyzed: 03/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Total Xylenes	4	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C4023

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 17 Date Analyzed: 03/08/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN46

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-04

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4069

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 77 Soil >50% Date Analyzed: 03/13/90

Column: (pack/cap) PACK Dilution Factor: 4.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	22000	UJ
74-83-9	Bromomethane	22000	U
75-01-4	Vinyl Chloride	22000	U
75-00-3	Chloroethane	22000	U
75-09-2	Methylene Chloride	11000	U
67-64-1	Acetone	22000	U
75-15-0	Carbon Disulfide	11000	U
75-35-4	1,1-Dichloroethene	11000	U
75-34-3	1,1-Dichloroethane	11000	U
540-59-0	1,2-Dichloroethene (total)	11000	U
67-66-3	Chloroform	11000	U
107-06-2	1,2-Dichloroethane	11000	U
78-93-3	2-Butanone	22000	U
71-55-6	1,1,1-Trichloroethane	11000	U
56-23-5	Carbon Tetrachloride	11000	U
108-05-4	Vinyl Acetate	22000	U
75-27-4	Bromodichloromethane	11000	U
78-87-5	1,2-Dichloropropane	11000	U
10061-01-5	cis-1,3-Dichloropropene	11000	U
79-01-6	Trichloroethene	11000	U
124-48-1	Dibromochloromethane	11000	U
79-00-5	1,1,2-Trichloroethane	11000	U
71-43-2	Benzene	11000	U
10061-02-6	Trans-1,3-Dichloropropene	11000	U
75-25-2	Bromoform	11000	U
108-10-1	4-Methyl-2-Pentanone	22000	U
591-78-6	2-Hexanone	22000	U
127-18-4	Tetrachloroethene	11000	U
79-34-5	1,1,2,2-Tetrachloroethane	11000	U
108-88-3	Toluene	11000	UJ
108-90-7	Chlorobenzene	190000	J
100-41-4	Ethylbenzene	18000	J
100-42-5	Styrene	11000	UJ
1330-20-7	Total Xylenes	190000	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN46

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-04

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C4069

Level: (low/med) MED Date Received: 03/08/90

% Moisture: not dec. 77 Date Analyzed: 03/13/90

Column (pack/cap) PACK Dilution Factor: 4.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4125

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	98	
74-83-9	Bromomethane	1	J
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4125

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	8.47	15	J
2. 96377	Methylcyclopentane	9.59	6.0	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4126

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	56	
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4126

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	8.49	7.0	J
2. 000000	C7H14 isomer	25.79	7.0	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4127

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	30	
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4127

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY98

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-19

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4128

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	14	
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY98

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-19

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B412B

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	C7H14 isomer	25.76	5.0	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY99

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-20

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4129

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	110	
74-83-9	Bromomethane	1	J
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY99

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-20

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B4129

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/08/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110543	Hexane	8.47	10	J
2. 000000	Unknown	9.59	7.0	J
3. 000000	Unknown	25.76	5.0	J
4. 000000	Unknwon	26.72	5.0	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3261

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3261

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~7~~ 10	~~BJ~~ U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3261

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Unknown	40.82	17	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN50

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3262

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN50

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3262

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	~~BJ~~
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

940

EPA SAMPLE NO.

BEN50

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3262

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

Number TICs found: 6

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Unknown hydrocarbon	23.97	2.0	J N
2. 000000	Unknown hydrocarbon	26.22	3.0	J
3. 000000	Unknown	30.22	2.0	J
4. 000000	Unknown	34.27	2.0	J
5. 000000	Unknown	37.62	2.0	J
6. 000000	Unknown	40.82	20	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN51

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3265

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U J
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN51

Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3265

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~8~~ 10	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN51

Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3265

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 1.0

Number TICs found: 7

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	C10H80 isomer	18.74	5.0	J
2. 000000	Unknown hydrocarbon	26.21	3.0	J
3. 87172	Benzamide, 2-hydroxy-N-pheny	26.39	2.0	J
4. 000000	Unknown	30.22	2.0	J
5. 000000	Unknown	34.27	2.0	J
6. 000000	Unknown	37.62	2.0	J
7. 000000	C29H500 Sitosterol isomer	40.82	17	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCV92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3270

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	540	
111-44-4	bis(2-Chloroethyl)Ether	100	U
95-57-8	2-Chlorophenol	100	U
541-73-1	1,3-Dichlorobenzene	100	U
106-46-7	1,4-Dichlorobenzene	100	U
100-51-6	Benzyl Alcohol	100	U
95-50-1	1,2-Dichlorobenzene	100	U
95-48-7	2-Methylphenol	78	J
39638-32-9	bis(2-Chloroisopropyl)Ether	100	U
106-44-5	4-Methylphenol	190	
621-64-7	N-Nitroso-Di-n-Propylamine	100	U
67-72-1	Hexachloroethane	100	U
98-95-3	Nitrobenzene	100	U
78-59-1	Isophorone	100	U
88-75-5	2-Nitrophenol	100	U
105-67-9	2,4-Dimethylphenol	130	
65-85-0	Benzoic Acid	500	U
111-91-1	bis(2-Chloroethoxy)Methane	100	U
120-83-2	2,4-Dichlorophenol	34	J
120-82-1	1,2,4-Trichlorobenzene	100	U
91-20-3	Naphthalene	27	J
106-47-8	4-Chloroaniline	100	U
87-68-3	Hexachlorobutadiene	100	U
59-50-7	4-Chloro-3-Methylphenol	100	U
91-57-6	2-Methylnaphthalene	100	U
77-47-4	Hexachlorocyclopentadiene	100	U
88-06-2	2,4,6-Trichlorophenol	100	U
95-95-4	2,4,5-Trichlorophenol	500	U
91-58-7	2-Chloronaphthalene	100	U
88-74-4	2-Nitroaniline	500	U
131-11-3	Dimethyl Phthalate	100	U
208-96-8	Acenaphthylene	100	U
606-20-2	2,6-Dinitrotoluene	100	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3270

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	140	J
83-32-9	Acenaphthene	100	U
51-28-5	2,4-Dinitrophenol	500	U
100-02-7	4-Nitrophenol	500	U
132-64-9	Dibenzofuran	100	U
121-14-2	2,4-Dinitrotoluene	100	U
84-66-2	Diethylphthalate	100	U
7005-72-3	4-Chlorophenyl-phenylether	100	U
86-73-7	Fluorene	100	U
100-10-6	4-Nitroaniline	280	J
534-52-1	4,6-Dinitro-2-Methylphenol	500	U
86-30-6	N-Nitrosodiphenylamine (1)	100	U
101-55-3	4-Bromophenyl-phenylether	100	U
118-74-1	Hexachlorobenzene	100	U
87-86-5	Pentachlorophenol	500	U
85-01-8	Phenanthrene	100	U
120-12-7	Anthracene	100	U
84-74-2	Di-n-Butylphthalate	100	U
206-44-0	Fluoranthene	100	U
129-00-0	Pyrene	100	U
85-68-7	Butylbenzylphthalate	100	U
91-94-1	3,3'-Dichlorobenzidine	200	U
56-55-3	Benzo(a)Anthracene	100	U
218-01-9	Chrysene	100	U
117-81-7	bis(2-Ethylhexyl)Phthalate	100	U
117-84-0	Di-n-Octyl Phthalate	100	U
205-99-2	Benzo(b)Fluoranthene	100	U
207-08-9	Benzo(k)Fluoranthene	100	U
50-32-8	Benzo(a)Pyrene	100	U
193-39-5	Indeno(1,2,3-cd)Pyrene	100	U
53-70-3	Dibenz(a,h)Anthracene	100	U
191-24-2	Benzo(g,h,i)Perylene	100	U

(1) - Cannot be separated from Diphenylamine

967

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3270

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 10

Number TICs found: 17

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	000000	Chloromethylbenzenamine isom	13.57	400	J N
2.	000000	Unknown	15.14	160	J
3.	000000	Unknown	15.22	190	J
4.	103844	Acetamide, N-phenyl- (9CI)	17.04	1200	J
5.	000000	Unknown	17.84	210	J
6.	000000	Unknown chlorinated compound	18.75	820	J
7.	000000	Unknown	18.84	1000	J
8.	000000	Chloromethylbenzenamine isom	19.07	5100	J
9.	000000	N-methoxyphenylacetamide iso	19.20	230	J
10.	000000	C9H10O2 isomer	20.09	370	J
11.	000000	Unknown	20.24	640	J
12.	000000	Unknown chlorinated compound	21.29	490	J
13.	000000	Naphthalene carboxylic acid	21.62	280	J
14.	000000	Hydroxynaphthalene carboxyli	25.04	23000	J
15.	581975	N-2-Naphthalenylacetamide	25.64	770	J
16.	87172	2-Hydroxy-N-phenylbenzenamid	26.71	2500	J
17.	000000	C16H14O5 isomer	32.36	470	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN53

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3266

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	UJ
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN53

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3266

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q.
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	9	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

999

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN53

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCV92

Matrix: (soil/water) WATER Lab Sample ID: 900146-11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3266

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.0

Number TICs found: 8

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	C10H8 isomer	18.72	6.0	J N
2. 000000	Unknown hydrocarbon	26.21	5.0	J
3. 87172	Benzamide, 2-hydroxy-N-pheny	26.39	4.0	J
4. 000000	Unknown	26.54	2.0	J
5. 000000	Unknown	26.84	3.0	J
6. 000000	Unknown	30.22	3.0	J
7. 000000	Unknown	37.61	3.0	J
8. 000000	Unknown	40.82	25	J N

1000

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 30.3 (g/mL) G Lab File ID: D1407

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 43 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/14/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2900	U
111-44-4	bis(2-Chloroethyl)Ether	2900	U
95-57-8	2-Chlorophenol	2900	U
541-73-1	1,3-Dichlorobenzene	2900	U
106-46-7	1,4-Dichlorobenzene	2900	U
100-51-6	Benzyl Alcohol	2900	U
95-50-1	1,2-Dichlorobenzene	2900	U
95-48-7	2-Methylphenol	2900	U
39638-32-9	bis(2-Chloroisopropyl)Ether	2900	U
106-44-5	4-Methylphenol	2900	U
621-64-7	N-Nitroso-Di-n-Propylamine	2900	U
67-72-1	Hexachloroethane	2900	U
98-95-3	Nitrobenzene	2900	U
78-59-1	Isophorone	2900	U
88-75-5	2-Nitrophenol	2900	U
105-67-9	2,4-Dimethylphenol	2900	U
65-85-0	Benzoic Acid	14000	U
111-91-1	bis(2-Chloroethoxy)Methane	2900	U
120-83-2	2,4-Dichlorophenol	2900	U
120-82-1	1,2,4-Trichlorobenzene	2900	U
91-20-3	Naphthalene	2900	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	2900	U
59-50-7	4-Chloro-3-Methylphenol	2900	U
91-57-6	2-Methylnaphthalene	2900	U
77-47-4	Hexachlorocyclopentadiene	2900	U
88-06-2	2,4,6-Trichlorophenol	2900	U
95-95-4	2,4,5-Trichlorophenol	14000	U
91-58-7	2-Chloronaphthalene	2900	U
88-74-4	2-Nitroaniline	14000	U
131-11-3	Dimethyl Phthalate	2900	U
208-96-8	Acenaphthylene	2900	U
606-20-2	2,6-Dinitrotoluene	2900	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 30.3 (g/mL) G Lab File ID: D1407

