#89273

HYDROLOGIC, INC.

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ANALYTICAL REPORT

CLIENT:
CMC Environmental Services, Inc
Chris Legget
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Project Name STOLLER PELHAM

Stoller/Pelham 2.2 N9

Ledger Number	N700472
P.O. Number	
Date Received	10/15/97
Time Received	09:20
Reporting Date	10/27/97

Client Sample # LS-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30
Lab Sample ID N70047201

Prep/Method Analyte		Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
Sample Comment: Bromide detection limit increased due to sulfate interference.								
110.2	COLOR							
Color		1300	1.0	CU	1.0	MN	10/17/97	10/17/97
120.1	CONDUCTIVITY LIQUID							
Conductivity		6200	1.0	umhos/cm	1.0	MN	10/20/97	10/20/97
130.2	HARDNESS LIQUID							
Hardness		2900	25	mg/L	25	MN	10/20/97	10/20/97
160.1	TDS LIQUID							
TDS	Total Dissolved Solids	4300	50	mg/L	5.0	MN	10/20/97	10/21/97
160.2	TSS LIQUID							
TSS		3100	20	mg/L	5.0	MN	10/20/97	10/21/97
300.0	BROMIDE LIQUID							
Bromide		Below RL	10	mg/L	1000	*	10/21/97	10/21/97
300.0	CHLORIDE LIQUID							
Chloride		590	5.0	mg/L	1.0	*	10/21/97	10/21/97
300.0	FLUORIDE LIQUID							
Fluoride		11	0.10	mg/L	1.0	*	10/21/97	10/21/97
3010/6010A	LITHIUM LIQUID							
Lithium		Below RL	0.026	mg/L	1.0	*	10/20/97	10/21/97
3010/6010A	TAL METALS LIQUID							
Aluminum		130	0.25	mg/L	1.0	MA	10/15/97	10/18/97
Antimony		0.006	0.004	mg/L	1.0	MA	10/15/97	10/18/97
Arsenic		0.31	0.005	mg/L	1.0	MA	10/15/97	10/18/97
Barium		0.74	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Beryllium		0.013	0.002	mg/L	1.0	MA	10/15/97	10/18/97
Cadmium		0.29	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Calcium		470	0.50	mg/L	1.0	MA	10/15/97	10/18/97
Chromium		0.066	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Cobalt		0.047	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Copper		0.69	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Iron		2.5	0.25	mg/L	1.0	MA	10/15/97	10/18/97

Project Name STOLLER PELHAM

Client Sample # LS-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30 **Lab Sample ID** N70047201

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
Sample Comment: Bromide detection limit increased due to sulfate interference.							
3010/6010A TAL METALS LIQUID							
Lead	0.37	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Magnesium	46	0.006	mg/L	1.0	MA	10/15/97	10/18/97
Manganese	14	0.015	mg/L	1.0	MA	10/15/97	10/18/97
Nickel	0.11	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Potassium	300	0.50	mg/L	1.0	MA	10/15/97	10/18/97
Selenium	0.003	0.004	mg/L	1.0	MA	10/15/97	10/18/97
Silver	Below RL	0.020	mg/L	1.0	MA	10/15/97	10/18/97
Sodium	36	0.50	mg/L	1.0	MA	10/15/97	10/18/97
Thallium	Below RL	0.005	mg/L	1.0	MA	10/15/97	10/18/97
Vanadium	0.23	0.003	mg/L	1.0	MA	10/15/97	10/18/97
Zinc	22	0.009	mg/L	1.0	MA	10/15/97	10/18/97
310.2 ALKALINITY LIQUID							
Alkalinity	740	10	mg/L	1.0	MN	10/17/97	10/17/97
350.3 AMMONIA as NITROGEN							
Ammonia(as-N)	160	5.0	mg/L	100	TK	10/21/97	10/21/97
3510/8270 SEMI (GC/MS) LIQUID							
Phenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-Chloroethyl) Ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Chlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,3 Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,4-Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,2-Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-chloroisopropyl) ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitrosodi-n-propylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachloroethane	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Nitrobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Isophorone	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Nitrophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dimethylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-chloroethoxy)methane	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,2,4-Trichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Naphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chloroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorobutadiene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chloro-3-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Methylnaphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorocyclopentadiene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4,6-Trichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4,5-Trichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Chloronaphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Dimethyl Phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97

Project Name STOLLER PELHAM

Client Sample # LS-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30

Lab Sample ID N70047201

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init	Date of Prep	Date of Analysis
Sample Comment: Bromide detection limit increased due to sulfate interference.							
3510/8270	**SEMI (GC/MS) LIQUID**						
Acenaphthylene	Below RL	19	ug/L = ppb	1.0	ML	10/20/97	10/21/97
2,6-Dinitrotoluene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
3-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Acenaphthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dinitrophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
4-Nitrophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Dibenzofuran	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dinitrotoluene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Diethyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chlorophenyl phenyl ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Fluorene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4,6-Dinitro-2-methylphenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitrosodiphenylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Bromophenyl phenyl ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Pentachlorophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Phenanthrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Di-n-butyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Butyl benzyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
3,3'-Dichlorobenzidine	Below RL	38	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(a)anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-ethylhexyl) phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Chrysene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Di-n-octyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(b)fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(k)fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(a)pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Indeno(1,2,3-cd)pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Dibenzo(a,h)anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(g,h,i)perylene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Carbazole	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitrosodimethylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzoic acid	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Benzyl alcohol	Below RL	38	ug/L	1.0	ML	10/20/97	10/21/97
Benzidine	Below RL	150	ug/L	1.0	ML	10/20/97	10/21/97
353.2	**NITRATE-NITRITE NITROGEN LIQUID**						
Nitrate-Nitrite	51	5.0	mg/L	10	TK	10/23/97	10/23/97
360.1	**DIS OXYGEN**						
Dissolved-Oxygen	Below RL	1.0	mg/L	1.0	MN	10/16/97	10/16/97
365.4	**PHOSPHORUS (TOTAL) LIQUID**						
Phosphorus(Total)	230	13	mg/L	25	TK	10/20/97	10/21/97

375.4	SULFATE LIQUID							
Sulfate		940	250	mg/L	50	MN	10/21/97	10/21/97
405.1	BOD LIQUID							
BOD		1700	500	mg/L	100	MN	10/16/97	10/21/97
410.1	COD LIQUID							
COD		7500	500	mg/L	10	MN	10/16/97	10/16/97
4500	SULFIDE LIQUID							
Sulfide		350	25	mg/L	25	MN	10/21/97	10/21/97
8030/8260	SUPERFUND TCL VOC (GC/MS) LIQUID							
Chloromethane		Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Bromomethane		Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Vinyl Chloride		Below RL	2.0	ug/L	1.0	KD	N/A	10/17/97
Chloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Methylene Chloride		Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Acetone		130	100	ug/L	1.0	KD	N/A	10/17/97
Carbon Disulfide		84	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1-Dichloroethene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1-Dichloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloroethene (Total)		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chloroform		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
2-Butanone (MEK)		Below RL	20	ug/L	1.0	KD	N/A	10/17/97
1,1,1-Trichloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Carbon Tetrachloride		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Bromodichloromethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloropropane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Cis-1,3-Dichloropropene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Trichloroethene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chlorodibromomethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1,2-Trichloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Benzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Trans-1,3-Dichloropropene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Bromoform		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
4-Methyl-2-Pentanone (MIBK)		Below RL	10	ug/L	1.0	KD	N/A	10/17/97
2-Hexanone		Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Tetrachloroethene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1,2,2-Tetrachloroethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Toluene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chlorobenzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Ethylbenzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Styrene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Xylenes (Total)		Below RL	15	ug/L	1.0	KD	N/A	10/17/97
1,2-Dibromoethane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,3-Dichlorobenzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,4-Dichlorobenzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dibromo-3-Chloropropane		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichlorobenzene		Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
7470	MERCURY LIQUID							
Mercury		0.71	0.50	ug/L	1.0	MA	10/17/97	10/17/97

Post-it® Fax Note 7671 | Date 10/28/97 | # of pages ▶ 8
To Bill Joyner | From Chris Leggett
Co./Dept. GPA | Co. CMC
Phone # | Phone #
Fax # 904 [illegible] | Fax # [redacted]

10/27/1997 1[illegible] [redacted]

HYDROLOGIC, INC.

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ANALYTICAL REPORT

CLIENT:
CMC Environmental Services, Inc
Chris Leggett
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Nicholasville, KY 40356
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Project Name STOLLER PELHAM

Ledger Number N70047'2 #89274
P.O. Number
Date Received 10/15/97
Time Received 08:20
Reporting Date 10/27/97

Stoller Pelham 2.2 L9

Client Sample # LS-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30
Lab Sample ID N70047201

Prep/Method Analyte		Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
Sample Comments: Bromide detection limit increased due to sulfate interference.								
110.2	COLOR							
Color		1700	1.0	CU	1.0	MN	10/17/97	10/17/97
120.1	CONDUCTIVITY LIQUID							
Conductivity		6200	1.0	umhos/cm	1.0	MN	10/20/97	10/20/97
130.2	HARDNESS LIQUID							
Hardness		3800	25	mg/L	25	MN	10/20/97	10/20/97
160.1	TDS LIQUID							
TDS		4300	50	mg/L	5.0	MN	10/20/97	10/21/97
160.3	TSS LIQUID							
TSS		3100	20	mg/L	5.0	MN	10/20/97	10/21/97
300.0	BROMIDE LIQUID							
Bromide		Below RL	10	mg/L	1000	*	10/21/97	10/21/97
300.0	CHLORIDE LIQUID							
Chloride		580	5.0	mg/L	1.0	*	10/21/97	10/21/97
300.0	FLUORIDE LIQUID							
Fluoride		11	0.10	mg/L	1.0	*	10/21/97	10/21/97
3010/6010A	LITHIUM LIQUID							
Lithium		Below RL	0.035	mg/L	1.0	*	10/20/97	10/21/97
3010/6010A	TAL METALS LIQUID							
Aluminum		130	0.25	mg/L	1.0	MA	10/16/97	10/16/97
Antimony		0.006	0.004	mg/L	1.0	MA	10/16/97	10/16/97
Arsenic		0.31	0.005	mg/L	1.0	MA	10/16/97	10/16/97
Barium		0.74	0.003	mg/L	1.0	MA	10/16/97	10/16/97
Beryllium		0.015	0.002	mg/L	1.0	MA	10/16/97	10/16/97
Cadmium		0.20	0.003	mg/L	1.0	MA	10/16/97	10/16/97
Calcium		470	0.60	mg/L	1.0	MA	10/16/97	10/16/97
Chromium		0.033	0.006	mg/L	1.0	MA	10/16/97	10/16/97
Cobalt		0.047	0.003	mg/L	1.0	MA	10/16/97	10/16/97
Copper		0.09	0.003	mg/L	1.0	MA	10/16/97	10/16/97
Iron		2.6	0.25	mg/L	1.0	MA	10/16/97	10/16/97

Project Name STOLLER PELHAM

Client Sample # LB-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30

Lab Sample ID N7904730I

Reportable Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
Sample Comment: Sample dilution had increased due to matrix interference.							
3010/6010A TAL METALS LIQUID							
Lead	0.37	0.003	mg/L	1.0	MA	10/15/97	10/15/97
Magnesium	49	0.006	mg/L	1.0	MA	10/15/97	10/15/97
Manganese	14	0.015	mg/L	1.0	MA	10/15/97	10/15/97
Nickel	0.11	0.003	mg/L	1.0	MA	10/15/97	10/15/97
Potassium	309	0.50	mg/L	1.0	MA	10/15/97	10/15/97
Selenium	0.001	0.004	mg/L	1.0	MA	10/15/97	10/15/97
Silver	Below RL	0.020	mg/L	1.0	MA	10/15/97	10/15/97
Sodium	36	0.80	mg/L	1.0	MA	10/15/97	10/15/97
Thallium	Below RL	0.005	mg/L	1.0	MA	10/15/97	10/15/97
Vanadium	0.02	0.003	mg/L	1.0	MA	10/15/97	10/15/97
Zinc	32	0.003	mg/L	1.0	MA	10/15/97	10/15/97
310.2 ALKALINITY LIQUID							
Alkalinity	740	10	mg/L	1.0	MN	10/17/97	10/17/97
350.3 AMMONIA as NITROGEN							
Ammonia(as-N)	160	5.0	mg/L	100	TK	10/21/97	10/21/97
3510/8270 SBU (SC/MS) LIQUID							
Phenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-Chloroethyl) Ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Chlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,3-Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,4-Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,2-Dichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-chloroisopropyl) ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitroso-n-propylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachloroethane	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Nitrobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Isophorone	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Nitrophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dimethylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-chloroethoxy)methane	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
1,2,4-Trichlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Naphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chloroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorobutadiene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chloro-3-Methylphenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Methylnaphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorocyclopentadiene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4,6-Trichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4,5-Trichlorophenol	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Chloronaphthalene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Dimethyl Phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97

Project Name STOLLER PELHAM

Client Sample # LS-01 LEACHATE STREAM
Sampling Date/Time 10/14/97 10:30

Lab Sample ID N70047201

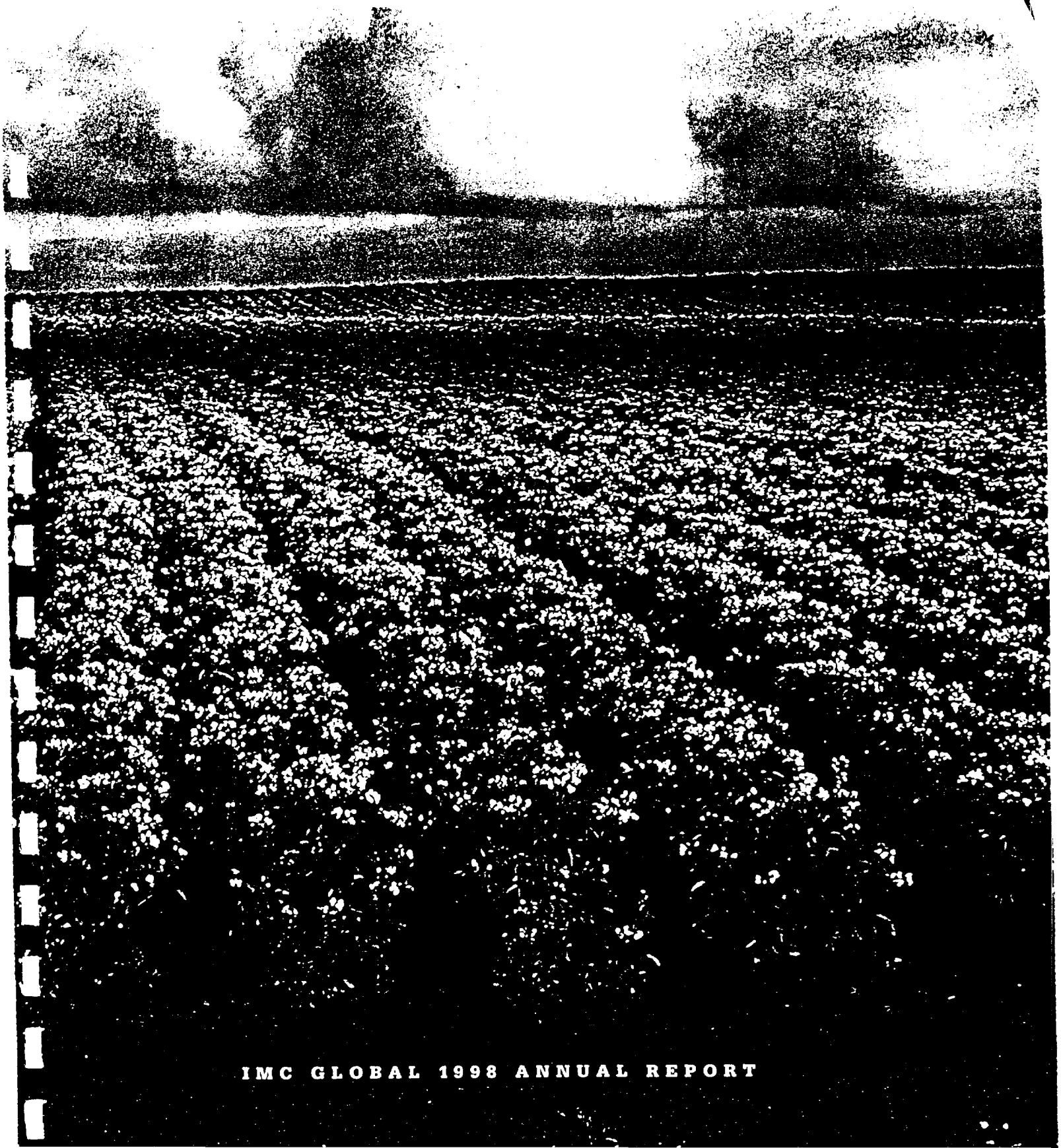
Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
Sample Comments: Bromide detection limit increased due to sample interference.							
8010/8270 SBNA (GC/MS) LIQUID							
Acenaphthylene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,6-Dinitrotoluene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
3-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Acenaphthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dinitrophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
4-Nitrophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Dibenzofuran	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
2,4-Dinitrotoluene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Diethyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Chlorophenyl phenyl ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Fluorene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Nitroaniline	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4,6-Dinitro-2-methylphenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitrosodiphenylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
4-Bromophenyl phenyl ether	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Hexachlorobenzene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Pentachlorophenol	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Phenanthrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Di-n-butyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Butyl benzyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
3,3'-Dichlorobenzidine	Below RL	38	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(a)anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Bis(2-ethylhexyl) phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Chrysene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Di-n-octyl phthalate	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(b)fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(k)fluoranthene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(a)pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Indeno(1,2,3-cd)pyrene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Dibenz(a,h)anthracene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzo(g,h,i)perylene	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Carbazole	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
N-Nitrosodimethylamine	Below RL	19	ug/L	1.0	ML	10/20/97	10/21/97
Benzoic acid	Below RL	96	ug/L	1.0	ML	10/20/97	10/21/97
Benzyl alcohol	Below RL	38	ug/L	1.0	ML	10/20/97	10/21/97
Benzidine	Below RL	150	ug/L	1.0	ML	10/20/97	10/21/97
353.2 NITRATE-NITRITE NITROGEN LIQUID							
Nitrate-Nitrite	91	6.0	mg/L	10	TK	10/23/97	10/23/97
360.1 DISSOLVED OXYGEN							
Dissolved-Oxygen	Below RL	1.0	mg/L	1.0	MN	10/15/97	10/15/97
365.4 PHOSPHORUS (TOTAL) LIQUID							
Phosphorus(Total)	356	13	mg/L	25	TK	10/20/97	10/21/97

0784	SULFATE LIQUID						
Sulfate	960	250	mg/L	50	MN	10/21/97	10/21/97
4561	BOD LIQUID						
BOD	1700	800	mg/L	100	MN	10/16/97	10/21/97
4561	COD LIQUID						
COD	7900	500	mg/L	10	MN	10/16/97	10/16/97
4500	SULFIDE LIQUID						
Sulfide	350	25	mg/L	25	MN	10/21/97	10/21/97
[illegible]	SUPERFUND TCL VOC (8260B) LIQUID						
Chloromethane	Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Bromomethane	Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Vinyl Chloride	Below RL	2.0	ug/L	1.0	KD	N/A	10/17/97
Chloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Methylene Chloride	Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Acetone	120	100	ug/L	1.0	KD	N/A	10/17/97
Carbon Disulfide	94	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1-Dichloroethene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1-Dichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloroethene (Total)	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chloroform	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
2-Butanone (MEK)	Below RL	20	ug/L	1.0	KD	N/A	10/17/97
1,1,1-Trichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Carbon Tetrachloride	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Bromodichloromethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichloropropane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Cis-1,3-Dichloropropene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Trichloroethene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chlorodibromomethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1,2-Trichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Benzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Trans-1,3-Dichloropropene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Bromoform	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
4-Methyl-2-Pentanone (MIBK)	Below RL	10	ug/L	1.0	KD	N/A	10/17/97
2-Hexanone	Below RL	10	ug/L	1.0	KD	N/A	10/17/97
Tetrachloroethene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,1,2,2-Tetrachloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Toluene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Chlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Ethylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Styrene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
Xylenes (Total)	Below RL	15	ug/L	1.0	KD	N/A	10/17/97
1,2-Dibromoethane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,3-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,4-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dibromo-3-Chloropropane	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
1,2-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	10/17/97
7470	MERCURY LIQUID						
Mercury	0.71	0.60	ug/L	1.0	MA	10/17/97	10/17/97

RL = Reporting Limit INST. = (*) Analysis performed by another HydroLogic Laboratory. (#) Analysis performed by subcontracted Laboratory.

Certifying Scientist

Organics and Inorganics in Wastewater, Solids, and Wastes
NC-DEHNR #41, SC-DHEC [illegible], GA, TN-DOH [illegible], UT-DOH [illegible], FL-DEP [illegible] HRS [illegible] (Water) HRS [illegible] (Drinking Water), NY-DEH ELAP 11[illegible],
[illegible]
Radioactive Materials Licenses ISO 9000 EPA ID EPA Reg Waste GA APHIS Fed Lab ID US Army Corps of
GA-DNR [illegible] ASLA:[illegible] GA-[illegible] GA-[illegible] S-[illegible] [illegible] Engineers Validation
These result(s) relate only to the item(s) tested.
This report shall not be reproduced, except in full, without the written approval of HydroLogic Inc.



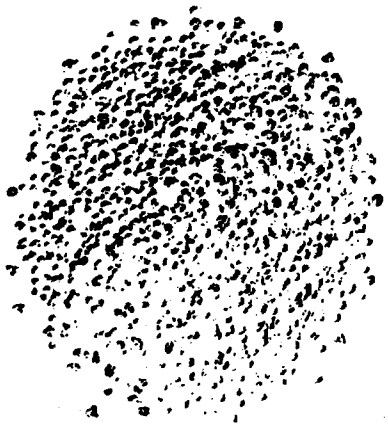
IMC GLOBAL 1998 ANNUAL REPORT

IMC Global Inc. (NYSE: IGL) is a worldwide producer and supplier of agricultural products and salt. With 1998 revenues and EBITDA of $2.7 billion and $826 million, respectively, the Company is the world's largest producer of concentrated phosphates and potash. These products are primarily used as agricultural fertilizers and typically account for more than 80% of IMC Global's operating earnings.

The Company also is one of the largest producers and sellers of animal feed ingredients, and is the world's third-largest producer of salt. Major salt applications include road de-icing, food processing, water conditioning, retail sales and animal feed.

Following the pending divestiture of two businesses, IMC Global will have approximately 7,500 employees with operations in the United States, Canada and the United Kingdom. It also maintains offices in Beijing, Hong Kong, Tokyo and São Paulo, Brazil. The Company is decentralized with each of its business units serving both domestic and international customers.

IMC GLOBAL'S AGRICULTURAL PRODUCTS REPLENISH THE SOIL WITH NUTRIENTS ESSENTIAL FOR ACHIEVING HIGH CROP YIELDS. IMC HELPS FEED THE LAND THAT FEEDS THE WORLD.



Phosphate

THROUGH ITS IMC-AGRICO PHOSPHATES BUSINESS UNIT, THE COMPANY IS THE WORLD'S LEADING PHOSPHATE PRODUCER WITH APPROXIMATELY 8.5 MILLION SHORT TONS OF CONCENTRATED PHOSPHATE CAPACITY. FACILITIES CONSIST OF SIX SURFACE MINES AND SIX FINISHED PHOSPHATE MANUFACTURING PLANTS. WITH MORE THAN A 30-YEAR SUPPLY OF PHOSPHATE ROCK RESERVES, THE BUSINESS UNIT ACCOUNTS FOR APPROXIMATELY 32% OF U.S. CONCENTRATED PHOSPHATE PRODUCTION CAPACITY AND 10% OF WORLD CAPACITY.

DURING 1998, THE COMPANY'S PHOSPHATE PRODUCTS WERE MARKETED IN MORE THAN 30 COUNTRIES THROUGH THE PHOSPHATE CHEMICALS EXPORT ASSOCIATION (PHOSCHEM). ASSUMING THE BUSINESS UNIT'S PRO RATA SHARE OF PHOSCHEM SHIPMENTS, ASIA CONTINUED TO BE THE LARGEST EXPORT REGION, ACCOUNTING FOR MORE THAN 70% OF IMC'S PHOSPHATE EXPORT VOLUMES. CHINA WAS THE BUSINESS UNIT'S LARGEST CUSTOMER, AND TOTAL EXPORTS REPRESENTED 60% OF 1998'S SHIPMENTS. NORTH AMERICAN AGRICULTURE ACCOUNTED FOR THE REMAINING 40%.

Net Sales: $1.57 billion
Gross Margins: $375.6 million
Principal Products: Diammonium Phosphate (DAP), Monoammonium Phosphate (MAP), Triple Superphosphate (TSP)

Potash

IMC IS AMONG THE WORLD'S LEADING AND LOWEST-COST PRODUCERS OF POTASH. ITS IMC KALIUM BUSINESS UNIT HAS AN ANNUAL CAPACITY OF OVER 10 MILLION SHORT TONS AND REPRESENTS 15% OF GLOBAL CAPACITY AND 39% OF NORTH AMERICAN CAPACITY ON A K_2O BASIS. KALIUM HAS FOUR MINES IN SASKATCHEWAN, CANADA (BELLE PLAINE, COLONSAY AND TWO IN ESTERHAZY) AND THREE IN THE UNITED STATES (HERSEY, MI AND TWO IN CARLSBAD, NM) AS WELL AS A SOLAR EVAPORATION FACILITY IN OGDEN, UT WHERE POTASSIUM SULPHATE IS PRODUCED.

KALIUM'S POTASH PRODUCTS WERE SOLD IN MORE THAN 30 COUNTRIES IN 1998, PRIMARILY THROUGH CANPOTEX LIMITED, AN EXPORT ASSOCIATION RESPONSIBLE FOR ALL OFFSHORE MARKETING OF POTASSIUM CHLORIDE PRODUCED IN SASKATCHEWAN.

CHINA WAS THE LARGEST CANPOTEX CUSTOMER IN 1998. OTHER MAJOR KALIUM EXPORT CUSTOMERS INCLUDED JAPAN, MALAYSIA, KOREA, AUSTRALIA, NEW ZEALAND AND BRAZIL. OFFSHORE SALES ACCOUNTED FOR 31% OF KALIUM'S 1998 SHIPMENTS. DURING THE YEAR, 82% OF THE POTASH PRODUCED BY KALIUM WAS SOLD AS CROP NUTRIENTS, WITH THE REMAINING 18% MARKETED FOR NON-AGRICULTURAL USES.

Net Sales: $700.1 million
Gross Margins: $283.1 million
Principal Products: Red Muriate of Potash (Potassium Chloride), White Muriate of Potash (Potassium Chloride), Potassium Magnesium Sulphate (K-Mag®), Potassium Sulphate

Salt

IMC BECAME THE WORLD'S THIRD-LARGEST PRODUCER OF SALT FOLLOWING ITS APRIL 1, 1998 ACQUISITION OF HARRIS CHEMICAL GROUP, INC. THE COMPANY'S IMC SALT BUSINESS UNIT HAS 13 FACILITIES IN NORTH AMERICA AND 2 IN THE UNITED KINGDOM. ANNUAL PRODUCTION CAPACITY IS 15.3 MILLION SHORT TONS, WHICH INCLUDES 6.5 MILLION SHORT TONS OF OUTPUT FROM THE WORLD'S LARGEST AND LOWEST-COST ROCK SALT MINE IN GODERICH, ONTARIO ON LAKE HURON. SALT SHIPMENTS TOTALED 5.8 MILLION SHORT TONS DURING 1998'S APRIL-DECEMBER PERIOD. NORTH AMERICA ACCOUNTED FOR 85% OF SALT SHIPMENTS, WITH THE REMAINING 15% PURCHASED BY CUSTOMERS PRIMARILY IN THE UNITED KINGDOM.

IMC SALT IS ONE OF THE WORLD'S LARGEST PRIVATE LABEL PRODUCERS OF WATER CONDITIONING PRODUCTS. THE BUSINESS UNIT SELLS MORE THAN 100 DIFFERENT PRIVATE LABELS OF TABLE SALT TO MAJOR RETAILERS, AND ITS SIFTO SALT PRODUCTS ARE THE MOST RECOGNIZED BRAND IN CANADA.

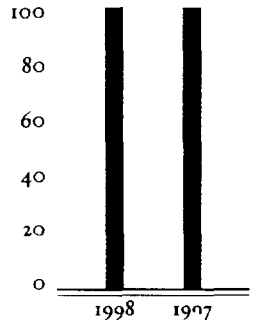
(For April 1 through December 31 Period)
NET SALES: $175.0 million
GROSS MARGINS: $57.0 million
PRINCIPAL PRODUCTS: Road De-icing, Water Conditioning, Food Applications, Industrial, Animal Feed

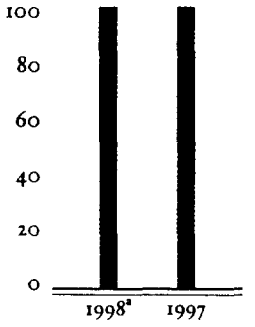
Feed Ingredients

WITH AN ANNUAL CAPACITY OF MORE THAN 700,000 SHORT TONS, IMC-AGRICO FEED INGREDIENTS IS ONE OF THE WORLD'S LARGEST PRODUCERS OF PHOSPHORUS AND POTASSIUM FEED SUPPLEMENTS. WITH ITS STRONG BRAND RECOGNITION, NUTRITIONAL EXPERTISE AND EXTENSIVE DISTRIBUTION NETWORK, THE BUSINESS UNIT PROVIDES THE COMPANY'S PHOSPHATE OPERATIONS WITH GROWTH OPPORTUNITIES IN THE EXPANDING GLOBAL ANIMAL NUTRITION BUSINESS.

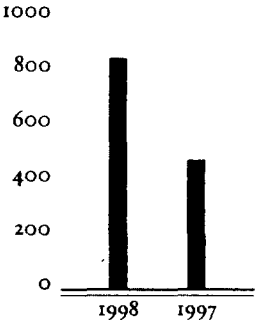
NORTH AMERICA ACCOUNTED FOR 85% OF FEED INGREDIENTS' SHIPMENTS DURING 1998, WITH EXPORT CUSTOMERS, PRIMARILY ASIA AND LATIN AMERICA, RECEIVING THE REMAINING 15%. CUSTOMERS INCLUDE MAJOR PRODUCERS OF LIVESTOCK AND POULTRY FEEDS, NUTRITIONAL SUPPLY COMPANIES, AND DIRECT PRODUCERS OF MEAT, MILK AND EGGS.