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 43 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/14/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	14000	U
83-32-9	Acenaphthene	2900	U
51-28-5	2,4-Dinitrophenol	14000	U
100-02-7	4-Nitrophenol	14000	U
132-64-9	Dibenzofuran	2900	U
121-14-2	2,4-Dinitrotoluene	2900	U
84-66-2	Diethylphthalate	2900	U
7005-72-3	4-Chlorophenyl-phenylether	2900	U
86-73-7	Fluorene	2900	U
100-10-6	4-Nitroaniline	14000	U
534-52-1	4,6-Dinitro-2-Methylphenol	14000	U
86-30-6	N-Nitrosodiphenylamine (1)	2900	U
101-55-3	4-Bromophenyl-phenylether	2900	U
118-74-1	Hexachlorobenzene	2900	U
87-86-5	Pentachlorophenol	14000	U
85-01-8	Phenanthrene	320	J
120-12-7	Anthracene	2900	U
84-74-2	Di-n-Butylphthalate	2900	U
206-44-0	Fluoranthene	480	J
129-00-0	Pyrene	480	J
85-68-7	Butylbenzylphthalate	2900	U
91-94-1	3,3'-Dichlorobenzidine	5800	U
56-55-3	Benzo(a)Anthracene	410	J
218-01-9	Chrysene	370	J
117-81-7	bis(2-Ethylhexyl)Phthalate	2900 ~~580~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	2900	U
205-99-2	Benzo(b)Fluoranthene	340	J
207-08-9	Benzo(k)Fluoranthene	360	J
50-32-8	Benzo(a)Pyrene	2900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	2900	U
53-70-3	Dibenz(a,h)Anthracene	2900	U
191-24-2	Benzo(g,h,i)Perylene	2900	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 30.3 (g/mL) G Lab File ID: D1407

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 43 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/14/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 5.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123422	4-Hydroxy-4-methyl-2-pentano	5.80	38000	~~ABJ~~ K

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LAB SAMPLE NO.: BCY92

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1421

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 32 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 4.5 Dilution Factor: 40

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	19000	U
111-44-4	bis(2-Chloroethyl)Ether	19000	U
95-57-8	2-Chlorophenol	19000	U
541-73-1	1,3-Dichlorobenzene	19000	U
106-46-7	1,4-Dichlorobenzene	4300	J
100-51-6	Benzyl Alcohol	19000	U
95-50-1	1,2-Dichlorobenzene	130000	
95-48-7	2-Methylphenol	19000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	19000	U
106-44-5	4-Methylphenol	19000	U
621-64-7	N-Nitroso-Di-n-Propylamine	19000	U
67-72-1	Hexachloroethane	19000	U
98-95-3	Nitrobenzene	19000	U
78-59-1	Isophorone	19000	U
88-75-5	2-Nitrophenol	19000	U
105-67-9	2,4-Dimethylphenol	19000	U
65-85-0	Benzoic Acid	94000	U
111-91-1	bis(2-Chloroethoxy)Methane	19000	U
120-83-2	2,4-Dichlorophenol	19000	U
120-82-1	1,2,4-Trichlorobenzene	25000	
91-20-3	Naphthalene	2100	J
106-47-8	4-Chloroaniline	19000	U
87-68-3	Hexachlorobutadiene	19000	U
59-50-7	4-Chloro-3-Methylphenol	19000	U
91-57-6	2-Methylnaphthalene	19000	U
77-47-4	Hexachlorocyclopentadiene	19000	U
88-06-2	2,4,6-Trichlorophenol	19000	U
95-95-4	2,4,5-Trichlorophenol	94000	U
91-58-7	2-Chloronaphthalene	19000	U
88-74-4	2-Nitroaniline	94000	U
131-11-3	Dimethyl Phthalate	19000	U
208-96-8	Acenaphthylene	19000	U
606-20-2	2,6-Dinitrotoluene	19000	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY92

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1421

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 32 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 4.5 Dilution Factor: 40

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	94000	U
83-32-9	Acenaphthene	19000	U
51-28-5	2,4-Dinitrophenol	94000	U
100-02-7	4-Nitrophenol	94000	U
132-64-9	Dibenzofuran	19000	U
121-14-2	2,4-Dinitrotoluene	19000	U
84-66-2	Diethylphthalate	19000	U
7005-72-3	4-Chlorophenyl-phenylether	19000	U
86-73-7	Fluorene	19000	U
100-10-6	4-Nitroaniline	94000	U
534-52-1	4,6-Dinitro-2-Methylphenol	94000	U
86-30-6	N-Nitrosodiphenylamine (1)	19000	U
101-55-3	4-Bromophenyl-phenylether	19000	U
118-74-1	Hexachlorobenzene	19000	U
87-86-5	Pentachlorophenol	94000	U
85-01-8	Phenanthrene	19000	U
120-12-7	Anthracene	19000	U
84-74-2	Di-n-Butylphthalate	19000	U
206-44-0	Fluoranthene	19000	U
129-00-0	Pyrene	19000	U
85-68-7	Butylbenzylphthalate	19000	U
91-94-1	3,3'-Dichlorobenzidine	39000	U
56-55-3	Benzo(a)Anthracene	2200	J
218-01-9	Chrysene	19000	U
117-81-7	bis(2-Ethylhexyl)Phthalate	19000	U
117-84-0	Di-n-Octyl Phthalate	19000	U
205-99-2	Benzo(b)Fluoranthene	19000	U
207-08-9	Benzo(k)Fluoranthene	19000	U
50-32-8	Benzo(a)Pyrene	19000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	19000	U
53-70-3	Dibenz(a,h)Anthracene	19000	U
191-24-2	Benzo(g,h,i)Perylene	19000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY92

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1421

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 32 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 4.5 Dilution Factor: 40

Number TICs found: 17

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Chloromethylbenzenamine isom	15.67	31000	J N
2. 000000	Trichloromethoxybenzene isom	17.02	39000	J
3. 000000	Unknown halogenated compound	17.80	33000	J
4. 000000	Trichloro-cresol isomer	18.59	19000	J
5. 000000	C10H8O	19.54	230000	J
6. 000000	Trichlorobenzenamine isomer	19.84	72000	J
7. 000000	Chlorodimethoxybenzenamine i	21.02	21000	J
8. 57103	Hexadecanoic acid (9CI)	25.69	19000	J
9. 10544500	Sulfur, mol. (S8) (8CI9CI)	27.07	37000	J
10. 000000	Unknown	27.26	99000	J
11. 000000	C20H14O2	33.17	170000	J
12. 000000	C20H14O	33.49	72000	J
13. 000000	Phenylpyridinol isomer	34.59	170000	J
14. 000000	Unknown	34.94	140000	J
15. 000000	C16H12O4 isomer	35.69	58000	J
16. 000000	Unknown	36.37	110000	J
17. 000000	C17H12OS2 isomer	39.99	45000	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 30.1 (g/mL) G Lab File ID: D1417

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4900	U
111-44-4	bis(2-Chloroethyl)Ether	4900	U
95-57-8	2-Chlorophenol	4900	U
541-73-1	1,3-Dichlorobenzene	4900	U
106-46-7	1,4-Dichlorobenzene	4900	U
100-51-6	Benzyl Alcohol	4900	U
95-50-1	1,2-Dichlorobenzene	4900	U
95-48-7	2-Methylphenol	4900	U
39638-32-9	bis(2-Chloroisopropyl)Ether	4900	U
106-44-5	4-Methylphenol	4900	U
621-64-7	N-Nitroso-Di-n-Propylamine	4900	U
67-72-1	Hexachloroethane	4900	U
98-95-3	Nitrobenzene	4900	U
78-59-1	Isophorone	4900	U
88-75-5	2-Nitrophenol	4900	U
105-67-9	2,4-Dimethylphenol	4900	U
65-85-0	Benzoic Acid	24000	U
111-91-1	bis(2-Chloroethoxy)Methane	4900	U
120-83-2	2,4-Dichlorophenol	4900	U
120-82-1	1,2,4-Trichlorobenzene	2600	J
91-20-3	Naphthalene	4900	U
106-47-8	4-Chloroaniline	4900	U
87-68-3	Hexachlorobutadiene	4900	U
59-50-7	4-Chloro-3-Methylphenol	4900	U
91-57-6	2-Methylnaphthalene	4900	U
77-47-4	Hexachlorocyclopentadiene	4900	U
88-06-2	2,4,6-Trichlorophenol	4900	U
95-95-4	2,4,5-Trichlorophenol	24000	U
91-58-7	2-Chloronaphthalene	4900	U
88-74-4	2-Nitroaniline	24000	U
131-11-3	Dimethyl Phthalate	4900	U
208-96-8	Acenaphthylene	4900	U
606-20-2	2,6-Dinitrotoluene	4900	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 30.1 (g/mL) G Lab File ID: D1417

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	24000	U
83-32-9	Acenaphthene	4900	U
51-28-5	2,4-Dinitrophenol	24000	U
100-02-7	4-Nitrophenol	24000	U
132-64-9	Dibenzofuran	4900	U
121-14-2	2,4-Dinitrotoluene	4900	U
84-66-2	Diethylphthalate	4900	U
7005-72-3	4-Chlorophenyl-phenylether	4900	U
86-73-7	Fluorene	4900	U
100-10-6	4-Nitroaniline	24000	U
534-52-1	4,6-Dinitro-2-Methylphenol	24000	U
86-30-6	N-Nitrosodiphenylamine (1)	4900	U
101-55-3	4-Bromophenyl-phenylether	4900	U
118-74-1	Hexachlorobenzene	4900	U
87-86-5	Pentachlorophenol	24000	U
85-01-8	Phenanthrene	4900	U
120-12-7	Anthracene	4900	U
84-74-2	Di-n-Butylphthalate	4900	U
206-44-0	Fluoranthene	4900	U
129-00-0	Pyrene	4900	U
85-68-7	Butylbenzylphthalate	4900	U
91-94-1	3,3'-Dichlorobenzidine	9900	U
56-55-3	Benzo(a)Anthracene	4900	U
218-01-9	Chrysene	4900	U
117-81-7	bis(2-Ethylhexyl)Phthalate	4900 ~~550~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	4900	U
205-99-2	Benzo(b)Fluoranthene	4900	U
207-08-9	Benzo(k)Fluoranthene	4900	U
50-32-8	Benzo(a)Pyrene	4900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	4900	U
53-70-3	Dibenz(a,h)Anthracene	4900	U
191-24-2	Benzo(g,h,i)Perylene	4900	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 30.1 (g/mL) G Lab File ID: D1417