NET SALES: $164.4 million
GROSS MARGINS: $30.6 million
PRINCIPAL PRODUCTS: Biofos®; Dynafos®; Multifos®; Monofos®; Liquifos®; Dyna-K®; Dynamate®; K-S®





[a]*Before non-recurring charges of $23.1 million*



[b]*Earnings before non-recurring charges, minority interest, interest charges, taxes, depreciation and amortization, and after PLP distributions*

Financial Highlights

Years ended December 31 (Dollars in millions, except per share data)	1998	1997	% Change
Net sales	$ 2,696.2	$ 2,116.0	27%
Gross margins[c]	761.5	574.9	32%
Earnings from continuing operations[d]	229.1	182.0	26%
Earnings before extraordinary item[d]	160.0	200.0	(20%)
Net earnings[d]	163.0	175.1	(7%)
Cash flow from operating activities	269.1	563.4	(52%)
Capital expenditures	367.6	244.0	51%

[c]*Excludes non-recurring charges of $23.1 in 1998.*

[d]*Excludes non-recurring charges of $172.0 in 1998 and the Main Pass write-down of $112.2 in 1997.*

Per Share Data			
Earnings from continuing operations-diluted[e]	$ 2.00	$ 1.92	4%
Earnings before extraordinary item-diluted[e]	1.39	2.11	(34%)
Net earnings-diluted[e]	1.42	1.85	(23%)
Dividends paid	0.32	0.32	—

[e]*Excludes non-recurring charges of $1.50 per share in 1998 and the Main Pass write-down of $1.19 per share in 1997.*

At December 31			
Total assets	$ 6,456.9	$ 4,673.9	38%
Total debt	3,047.0	1,424.1	114%
Stockholders' equity	1,860.4	1,935.7	(4%)
Book value	16.28	16.98	(4%)
Debt-to-total capitalization	62.1%	42.4%	19.7pts

ROBERT E. FOWLER, JR.
Chairman & Chief Executive Officer

CHAIRMAN'S LETTER

DEAR SHAREHOLDERS: 1998 was a year of significant progress for IMC Global as our markets and product prices remained strong and major strides were taken to improve operating efficiencies. Our core businesses performed well, with one or more reporting record financial results each quarter. For the full year, your Company's revenues and operating earnings rose 27% and 31%, respectively.

We also made progress on broad fronts to reshape the Company. Specific actions included: the $1.4 billion acquisition of Harris Chemical, the completion or near completion of the sale of three business units, a major restructuring of our phosphate operations following the Company's merger with Freeport-McMoRan, the initial implementation of our Company-wide *Global Vision* systems project, and important additions to our senior management team.

Compared to a year ago, IMC is now a much leaner, far more nimble and considerably more focused organization. Through a series of well-planned changes, we have given the Company a new direction that will ensure its future success as well as its ability to accelerate returns to shareholders.

The changes began in January of last year. Having just merged with Freeport a few weeks earlier, we started executing a strategy that would deliver the benefits of this $1.1 billion transaction.

The Freeport merger, which gave IMC nearly 80% ownership of the IMC-Agrico joint venture, also brought us greater control over the management and long-term strategy of the world's largest phosphate operation. With this expanded authority, we consolidated the joint venture's management, sales, marketing and distribution logistics functions with those of our IMC Kalium potash organization. This change, which would not have been possible prior to the merger, is unlocking significant cost savings.

The acquisition of Harris Chemical in April gave IMC a third core business–salt–and transformed our small position into that of the world's third-largest salt producer. With projected annual sales volumes of approximately 12 million short tons, salt represents an excellent vehicle for the Company's future growth.

The other components of the Harris acquisition were its chemicals and potassium sulphate businesses. The 450,000-ton-per-year potassium sulphate operation on the Great Salt Lake was quickly merged into our potash organization, achieving important savings in the process. Because of its highly competitive production costs, we intend to increase its capacity by nearly 50% by 2003 and shift our potassium sulphate production from New Mexico to that location.

The chemicals business will be sold in the first half of 1999. A definitive agreement for its sale, valued at $520 million, was reached in December and will give IMC an ongoing minority economic interest in the new company. Cash proceeds from the transaction will be used to retire debt.

Consistent with our goal of strengthening the Company through greater focus and consolidation are the divestitures of two business units in addition to the former Harris chemical operations.

IMC Vigoro, our consumer lawn and garden and professional products business, was sold in June. Just 4% of total sales, it was underperforming and requiring an inordinate amount of resources and management attention.

The pending sale of IMC AgriBusiness, our retail and wholesale agricultural input business, will likely be finalized by the time you read this report. The sale will include long-term supply agreements for our phosphate and potash products, with cash proceeds from the divestiture being applied to debt reduction.

Other developments that will contribute to IMC's future success include:

- The launching of a program aptly named *Project Profit*. This initiative's primary focus is our extensive phosphate business where our goal is to improve operating earnings by up to $100 million over the next 2 years. We have targeted significant return enhancements through productivity increases, operating cost reductions and a major asset restructuring. *Project Profit* also is aligning the Company's employment levels with its new organizational structure.
- The signing of a new multi-year sales agreement with China's Sinochem. The historic accord was reached with PhosChem–the principal U.S. export marketing association for phosphate fertilizers. PhosChem has four member companies of which IMC is the largest. The new agreement spans 1999 and 2000, and includes an option for a 2-year extension.
- The rollout of *Global Vision*, a project that will upgrade, standardize and link all of the Company's systems functions when implementation is completed later this year. The project, initiated in 1997, will result in savings of $120 million by 2006.

These positive developments, coupled with our strong financial results, made 1998 an exciting, productive and profitable year for IMC. Nonetheless, it was not a year lacking in challenges.

Turmoil and uncertainty in Asia's financial markets had a swift and negative impact on stock values in several industries. Among the hardest hit sectors were fertilizer, agriculture and commodity chemicals. Everybody suffered.

Ironically, as the world's financial markets awaited the stalling of Asia's powerful economic engine, your Company sold near-record volumes of phosphate and potash fertilizers to Asian customers at good price levels. In addition, our largest customer, China, did not devalue its currency as was widely predicted.

Closer to home, we were confronted with the popular view that domestic fertilizer demand would drop measurably in 1999 following last fall's large U.S. harvest. In reality, all major indicators point to upbeat planting intentions by U.S. farmers this spring. Furthermore, $13 billion in government assistance will support extensive phosphate and potash applications with total domestic fertilizer usage expected to nearly match last year's high application levels.

IMC Global begins 1999 well-positioned to capitalize on the healthy environment that exists for each of its businesses. Phosphate and potash consumption is projected to continue growing at an annual rate of 3%, with salt posting a 2% demand increase. The outlook for our Feed Ingredients business unit is equally encouraging as it continues to expand its presence in Asia and Latin America.

IMC is a very different Company today than it was a year ago. In virtually every area we are stronger and more competitive. We have lowered our costs, taken steps to significantly reduce our debt, and streamlined the Company by retaining only those businesses with common needs, strengths and operating environments.

We have brought new talent to IMC's senior management team–talent that is already making important contributions. J. Bradford James joined the Company in February 1998 as Senior Vice President and Chief Financial Officer. Brad is a highly skilled executive with a strong financial background that is complemented by experience in other critical disciplines. Prior to joining IMC, he served in senior management at USG Corporation.

Also strengthening our senior management ranks is Douglas A. Pertz. Doug joined the Company in October as President and Chief Operating Officer. He has since been elected to the Board of Directors. Doug's election to these key posts is part of a carefully considered executive succession plan. He previously served as President and Chief Executive Officer for Culligan Water Technologies, Inc. An interview with Doug begins on page 24 of this report. I encourage you to read it and learn more about him and his plans for IMC.

As you can see, your Company has undergone considerable change over the past year. And while change does not necessarily assure progress, progress implacably requires change. We will continue to measure our progress in terms of how well we have served our owners, recognizing that creating shareholder value is our single most important objective.

ROBERT E. FOWLER, JR.
Chairman & Chief Executive Officer, March 15, 1999

IMC Global is now much leaner, more

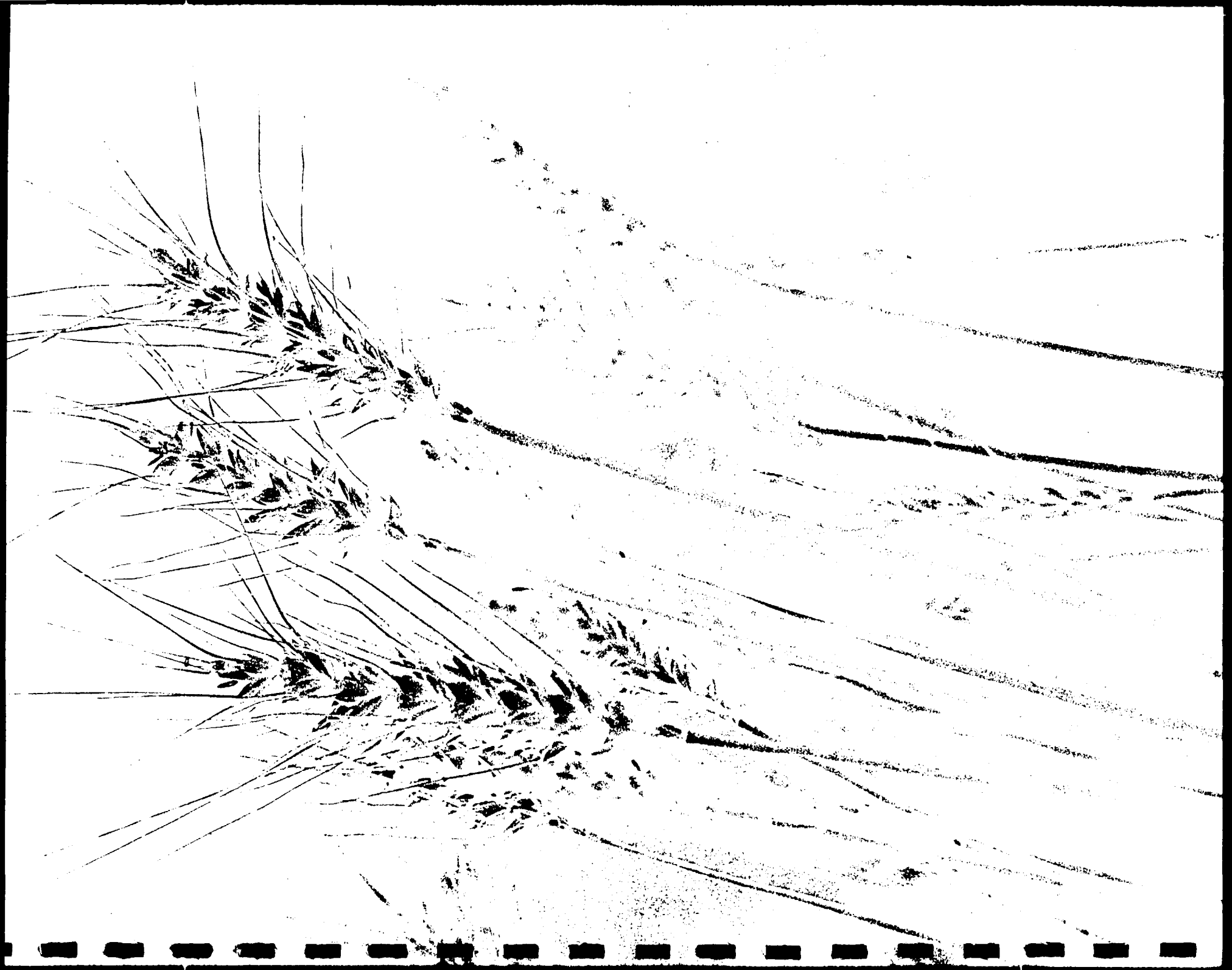
nimble and considerably more focused.

Phosphate & Potash

For nearly 90 years, IMC has supplied crop nutrients to the global agricultural community. During 1998, farmers in more than 30 countries replenished their fields with the Company's phosphate and potash products. Phosphate shipments totaled 7.3 million short tons with 60% delivered to offshore customers. IMC's potash operations shipped 8.5 million short tons during the same period, with 31% purchased by export customers.

Profile: IMC is the world's largest producer and marketer of phosphate and potash crop nutrients. These products typically generate more than 80% of the Company's operating earnings. Phosphate (*phosphorus*) and potash (*potassium*) have no substitutes and are essential for life.

1998 Headlines: IMC Announces Potash Capacity Expansions; PhosChem Increases Membership; Potash Operations Report Record First Quarter Results; Construction Begins on New K-Mag® Ore Processing Plant; IMC to Consolidate Phosphate and Potash Businesses to Reduce Costs; IMC Launches Work Force Reduction Program; PhosChem and Sinochem Reach Historic Sales Accord.



Phosphate

Market Conditions: Demand for IMC's phosphate products was strong throughout the year, increasing 3% over 1997. Asia was again the dominant export region as it continued to emphasize the importance of its agricultural capabilities despite troubled financial markets. Second quarter revenues and earnings were records for any quarter in the history of IMC's phosphate operations. In addition, fourth quarter shipments to offshore customers were a record for any quarterly period.

1998's domestic demand for phosphate fertilizers was equally robust as North American farmers planted more than 150 million acres of corn and soybeans – the highest level in nearly 20 years. Planting intentions for these crops, which are among the largest users of phosphate and potash, triggered a strong winter fill program coupled with an early start to a solid spring application season. Domestic sales benefited from an increased emphasis on the North American marketplace and the strategic positioning of product in field warehouses early in the year.

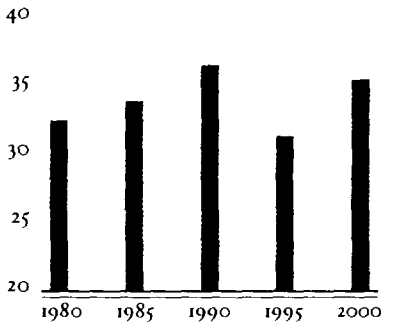
Profit Improvement: 1998 marked the beginning of a major transitional period for the Company's phosphate organization. Facing increasing global competition and rising costs, IMC-Agrico Phosphates was restructured in the fourth quarter. The restructuring focuses on cost reductions and productivity improvements with a target of increasing operating earnings up to $100 million over the next 2 years.

The reorganization began with the consolidation of several phosphate and potash non-manufacturing functions. To assist in this process, a Company-wide Shared Services division was created which is combining sales, marketing, distribution and customer service activities. While initially focusing on the phosphate restructuring, Shared Services will expand its reach in 1999 to all business units and coordinate all purchasing and information systems functions.

Concurrent with the phosphate and potash consolidation, a profit enhancement program called *Project Profit* was launched at IMC-Agrico Phosphates. The program calls for the permanent shutdown of selected, higher-cost phosphate mining and production operations in Florida. In addition, *Project Profit* is reducing costly inventories of spare parts and phosphate rock, and realigning staffing levels consistent with IMC's new organizational structure. More than 600 positions were eliminated by early 1999, with work force reductions occurring primarily at IMC-Agrico Phosphates and the Company's corporate and administrative headquarters.

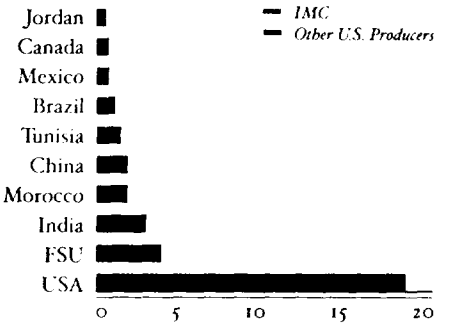
Operations identified for closure, to date, include a phosphate rock mine and its adjoining processing plant, and uranium byproduct plants in Florida and Louisiana. The

World Phosphate Fertilizer Consumption
Million Tonnes P_2O_5



Source: International Fertilizer Association (IFA)

Major World Concentrated Phosphate Producers
Million Tonnes Product (DAP, MAP, TSP)



1995-1997 Average
Source: IFA, IMC Global

Company also will exit certain underperforming product lines, including urea and AGROTAIN.

Phosphate mining operations have a 9% cost reduction goal for 1999. To achieve this objective, management is focusing on improved phosphate rock recovery rates, lower fixed costs resulting from facility closures, reduced spending for contract services, and the adoption of Reliability Based Maintenance practices to increase operating efficiencies.

For 1999, concentrated phosphate operations have targeted an 8% reduction in the cost of converting phosphate rock to a finished fertilizer product. This will be achieved through improved maintenance practices, work force reductions and maximizing output from the business unit's lowest-cost facilities.

Phosphate Outlook: IMC is confident that world phosphate fertilizer demand will continue to grow at an average annual rate approaching 3%. This growth will be fueled by an increasing population, the improved diets that accompany higher living standards and better nutrient management practices. World phosphate consumption is expected to reach approximately 41 million nutrient tons by 2003, with applications in North America increasing 7% over the same period.

The export market for phosphate fertilizers continues to exhibit strong and sustained demand. A new, multi-year sales agreement between China's Sinochem and the U.S. export organization PhosChem is representative of the long-term outlook for international phosphate demand. Under the agreement, Sinochem will receive monthly shipments of diammonium phosphate fertilizer in 1999 and 2000, with the potential for total annual volumes exceeding those achieved under the two-year contract which ended at the close of 1998. The new accord includes an option for a two-year extension.

Sinochem is a state-controlled company with government responsibility for importing fertilizers into China. During 1998, PhosChem increased its membership to four companies with the addition of Mulberry Corporation. The larger membership raised PhosChem's share of U.S. concentrated phosphate exports from 49% to approximately 53%. IMC is PhosChem's largest member company.

IMC's phosphate business unit is poised to grow its international leadership position both in terms of size and, more importantly, profitability. It has an aggressive profit-enhancement strategy at work that is focused on achieving significant benefits for shareholders in the near term.

Potash

Market Conditions: 1998 was an extraordinary year as IMC Kalium set records in virtually every category. Sales increased 13% to a record $700.1 million. Gross margins rose 19% to an all-time high of $283.1 million. Average selling prices climbed 16% to a record $81 per short ton and led to a 20% increase in operating earnings – another record.

World demand for potash was strong throughout most of 1998, with Kalium shipping 8.5 million short tons. The business unit continued to sell more potash for industrial applications than all other potash producers in the world combined. Sales to industrial customers rose nearly 6% during the year and represented 18% of total volumes.

Kalium's low-cost position is anchored by its Belle Plaine and Colonsay mines in Saskatchewan, Canada. An independent study has determined that the two operations are among the five lowest-cost potash mines in the world.

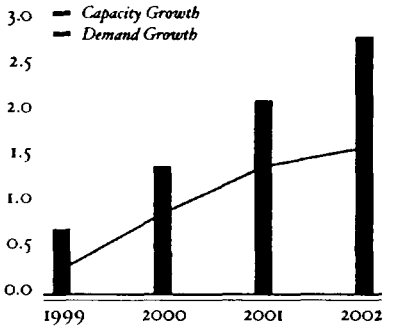
Profit Improvement: Significant profit improvement progress was made by Kalium during 1998 as it assimilated newly acquired operations and focused on realizing the benefits of size, synergies and expanded market opportunities. Recently acquired operations included the former Western Ag-Minerals in Carlsbad, NM, and a potassium sulphate facility on Utah's Great Salt Lake that was part of the Harris Chemical purchase. The merging of these new assets into the larger Kalium organization occurred efficiently and with an eye on rapid-payback cost-reduction opportunities. Kalium also benefited from *Project Profit* and highly positive changes to Saskatchewan's potash resource tax.

In Carlsbad, Kalium completed its first full year operating the former Western Ag-Minerals potash mine. In addition to profitably running the facility, Kalium realized substantial cost savings as it combined the operation with an adjacent IMC mine. Major profit improvement initiatives included:

- The addition of continuous mining machines which reduced annual operating costs by nearly $3 million;
- Start-up of a new granulation facility for K-Mag®, a specialty potash product, that will add $14 million to operating earnings when it reaches capacity operating rates;
- Groundbreaking for a new, larger processing plant for K-Mag® ore. When completed in mid-1999, this facility will permit the integration of all Western Ag production into the IMC Carlsbad operation. This will result in cost savings of $5 million in 1999, and $11 million annually thereafter.

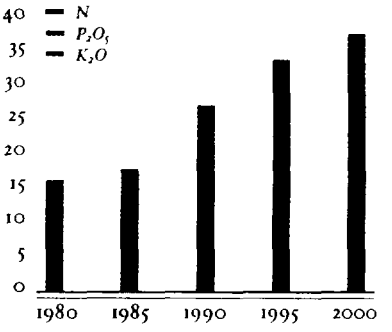
The potassium sulphate operation on the Great Salt Lake added 450,000 short tons of annual capacity to Kalium. Because of the operation's low production costs, Kalium will

WORLD POTASH SUPPLY AND DEMAND OUTLOOK
Million Tonnes K_2O



Source: IFA, IMC Global

CHINA'S FERTILIZER CONSUMPTION
Million Tonnes Nutrients



Source: IFA, IMC Global

shift all of its Carlsbad potassium sulphate production to that location, thereby improving margins and reducing capital costs. The business unit plans to increase the operation's annual capacity to 650,000 short tons by 2003.

Other Kalium cost-reduction initiatives include: the signing of an eight-year electrical power contract, five-year supply contracts for key manufacturing materials, and long-term natural gas contracts for the business unit's four Canadian operations. Kalium also continues to benefit from a strategic alliance with the Canadian Pacific Railroad for the movement of potash from its Canadian mines to the marketplace. These efforts are expected to generate savings of more than $90 million over the next 5 years.

Like IMC's phosphate business unit, Kalium is benefiting from the consolidation of several phosphate and potash non-manufacturing functions. The *Project Profit* initiative will help to further secure Kalium's leadership position in the global potash industry.

POTASH OUTLOOK: World potash consumption in 1999 is expected to increase approximately 3%. North America, which accounts for about 25% of world potash consumption, is forecast to have 1999 application rates similar to those in the prior year. Longer term, world potash demand is projected to increase 12% over the next 4 years versus capacity increases of just 6%.

The anticipated future shortfall in supply, combined with cost-saving revisions to Saskatchewan's resource tax system, led to Kalium's decision to expand its Belle Plaine and Colonsay mines over the next five years. Belle Plaine will increase its current annual capacity of 2.4 million short tons to 3.2 million at a cost of approximately $85 million. Colonsay's annual capacity will be expanded from 1.5 million short tons to 2.2 million at an estimated cost of $35 million. The pace of both expansions is being determined by market demand for the mines' products.

Kalium's major export opportunities continue to be the world's developing nations, particularly China, Brazil and Malaysia. Demand from offshore customers is expected to grow as developing nations work toward achieving maximum crop yields through balanced fertilizer applications. These countries typically do not use adequate potash volumes, with application rates in China estimated to be only one-third of what is considered optimal.

Kalium is uniquely positioned to meet the world's growing potash needs. An emphasis on cost management, customer service and continuous improvement will guide Kalium's expansion plans as its growth story continues to be written.

Salt

The Company added a third core business during 1998 as it sharpened its focus on businesses with common operating practices, market environments and product characteristics. Like phosphate and potash, salt is produced and marketed using IMC's well-established strengths in these areas. Salt shares important product characteristics with the Company's other businesses. It is primarily a commodity product, sold in large volumes, is essential for life and has no substitutes.

IMC Salt was established following the acquisition of Harris Chemical Group, Inc. Prior to the April 1 purchase of Harris, IMC produced salt exclusively at its potash mines where salt is a natural co-product.

Profile: IMC Salt has an annual production capacity of 15.3 million short tons. With 13 facilities in North America and 2 in the United Kingdom, the business unit has an output of 74% rock salt, 10% solar salt and 16% evaporated salt.

1998 Headlines: IMC Becomes World's Third-Largest Salt Producer; IMC Salt Announces Reorganization of Evaporated Salt Operations in Midwest; Salt Warehousing and Bagging Facility Closed in Montreal.

MARKET CONDITIONS: IMC Salt experienced solid demand across all product lines in 1998. Public awards for highway de-icing salt were strong with volumes and prices essentially unchanged from year-ago levels. De-icing salt volumes during the year's fourth quarter were weaker than anticipated due to extremely mild early winter weather. This was offset, however, by cost control measures and strong sales in all other product segments. Rock salt continued to be the industry's largest volume product.

Salt accounted for 6.5% of IMC's 1998 revenues and 7.5% of gross margins. The business unit's financial contribution is expected to increase substantially in 1999 with the addition of results from the January-March period. Approximately 50% of IMC Salt's annual revenues are generated from December through March when highway de-icing is at its peak.

PROFIT IMPROVEMENT: Combining the operations of IMC and Harris created a much stronger salt organization with far greater earnings potential than either company could have achieved alone. Key drivers toward greater profitability include size, geographic positioning, an expanded product line, and numerous synergies and cost-reduction opportunities.

The substantial scale and geographic reach of IMC Salt give it the ability to achieve significant savings while providing superior customer service. Its multiple locations are operated to optimize responsiveness to market opportunities at the lowest possible cost, and deliver product to customers quickly from nearby plants or storage facilities.

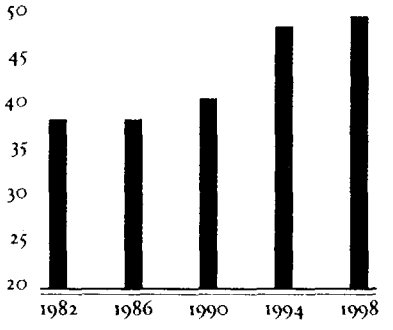
The Goderich, Ont. rock salt mine, for example, is located on Lake Huron and accounts for 50% of all salt shipped on the Great Lakes. It is the world's largest rock salt producer with an annual capacity of 6.5 million short tons. Its enviable location permits low-cost transportation, with a substantial portion of its output used for road de-icing in the North Central U.S. and Canada.

Similarly, more than one-third of the salt transported on the Mississippi River comes from IMC's Cote Blanche, LA mine. This facility has a strong position serving de-icing markets on the river system with customers as far away as Minneapolis and Pittsburgh.

The 200,000 short tons of evaporated salt produced in Hersey, MI are a co-product with 160,000 short tons of potash mined at that site annually. Due to its co-product economics, Hersey is North America's lowest-cost producer of high-purity, food quality salt.

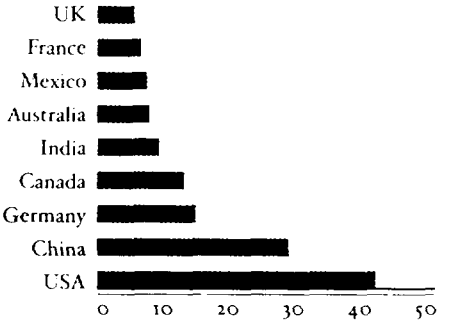
During the second half of 1999, Hersey's market territory will be expanded as part of a major reorganization of evaporated

U.S. Salt Usage
Million Tonnes



Source: U.S. Geological Survey

Major World Salt Producers
Million Tonnes



Source: U.S. Geological Survey

salt operations in the Midwest. The reorganization, scheduled to be completed by October, leverages synergies created by the Harris acquisition. It includes a capacity increase at Hersey of 100,000 short tons that will permit the facility to expand its market territory in the Great Lakes region. Customers in much of this geographic area have historically received product from IMC Salt's Kansas operations at higher costs, primarily due to distribution logistics.

The reorganization also includes discontinuing operations at the Hutchinson, KS mine and consolidating IMC's Kansas salt production at the Lyons facility, which will be expanded and modernized.

Rising costs and several years of unprofitable performance resulted in the closing of the business unit's Montreal operation. The salt warehousing and bagging facility was closed in mid-November.

Increased profitability will result from the more efficient marketing of IMC Salt's expanded product line. With the purchase of Harris, the Company acquired *Sifto*® brand retail salt, *American Stockman*® agricultural products, and *Guardian*® consumer and professional de-icers. These products are now jointly marketed with IMC's *Safe Step*® de-icers and *Nature's Own*® and *K-Life*® water softeners. Capitalizing on this product synergy has given the Company a much stronger position in the consumer retail and professional markets.

Salt Outlook: Worldwide salt demand is expected to continue growing at a 2% annual rate for the foreseeable future. Growth in North American demand could reach 3%, with salt applications for water conditioning increasing as much as 6%.

In the United Kingdom, the business unit's Salt Union Ltd. division is the largest supplier of rock salt for road de-icing and holds a leading position in the premium water conditioning market. IMC plans to grow the water conditioning business segment in 1999 and increase its profitability through the addition of new production equipment and market share expansion.

Other near-term goals include expanding the business unit's presence in higher value markets such as food applications, water conditioning, industrial and animal feed. Offshore, IMC Salt intends to establish positions in regions with favorable conditions for industry consolidation.

IMC Salt begins its first full year as a core business with numerous opportunities to increase its profitability and size. It is a business that can only grow stronger under the IMC Global umbrella.

Feed Ingredients

IMC-Agrico Feed Ingredients provides essential mineral nutrients for the efficient growth of livestock, poultry and companion animals. During 1998, customers in more than 30 countries purchased IMC's feed products to help meet the world's growing demand for animal protein.

Profile: Feed Ingredients is one of the largest producers of feed phosphates in a $1 billion global industry. With an annual capacity in excess of 700,000 short tons, the business unit provides products that are sources of phosphorus, calcium, potassium, magnesium, sulphur, sodium and chloride. Feed Ingredients sells eight brand-name products and feed-grade urea. Customers add the business unit's mineral supplements to grain and protein to form a complete feed.

1998 Headline: IMC-Agrico Feed Ingredients Announces Expansion of Feed Capacity.

Market Conditions: Market conditions were unusually difficult for the business unit during the year. The Asian economic crisis depressed demand for imported feed phosphates which directly impacted IMC. Hog industry demand also fell short of expectations as U.S. pork prices dropped to record lows, causing producers to lose money and reduce feed additive purchases. Demand from the poultry industry was equally disappointing as its widely expected expansion did not materialize due to disease and other problems.

On the positive side, Feed Ingredients was able to offset reduced Asian demand by increasing its sales volumes into Latin America. In addition, purchases by poultry and dairy producers were either maintained at year-earlier levels or increased. This was due to significantly lower feed grain prices which greatly improved producers' profitability.