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 10

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123422	4-Hydroxy-4-methyl-2-pentano	5.85	64000	~~LABJ~~ R
2. 000000	Chloromethylbenzenamine isom	15.65	9400	J
3. 000000	Unknown	17.79	9900	J N
4. 000000	Dichlorodimethoxybenzene iso	19.34	15000	J
5. 000000	C10H8O	19.50	59000	J
6. 000000	Trichlorobenzenamine isomer	19.84	8900	J
7. 000000	Unknown brominated compound	21.22	5500	J
8. 000000	Chlorodimethoxybenzenamine i	21.29	4500	J
9. 000000	Unknown brominated compound	21.72	4500	J
10. 000000	Tetrachlorobiphenyl isomer	25.64	3500	J
11. 10544500	Sulfur (S8)	27.07	12000	J
12. 87172	Benzamide, 2-hydroxy-N-pheny	27.29	55000	J
13. 000000	Unknown	30.26	4000	J
14. 000000	C20H14O2 isomer	33.16	37000	J
15. 000000	C20H14O isomer	33.47	17000	J
16. 000000	C12H13N isomer	34.54	34000	J
17. 000000	Unknowen	34.82	31000	J
18. 000000	C16H12O4 isomer	34.99	2500	J
19. 000000	C16H12O4 isomer	35.61	9900	J
20. 000000	Unknown	36.32	24000	J N
21. 000000	C17H12OS2	39.94	12000	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY94

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 30.5 (g/mL) G Lab File ID: D1418

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4900	U
111-44-4	bis(2-Chloroethyl)Ether	4900	U
95-57-8	2-Chlorophenol	4900	U
541-73-1	1,3-Dichlorobenzene	4900	U
106-46-7	1,4-Dichlorobenzene	4900	U
100-51-6	Benzyl Alcohol	4900	U
95-50-1	1,2-Dichlorobenzene	1600	J
95-48-7	2-Methylphenol	4900	U
39638-32-9	bis(2-Chloroisopropyl)Ether	4900	U
106-44-5	4-Methylphenol	4900	U
621-64-7	N-Nitroso-Di-n-Propylamine	4900	U
67-72-1	Hexachloroethane	4900	U
98-95-3	Nitrobenzene	4900	U
78-59-1	Isophorone	4900	U
88-75-5	2-Nitrophenol	4900	U
105-67-9	2,4-Dimethylphenol	4900	U
65-85-0	Benzoic Acid	24000	U
111-91-1	bis(2-Chloroethoxy)Methane	4900	U
120-83-2	2,4-Dichlorophenol	4900	U
120-82-1	1,2,4-Trichlorobenzene	4900	J
91-20-3	Naphthalene	4900	U
106-47-8	4-Chloroaniline	4900	U
87-68-3	Hexachlorobutadiene	4900	U
59-50-7	4-Chloro-3-Methylphenol	4900	U
91-57-6	2-Methylnaphthalene	4900	U
77-47-4	Hexachlorocyclopentadiene	4900	U
88-06-2	2,4,6-Trichlorophenol	4900	U
95-95-4	2,4,5-Trichlorophenol	2000	J
91-58-7	2-Chloronaphthalene	4900	U
88-74-4	2-Nitroaniline	24000	U
131-11-3	Dimethyl Phthalate	4900	U
208-96-8	Acenaphthylene	4900	U
606-20-2	2,6-Dinitrotoluene	4900	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY94

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 30.5 (g/mL) G Lab File ID: D1418

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	24000	U
83-32-9	Acenaphthene	4900	U
51-28-5	2,4-Dinitrophenol	24000	U
100-02-7	4-Nitrophenol	24000	U
132-64-9	Dibenzofuran	4900	U
121-14-2	2,4-Dinitrotoluene	4900	U
84-66-2	Diethylphthalate	4900	U
7005-72-3	4-Chlorophenyl-phenylether	4900	U
86-73-7	Fluorene	4900	U
100-10-6	4-Nitroaniline	24000	U
534-52-1	4,6-Dinitro-2-Methylphenol	24000	U
86-30-6	N-Nitrosodiphenylamine (1)	4900	U
101-55-3	4-Bromophenyl-phenylether	4900	U
118-74-1	Hexachlorobenzene	4900	U
87-86-5	Pentachlorophenol	24000	U
85-01-8	Phenanthrene	4900	U
120-12-7	Anthracene	4900	U
84-74-2	Di-n-Butylphthalate	4900	U
206-44-0	Fluoranthene	4900	U
129-00-0	Pyrene	4900	U
85-68-7	Butylbenzylphthalate	4900	U
91-94-1	3,3'-Dichlorobenzidine	9900	U
56-55-3	Benzo(a)Anthracene	820	J
218-01-9	Chrysene	4900	U
117-81-7	bis(2-Ethylhexyl)Phthalate	4900 ~~1300~~	JU
117-84-0	Di-n-Octyl Phthalate	4900	U
205-99-2	Benzo(b)Fluoranthene	4900	U
207-08-9	Benzo(k)Fluoranthene	4900	U
50-32-8	Benzo(a)Pyrene	4900	U
193-39-5	Indeno(1,2,3-cd)Pyrene	4900	U
53-70-3	Dibenz(a,h)Anthracene	4900	U
191-24-2	Benzo(g,h,i)Perylene	4900	U

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

BCY94

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 30.5 (g/mL) G Lab File ID: D1418

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 10

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123422	4-Hydroxy-4-methyl-2-pentano	5.82	44000	~~BJ~~ R
2. 000000	Chloromethylbenzenamine isom	15.67	21000	J N
3. 000000	Unknown halogenated compound	17.82	18000	J
4. 000000	Dichlorodimethoxybenzene iso	19.35	35000	J
5. 000000	C10H8O isomer	19.57	100000	J
6. 000000	Trichlorobenzenamine isomer	19.85	17000	J
7. 000000	Unknown brominated compound	21.25	7800	J
8. 000000	Unknown brominated compound	21.74	9300	J
9. 000000	Unknown	22.39	6400	J
10. 000000	Trichlorbiphenyl isomer	24.72	9800	J
11. 000000	Carboxylic acid	25.72	5900	J
12. 000000	C19H14 isomer	25.89	7800	J
13. 87172	Benzamide, 2-hydroxy-N-pheny	27.42	64000	J
14. 000000	Unknown	30.31	8300	J
15. 000000	C20H14O2 isomer	33.21	64000	J
16. 000000	C20H14O isomer	33.54	29000	J
17. 000000	Unknown	34.55	43000	J
18. 000000	Unknown	34.91	38000	J
19. 000000	Unknown	35.69	18000	J
20. 000000	Unknown	36.41	32000	J
21. 000000	C17H12OS2	40.02	16000	J R

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1424

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 41 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 400

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	220000	U
111-44-4	bis(2-Chloroethyl)Ether	220000	U
95-57-8	2-Chlorophenol	220000	U
541-73-1	1,3-Dichlorobenzene	220000	U
106-46-7	1,4-Dichlorobenzene	36000	J
100-51-6	Benzyl Alcohol	220000	U
95-50-1	1,2-Dichlorobenzene	140000	J
95-48-7	2-Methylphenol	220000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	220000	U
106-44-5	4-Methylphenol	220000	U
621-64-7	N-Nitroso-Di-n-Propylamine	220000	U
67-72-1	Hexachloroethane	220000	U
98-95-3	Nitrobenzene	220000	U
78-59-1	Isophorone	220000	U
88-75-5	2-Nitrophenol	220000	U
105-67-9	2,4-Dimethylphenol	220000	U
65-85-0	Benzoic Acid	1100000	U
111-91-1	bis(2-Chloroethoxy)Methane	220000	U
120-83-2	2,4-Dichlorophenol	220000	U
120-82-1	1,2,4-Trichlorobenzene	720000	
91-20-3	Naphthalene	320000	
106-47-8	4-Chloroaniline	220000	U
87-68-3	Hexachlorobutadiene	220000	U
59-50-7	4-Chloro-3-Methylphenol	220000	U
91-57-6	2-Methylnaphthalene	220000	U
77-47-4	Hexachlorocyclopentadiene	220000	U
88-06-2	2,4,6-Trichlorophenol	220000	U
95-95-4	2,4,5-Trichlorophenol	1100000	U
91-58-7	2-Chloronaphthalene	220000	U
88-74-4	2-Nitroaniline	1100000	U
131-11-3	Dimethyl Phthalate	220000	U
208-96-8	Acenaphthylene	220000	U
606-20-2	2,6-Dinitrotoluene	220000	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1424

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 41 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 400

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1100000	U
83-32-9	Acenaphthene	220000	U
51-28-5	2,4-Dinitrophenol	1100000	U
100-02-7	4-Nitrophenol	1100000	U
132-64-9	Dibenzofuran	220000	U
121-14-2	2,4-Dinitrotoluene	220000	U
84-66-2	Diethylphthalate	220000	U
7005-72-3	4-Chlorophenyl-phenylether	220000	U
86-73-7	Fluorene	220000	U
100-10-6	4-Nitroaniline	1100000	U
534-52-1	4,6-Dinitro-2-Methylphenol	1100000	U
86-30-6	N-Nitrosodiphenylamine (1)	220000	U
101-55-3	4-Bromophenyl-phenylether	220000	U
118-74-1	Hexachlorobenzene	220000	U
87-86-5	Pentachlorophenol	1100000	U
85-01-8	Phenanthrene	95000	J
120-12-7	Anthracene	220000	U
84-74-2	Di-n-Butylphthalate	220000	U
206-44-0	Fluoranthene	70000	J
129-00-0	Pyrene	52000	J
85-68-7	Butylbenzylphthalate	220000	U
91-94-1	3,3'-Dichlorobenzidine	450000	U
56-55-3	Benzo(a)Anthracene	60000	J
218-01-9	Chrysene	25000	J
117-81-7	bis(2-Ethylhexyl)Phthalate	32000 ~~83000~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	220000	U
205-99-2	Benzo(b)Fluoranthene	220000	U
207-08-9	Benzo(k)Fluoranthene	220000	U
50-32-8	Benzo(a)Pyrene	220000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	220000	U
53-70-3	Dibenz(a,h)Anthracene	220000	U
191-24-2	Benzo(g,h,i)Perylene	220000	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: D1424

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 41 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 400

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Unknown	6.60	4000000	J
2. 000000	Unknown, halogenated compoun	16.57	840000	J
3. 000000	Unknown	18.69	770000	J
4. 000000	Dichlorodimethoxybenzene iso	19.44	3500000	J
5. 000000	C10H8 isomer	19.64	4000000	J
6. 000000	Trichlorobenzenamine isomer	19.89	660000	J
7. 000000	Dichlorobenzenediol isomer	20.97	1000000	J
8. 000000	Unknown	22.44	620000	J
9. 000000	C3-phenylphenol	24.49	330000	J
10. 000000	Unknown	27.36	820000	J
11. 000000	C14H17NO2 isomer	30.44	2400000	J
12. 000000	Binaphthalenediol isomer	33.22	1900000	J
13. 000000	C20H14O isomer	33.57	1500000	J
14. 000000	Unknown	34.56	550000	J
15. 000000	Unknown	34.82	750000	J
16. 000000	C16H12O4 isomer	35.71	970000	J
17. 000000	Unknown	36.39	1100000	J
18. 000000	C17H12OS2 isomerr	40.02	510000	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D1420

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 62 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 200