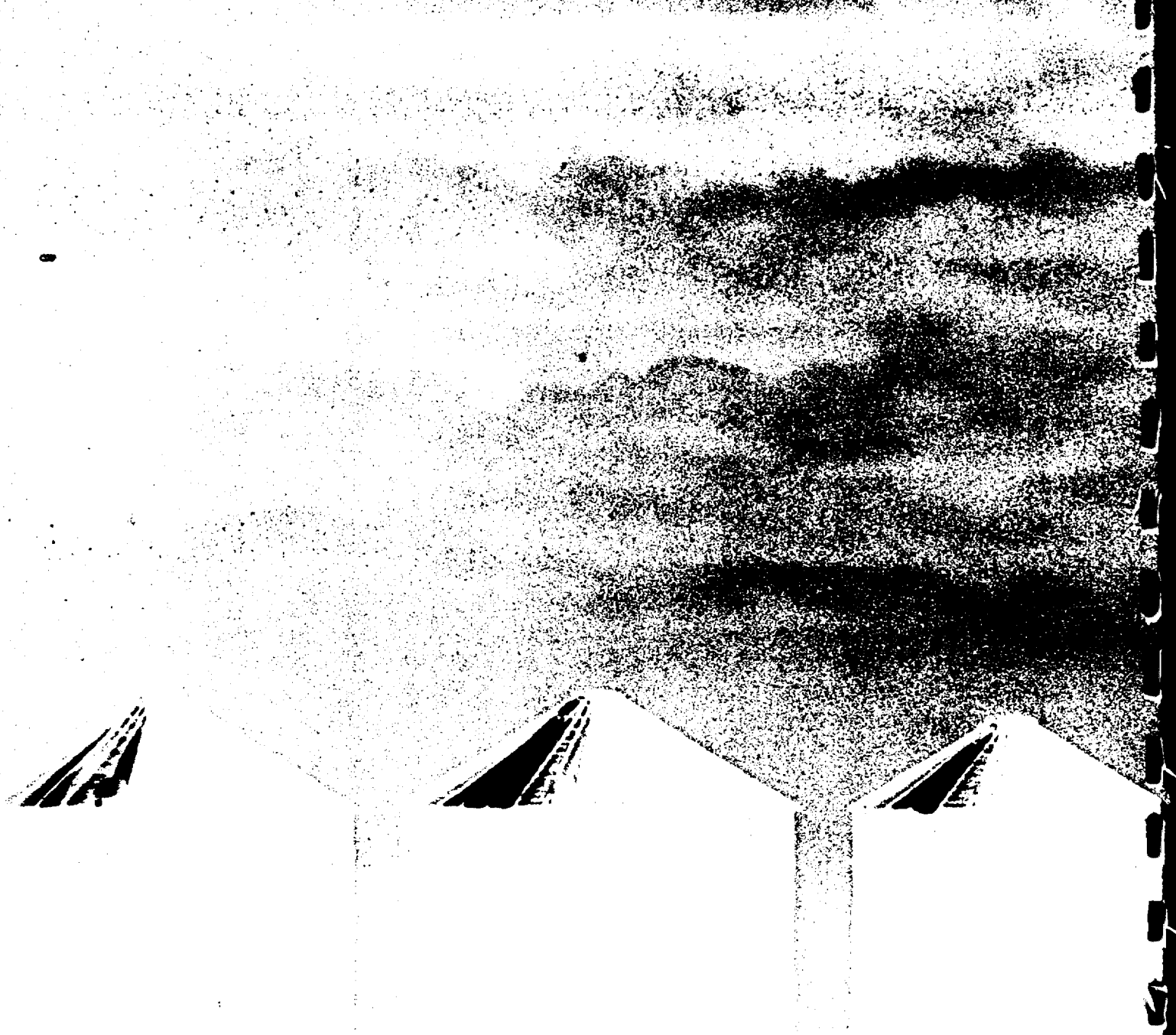
During 1998, Feed Ingredients announced plans to increase its annual capacity to approximately 770,000 short tons. The expansion, scheduled to be operational in late 1999, will help the business unit keep pace with growing demand for feed phosphates, particularly in developing countries. Worldwide demand for feed products is increasing at an estimated annual rate of 2% and is largely driven by growing meat consumption. This trend is expected to continue as global food demand is forecast to triple over the next 30 years.

Profit Improvement: Several initiatives were undertaken by Feed Ingredients to improve its current and future profitability. These included strategic purchasing alliances that are achieving raw material and transportation savings, positioning new distributors in several export markets, an increasing emphasis on export sales, expanding the sale of feed-grade urea, and developing a new system that allows customers and agents to enter orders directly with IMC. New product development continued with several potential products in the test market phase.

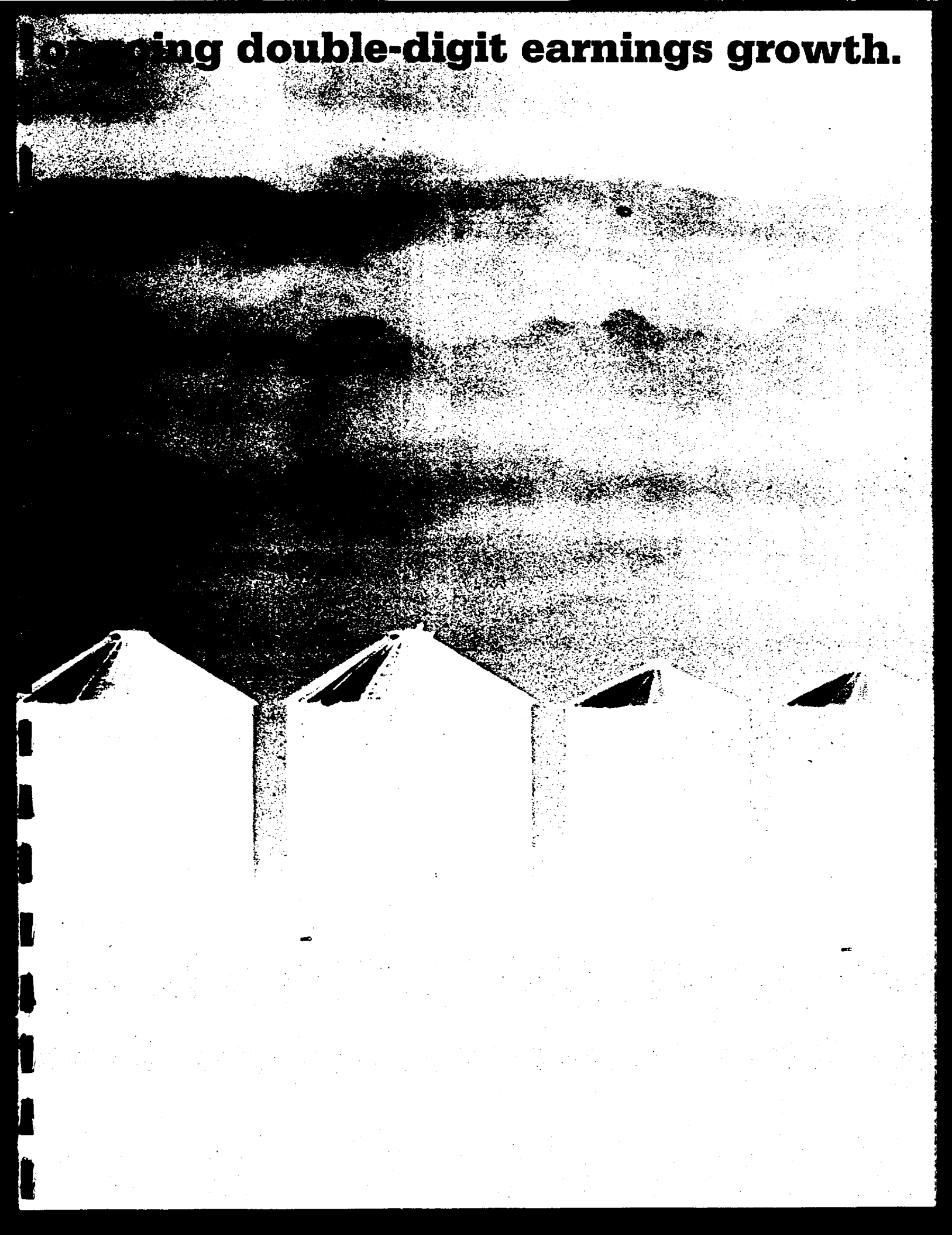
Feed Ingredients Outlook: Feed Ingredients' long-term outlook is highly positive, fueled by a growing world population and increasing consumption of animal protein like meat, milk and eggs. Near term, the obstacles the business unit confronted in 1998 are expected to be less severe. Demand from Asia is forecast to show signs of improvement and a modest expansion of the domestic poultry sector now appears likely. Hog producers, however, are projected to continue to suffer from low prices which will keep their feed additive purchases at historically low levels. Demand from customers in Latin America could decrease from 1998's high levels due to currency devaluation.

Feed Ingredients is confident about its future as well as its ability to meet today's challenges in North America and abroad.

IMC will settle for nothing less than



[illegible]ing double-digit earnings growth.



DOUGLAS A. PERTZ
President & Chief Operating Officer

AN INTERVIEW WITH THE PRESIDENT

On October 1, Douglas A. Pertz joined IMC Global as President and Chief Operating Officer. In the following interview, Doug discusses the Company's goals and objectives, and provides insight into his own management style and business priorities.

QUESTION: *When you made the decision to join IMC, you accepted major responsibilities at a Company that was undergoing sweeping changes. Please comment on what attracted you to both the Company and the senior management positions you now hold.*

PERTZ: The opportunity to join IMC was attractive because IMC is an industry-leading company with an outstanding global presence and fundamentally strong financials. It's true that IMC is going through a period of change and restructuring. To me, it's very exciting, challenging and rewarding to be a part of that process.

I also am impressed by the quality of the Company's businesses. We rank number one, worldwide, in phosphate and potash, and hold the number-three position in salt. We are an industry leader in animal feed. That's a very strong platform for growth, with enormous opportunities for increasing earnings and creating value for shareholders.

The mergers and acquisitions that have occurred over the past four years require pulling newly acquired businesses together and creating a common, high-performance culture that encourages employees to drive for excellence. It's a period during which you optimize the performance of your assets, drive down costs and establish very strong market positions. It's a process that involves all employees and results in essentially reinventing the Company. One of my major responsibilities is to ensure that IMC fully realizes its potential in all areas, and I love that type of challenge.

QUESTION: *As you mentioned, part of the process of successfully integrating businesses after a merger involves combining various corporate cultures. Can you be more specific regarding the high-performance culture you envision for IMC?*

PERTZ: Without question, developing a highly effective and productive corporate culture must receive the same measure of attention as our other objectives. At IMC, we're taking steps to ensure that happens. Our high-performance culture will value honesty, integrity and mutual respect. It will promote excellence in a team environment. Communication needs to be open and honest. We must create an atmosphere that challenges old ideas and encourages new ones. Individuals must be proactive in seeking solutions and in continually improving products and business practices. The driving principle of IMC's culture should be continuous improvement, and the environment should support every employee's willingness to make his or her maximum contribution to IMC's success.

QUESTION: *Industry leadership requires improvement in all areas, particularly at the Company's operations. How would you rate our improvement progress to date?*

PERTZ: I believe we are off to a strong start, but there is still much more to be done. At the end of 1998, we took a $114 million net restructuring charge that supports the reorganization of our phosphate business as well as limited charges for restructuring salt operations and right-sizing staff levels at our corporate headquarters.

We also created a Shared Services Group that combines common phosphate and potash functions, such as sales, customer service and distribution logistics. Shared Services will achieve additional savings through work force reductions in its functional areas and enable us to better serve customers.

Other steps taken to improve our profit performance include:

- Exited three underperforming product lines – uranium, urea and AGROTAIN;
- Planned for the consolidation or closure of several salt operations in the coming months;

- Eliminated five mining draglines and their associated costs at our phosphate operations;
- Reduced leased equipment, contract services, spare parts and rock inventories, and other excess operating assets at our phosphate business unit, and
- Secured strategic alliance purchasing agreements for major supplies and services.

As I said, this is just a beginning. We will be applying tighter cost controls across the entire Company and intend to dramatically improve our operational side, both in terms of quantum jumps and incremental continuous improvement. We are confident of achieving our target of $100 million in operating expense savings over 2 years at our phosphate operations alone.

QUESTION: *As IMC's new President and Chief Operating Officer, what near-term goals have you set for the Company and how would you prioritize them?*

PERTZ: I believe there are four goals we must achieve in the coming months. These include refocusing the Company on its core businesses, strengthening our balance sheet, dramatically improving both the performance of our operations and our cash flow, and achieving double-digit earnings growth.

Refocusing on our core businesses includes completing the divestitures of IMC Chemicals and IMC AgriBusiness. The proceeds from these sales will be used to pay down debt, thereby strengthening our balance sheet. We also must complete the integration of the phosphate, potash, salt and animal feed businesses. Having them work more closely will allow us to realize numerous synergies, reduce costs, optimize our return on assets and unlock opportunities for future growth.

In addition to reducing balance sheet debt, we must decrease our interest expense and restructure some of our remaining debt. I can't overemphasize the importance of a strong balance sheet as we move forward with plans to grow the Company.

At our operations, ongoing cost reduction and continuous improvement efforts will raise our profitability and increase free cash flow. That's where we want to be on a sustained basis – double-digit earnings growth and free cash flow that supports our growth initiatives.

QUESTION: *Looking at the larger, more long-term view that you have for IMC, what are the Company's objectives?*

PERTZ: Our objectives are very straightforward and achievable. We will be the low-cost producer in all of our businesses. IMC will establish a competitive advantage by regularly delivering world-class customer service. We intend to become truly global with additional operations outside of North America. We will settle for nothing less than double-digit earnings growth on a sustained basis with all of our businesses achieving returns above the cost of capital.

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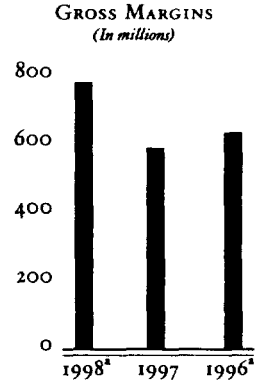
Five Year Comparison



*Before non-recurring charges.

*Before non-recurring charges.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Introduction

Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with the financial statements and the accompanying notes.

Through the restructuring of operations, acquisitions and divestitures, IMC Global Inc. (Company or IMC) has demonstrated its commitment to maintaining its position as one of the world's leading producers of crop nutrients and salt products, as well as maintaining its position as one of the largest producers and sellers of animal feed ingredients. Sales for 1998 increased 27 percent while earnings from continuing operations, before non-recurring charges, increased 26 percent over the prior year and generated $825.6 million of EBITDA*, a 78 percent increase over 1997. These cash earnings will allow the Company to make the investments necessary to continue to strengthen its prominent position in the highly competitive crop nutrient, salt and animal feed marketplaces. Management places significant emphasis on EBITDA as one of the key standards for measuring consolidated performance.

Although EBITDA is a leading indicator used by management, it is not a replacement of measurement standards defined by and required by generally accepted accounting principles, such as operating earnings and cash flow from operating activities.