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	170000	U
111-44-4	bis(2-Chloroethyl)Ether	170000	U
95-57-8	2-Chlorophenol	170000	U
541-73-1	1,3-Dichlorobenzene	170000	U
106-46-7	1,4-Dichlorobenzene	170000	U
100-51-6	Benzyl Alcohol	170000	U
95-50-1	1,2-Dichlorobenzene	170000	U
95-48-7	2-Methylphenol	170000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	170000	U
106-44-5	4-Methylphenol	170000	U
621-64-7	N-Nitroso-Di-n-Propylamine	170000	U
67-72-1	Hexachloroethane	170000	U
98-95-3	Nitrobenzene	170000	U
78-59-1	Isophorone	170000	U
88-75-5	2-Nitrophenol	170000	U
105-67-9	2,4-Dimethylphenol	170000	U
65-85-0	Benzoic Acid	840000	U
111-91-1	bis(2-Chloroethoxy)Methane	170000	U
120-83-2	2,4-Dichlorophenol	170000	U
120-82-1	1,2,4-Trichlorobenzene	180000	
91-20-3	Naphthalene	140000	J
106-47-8	4-Chloroaniline	170000	U
87-68-3	Hexachlorobutadiene	170000	U
59-50-7	4-Chloro-3-Methylphenol	170000	U
91-57-6	2-Methylnaphthalene	170000	U
77-47-4	Hexachlorocyclopentadiene	170000	U
88-06-2	2,4,6-Trichlorophenol	170000	U
95-95-4	2,4,5-Trichlorophenol	840000	U
91-58-7	2-Chloronaphthalene	170000	U
88-74-4	2-Nitroaniline	840000	U
131-11-3	Dimethyl Phthalate	170000	U
208-96-8	Acenaphthylene	170000	U
606-20-2	2,6-Dinitrotoluene	170000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D1420

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 62 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 200

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	73000	J
83-32-9	Acenaphthene	170000	U
51-28-5	2,4-Dinitrophenol	840000	U
100-02-7	4-Nitrophenol	840000	U
132-64-9	Dibenzofuran	170000	U
121-14-2	2,4-Dinitrotoluene	170000	U
84-66-2	Diethylphthalate	170000	U
7005-72-3	4-Chlorophenyl-phenylether	170000	U
86-73-7	Fluorene	170000	U
100-10-6	4-Nitroaniline	840000	U
534-52-1	4,6-Dinitro-2-Methylphenol	840000	U
86-30-6	N-Nitrosodiphenylamine (1)	170000	U
101-55-3	4-Bromophenyl-phenylether	170000	U
118-74-1	Hexachlorobenzene	170000	U
87-86-5	Pentachlorophenol	840000	U
85-01-8	Phenanthrene	170000	U
120-12-7	Anthracene	170000	U
84-74-2	Di-n-Butylphthalate	170000	U
206-44-0	Fluoranthene	170000	U
129-00-0	Pyrene	170000	U
85-68-7	Butylbenzylphthalate	170000	U
91-94-1	3,3'-Dichlorobenzidine	350000	U
56-55-3	Benzo(a)Anthracene	42000	J
218-01-9	Chrysene	170000	U
117-81-7	bis(2-Ethylhexyl)Phthalate	170000 ~~35000~~	U
117-84-0	Di-n-Octyl Phthalate	170000	U
205-99-2	Benzo(b)Fluoranthene	170000	U
207-08-9	Benzo(k)Fluoranthene	170000	U
50-32-8	Benzo(a)Pyrene	170000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	170000	U
53-70-3	Dibenz(a,h)Anthracene	170000	U
191-24-2	Benzo(g,h,i)Perylene	170000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D1420

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 62 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/15/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 200

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	62533	Aniline (ACN)(BCI)	9.00	770000	J N
2.	000000	Dichlorodimethoxybenzene iso	19.37	1100000	J
3.	000000	Diethylaminophenol isomer	19.54	2300000	J
4.	000000	C10H8O isomer	19.59	950000	J
5.	000000	Dichlorobenzenediol isomer	20.95	440000	J
6.	000000	Unknown	23.69	390000	J
7.	000000	Hydroxynaphthalene carboxyli	24.97	2500000	J
8.	581975	Acetamide, N-2-naphthalenyl-	26.09	420000	J
9.	87172	Benzamide, 2-hydroxy-N-pheny	27.47	2600000	J
10.	000000	Unknown	30.37	980000	J
11.	000000	C20H14O2 isomer	33.22	1700000	J
12.	000000	C20H14O isomer	33.56	1000000	J
13.	000000	Unknown	34.64	1400000	J
14.	000000	Unknown	34.89	700000	J
15.	000000	Unknown	35.74	1100000	J
16.	000000	Unknown	36.37	700000	J
17.	000000	C17H12OS2 isomer	40.04	540000	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3273

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. 49 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 2.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1700	U
111-44-4	bis(2-Chloroethyl)Ether	1700	U
95-57-8	2-Chlorophenol	1700	U
541-73-1	1,3-Dichlorobenzene	1700	U
106-46-7	1,4-Dichlorobenzene	1700	U
100-51-6	Benzyl Alcohol	1700	U
95-50-1	1,2-Dichlorobenzene	1700	U
95-48-7	2-Methylphenol	1700	U
39638-32-9	bis(2-Chloroisopropyl)Ether	1700	U
106-44-5	4-Methylphenol	1700	U
621-64-7	N-Nitroso-Di-n-Propylamine	1700	U
67-72-1	Hexachloroethane	1700	U
98-95-3	Nitrobenzene	1700	U
78-59-1	Isophorone	1700	U
88-75-5	2-Nitrophenol	1700	U
105-67-9	2,4-Dimethylphenol	1700	U
65-85-0	Benzoic Acid	8500	U
111-91-1	bis(2-Chloroethoxy)Methane	1700	U
120-83-2	2,4-Dichlorophenol	1700	U
120-82-1	1,2,4-Trichlorobenzene	1700	U
91-20-3	Naphthalene	1700	U
106-47-8	4-Chloroaniline	1700	U
87-68-3	Hexachlorobutadiene	1700	U
59-50-7	4-Chloro-3-Methylphenol	1700	U
91-57-6	2-Methylnaphthalene	1700	U
77-47-4	Hexachlorocyclopentadiene	1700	U
88-06-2	2,4,6-Trichlorophenol	1700	U
95-95-4	2,4,5-Trichlorophenol	8500	U
91-58-7	2-Chloronaphthalene	1700	U
88-74-4	2-Nitroaniline	8500	U
131-11-3	Dimethyl Phthalate	1700	U
208-96-8	Acenaphthylene	1700	U
606-20-2	2,6-Dinitrotoluene	1700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3273

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. 49 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 2.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	8500	U
83-32-9	Acenaphthene	1700	U
51-28-5	2,4-Dinitrophenol	8500	U
100-02-7	4-Nitrophenol	8500	U
132-64-9	Dibenzofuran	1700	U
121-14-2	2,4-Dinitrotoluene	1700	U
84-66-2	Diethylphthalate	1700	U
7005-72-3	4-Chlorophenyl-phenylether	1700	U
86-73-7	Fluorene	1700	U
100-10-6	4-Nitroaniline	8500	U
534-52-1	4,6-Dinitro-2-Methylphenol	8500	U
86-30-6	N-Nitrosodiphenylamine (1)	1700	U
101-55-3	4-Bromophenyl-phenylether	1700	U
118-74-1	Hexachlorobenzene	1700	U
87-86-5	Pentachlorophenol	8500	U
85-01-8	Phenanthrene	270	J
120-12-7	Anthracene	1700	U
84-74-2	Di-n-Butylphthalate	1700	U
206-44-0	Fluoranthene	500	J
129-00-0	Pyrene	450	J
85-68-7	Butylbenzylphthalate	1700	U
91-94-1	3,3'-Dichlorobenzidine	3500	U
56-55-3	Benzo(a)Anthracene	310	J
218-01-9	Chrysene	370	J
117-81-7	bis(2-Ethylhexyl)Phthalate	1700	U
117-84-0	Di-n-Octyl Phthalate	1700	U
205-99-2	Benzo(b)Fluoranthene	390	J
207-08-9	Benzo(k)Fluoranthene	290	J
50-32-8	Benzo(a)Pyrene	300	J
193-39-5	Indeno(1,2,3-cd)Pyrene	1700	U
53-70-3	Dibenz(a,h)Anthracene	1700	U
191-24-2	Benzo(g,h,i)Perylene	1700	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90029

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3273

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. 49 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 2.7

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	5.43	65000	~~J~~ R
2.	000000	C10H8O isomer	18.79	1400	J N
3.	000000	Unknown	28.22	1200	J
4.	000000	C21H30O2 isomer	29.64	1100	J
5.	000000	Unknown	30.44	1600	J
6.	000000	C20H28O2 isomer	30.74	2500	J
7.	000000	Unknown	31.06	1900	J
8.	000000	Aliphatic hydrocarbon	31.14	880	J
9.	000000	Unknown	31.82	880	J
10.	000000	C16H14O5 isomer	32.29	880	J
11.	000000	Unknown	32.67	1800	J
12.	000000	Unknown	33.07	14000	J
13.	000000	Unknown	33.64	5500	J
14.	000000	C16H12O4 isomer	34.12	1900	J
15.	000000	Unknown	34.67	5300	J
16.	000000	Aliphatic hydrocarbon	37.17	2800	J
17.	000000	Unknown	37.47	1200	J
18.	000000	Unknown	38.47	3700	J
19.	000000	C17H12OS2 isomer	39.09	1400	J
20.	000000	Unknown	40.94	4600	J
21.	000000	Unknown	41.14	2100	J N

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN44

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A3271

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 11 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3700	U
111-44-4	bis(2-Chloroethyl)Ether	3700	U
95-57-8	2-Chlorophenol	3700	U
541-73-1	1,3-Dichlorobenzene	3700	U
106-46-7	1,4-Dichlorobenzene	3700	U
100-51-6	Benzyl Alcohol	3700	U
95-50-1	1,2-Dichlorobenzene	3700	U
95-48-7	2-Methylphenol	3700	U
39638-32-9	bis(2-Chloroisopropyl)Ether	3700	U
106-44-5	4-Methylphenol	3700	U
621-64-7	N-Nitroso-Di-n-Propylamine	3700	U
67-72-1	Hexachloroethane	3700	U
98-95-3	Nitrobenzene	3700	U
78-59-1	Isophorone	3700	U
88-75-5	2-Nitrophenol	3700	U
105-67-9	2,4-Dimethylphenol	3700	U
65-85-0	Benzoic Acid	18000	U
111-91-1	bis(2-Chloroethoxy)Methane	3700	U
120-83-2	2,4-Dichlorophenol	3700	U
120-82-1	1,2,4-Trichlorobenzene	4900	[illegible]
91-20-3	Naphthalene	3700	U
106-47-8	4-Chloroaniline	3700	U
87-68-3	Hexachlorobutadiene	3700	U
59-50-7	4-Chloro-3-Methylphenol	3700	U
91-57-6	2-Methylnaphthalene	3700	U
77-47-4	Hexachlorocyclopentadiene	3700	U
88-06-2	2,4,6-Trichlorophenol	3700	U
95-95-4	2,4,5-Trichlorophenol	18000	U
91-58-7	2-Chloronaphthalene	3700	U
88-74-4	2-Nitroaniline	18000	U
131-11-3	Dimethyl Phthalate	3700	U
208-96-8	Acenaphthylene	3700	U
606-20-2	2,6-Dinitrotoluene	3700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN44