The Company's current operational structure consists of six business units corresponding to its major product lines as follows: IMC-Agrico Phosphates (phosphates), IMC Kalium (potash), IMC Salt (salt), IMC-Agrico Feed Ingredients (animal feed), IMC AgriBusiness (wholesale and retail distribution), and IMC Chemicals (soda ash and other inorganic chemicals). As a result of the pending divestitures of IMC AgriBusiness (AgriBusiness) and IMC Chemicals (Chemicals), the future operational structure of the Company will be comprised of the following four business units: IMC-Agrico Phosphates (Phosphates), IMC Kalium (Kalium), IMC Salt (Salt) and IMC-Agrico Feed Ingredients (Feed Ingredients). All financial information for AgriBusiness has been stated as discontinued operations. See Note 4, "Discontinued Operations," of Notes to Consolidated Financial Statements.

*Earnings from continuing operations before non-recurring charges, minority interest, interest charges, taxes, depreciation and amortization, and after Phosphate Resource Partners Limited Partnership (PLP) distributions.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Results of Operations

Overview

1998 Compared to 1997 Net sales of $2,696.2 million in 1998 increased 27 percent from $2,116.0 million one year ago. Gross margins for 1998 were $761.5 million, an increase of 32 percent from comparable 1997 margins of $574.9 million, excluding 1998 non-recurring charges of $23.1 million, related to the sale of IMC Vigoro and a Company-wide profit improvement program, discussed in more detail below.

Earnings from continuing operations in 1998, before non-recurring charges of $172.0 million, or $1.50 per share, related to a Company-wide profit improvement program and the divestitures of the Chemicals and IMC Vigoro businesses, were $229.1 million, or $2.00 per share. The Company incurred a net loss in 1998 of $9.0 million, or $0.08 per share, including non-recurring charges of: (i) $114.2 million, or $1.00 per share, related to a Company-wide profit improvement program, discussed in more detail in "Merger and Restructuring Charges;" (ii) $69.1 million, or $0.61 per share, of losses from discontinued operations, including an estimated loss of $74.2 million, or $0.65 per share, on the divestiture of AgriBusiness; (iii) $48.7 million, or $0.42 per share, related to an estimated loss on the divestiture of the Chemicals business; (iv) $9.1 million, or $0.08 per share, related to the divestiture of the IMC Vigoro business, the Company's consumer lawn and garden and professional products businesses; and (v) $3.0 million, or $0.03 per share, of a net extraordinary gain related to early extinguishments of high-cost debt.

In 1997, earnings from continuing operations, excluding a write-down of the historical carrying value of the Company's interest in Main Pass 299 (Main Pass) of $112.2 million, or $1.19 per share, were $182.0 million, or $1.92 per share. Net earnings, including: (i) the Main Pass write-down; (ii) earnings from discontinued operations of $18.0 million, or $0.19 per share; and (iii) an extraordinary charge of $24.9 million, or $0.26 per share, related to the early extinguishment of high-cost debt, were $62.9 million, or $0.67 per share.

Sales and earnings for 1998 were driven by increased sales by Kalium and Phosphates which improved 13 percent and six percent, respectively. In addition, sales and earnings for 1998 included the operations of Salt and Chemicals which were established in conjunction with the acquisition of privately held Harris Chemical Group, Inc. and its Australian affiliate, Harris Chemical Australia Pty Ltd. & Its Controlled Entities (collectively, Harris) in April 1998 (Harris Acquisition). Sales for Salt and Chemicals in 1998 were $175.0 million and $311.8 million, respectively. In December 1998, a definitive agreement was signed to sell the Chemicals business unit. See Note 2, "Acquisitions" and Note 5, "Other Divestitures," of Notes to Consolidated Financial Statements.

1997 Compared to 1996 Net sales of $2,116.0 million in 1997 decreased one percent from $2,143.3 million in 1996. Gross margins in 1997 were $574.9 million, a decrease of seven percent from comparable 1996 margins of $617.1 million, excluding 1996 non-recurring charges of $20.8 million, related to the Company's merger (Vigoro Merger) with The Vigoro Corporation (Vigoro), discussed in more detail below.

Earnings from continuing operations in 1997, excluding the Main Pass write-down of $112.2 million, or $1.19 per share, were $182.0 million, or $1.92 per share. Net earnings, which included: (i) the Main Pass write-down; (ii) earnings from discontinued operations of $18.0 million, or $0.19 per share; and (iii) an extraordinary charge of $24.9 million, or $0.26 per share, related to the early extinguishment of high-cost debt, were $62.9 million, or $0.67 per share.

In 1996, earnings from continuing operations, excluding non-recurring charges related to the Vigoro Merger, as well as costs associated with, among other things, a corporate restructuring, other asset valuations and environmental issues of $59.9 million, or $0.62 per share, were $181.6 million, or $1.87 per share. Net earnings, which included: (i) the non-recurring charges referred to above; (ii) earnings from discontinued operations of $13.5 million, or $0.14 per share; and (iii) an extraordinary charge of $8.1 million, or $0.08 per share, were $127.1 million, or $1.31 per share.

Sales and earnings for 1997 were driven by record-level sales by Kalium offset by a decline in sales at Phosphates. Kalium's net sales increased 33 percent while Phosphates' net sales decreased 11 percent.

For more detail on all the charges discussed above, see Note 2, "Acquisitions" Note 3, "Non-Recurring Charges" Note 4, "Discontinued Operations" Note 5, "Other Divestitures" and Note 13, "Financing Arrangements," of Notes to Consolidated Financial Statements.

Management's Discussion and Analysis of Financial Condition and Results of Operations

IMC-Agrico Phosphates	Years ended December 31			% Increase (Decrease)	
(Dollars in millions)	1998	1997	1996	1998	1997
Net sales	$ 1,572.8	$ 1,484.8	$ 1,661.3	6	(11)
Gross margins	$ 375.6[c]	$ 298.7	$ 411.4[d]	26	(27)
As a percentage of net sales	24%	20%	25%		
Sales volumes (000 tons)[a]	7,313	7,105	7,382	3	(4)
Average DAP price per short ton[b]	$ 178	$ 176	$ 186	1	(5)

[a] *Sales volumes include tons sold captively and represent dry product tons, primarily DAP.*
[b] *FOB plant.*
[c] *Before non-recurring charges of $17.2 million.*
[d] *Before non-recurring charges of $6.9 million.*

1998 Compared to 1997 Phosphates' net sales of $1,572.8 million in 1998 increased six percent from $1,484.8 million in 1997. Increased shipments of concentrated phosphates contributed an additional $57.7 million to net sales. The majority of the volume growth came from increased domestic shipments of diammonium phosphate (DAP) and granular monoammonium phosphate (GMAP), which each increased 17 percent, partially offset by decreased granular triple superphosphate (GTSP) volumes of 13 percent. The increase in DAP and GMAP was primarily a result of a strong spring season, an increase in the number of supply contracts and spot sales to certain larger co-ops. The decrease in GTSP was primarily the result of the availability in the marketplace of aggressively priced imports. International sales volumes rose slightly compared to the prior year as increased shipments of GMAP and merchant acid were partially offset by decreased shipments of DAP. In addition, average sales realizations of concentrated phosphates, particularly DAP, favorably impacted net sales by $20.5 million. Net sales were also favorably impacted by $6.6 million due to higher domestic phosphate rock sales volumes.

Gross margins in 1998 of $375.6 million, excluding non-recurring charges of $17.2 million, climbed 26 percent from $298.7 million in 1997, primarily as a result of the increased volumes and prices discussed above as well as favorable raw material costs.

1997 Compared to 1996 Phosphates' net sales of $1,484.8 million in 1997 decreased 11 percent from $1,661.3 million in 1996. Decreased sales volumes of concentrated phosphates caused a decline in net sales of $45.0 million. The majority of the decline came from reduced domestic shipments of DAP and GTSP, which declined 17 and 11 percent, respectively, offset by increased GMAP volumes of 18 percent. The decline in DAP and GTSP volumes was primarily due to overall weakened demand and a focus on higher margin GMAP opportunities. International sales volumes were relatively flat in 1997 compared to 1996, as decreased shipments of DAP and GTSP were offset by increased shipments of GMAP. In addition, average sales realizations of concentrated phosphates, particularly DAP, unfavorably impacted net sales by $49.2 million. Net sales were also unfavorably impacted by $56.7 million due to lower phosphate rock sales volumes as a result of the Company's strategic decision to phase out third-party sales of phosphate rock. This action was taken to maximize relative values of rock and concentrated phosphates by utilizing high-quality reserves for internal upgrading.

Gross margins declined 27 percent in 1997 to $298.7 million from $411.4 million, excluding non-recurring charges of $6.9 million in 1996, primarily due to the lower volumes and prices discussed above. In addition, gross margins reflected the benefit of a change to market-based acid pricing to Feed Ingredients.

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IMC Kalium	Years ended December 31			% Increase (Decrease)	
(Dollars in millions)	1998	1997	1996	1998	1997
Net sales	$ 700.1	$ 617.4	$ 464.8	13	33
Gross margins	$ 283.1	$ 237.7	$ 159.8[c]	19	49
As a percentage of net sales	40%	39%	34%		
Sales volumes (000 tons)[a]	8,485	8,941	7,290	(5)	23
Average potash price per short ton[b]	$ 81	$ 70	$ 64	16	9

[a] *Sales volumes include tons sold captively.*
[b] *FOB plant/mine.*
[c] *Before non-recurring charges of $7.9 million.*

1998 Compared to 1997 Kalium's net sales increased 13 percent to $700.1 million in 1998 from $617.4 million in 1997. This increase resulted from acquisitions made by the Company as well as price increases during the year, partially offset by decreased volumes. Sales for 1998 included a full year of operating results for Western Ag-Minerals (Western Ag), which was acquired in September 1997. The Company also acquired a salt evaporation facility located in Ogden, Utah as part of the Harris Acquisition in April 1998. The incremental sales in 1998 from these two acquisitions contributed $80.0 million. Average sales realizations increased 16 percent as a result of price increases effective in March and September 1998. Sales volumes decreased by five percent as a result of a decrease in domestic sales volumes of nine percent partially offset by an increase in international volumes of five percent. Domestic sales volumes declined as a result of low demand for agricultural products due to an excellent harvest coupled with low commodity prices, while the increase in international sales volumes was attributable to greater potash exports to Brazil and China. The increase in average sales realizations, partially offset by decreased volumes, favorably impacted net sales by $3.0 million.

Gross margins of $283.1 million in 1998 increased 19 percent compared with $237.7 million in 1997, primarily as a result of the acquisitions and price increases discussed above.

1997 Compared to 1996 Kalium's net sales increased 33 percent to $617.4 million in 1997 from $464.8 million in 1996 as a result of higher volumes and prices. Domestic volumes grew 22 percent, or $67.4 million, primarily due to additional corn acreage planted in 1997, favorable weather conditions and anticipated corn price increases. Internationally, increased volumes favorably impacted net sales by $38.2 million primarily as the result of higher demand from China. Average sales realizations increased nine percent, or $41.6 million, as a result of a series of price increases during the year. In addition, the inclusion of salt sales in 1997 favorably impacted net sales by $5.4 million.

Gross margins of $237.7 million in 1997 increased 49 percent compared with 1996 margins of $159.8 million, excluding 1996 non-recurring charges of $7.9 million, primarily as a result of the volume and price increases discussed above.

IMC Salt

The Salt business unit was established in April 1998 concurrent with the Harris Acquisition; consequently, operating results for the year ended December 31, 1998 included only partial year activity. The Harris Acquisition established the Company as one of the leaders in the salt industry. See Note 2, "Acquisitions," of Notes to Consolidated Financial Statements.

Salt's net sales for 1998 were $175.0 million with gross margins of $57.0 million. These results were lower than comparable pre-acquisition amounts in 1997 of $182.8 million and $66.6 million, respectively, primarily due to mild weather conditions.

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Other

1998 Compared to 1997 The Company's net sales and gross margins in 1998 included results from the Chemicals, Feed Ingredients and IMC Vigoro business units. Chemicals, with 1998 sales and margins of $311.8 million and $40.8 million, respectively, was established concurrent with the Harris Acquisition in April 1998; consequently, operating results for the year ended December 31, 1998 included only partial year activity. In December 1998, a definitive agreement was signed to sell the Chemicals business unit with the Company retaining an ongoing minority economic interest. Additionally, sales for Feed Ingredients remained relatively flat and margins decreased slightly as a result of a change in the price of purchased acid from Phosphates in mid-1997. The divestiture of IMC Vigoro in June 1998 partially offset the increases in net sales and gross margins discussed above. See Note 2, "Acquisitions" and Note 5, "Other Divestitures," of Notes to Consolidated Financial Statements.

1997 Compared to 1996 Net sales for 1997 included the Feed Ingredients and IMC Vigoro businesses and remained relatively unchanged from 1996 levels.

Gross margins in 1997 were negatively impacted by increased costs at Feed Ingredients as a result of a price change in mid-1997 of acid purchased from Phosphates coupled with inventory write-offs at IMC Vigoro.

Selling, General and Administrative Expenses	*Years ended December 31*			*% Increase (Decrease)*	
(In millions)	1998	1997	1996	1998	1997
Selling, general and administrative expenses	$ 159.6[a]	$ 131.8	$ 132.4[b]	21	-

[a] *Before non-recurring charges of $9.9 million.*
[b] *Before non-recurring charges of $0.2 million.*

Selling, General and Administrative Expenses

1998 Compared to 1997 The increase in selling, general and administrative expenses for 1998 as compared to 1997 primarily resulted from the Harris Acquisition in April 1998, partially offset by an overall reduction in general corporate spending and the divestiture of IMC Vigoro in June 1998. See Note 2, "Acquisitions" and Note 5, "Other Divestitures," of Notes to Consolidated Financial Statements.

1997 Compared to 1996 Selling, general and administrative expenses for 1997 remained consistent with 1996.

Merger and Restructuring Charges

During the fourth quarter of 1998, the Company developed and began execution of a plan to improve profitability (Restructuring Plan or Project Profit). The Restructuring Plan was comprised of four major initiatives: (i) the combination of the potash and phosphates business units in an effort to realize certain operating and staff function synergies; (ii) restructuring of the phosphate rock mining, concentrated phosphate and salt production/distribution operations and processes in an effort to reduce costs; (iii) simplification of the current business activities by eliminating businesses not deemed part of the Company's core competencies; and (iv) reduction of operational and corporate headcount. In conjunction with the Restructuring Plan, the Company recorded pre-tax charges totaling $193.3 million ($162.0 million net of minority interest) in the fourth quarter of 1998.

As a result of the specific plans described below, the Company expects to increase operating earnings in excess of an estimated $100.0 million over the next two years, with approximately half of that amount expected to be realized in 1999. The increase in earnings is anticipated to result from simplification of the business, shut-down of high-cost operations, exit from low-margin businesses and headcount reductions. The Restructuring Plan (shown below in tabular format) primarily relates to the following:

Asset Impairments The Restructuring Plan included the removal of property, plant and equipment, as well as the write-down to fair value of those assets made obsolete due to the decision to close certain facilities and forego or abandon certain mineral properties. In order to determine the write-down of assets affected by the Restructuring Plan, and in

Management's Discussion and Analysis of Financial Condition and Results of Operations

accordance with Statement of Financial Accounting Standard (SFAS) No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of," the Company performed an assessment of future cash flows and, accordingly, adjusted the assets to their appropriate fair values.