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A3271

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 11 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	18000	U
83-32-9	Acenaphthene	420	J
51-28-5	2,4-Dinitrophenol	18000	U
100-02-7	4-Nitrophenol	18000	U
132-64-9	Dibenzofuran	3700	U
121-14-2	2,4-Dinitrotoluene	3700	U
84-66-2	Diethylphthalate	3700	U
7005-72-3	4-Chlorophenyl-phenylether	3700	U
86-73-7	Fluorene	520	J
100-10-6	4-Nitroaniline	18000	U
534-52-1	4,6-Dinitro-2-Methylphenol	18000	U
86-30-6	N-Nitrosodiphenylamine (1)	3700	U
101-55-3	4-Bromophenyl-phenylether	3700	U
118-74-1	Hexachlorobenzene	3700	U
87-86-5	Pentachlorophenol	18000	U
85-01-8	Phenanthrene	5000	
120-12-7	Anthracene	1600	J
84-74-2	Di-n-Butylphthalate	3700	U
206-44-0	Fluoranthene	9900	
129-00-0	Pyrene	7900	
85-68-7	Butylbenzylphthalate	3700	U
91-94-1	3,3'-Dichlorobenzidine	7400	U
56-55-3	Benzo(a)Anthracene	4800	
218-01-9	Chrysene	4500	
117-81-7	bis(2-Ethylhexyl)Phthalate	3700 ~~1100~~	~~J~~ U
117-84-0	Di-n-Octyl Phthalate	3700	U
205-99-2	Benzo(b)Fluoranthene	4900	
207-08-9	Benzo(k)Fluoranthene	3800	
50-32-8	Benzo(a)Pyrene	5400	
193-39-5	Indeno(1,2,3-cd)Pyrene	2200	J
53-70-3	Dibenz(a,h)Anthracene	450	J
191-24-2	Benzo(g,h,i)Perylene	1700	J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN44

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A3271

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 11 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 10

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123422	4-Hydroxy-4-methyl-2-pentano	5.35	55000	~~AJ~~ B
2. 000000	Dichlorodimethoxybenznene	18.74	6300	J N
3. 000000	C10H8O isomer	18.85	13000	J
4. 000000	Trichlorobenzenamine isomer	19.15	4800	J
5. 000000	Maphthaleneamine isomer	19.32	4800	J
6. 000000	Tribromobenzenamine isomer	21.64	2600	J
7. 000000	Unknown, chlorinated compoun	23.00	3700	J
8. 000000	Unknown	23.04	2600	J
9. 87172	2-Hydroxy-N-phenylbenzamide	26.54	17000	J
10. 000000	Unknown	29.59	24000	J
11. 000000	Unknown	31.34	2200	J
12. 000000	C20H14O2 isomer	32.37	14000	J
13. 000000	Unknown	32.71	14000	J
14. 000000	Unknown	33.77	21000	J
15. 000000	Unknown	34.01	14000	J
16. 000000	C18H12O4 isomer	34.74	15000	J
17. 000000	Unknown	35.36	14000	J
18. 000000	C20H12S isomer	35.92	1800	J
19. 000000	Unknown	38.07	4100	J
20. 000000	C17H12OS2 isomer	39.16	3000	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3272

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 24 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.3 Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4300	U
111-44-4	bis(2-Chloroethyl)Ether	4300	U
95-57-8	2-Chlorophenol	4300	U
541-73-1	1,3-Dichlorobenzene	4300	U
106-46-7	1,4-Dichlorobenzene	4300	U
100-51-6	Benzyl Alcohol	4300	U
95-50-1	1,2-Dichlorobenzene	4300	U
95-48-7	2-Methylphenol	4300	U
39638-32-9	bis(2-Chloroisopropyl)Ether	4300	U
106-44-5	4-Methylphenol	4300	U
621-64-7	N-Nitroso-Di-n-Propylamine	4300	U
67-72-1	Hexachloroethane	4300	U
98-95-3	Nitrobenzene	4300	U
78-59-1	Isophorone	4300	U
88-75-5	2-Nitrophenol	4300	U
105-67-9	2,4-Dimethylphenol	4300	U
65-85-0	Benzoic Acid	21000	U
111-91-1	bis(2-Chloroethoxy)Methane	4300	U
120-83-2	2,4-Dichlorophenol	4300	U
120-82-1	1,2,4-Trichlorobenzene	2100	J
91-20-3	Naphthalene	3600	J
106-47-8	4-Chloroaniline	4300	U
87-68-3	Hexachlorobutadiene	4300	U
59-50-7	4-Chloro-3-Methylphenol	4300	U
91-57-6	2-Methylnaphthalene	4300	U
77-47-4	Hexachlorocyclopentadiene	4300	U
88-06-2	2,4,6-Trichlorophenol	4300	U
95-95-4	2,4,5-Trichlorophenol	1300	J
91-58-7	2-Chloronaphthalene	4300	U
88-74-4	2-Nitroaniline	21000	U
131-11-3	Dimethyl Phthalate	4300	U
208-96-8	Acenaphthylene	4300	U
606-20-2	2,6-Dinitrotoluene	4300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3272

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 24 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.3 Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2400	J
83-32-9	Acenaphthene	4300	U
51-28-5	2,4-Dinitrophenol	21000	U
100-02-7	4-Nitrophenol	21000	U
132-64-9	Dibenzofuran	4300	U
121-14-2	2,4-Dinitrotoluene	4300	U
84-66-2	Diethylphthalate	4300	U
7005-72-3	4-Chlorophenyl-phenylether	4300	U
86-73-7	Fluorene	4300	U
100-10-6	4-Nitroaniline	21000	U
534-52-1	4,6-Dinitro-2-Methylphenol	21000	U
86-30-6	N-Nitrosodiphenylamine (1)	4300	U
101-55-3	4-Bromophenyl-phenylether	4300	U
118-74-1	Hexachlorobenzene	4300	U
87-86-5	Pentachlorophenol	21000	U
85-01-8	Phenanthrene	4300	U
120-12-7	Anthracene	4300	U
84-74-2	Di-n-Butylphthalate	4300	U
206-44-0	Fluoranthene	570	J
129-00-0	Pyrene	460	J
85-68-7	Butylbenzylphthalate	4300	U
91-94-1	3,3'-Dichlorobenzidine	8700	U
56-55-3	Benzo(a)Anthracene	4300	J
218-01-9	Chrysene	4300	U
117-81-7	bis(2-Ethylhexyl)Phthalate	4300	U
117-84-0	Di-n-Octyl Phthalate	4300	U
205-99-2	Benzo(b)Fluoranthene	4300	U
207-08-9	Benzo(k)Fluoranthene	4300	U
50-32-8	Benzo(a)Pyrene	4300	U
193-39-5	Indeno(1,2,3-cd)Pyrene	4300	U
53-70-3	Dibenz(a,h)Anthracene	4300	U
191-24-2	Benzo(g,h,i)Perylene	4300	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A3272

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 24 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/12/90

GPC Cleanup: (Y/N) N pH: 5.3 Dilution Factor: 10.0

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123422	4-Hydroxy-4-methyl-2-pentano	5.38	96000	~~NJ~~ R
2. 000000	Chloromethylbenzenamine isom	15.07	18000	J N
3. 000000	Dichloromeethylbenzenamine i	17.19	14000	J
4. 000000	Dichlorodmethoxybenzene isom	8.77	29000	J
5. 000000	C10H8O isomer	18.89	57000	J
6. 000000	Unknown, chlorinated compoun	20.37	20000	J
7. 000000	Unknown, chlorinated compoun	20.59	19000	J
8. 000000	Unknown, chlorinated compoun	21.09	16000	J
9. 000000	Trichlorobiphenyl isomer	24.02	7400	J
10. 000000	Tetrachlorobiphenyl isomer	25.07	8300	J
11. 10544500	Sulfur, mol. (S8) (8CI9CI)	26.22	17000	J
12. 87172	Benzamide, 2-hydroxy-N-pheny	26.64	96000	J
13. 000000	C20H14O2 isomer	32.42	40000	J
14. 000000	Unknown	32.77	48000	J
15. 000000	Unknown	33.79	18000	J
16. 000000	Unknown	34.09	32000	J
17. 000000	C16H12O4 isomer	34.17	7000	J
18. 000000	C16H12O4 isomer	34.52	7000	J
19. 000000	C16H12O4 isomer	34.87	57000	J
20. 000000	Unknown	35.39	18000	J
21. 000000	C17H12O2S2 isomer	38.72	31000	J N

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

BEN46

Name: CEIMIC CORP Contract: 68D90028

Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-04

Sample wt/vol: 30.6 (g/mL) G Lab File ID: A3313

Level: (low/med) LOW Date Received: 03/08/90

Percent Moisture: not dec. 60 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/90

GPC Cleanup: (Y/N) N pH: 6.3 Dilution Factor: 80

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	66000	U J
111-44-4	bis(2-Chloroethyl)Ether	66000	U
95-57-8	2-Chlorophenol	66000	U
541-73-1	1,3-Dichlorobenzene	66000	U
106-46-7	1,4-Dichlorobenzene	66000	U
100-51-6	Benzyl Alcohol	66000	U
95-50-1	1,2-Dichlorobenzene	66000	U
95-48-7	2-Methylphenol	66000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	66000	U
106-44-5	4-Methylphenol	66000	U
621-64-7	N-Nitroso-Di-n-Propylamine	66000	U
67-72-1	Hexachloroethane	66000	U
98-95-3	Nitrobenzene	66000	U
78-59-1	Isophorone	66000	U
88-75-5	2-Nitrophenol	66000	U
105-67-9	2,4-Dimethylphenol	66000	U
65-85-0	Benzoic Acid	320000	U
111-91-1	bis(2-Chloroethoxy)Methane	66000	U
120-83-2	2,4-Dichlorophenol	66000	U
120-82-1	1,2,4-Trichlorobenzene	66000	U
91-20-3	Naphthalene	13000	J
106-47-8	4-Chloroaniline	66000	U
87-68-3	Hexachlorobutadiene	66000	U
59-50-7	4-Chloro-3-Methylphenol	66000	U
91-57-6	2-Methylnaphthalene	66000	U
77-47-4	Hexachlorocyclopentadiene	66000	U
88-06-2	2,4,6-Trichlorophenol	66000	U
95-95-4	2,4,5-Trichlorophenol	320000	U
91-58-7	2-Chloronaphthalene	66000	U
88-74-4	2-Nitroaniline	320000	U
131-11-3	Dimethyl Phthalate	66000	U
208-96-8	Acenaphthylene	66000	U
606-20-2	2,6-Dinitrotoluene	66000	U J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN46

ab Name: CEIMIC CORP Contract: 68D90028

b Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

atrix: (soil/water) SOIL Lab Sample ID: 900146-04

mple wt/vol: 30.6 (g/mL) G Lab File ID: A3313

evel: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 60 dec. ____ Date Extracted: 03/08/90