The majority of the impairment occurred at Phosphates' Florida production facilities where property, plant and equipment was written down by approximately $64.4 million to fair value. Phosphates developed a new strategic mine plan (Mine Plan) which identified asset reductions, lower operating costs and optimal phosphate rock management as key drivers in the restructuring of operations. The write-down of impaired assets in connection with the Mine Plan primarily consisted of facilities, production equipment, operating supplies, land and mineral reserves.

Salt recorded an $11.2 million write-down of property, plant and equipment at its Kansas and Canadian locations, as a result of the decision to consolidate certain facilities and achieve operating efficiencies. The majority of the write-down related to production equipment. The remaining $0.4 million of asset impairments was recorded at Feed Ingredients for the permanent closure of a limestone rock production facility.

The $76.0 million in asset impairment charges included $31.8 million pertaining to assets which will continue to be utilized until their respective disposal dates, primarily within the first nine months of 1999. The estimated fair value of these assets, which will be depreciated over their respective remaining periods of service, reflected estimated operating net cash flows until disposition.

Non-employee exit costs In accordance with the objective of the Mine Plan, to optimize phosphate rock management, Phosphates decided to permanently close a high-cost phosphate rock mine. As a result of this decision, the Company recorded a charge of $18.4 million for the demolition and other incremental costs of closure of the mine. The closure costs included approximately $15.5 million for incremental environmental land reclamation of the surrounding mined-out areas. The Company expects the demolition and closure activities to be essentially completed by the end of the third quarter of 1999.

The Company also decided to close certain production operations in connection with the Restructuring Plan, principally the uranium and urea operations of Phosphates. This decision was based on an analysis of the future outlook for these products, taking into consideration whether the operations were part of the Company's core businesses. These operations were determined to be non-core businesses and the Company recorded charges of approximately $12.8 million for demolition and closure, including environmental costs, of the uranium and urea production facilities. Additionally, environmental and closure costs of $2.4 million have been recognized for the planned closure of one of the Company's evaporated salt production facilities. The Company expects the demolition and closure activities to be completed by late-1999. Other various exit costs totaled $7.3 million.

In connection with the Restructuring Plan, the Company decided to discontinue its transportation of ammonia from Louisiana to its phosphate operations in Florida. This decision was based on current market conditions which secured the availability of ammonia to the Company and which made the high-cost transportation of ammonia from Louisiana to Florida unnecessary. As a result, the Company recorded a charge of $13.2 million for the net present value of costs associated with permanently idling leased equipment used in the transportation of ammonia from Louisiana.

Employee headcount reductions As part of the Restructuring Plan, headcount reductions were implemented at the Phosphates, Feed Ingredients, Salt and Kalium operations, as well as at the Company's corporate headquarters. Certain of these reductions were a result of the closing and/or exiting of production operations, as discussed above. To facilitate headcount reductions, the Company offered a voluntary retirement program for eligible employees. In addition, certain involuntary eliminations of positions, which were communicated prior to December 31, 1998, were necessary in order to achieve desired staffing levels. A total of 185 employees accepted the voluntary retirement plan by December 31, 1998, with 112 of those employees having left the Company as of that date. The remaining voluntarily terminated employees will leave the Company by June 1999. Additionally, a total of 454 employees

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were involuntarily terminated and had left the Company by the end of February 1999. Virtually all severance payments were disbursed subsequent to December 31, 1998.

As a result of the employee terminations necessitated by the Restructuring Plan, settlement, curtailment and special termination charges of $19.7 million were recorded in accordance with SFAS No. 88, "Employers' Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits." The related liabilities have been classified in Other noncurrent liabilities in the Company's Consolidated Balance Sheet. See Note 15, "Pension Plans and Other Benefits," of Notes to Consolidated Financial Statements.

Inventories and spare parts of exited businesses Phosphates recorded charges of approximately $17.2 million to reduce the carrying value of finished goods inventories on-hand to net realizable value at December 31, 1998, as a result of the decision to exit certain businesses.

The Restructuring Plan included a major reduction in production assets primarily used in the Phosphates business. The reduction was accomplished through the permanent shut-down of select mining facilities as well as a cut-back in concentrate facilities. Given the reduction in facilities and the resulting decrease in production, historical levels of spare parts inventory that had been maintained by the Company were no longer necessary or warranted. Therefore, the Company recorded a charge of $8.7 million for the write-off of spare parts inventory.

Details of the restructuring charges were as follows:

(In millions)	Restructuring Charges	*Activity* Cash Paid	Non-cash	Remaining Accrual
Asset impairments:				
Facilities closed prior to December 31, 1998	$ 44.2	$ -	$ 44.2	$ -
Facilities to be closed in 1999	31.8	-	31.8	-
Non-Employee exit costs:				
Demolition and closure costs	33.6	-	-	33.6
Idled leased transportation equipment	13.2	-	-	13.2
Other	7.3	0.5	1.5	5.3
Employee headcount reductions:				
Severance benefits	17.6	0.2	-	17.4
Settlement, curtailment and special termination benefits	19.7	-	19.7	-
Inventories and spare parts of exited businesses:				
Finished goods inventories	17.2	-	17.2	-
Spare parts inventories	8.7	-	8.7	-
Total	*$ 193.3*	*$ 0.7*	*$ 123.1*	*$ 69.5*

All restructuring charges have been recorded as a separate line item on the Consolidated Statement of Operations, except for the finished goods inventory write-down which was recorded in Cost of goods sold.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Other (income) Expense, Net	Years ended December 31,			% Increase (Decrease)	
(In millions)	1998	1997	1996	1998	1997
Other (income) expense, net	$ (3.9)[a]	$ (5.4)	$(22.5)[b]	(28)	(76)

[a] *Before a non-recurring loss on sale of Chemicals of $44.1 million.*
[b] *Before non-recurring charges of $16.6 million.*

1998 Compared to 1997 The decrease in other income in 1998 as compared to 1997 resulted from increased debt fee amortization as a result of the issuance and refinancing of certain debt in conjunction with the Harris Acquisition. See Note 13, "Financing Arrangements," of Notes to Consolidated Financial Statements.

1997 Compared to 1996 Results for 1996 included gains on the sale of properties of $11.6 million and higher interest income realized from short-term investments as compared to 1997.

Interest Expense	Years ended December 31,			% Increase (Decrease)	
(In millions)	1998	1997	1996	1998	1997
Interest expense	$ 176.0	$ 40.2	$ 43.6	n/m	(8)

n/m not meaningful.

1998 Compared to 1997 The increase in interest expense in 1998 compared with 1997 was attributable to debt assumed as part of the Harris Acquisition and the issuance of additional debt necessary to fund the purchase. For additional detail, see "Capital Resources and Liquidity" as well as Note 2, "Acquisitions" and Note 13, "Financing Arrangements," of Notes to Consolidated Financial Statements.

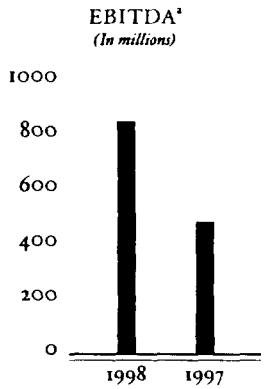
1997 Compared to 1996 Interest expense for 1997 remained consistent with 1996.

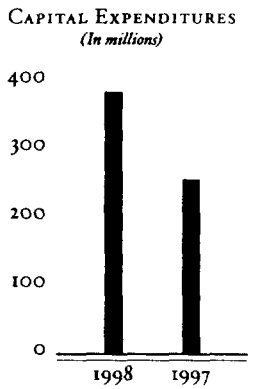
Minority Interest	Years ended December 31,			% Increase (Decrease)	
(In millions)	1998	1997	1996	1998	1997
Minority interest	$ 14.1	$ 124.4	$ 185.7	(89)	(33)

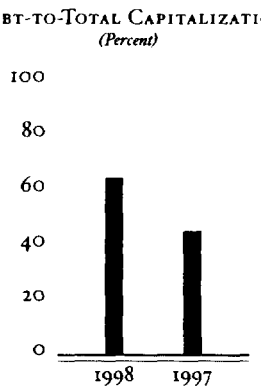
1998 Compared to 1997 The decrease in minority interest compared with 1997 was primarily the result of the merger between Freeport-McMoRan Inc. (FTX) and the Company (FTX Merger). See Note 2, "Acquisitions" and Note 6, "Minority Interest," of Notes to Consolidated Financial Statements.

1997 Compared to 1996 The decrease in minority interest compared with 1996 was primarily attributable to a reduction in IMC-Agrico Company (IMC-Agrico) earnings in 1997.

Management's Discussion and Analysis of Financial Condition and Results of Operations







[a]*Earnings from continuing operations before non-recurring charges, minority interest, interest charges, taxes, depreciation and amortization, and after PLP distributions.*

Capital Resources and Liquidity

The Company generates significant cash from operations and has sufficient borrowing capacity to meet its operating and discretionary spending requirements.

Operating activities generated $269.1 million of cash in 1998 compared with $563.4 million in 1997. The decrease of $294.3 million was primarily due to an increase in working capital. The Company's working capital ratio, excluding short-term debt and current maturities and assets of discontinued operations held for sale, was 2.4:1 as of December 31, 1998 compared with 2.2:1 as of December 31, 1997. The change in working capital was the result of a build-up of inventories and the payment of previously settled litigation matters.

Net cash used in investing activities increased $383.1 million over 1997 primarily due to acquisitions and increased capital expenditures, partially offset by $44.8 million of proceeds from the sale of IMC Vigoro. The Company invested $393.3 million of cash to fund the Harris Acquisition in April 1998, which established the Company as a leading salt producer. See Note 2, "Acquisitions" and Note 5, "Other Divestitures," of Notes to Consolidated Financial Statements.

In 1998, the Company expended $367.6 million on mine expansion and development; oil and gas exploration and development; and system development and production equipment upgrades while in 1997 expenditures of $244.0 million related to mine expansion and development as well as production equipment upgrades. The increase of $123.6 million over 1997 was primarily due to the following: (i) PLP's share of McMoRan Exploration Co. (MMR), formerly McMoRan Oil & Gas Co. (MOXY), exploration and development costs of $44.4 million (see discussion below); (ii) enterprise-wide systems development expenditures of $28.2 million; and (iii) expenditures for Salt and Chemicals of $28.1 million and $17.6 million, respectively. The Company estimates that its capital expenditures for 1999 will approximate $230.0 million and will be financed primarily from operations.

In conjunction with the FTX Merger, the Company, through its interest in PLP, participates in an aggregate $210.0 million, multi-year oil and natural gas exploration program with MMR (Exploration Program). In accordance with the Exploration Program, PLP, MMR and an individual investor (Investor) fund 56.4 percent, 37.6 percent and 6.0 percent, respectively, of the exploration costs. As of December 31, 1998, PLP's total exploration spending-to-date was approximately $70.0 million. All revenue and other costs are allocated 47.0 percent to PLP, 48.0 percent to MMR and 5.0 percent to the Investor.

Cash generated from financing activities increased $631.9 million in 1998 from a use of funds of $190.4 million in 1997 to a source of funds of $441.5 million in 1998. This increase in financing funds was primarily due to higher net debt proceeds in 1998 of $315.6 million, decreased stock repurchases of $184.4 million and decreased cash distributions to PLP of $135.4 million as a result of the Company's increased ownership in IMC-Agrico due to the FTX Merger. During 1998, total

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borrowings increased to approximately $3.0 billion primarily due to the assumption and issuance of approximately $1.5 billion in debt related to the Harris Acquisition. As part of a general debt restructuring subsequent to the Harris Acquisition, the Company issued approximately $1.1 billion in long-term notes and debentures with effective interest rates ranging from 6.50 percent to 7.625 percent with maturities from 2001 through 2018. The debt restructuring reduced the Company's short-term borrowings, primarily commercial paper, and retired the higher rate debt assumed as part of the Harris Acquisition. Additionally, the Company will use anticipated proceeds from the pending divestitures of AgriBusiness and Chemicals to pay down existing debt.

As of December 31, 1998, the Company had the ability to borrow under a shelf registration statement which permitted the issuance of approximately $750.0 million of securities. As of December 31, 1998, the Company also had $977.6 million of commercial paper outstanding supported by $1.5 billion of bank facilities. See Note 13, "Financing Arrangements," of Notes to Consolidated Financial Statements.

The Company may acquire shares of its stock on an ongoing basis and is authorized as of December 31, 1998 to purchase up to an additional 4.5 million shares. Management considers market conditions, alternate uses of cash and shareholder returns, among other factors, when evaluating the timing of share repurchases.

The Company's financial condition remains strong. The Company believes that its cash, other liquid assets, operating cash flows and access to capital markets, taken together, provide adequate resources to fund ongoing operating requirements and future capital expenditures related to the expansion of and investment in existing businesses and development of new projects.

Market Risk

The Company is exposed to the impact of interest rate changes, fluctuations in the functional currency of foreign operations, and the impact of fluctuations in the purchase price of natural gas consumed in operations, as well as changes in the market value of its financial instruments. The Company periodically enters into derivatives in order to minimize these risks, but not for trading purposes. The functional currency of all operations outside the United States is the respective local currency. Foreign currency translation effects are included in Accumulated other comprehensive income in stockholders' equity. The Company uses foreign currency forward exchange contracts, which typically expire within one year, to hedge transaction exposure related to United States dollar-denominated assets and liabilities. Realized gains and losses on these contracts are recognized in the same period as the hedged transaction. The Company had foreign currency forward exchange contracts outstanding as of December 31, 1998 and 1997 with notional amounts of $106.2 million and $183.8 million, respectively, which approximated fair value.

The Company conducted sensitivity analyses of its derivatives and other financial instruments assuming the following: (i) a one percentage point adverse change in interest rates; (ii) a ten percent adverse change in foreign currency exchange rates; and (iii) a ten percent adverse change in the purchase price of natural gas, all from their levels at December 31, 1998. Holding all other variables constant, the hypothetical adverse changes would not materially affect the Company's financial position. These analyses did not consider the effects of the reduced level of economic activity that could exist in such an environment and certain other factors.

Further, in the event of a change of such magnitude, management would likely take actions to further mitigate its exposure to possible changes. However, due to the uncertainty of the specific actions that would be taken and their possible effects, the sensitivity analyses assume no changes in the Company's financial structure.

Contingencies

Reference is made to Note 20, "Contingencies," of Notes to Consolidated Financial Statements.

Environmental, Health and Safety Matters

The Company's Program

The Company has adopted the following Environmental, Health and Safety (EHS) Policy (Policy):

As a key to the Company's success, the Company is committed to the pursuit of excellence in health and safety, and environmental

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stewardship. Every employee will strive to continuously improve the Company's performance and to minimize adverse environmental, health and safety impacts. The Company will proactively comply with all environmental, health and safety laws and regulations.

This Policy is the cornerstone of the Company's comprehensive EHS plan (EHS Plan) to achieve sustainable, predictable, measurable and verifiable EHS performance. Integral elements of the EHS Plan include: (i) improving the Company's EHS procedures and protocols; (ii) upgrading its related facilities and staff; (iii) performing baseline and verification audits; (iv) formulating improvement plans; and (v) assuring management accountability. The Company has adopted a three-year phased approach to initial implementation of this EHS Plan. Each of the Company's business units is in a different stage of EHS integration, with the recently acquired operations just beginning the process. In the fourth year of the EHS Plan and beyond, the Company will conduct verification audits to confirm that the business units have implemented the program and have achieved regulatory compliance, continuous improvement and integration of EHS management into day-to-day business functions. The Company's goal is to implement a harmonized EHS system that supports the Company's position as a proactive, effective and efficient corporate citizen.