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/90

PC Cleanup: (Y/N) N pH: 6.3 Dilution Factor: 80

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	320000	U J
83-32-9	Acenaphthene	66000	U
51-28-5	2,4-Dinitrophenol	320000	U
100-02-7	4-Nitrophenol	320000	U
132-64-9	Dibenzofuran	66000	U
121-14-2	2,4-Dinitrotoluene	66000	U
84-66-2	Diethylphthalate	66000	U
7005-72-3	4-Chlorophenyl-phenylether	66000	U
86-73-7	Fluorene	66000	U
100-10-6	4-Nitroaniline	320000	U
534-52-1	4,6-Dinitro-2-Methylphenol	320000	U
86-30-6	N-Nitrosodiphenylamine (1)	66000	U
101-55-3	4-Bromophenyl-phenylether	66000	U
118-74-1	Hexachlorobenzene	66000	U
87-86-5	Pentachlorophenol	320000	U
85-01-8	Phenanthrene	66000	U
120-12-7	Anthracene	66000	U
84-74-2	Di-n-Butylphthalate	66000	U
206-44-0	Fluoranthene	66000	U
129-00-0	Pyrene	66000	U
85-68-7	Butylbenzylphthalate	66000	U
91-94-1	3,3'-Dichlorobenzidine	130000	U J
56-55-3	Benzo(a)Anthracene	56000	J
218-01-9	Chrysene	66000	U J
117-81-7	bis(2-Ethylhexyl)Phthalate	66000	U
117-84-0	Di-n-Octyl Phthalate	66000	U
205-99-2	Benzo(b)Fluoranthene	66000	U
207-08-9	Benzo(k)Fluoranthene	66000	U
50-32-8	Benzo(a)Pyrene	66000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	66000	U
53-70-3	Dibenz(a,h)Anthracene	66000	U
191-24-2	Benzo(g,h,i)Perylene	66000	U J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BEN46

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-04

Sample wt/vol: 30.6 (g/mL) G Lab File ID: A3313

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 60 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/90

GPC Cleanup: (Y/N) N pH: 6.3 Dilution Factor: 80

Number TICs found: 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	5.25	160000	~~AN~~ R
2.	000000	Halogenated compound	17.15	190000	J N
3.	000000	Trichlorocresol isomer	17.80	110000	J
4.	000000	Trichlorocresol isomer	17.94	110000	J
5.	000000	C10H8 isomer	19.07	5300000	J
6.	87172	Benzamide, 2-hydroxy-N-pheny	26.46	100000	J
7.	000000	Aromatic	31.14	100000	J
8.	000000	Aromatic	31.39	590000	J
9.	000000	Aromatic	31.79	78000	J
10.	000000	Aromatic	32.41	780000	J
11.	000000	Unknown	33.42	100000	J
12.	000000	Unknown	33.66	200000	J
13.	602095	[1,1'-Binaphthalene]-2,2'-di	34.12	320000	J
14.	000000	C16H1204 isomer	34.22	390000	J
15.	000000	Unknown	34.29	230000	J
16.	000000	Unknown	34.54	380000	J
17.	000000	Unknown	34.92	3000000	J
18.	000000	Unknown	36.04	91000	J
19.	000000	Aromatic	36.37	150000	J
20.	000000	Unknown	38.84	2400000	J
21.	000000	Unknown	39.37	610000	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3256

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	UJ
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3256

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3256

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3257

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U J
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3257

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	6	BJ
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3257

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3258

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3258

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	16	B
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90029

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3258

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY98

Name: CEIMIC CORP Contract: 68D90028

ab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

rix: (soil/water) WATER Lab Sample ID: 900146-19

ample wt/vol: 1000 (g/mL) ML Lab File ID: A3260

el: (low/med) LOW Date Received: 03/08/90

oisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	UJ
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY98

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-19

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A3260

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	38	B
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BCY98

b Name: CEIMIC CORP Contract: 68D90028

ab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

trix: (soil/water) WATER Lab Sample ID: 900146-19

ample wt/vol: 1000 (g/mL) ML Lab File ID: A3260

vel: (low/med) LOW Date Received: 03/08/90

oisture: not dec. ____ dec. ____ Date Extracted: 03/08/90

traction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/09/90

Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1.0

ber TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 000000	Unknown	34.26	5.0	J

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN49

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-07

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN50

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN51

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-09

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN52

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/18/90

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 300

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	42	
319-85-7	beta-BHC	15	U
319-86-8	delta-BHC	15	U
58-89-9	gamma-BHC (Lindane)	15	U
76-44-8	Heptachlor	15	U
309-00-2	Aldrin	15	U
1024-57-3	Heptachlor epoxide	15	U
959-98-8	Endosulfan I	15	U
60-57-1	Dieldrin	30	U
72-55-9	4,4'-DDE	30	U
72-20-8	Endrin	30	U
33213-65-9	Endosulfan II	30	U
72-54-8	4,4'-DDD	30	U
1031-07-8	Endosulfan sulfate	30	U
50-29-3	4,4'-DDT	30	U
72-43-5	Methoxychlor	150	U
53494-70-5	Endrin ketone	30	U
5103-71-9	alpha-Chlordane	150	U
5103-74-2	gamma-Chlordane	150	U
8001-35-2	Toxaphene	300	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	300	U
11096-82-5	Aroclor-1260	300	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN53

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-11

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN54

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-12

Sample wt/vol: 30.4 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 43 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	28	U
319-85-7	beta-BHC	28	U
319-86-8	delta-BHC	28	U
58-89-9	gamma-BHC (Lindane)	28	U
76-44-8	Heptachlor	28	U
309-00-2	Aldrin	28	U
1024-57-3	Heptachlor epoxide	28	U
959-98-8	Endosulfan I	28	U
60-57-1	Dieldrin	55	U
72-55-9	4,4'-DDE	55	U
72-20-8	Endrin	55	U
33213-65-9	Endosulfan II	55	U
72-54-8	4,4'-DDD	55	U
1031-07-8	Endosulfan sulfate	55	U
50-29-3	4,4'-DDT	55	U
72-43-5	Methoxychlor	280	U
53494-70-5	Endrin ketone	55	U
5103-71-9	alpha-Chlordane	280	U
5103-74-2	gamma-Chlordane	280	U
8001-35-2	Toxaphene	550	U
12674-11-2	Aroclor-1016	280	U
11104-28-2	Aroclor-1221	280	U
11141-16-5	Aroclor-1232	280	U
53469-21-9	Aroclor-1242	280	U
12672-29-6	Aroclor-1248	280	U
11097-69-1	Aroclor-1254	~~1400~~	R
11096-82-5	Aroclor-1260	550	U

:D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY92

b Name: CEIMIC CORP Contract: 68D90028

ab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

trix: (soil/water) SOIL Lab Sample ID: 900146-13

ample wt/vol: 30.3 (g/mL) G Lab File ID: _____

vel: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 32 dec. ____ Date Extracted: 03/08/90

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

C Cleanup: (Y/N) N pH: 4.5 Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	58	U
319-85-7	beta-BHC	58	U
319-86-8	delta-BHC	58	U
58-89-9	gamma-BHC (Lindane)	81	
76-44-8	Heptachlor	58	U
309-00-2	Aldrin	140	
1024-57-3	Heptachlor epoxide	58	U
959-98-8	Endosulfan I	58	U
60-57-1	Dieldrin	120	U
72-55-9	4,4'-DDE	120	U
72-20-8	Endrin	120	U
33213-65-9	Endosulfan II	120	U
72-54-8	4,4'-DDD	130	
1031-07-8	Endosulfan sulfate	120	U
50-29-3	4,4'-DDT	120	U
72-43-5	Methoxychlor	580	U
53494-70-5	Endrin ketone	120	U
5103-71-9	alpha-Chlordane	580	U
5103-74-2	gamma-Chlordane	580	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	580	U
11104-28-2	Aroclor-1221	580	U
11141-16-5	Aroclor-1232	580	U
53469-21-9	Aroclor-1242	580	U
12672-29-6	Aroclor-1248	28000	~~*DT~~ R
11097-69-1	Aroclor-1254	1200	U
11096-82-5	Aroclor-1260	1200	U

*D. taken from diluted analysis

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY92DL

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-13DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 32 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/21/90

GPC Cleanup: (Y/N) N pH: 4.5 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	580	U
319-85-7	beta-BHC	580	U
319-86-8	delta-BHC	580	U
58-89-9	gamma-BHC (Lindane)	580	U
76-44-8	Heptachlor	580	U
309-00-2	Aldrin	580	U
1024-57-3	Heptachlor epoxide	580	U
959-98-8	Endosulfan I	580	U
60-57-1	Dieldrin	1200	U
72-55-9	4,4'-DDE	1200	U
72-20-8	Endrin	1200	U
33213-65-9	Endosulfan II	1200	U
72-54-8	4,4'-DDD	1200	U
1031-07-8	Endosulfan sulfate	1200	U
50-29-3	4,4'-DDT	1200	U
72-43-5	Methoxychlor	5800	U
53494-70-5	Endrin ketone	1200	U
5103-71-9	alpha-Chlordane	5800	U
5103-74-2	gamma-Chlordane	5800	U
8001-35-2	Toxaphene	12000	U
12674-11-2	Aroclor-1016	5800	U
11104-28-2	Aroclor-1221	5800	U
11141-16-5	Aroclor-1232	5800	U
53469-21-9	Aroclor-1242	5800	U
12672-29-6	Aroclor-1248	28000	D
11097-69-1	Aroclor-1254	12000	U
11096-82-5	Aroclor-1260	12000	U

DO NOT USE

1201

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY93

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	59	U
319-85-7	beta-BHC	59	U
319-86-8	delta-BHC	59	U
58-89-9	gamma-BHC (Lindane)	81	
76-44-8	Heptachlor	59	U
309-00-2	Aldrin	100	
1024-57-3	Heptachlor epoxide	59	U
959-98-8	Endosulfan I	59	U
60-57-1	Dieldrin	120	U
72-55-9	4,4'-DDE	120	U
72-20-8	Endrin	120	U
33213-65-9	Endosulfan II	120	U
72-54-8	4,4'-DDD	120	U
1031-07-8	Endosulfan sulfate	120	U
50-29-3	4,4'-DDT	120	U
72-43-5	Methoxychlor	590	U
53494-70-5	Endrin ketone	120	U
5103-71-9	alpha-Chlordane	590	U
5103-74-2	gamma-Chlordane	590	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	590	U
11104-28-2	Aroclor-1221	590	U
11141-16-5	Aroclor-1232	590	U
53469-21-9	Aroclor-1242	590	U
12672-29-6	Aroclor-1248	29000 ~~22000~~	~~*D5~~ R
11097-69-1	Aroclor-1254	1200	U
11096-82-5	Aroclor-1260	1200	U

* D-taken from diluted analysis

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY93DL

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-14DL

Sample wt/vol: 30.6 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. _____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/24/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 50

Do Not Use

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	590	U
319-85-7	beta-BHC	590	U
319-86-8	delta-BHC	590	U
58-89-9	gamma-BHC (Lindane)	590	U
76-44-8	Heptachlor	590	U
309-00-2	Aldrin	590	U
1024-57-3	Heptachlor epoxide	590	U
959-98-8	Endosulfan I	590	U
60-57-1	Dieldrin	1200	U
72-55-9	4,4'-DDE	1200	U
72-20-8	Endrin	1200	U
33213-65-9	Endosulfan II	1200	U
72-54-8	4,4'-DDD	1200	U
1031-07-8	Endosulfan sulfate	1200	U
50-29-3	4,4'-DDT	1200	U
72-43-5	Methoxychlor	5900	U
53494-70-5	Endrin ketone	1200	U
5103-71-9	alpha-Chlordane	5900	U
5103-74-2	gamma-Chlordane	5900	U
8001-35-2	Toxaphene	12000	U
12674-11-2	Aroclor-1016	5900	U
11104-28-2	Aroclor-1221	5900	U
11141-16-5	Aroclor-1232	5900	U
53469-21-9	Aroclor-1242	5900	U
12672-29-6	Aroclor-1248	29000	D
11097-69-1	Aroclor-1254	12000	U
11096-82-5	Aroclor-1260	12000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY94

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	58	U
319-85-7	beta-BHC	87	
319-86-8	delta-BHC	58	U
58-89-9	gamma-BHC (Lindane)	110	
76-44-8	Heptachlor	58	U
309-00-2	Aldrin	130	
1024-57-3	Heptachlor epoxide	58	U
959-98-8	Endosulfan I	58	U
60-57-1	Dieldrin	120	U
72-55-9	4,4'-DDE	120	U
72-20-8	Endrin	120	U
33213-65-9	Endosulfan II	120	U
72-54-8	4,4'-DDD	120	U
1031-07-8	Endosulfan sulfate	120	U
50-29-3	4,4'-DDT	120	U
72-43-5	Methoxychlor	580	U
53494-70-5	Endrin ketone	120	U
5103-71-9	alpha-Chlordane	580	U
5103-74-2	gamma-Chlordane	580	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	580	U
11104-28-2	Aroclor-1221	580	U
11141-16-5	Aroclor-1232	580	U
53469-21-9	Aroclor-1242	580	U
12672-29-6	Aroclor-1248	41000 ~~30000~~	*DJ R
11097-69-1	Aroclor-1254	1200	U
11096-82-5	Aroclor-1260	1200	U

*D-taken from diluted analysis

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY94DL

Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-15DL

Sample wt/vol: 30.7 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 33 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	580	U
319-85-7	beta-BHC	580	U
319-86-8	delta-BHC	580	U
58-89-9	gamma-BHC (Lindane)	580	U
76-44-8	Heptachlor	580	U
309-00-2	Aldrin	580	U
1024-57-3	Heptachlor epoxide	580	U
959-98-8	Endosulfan I	580	U
60-57-1	Dieldrin	1200	U
72-55-9	4,4'-DDE	1200	U
72-20-8	Endrin	1200	U
33213-65-9	Endosulfan II	1200	U
72-54-8	4,4'-DDD	1200	U
1031-07-8	Endosulfan sulfate	1200	U
50-29-3	4,4'-DDT	1200	U
72-43-5	Methoxychlor	5800	U
53494-70-5	Endrin ketone	1200	U
5103-71-9	alpha-Chlordane	5800	U
5103-74-2	gamma-Chlordane	5800	U
8001-35-2	Toxaphene	12000	U
12674-11-2	Aroclor-1016	5800	U
11104-28-2	Aroclor-1221	5800	U
11141-16-5	Aroclor-1232	5800	U
53469-21-9	Aroclor-1242	5800	U
12672-29-6	Aroclor-1248	41000	D
11097-69-1	Aroclor-1254	12000	U
11096-82-5	Aroclor-1260	12000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN47

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-05

Sample wt/vol: 30 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 41 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/21/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 1000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	14000	U
319-85-7	beta-BHC	14000	U
319-86-8	delta-BHC	14000	U
58-89-9	gamma-BHC (Lindane)	14000	U
76-44-8	Heptachlor	14000	U
309-00-2	Aldrin	14000	U
1024-57-3	Heptachlor epoxide	14000	U
959-98-8	Endosulfan I	14000	U
60-57-1	Dieldrin	27000	U
72-55-9	4,4'-DDE	27000	U
72-20-8	Endrin	27000	U
33213-65-9	Endosulfan II	27000	U
72-54-8	4,4'-DDD	27000	U
1031-07-8	Endosulfan sulfate	27000	U
50-29-3	4,4'-DDT	27000	U
72-43-5	Methoxychlor	140000	U
53494-70-5	Endrin ketone	27000	U
5103-71-9	alpha-Chlordane	140000	U
5103-74-2	gamma-Chlordane	140000	U
8001-35-2	Toxaphene	270000	U
12674-11-2	Aroclor-1016	140000	U
11104-28-2	Aroclor-1221	140000	U
11141-16-5	Aroclor-1232	140000	U
53469-21-9	Aroclor-1242	140000	U
12672-29-6	Aroclor-1248	~~260000~~	R
11097-69-1	Aroclor-1254	270000	U
11096-82-5	Aroclor-1260	270000	U

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EPA SAMPLE NO.

BEN48

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-06

Sample wt/vol: 30 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 62 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/27/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1100	U
319-85-7	beta-BHC	1100	U
319-86-8	delta-BHC	1100	U
58-89-9	gamma-BHC (Lindane)	1100	U
76-44-8	Heptachlor	1100	U
309-00-2	Aldrin	1100	U
1024-57-3	Heptachlor epoxide	1100	U
959-98-8	Endosulfan I	1100	U
60-57-1	Dieldrin	2100	U
72-55-9	4,4'-DDE	2100	U
72-20-8	Endrin	2100	U
33213-65-9	Endosulfan II	2100	U
72-54-8	4,4'-DDD	2100	U
1031-07-8	Endosulfan sulfate	2100	U
50-29-3	4,4'-DDT	2100	U
72-43-5	Methoxychlor	11000	U
53494-70-5	Endrin ketone	2100	U
5103-71-9	alpha-Chlordane	11000	U
5103-74-2	gamma-Chlordane	11000	U
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	11000	U
11104-28-2	Aroclor-1221	11000	U
11141-16-5	Aroclor-1232	11000	U
53469-21-9	Aroclor-1242	11000	U
12672-29-6	Aroclor-1248	~~39000~~	K
11097-69-1	Aroclor-1254	21000	U
11096-82-5	Aroclor-1260	21000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN43

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-01

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 49 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/21/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	16	U
319-85-7	beta-BHC	16	U
319-86-8	delta-BHC	16	U
58-89-9	gamma-BHC (Lindane)	16	U
76-44-8	Heptachlor	16	U
309-00-2	Aldrin	16	U
1024-57-3	Heptachlor epoxide	16	U
959-98-8	Endosulfan I	16	U
60-57-1	Dieldrin	31	U
72-55-9	4,4'-DDE	58	
72-20-8	Endrin	31	U
33213-65-9	Endosulfan II	31	U
72-54-8	4,4'-DDD	300	
1031-07-8	Endosulfan sulfate	31	U
50-29-3	4,4'-DDT	31	U
72-43-5	Methoxychlor	160	U
53494-70-5	Endrin ketone	31	U
5103-71-9	alpha-Chlordane	160	U
5103-74-2	gamma-Chlordane	160	U
8001-35-2	Toxaphene	310	U
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	310	U
11096-82-5	Aroclor-1260	310	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN44

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-02

Sample wt/vol: 30 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 11 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

GPC Cleanup: (Y/N) N pH: 6.4 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	90	U
319-85-7	beta-BHC	90	U
319-86-8	delta-BHC	90	U
58-89-9	gamma-BHC (Lindane)	90	U
76-44-8	Heptachlor	90	U
309-00-2	Aldrin	90	U
1024-57-3	Heptachlor epoxide	90	U
959-98-8	Endosulfan I	90	U
60-57-1	Dieldrin	180	U
72-55-9	4,4'-DDE	180	U
72-20-8	Endrin	180	U
33213-65-9	Endosulfan II	180	U
72-54-8	4,4'-DDD	180	U
1031-07-8	Endosulfan sulfate	180	U
50-29-3	4,4'-DDT	180	U
72-43-5	Methoxychlor	900	U
53494-70-5	Endrin ketone	180	U
5103-71-9	alpha-Chlordane	900	U
5103-74-2	gamma-Chlordane	900	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	900	U
11104-28-2	Aroclor-1221	900	U
11141-16-5	Aroclor-1232	900	U
53469-21-9	Aroclor-1242	900	U
12672-29-6	Aroclor-1248	~~7900~~	R
11097-69-1	Aroclor-1254	1800	U
11096-82-5	Aroclor-1260	1800	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN45

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-03

Sample wt/vol: 30.2 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. 24 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/21/90

GPC Cleanup: (Y/N) N pH: 5.3 Dilution Factor: 100

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1000	U
319-85-7	beta-BHC	1000	U
319-86-8	delta-BHC	1000	U
58-89-9	gamma-BHC (Lindane)	1000	U
76-44-8	Heptachlor	1000	U
309-00-2	Aldrin	1000	U
1024-57-3	Heptachlor epoxide	1000	U
959-98-8	Endosulfan I	1000	U
60-57-1	Dieldrin	2100	U
72-55-9	4,4'-DDE	2100	U
72-20-8	Endrin	2100	U
33213-65-9	Endosulfan II	2100	U
72-54-8	4,4'-DDD	2100	U
1031-07-8	Endosulfan sulfate	2100	U
50-29-3	4,4'-DDT	2100	U
72-43-5	Methoxychlor	10000	U
53494-70-5	Endrin ketone	2100	U
5103-71-9	alpha-Chlordane	10000	U
5103-74-2	gamma-Chlordane	10000	U
8001-35-2	Toxaphene	21000	U
12674-11-2	Aroclor-1016	10000	U
11104-28-2	Aroclor-1221	10000	U
11141-16-5	Aroclor-1232	10000	U
53469-21-9	Aroclor-1242	10000	U
12672-29-6	Aroclor-1248	~~78000~~	R
11097-69-1	Aroclor-1254	21000	U
11096-82-5	Aroclor-1260	21000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BEN46

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) SOIL Lab Sample ID: 900146-04

Sample wt/vol: 30 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 60 dec. ____ Date Extracted: 03/08/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/25/90

GPC Cleanup: (Y/N) N pH: 6.3 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	200	UJ
319-85-7	beta-BHC	200	U
319-86-8	delta-BHC	200	U
58-89-9	gamma-BHC (Lindane)	200	U
76-44-8	Heptachlor	200	U
309-00-2	Aldrin	200	U
1024-57-3	Heptachlor epoxide	200	U
959-98-8	Endosulfan I	200	U
60-57-1	Dieldrin	400	U
72-55-9	4,4'-DDE	400	U
72-20-8	Endrin	400	U
33213-65-9	Endosulfan II	400	U
72-54-8	4,4'-DDD	400	UJ
1031-07-8	Endosulfan sulfate	1200	J
50-29-3	4,4'-DDT	400	UJ
72-43-5	Methoxychlor	2000	U
53494-70-5	Endrin ketone	400	U
5103-71-9	alpha-Chlordane	2000	U
5103-74-2	gamma-Chlordane	2000	U
8001-35-2	Toxaphene	4000	U
12674-11-2	Aroclor-1016	2000	U
11104-28-2	Aroclor-1221	2000	U
11141-16-5	Aroclor-1232	2000	U
53469-21-9	Aroclor-1242	2000	U
12672-29-6	Aroclor-1248	7000	~~J~~ R
11097-69-1	Aroclor-1254	4000	~~U~~ R
11096-82-5	Aroclor-1260	4000	UJ

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY95

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-16

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY96

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-17

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/18/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY97

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-18

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/18/90

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCY98

Lab Name: CEIMIC CORP Contract: 68D90028

Lab Code: CEIMIC Case No.: 13670 SAS No.: _____ SDG No.: BCY92

Matrix: (soil/water) WATER Lab Sample ID: 900146-19

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/09/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/17/90

GPC Cleanup: (Y/N) N pH: 8.0 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

REFERENCE NO. 40

NUS CORPORATION AND SUBSIDIARIES — TELECON NOTE

CONTROL NO.: 02-9001-13

DATE: 6/27/90

TIME: 850

DISTRIBUTION: Pfister Chemical

BETWEEN: Jean Mattio

OF: Hackensack Water Co.

PHONE: 800 (422) 5987

AND: Joanne Torchia

DISCUSSION:

There are no public supply wells in the Ridgefield area within 3 miles of facility. Surface water intake recieved from Oradell Resevoir. Does not know population on public supply wells and surface water.

ACTION ITEMS:

REFERENCE NO. 41

002C
C2-8810-17

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8810-17	11/8/88	1815

DISTRIBUTION:
Overpeck Park LF NJCIBI

BETWEEN:	OF:	PHONE:
Pete Faller	Bogota Swim Club	(201) 342-3127

AND: A. Culmar (NUS)

DISCUSSION:

Well is used for drinking and filling pool & irrigation (appx. 1 acre).

Well check quarterly for drinking parameters and carcinogens once each year.
Pool is built on a landfill along the Hackensack River.

depth of well - new well head recently installed at 240', in bedrock.

375 families at appx. 3.8 persons per family
= 1425

ACTION ITEMS:

Teaneck Swim Club membership is appx. 1200 families x 3.8 persons per family = 4560

REFERENCE NO. 42

0016-C
02-8810-17

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
02-8810-18 02-8810-17	10/31/88	1350

DISTRIBUTION: Avon Sanitary Land fill NJC2 8I
(Overpeck Park Land fill NJC1 8I)

BETWEEN:	OF:	PHONE:
Angel Cayas	Hackensack H_2O Co.	(800) 422-5987

AND: A. Calinone (NUS)

DISCUSSION:

Avon Landfill - the towns listed below are supplied by surface H_2O Reservoirs above New Milford (appx. 13 mi North of the site) Carlstadt, Rutherford, East Rutherford, Secaucus

Overpeck Park Landfill - the towns listed below are supplied by the surface H_2O Reservoirs above New Milford (appx North of the site) Cliffside Park, Edgewater, Ridgefield, Palisades Park, Fort Lee, Englewood, Teaneck, Englewood Cliffs, Hackensack, Bogota, Ridgefield Park, Little Ferry, South Hackensack, Teterboro, Moonachie, Hasbrouck Heights, Fairview and North Bergen.

There are wells located in their construction yard located at 135 Hackensack Ave., Hackensack, and Bogota along the Conrail tracks. The Hackensack wells are currently on line while the Bogota wells are only backup at this time.

ACTION ITEMS: Will call back with well info: depth, depth to screen, geology of wells. within next few days

REFERENCE NO. 43

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	6/30/89	0950

DISTRIBUTION: HALCON CATALYST INDUSTRIES 02-8906-03

BETWEEN:	OF:	PHONE:
Ann Marie Silvano	Ridgefield Park Municipal Pool Manager	(201) 641-5221

AND: JOHN RIECKHOFF NVS

DISCUSSION:

RE: source of pool water and usage

Pool water is supplied by their own well and usage in families by year is approximately 250-300

note: 250-300 average is 275 x 3.8 persons per family = 1045 people/year

ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE NO. 44

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	6/26/89	1030

DISTRIBUTION: Halcon Catalyst Industries 02-8906-03

BETWEEN:	OF:	PHONE:
Jean Matteo	Hackensack Water Company	(800) 422-5987

AND: John RIECKHOFF NUS

DISCUSSION:

RE: Status and usage of Bogota Wells

Her data gives addresses of 147 Elm st
20 West Grove at Linden
335 Division at Main

These three wells are connected to the main distribution system and are capable of providing chlorinated, etc. water immediately. They are not in present use only because of lack of demand. Potential mixing is system wide.

ACTION ITEMS:

NUS 067 REVISED 0685

REFERENCE NO. 45

NUS CORPORATION — TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-8810-17	11/7/88	1555

DISTRIBUTION:

Overpeck Park LF
NJ CI II

BETWEEN:	OF:	PHONE:
Bob Doidge	Ridgefield DPW	(201) 945-5319

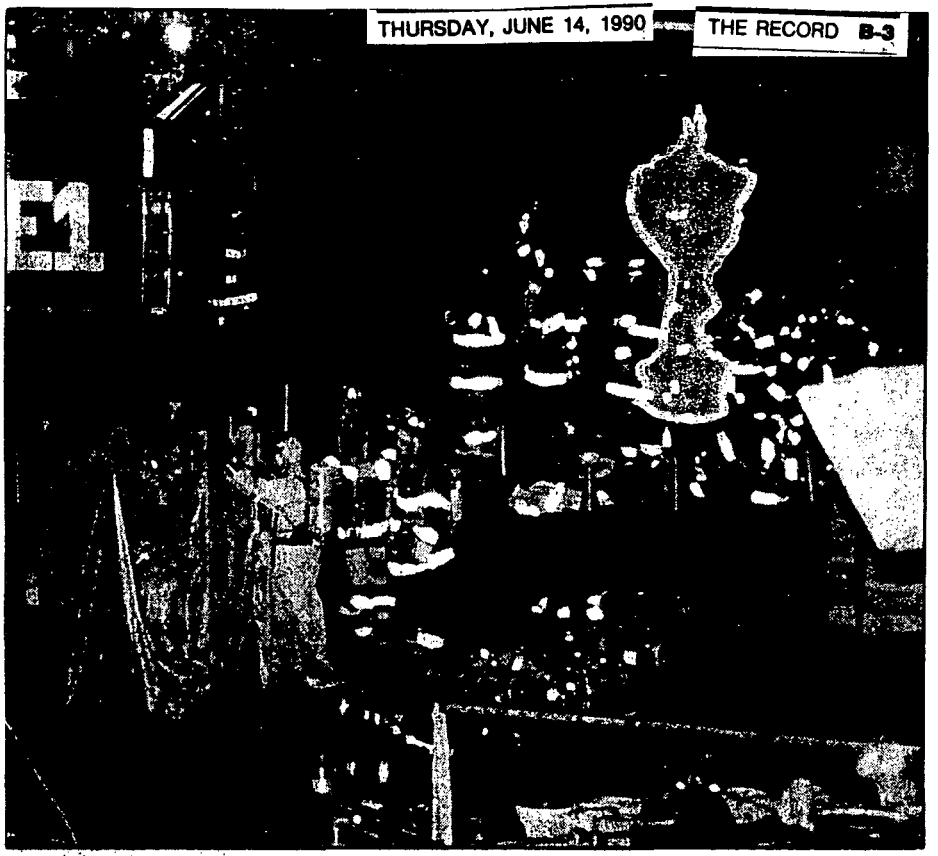
AND: A. Culmer (NUS)

DISCUSSION:

Town well located at Veterans Field
on Shaler Blvd.
115' deep in bedrock
used for irrigation

ACTION ITEMS:

REFERENCE NO. 46



STEVE AUCHARD/THE RECORD

Emergency crews washing off in a makeshift shower in Pfister Chemical Inc.'s parking lot.

Pfister Chemical plant releases noxious fumes

By David Voreacos
and Joan Verdon
Record Staff Writers

RIDGEFIELD — A chemical reaction at the Pfister Chemical Inc. plant on Linden Avenue Wednesday night sent noxious fumes into the air and prompted fire officials to evacuate workers and warn residents of surrounding streets to keep their windows closed and turn off air conditioners.

According to Ridgefield police, a chemical in a storage area at the plant started to decompose, causing the substance to smolder and fumes to be released.

Officials late Wednesday were still trying to identify the chemical or chemicals involved. Bergen County Police Sgt. Ken Madden of the Hazardous Materials team said the reacting substance may have been phenyl diazonium salt, a flammable solid.

"We don't know if it burned or just reacted. We don't believe there was a fire in there," Madden said.

Albert Hoffman, coordinator of the Ridgefield Office of Emergency Management, said a smoldering fire burned in three to five drums of chemicals.

At 11 p.m., police and environmental officials donned protective suits and air packs and entered the plant with a chemical meter to determine if fumes still were being released.

Borough police and firefighters were called to the plant at 8:10 p.m. They quickly evacuated workers and sent ambulances to surrounding streets to tell residents to remain indoors. Police also closed Grand Avenue between Maple and Broad avenues.

Guests at the Ridgefield Park Motor Lodge and the Turnpike Motel were told to call police if they experienced any discomfort from the fumes.

One Ridgefield firefighter, Chris Merweed, suffered heat exhaustion and was taken to Hackensack Medical Center. Steven Rosone, another Ridgefield firefighter, was injured when he stepped on a nail; he was treated at Holy Name Hospital.

Firefighters set up a makeshift shower outside the plant and were sprayed with water after leaving the building. Some firefighters complained of burning sensations on their skin.

Residents were told to keep their doors and windows closed and air conditioners off "just as a precaution, because we don't know which chemical is involved," said Ridgefield Police Sgt. Rudolph Eger.

The fumes caused many residents in nearby Palisades Park to call police, who advised them to keep their windows closed. "Everybody's been advised that they are not in danger at this time," said Capt. John Genovese, head of the Palisades Park Emergency Management team.

The company produces solvents and handles a number of toxic chemicals. It has been labeled by federal and state environmental officials as one of Bergen County's major air polluters, releasing 2.3 million pounds of toxic chemicals annually.

In 1988, a chemical powder that was heated accidentally caused a plume of noxious fumes containing benzene gas to float into the air, forcing an evacuation of the plant.

29 injured in release of fumes at Ridgefield chemical plant

By John Mooney
Record Staff Writer

RIDGEFIELD — Twenty-nine public-safety workers suffered slight chemical burns and other minor injuries when noxious fumes were released at the Pfister Chemical plant Wednesday night.

All but seven of the injured were ambulance corps personnel who were standing in a group away from the emergency scene when a cloud of the fumes reached them.

"We can't figure out why it happened, but we think the wind shifted and they were caught in the cloud," said Ridgefield Fire Chief Paul Favia.

None of the injuries was considered serious, and no one was hospitalized, officials said. Other injuries included a puncture wound, heat exhaustion, and respiratory problems.

A fire alarm was sounded at the plant about 8 p.m. Wednesday, drawing more than 60 emergency workers from at least four communities and the county. Emergency workers left the scene about 3:20 a.m. Thursday.

Neighbors were urged to keep their windows closed and their air conditioning off until the fumes could be controlled. Authorities said no residents reported any injuries or difficulties.

Investigations were under way Thursday into the cause of the accident, and a spokesman for the state Department of Environmental Protection said it was too early to determine what action might be taken.

Local, county, and company officials said the likeliest cause was the decomposition of a flammable compound that was kept in a refrigerated storage room at the east end of the Route 46 plant.

The compound, phenyl diazonium salt, is used to coat paper for use in architectural blueprints.

"It is the type of compound that can undergo decomposition and smolder," said Richard Braun, Pfister's director of manufacturing. "It keeps going and going and doesn't want to stop."

Fifty to 60 small barrels of the compound were destroyed in the accident and another 60 were damaged.

Fire and county officials said there were some flames but that there was only a slight chance of explosion. Braun said there was no fire or threat of explosion.

Braun said the company was considering several steps to prevent a repeat of the incident, including smoke detectors and added ventilation. Authorities said thick smoke made it difficult to reach the storage area.