Through the EHS Plan, the Company endeavors to ensure that it satisfies its obligations. As a producer and distributor of crop nutrients and salt, the Company is subject to a myriad of international, federal, state, provincial and local EHS laws in the United States, Canada and Europe. These ever-evolving standards regulate, or propose to regulate: (i) the content and use of products; (ii) the conduct of mining and production operations including employee safety procedures; (iii) the management and handling of raw materials; (iv) air and water quality; (v) disposal of hazardous and solid wastes; and (vi) post-mining land reclamation. For new regulatory programs, it is difficult to ascertain future compliance obligations or estimate future costs until implementing regulations have been finalized and definitive regulatory interpretations have been adopted. The Company believes that the EHS Plan will respond to these regulatory requirements while minimizing EHS risk and associated costs. Nevertheless, there can be no assurance that unexpected or additional costs, penalties, or liabilities will not be incurred.

The Company has expended, and anticipates that it will continue to expend, substantial resources, both financial and managerial, to comply with EHS standards. In 1999, environmental capital expenditures will total approximately $55.0 million, primarily related to: (i) installation of a new mine shaft at Cote Blanche, Louisiana; (ii) construction of wastewater treatment areas in Florida; (iii) modification and construction projects associated with phosphogypsum stacks at the concentrates plants in Florida and in Louisiana; and (iv) remediation of contamination at current or former operations. Additional expenditures for land reclamation activities will total approximately $19.0 million. In 2000, the Company expects environmental capital expenditures will be approximately $49.0 million and expenditures for land reclamation activities to be approximately $20.0 million. Based on current information, it is the opinion of management that the Company's contingent liability arising from EHS matters, taking into account established reserves, will not have a material adverse effect on the Company's financial position or results of operations. However, no assurance can be given that greater-than-anticipated EHS expenditures will not be required in 1999 or in the future.

Product Requirements and Impacts

The Company's primary businesses include the production and sale of crop nutrients and salt. International, federal, state and provincial standards: (i) require registration of all crop nutrient products and certain salt products before those products can be sold; (ii) impose labeling requirements on those products; and (iii) require producers to manufacture the products to formulations set forth on the labels. Various environmental, natural resource and public health agencies at all regulatory levels have begun evaluating alleged environmental impacts that might arise from the handling and use of products such as those manufactured by the Company. Most of these evaluations are in the initial stages. Some agencies have implemented or are considering standards that may restrict customers' use of the Company's products because of the

alleged impacts; however, it is unclear whether the evaluations will result in additional regulatory requirements for the industry, including the Company. At this preliminary stage, the Company cannot estimate the potential impact of these standards on the market for the Company's products or on the expenditures that may be necessary to meet new requirements.

Operating Requirements and Impacts

PERMITTING The Company holds numerous environmental and other permits authorizing operations at each of its facilities. A decision by a government agency to deny an application for a new or renewed permit, or to revoke or substantially modify an existing permit, could have a material adverse effect on the Company's ability to continue operations at the affected facility. Expansion of Company operations also is predicated upon securing the necessary environmental or other permits. The United States Environmental Protection Agency has recently proposed guidance that would allow organizations or communities to challenge federally authorized permits on the basis that those permits would have a disproportionate impact on minority or low-income communities. This guidance could impact the ability of the Company's operations to obtain timely permits, particularly in Louisiana.

In addition, over the next two to six years, Phosphates will be continuing its efforts to obtain permits in support of its anticipated Florida mining operations at the Ona and Pine Level properties. These properties contain in excess of 100 million tons of phosphate rock reserves. For years, the Company has successfully permitted mining properties in Florida and anticipates that it will be able to permit these properties. Nevertheless, a denial of these permits or the issuance of permits with cost-prohibitive conditions would adversely impact the Company by preventing it from mining at Ona or Pine Level.

MINING OPERATIONS A significant number of EHS standards govern the Company's phosphate, potash and salt mining activities and the Company is in substantial compliance with these standards. In October 1997, however, Phosphates received three notices from the United States Army Corps of Engineers (Corps) alleging that the Company had violated the permits authorizing phosphate mining in certain wetland areas. After an internal audit of its Corps permits, the Company notified the Corps that the Company had inadvertently disturbed, without permits, additional wetlands over which the Corps had asserted jurisdiction. The Company has had discussions with the Corps to resolve these issues. A settlement agreement is pending and the Company does not expect that the settlement will have a material adverse effect on the Company's financial condition or operations.

Several regulatory agencies have begun to review potential health impacts of diesel emissions in mining operations. The Province of Ontario has adopted and the Mine Safety and Health Administration has proposed limits of exposure to diesel emissions for all underground mining operations including salt and potash. Moreover, in 1998, the National Institute for Occupational Safety and Health (NIOSH) conducted a study to determine whether exposure to exhaust generated by diesel equipment used in underground mining operations results in health effects. This study involved a review of Kalium's two potash mines in Carlsbad, New Mexico. The Company cannot estimate the extent of expenditures that may be necessary to address conclusions of the NIOSH study or additional regulatory standards that may arise.

MANAGEMENT OF RESIDUAL MATERIALS Potash, salt and phosphate mining and processing generate residual materials that must be managed. Potash tailings, which contain primarily salt, iron and clay, are stored in surface disposal sites. Salt residuals are managed in piles. Phosphate mining residuals such as overburden and sand tailings are used in reclamation, while clay residuals are deposited in clay ponds. Phosphate processing produces phosphogypsum which is stored in phosphogypsum stack systems. The Company has incurred and will continue to incur significant costs to manage its potash, salt and phosphate residual materials in accordance with environmental laws, regulations and permit requirements.

For potash and salt residuals in Saskatchewan, the Department of Environmental and Resource Management (Department) published regulations in 1994 requiring all mine operators to obtain approval of facility decommissioning and reclamation plans that would cover all mine facilities, including

salt piles and potash tailings management areas. As part of these plans, the Department will require operators to provide financial assurance that the plans will be carried out, although the financial assurance mechanism has not been specified.

Along with other members of the potash industry, the Company filed decommissioning plans for its three Saskatchewan potash mines in 1997. The Department rejected all industry plans that did not provide for the underground disposal of surface tailings. The potash industry is cooperating with the Department to evaluate technically feasible disposal alternatives besides underground disposal. Although costs for decommissioning are likely to be significant, the Company does not anticipate expending such funds in the foreseeable future because implementation of the decommissioning plans is deferred until an agreement is reached with the Department over the appropriate technical approach. Like all members of the potash industry, the Company is unable to predict with certainty the financial impact of these regulations on the Company due to the anticipated life of each mine, potential advances in tailings management technology and changes from time to time in rules and regulations.

The Company's Saskatchewan salt mine also submitted its decommissioning plan in 1997. The plan was conditionally approved because it provided for dissolution and reinjection of the facility's residual salt pile. The dissolution process has begun; however, the Department still has not specified the type of financial assurance that it will require from the salt mine facility.

With regard to phosphate processing, Florida law may require Phosphates to close one or more of its unlined phosphogypsum stacks and/or associated cooling ponds after March 25, 2001 if the stack system or pond is demonstrated to cause an exceedance of Florida's groundwater quality standards. Phosphates has already begun closure activities at its unlined gypsum stack at its New Wales facility in central Florida. Phosphates cannot predict at this time whether Florida law will require closure of any of its other stack systems. The costs of such closure could be significant. In addition, Phosphates currently operates an unlined cooling pond at New Wales. Monitoring indicates that discharges from the unlined cooling pond are within Florida groundwater standards. As a result, Phosphates is seeking a permit to continue operating this pond. The Company anticipates that the permit will be granted during the second quarter of 1999. However, if Phosphates does not receive the permit, it will need to line or relocate the cooling pond, which is estimated to cost approximately $50.0 million.

On-Site Remedial Activities

Many of the Company's currently, and formerly, owned facilities have been in operation for a number of years. The historical use and handling of regulated chemical substances, crop nutrient products and salt at these facilities by the Company and predecessor operators has resulted in soil and groundwater contamination. In addition, through the FTX Merger, the Company has assumed responsibility for contamination at some crop nutrient or oil and gas facilities that were operated by FTX, PLP or their predecessors.

Spills or other unintended releases of regulated substances have occurred previously at these facilities, and potentially could occur in the future, possibly requiring the Company to undertake or fund cleanup efforts. At some locations, the Company has agreed, pursuant to consent orders with the appropriate governmental agencies, to undertake certain investigations, which currently are in progress, to determine whether remedial action may be required to address contamination.

Material expenditures could be required by the Company in the future to remediate the contamination at these current or former sites. It is the Company's policy to accrue environmental investigatory and non-capital remediation costs for identified sites when litigation has commenced or a claim or assessment has been asserted or is probable and the likelihood of an unfavorable outcome is probable. The Company cannot determine the cost of any remedial action that ultimately may be required at unknown sites, sites currently under investigation, sites for which investigations have not been performed, or sites at which unanticipated conditions are discovered.

The Company believes that, pursuant to several indemnification agreements, it is entitled to at least partial, and in many instances complete, indemnification for a portion of the costs that may be expended by the Company to remedy

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environmental issues at certain facilities. These agreements address issues that resulted from activities occurring prior to the Company's acquisition of facilities or businesses from parties including PPG Industries, Inc.; Kaiser Aluminum & Chemical Corporation; Beatrice Companies, Inc.; Estech, Inc.; ARCO; Conoco; the Williams Companies; Kerr-McGee Inc.; and certain other private parties. The Company has already received and anticipates receiving amounts pursuant to the indemnification agreements for certain of its expenses incurred to date as well as future anticipated expenditures.

Off-Site Remedial Activities

In addition to impacting the sites at which the Company has operated, several parties have alleged that the Company's historic operations have resulted in contamination to neighboring off-site areas.

In Louisiana, three lawsuits filed in 1998 contend that former oil and gas operations of FTX, its subsidiaries and other defendants resulted in damage to marshland: Terrebone Parish School Board v. Texaco Inc.; Estate of Simoneaux v. Southern Natural Gas Co.; and Michael X. St. Martin v. Quintana Petroleum Corp. These suits seek unspecified damages for restoration of the marshes to their "pre-leased," "pre-operational," or "natural" conditions. Because the suits are in the early stages, it is difficult to determine the magnitude of exposure to the Company; however, the Company intends to vigorously contest these actions.

Superfund

The Comprehensive Environmental Response Compensation and Liability Act (Superfund) imposes liability, without regard to fault or to the legality of a party's conduct, on certain categories of persons that are considered to have contributed to the release of "hazardous substances" into the environment. Currently, the Company is involved or concluding involvement at less than 20 Superfund sites. The Company's liability at these sites, either alone or in the aggregate, is not currently expected to be material. As more information is obtained regarding these sites and the potentially responsible parties involved, this expectation could change.

Year 2000 Readiness Disclosure

Like other businesses dependent on modern technology, the Company must address potential Year 2000-related issues. The Company is progressing through a comprehensive program (Year 2000 Program) to evaluate and address the impact of Year 2000-related issues on its operational systems, business application software, computer hardware, facilities infrastructure and equipment with embedded technology, and Year 2000-related risks associated with its vendors and customers.

The Company's Year 2000-related effort is a cooperative venture coordinated among business units and appropriate members of the Company's senior management. Progress reviews are held regularly with senior management and the Board of Directors. As an additional step, the Company has created the position of Year 2000 Risk Manager to provide Company-wide leadership, oversight and coordination of its Year 2000 project.

State of Readiness

The Company is using both internal and external resources to implement its Year 2000 Program, which includes the following overlapping phases: (i) system inventory and analysis; (ii) remediation, testing and implementation; and (iii) vendor and customer review. The Company expects that its Year 2000 Program will be substantially complete by the end of the third quarter of 1999.

System Inventory and Analysis Phase The system inventory and analysis phase consists of compiling a detailed inventory of all of the Company's systems and platforms to determine which items are date sensitive, affected by the Year 2000, and therefore require remediation. Each of the Company's business units has focused specifically on the following seven target areas: (i) business application software; (ii) mainframe hardware and software; (iii) network servers; (iv) desktop environment; (v) network and telephone systems; (vi) non-information technology assets and facilities; and (vii) major suppliers and service providers. This analysis has involved both an internal assessment conducted by Company engineers, technicians and business unit managers, as well as contact with the manufacturers of computer systems and

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equipment used by the Company in its operations. Each of the Company's business units has substantially completed its system inventory and analysis phase. The principal business application systems requiring remediation that were identified by the Company during this stage include the following systems: (i) equipment maintenance; (ii) spare parts inventory; (iii) distribution; (iv) customer order entry; and (v) financial/accounting. In addition, some Company plants have identified certain production control systems that will require Year 2000-related remediation in order to remain operative.

Remediation, Testing and Implementation Phase The remediation, testing and implementation phase involves determining and implementing a remediation method (upgrade, replace or discontinue) that is most appropriate for each specific date-sensitive item. The remediated item is then tested and returned to normal operations when Year 2000-related issues have been addressed. Testing includes functional testing of remedial measures and regression testing to validate that changes have not altered existing functionality. Several system manufacturers have provided testing procedures for their equipment and have been available for consultations about Year 2000-related testing. In certain cases, the Company has also retained special consultants to assist with its remediation efforts.

As a separate initiative, the Company is implementing its Global Vision Project, an enterprise-wide resource planning (ERP) software package. Its scope includes accounts payable, inventory, purchasing, general ledger, payroll, human resources and plant maintenance. This new ERP software and the improvements to the infrastructure hardware required to support the Global Vision Project should further remediate issues associated with the Year 2000. The Company expects all of its business units to have substantially completed the remediation, testing and implementation phase by the third quarter of 1999.

Vendor and Customer Review Phase Vendor reviews consist of assessing vendor readiness, and if necessary, identifying alternate channels to receive critical materials and/or supplies. Each business unit has developed a questionnaire that has been submitted to its primary suppliers and vendors to determine their Year 2000-related status. The business units are currently analyzing the information provided in these responses, and will determine the best way to address any specific issues. As an additional precaution, each business unit's purchase orders now contain a Year 2000-related clause to help ensure that any newly purchased equipment adequately addresses Year 2000-related issues.

Although the Company is attempting to monitor and validate the efforts of other parties, it may not have control over the success of these efforts. In the event that satisfactory commitments from key suppliers are not received, the Company is forming plans for the continuing availability of critical materials and supplies through alternate channels. In general, however, the Company is satisfied with the progress made by key vendors to date and no critical issues have been identified.

In addition to investigating the Company's key suppliers, the Company's business units are also contacting key customers to explain the Company's Year 2000-related efforts and to solicit certain information about each customer's Year 2000-related efforts to assess potential Year 2000-related problems that could affect future orders from such customers.

Costs

The Company does not currently expect that the costs of addressing its Year 2000-related issues will have a material effect on its financial position, results of operations or liquidity. Modification costs for Year 2000-related issues are expensed as incurred and are funded through operating cash flows. In a few limited instances, some business units have deferred certain non-Year 2000-related information technology projects due to their respective Year 2000-related efforts. The Company believes, however, that these deferred projects are not critical to its present or future financial performance or business operations. The Company estimates its total Year 2000-related technology and non-information technology systems remediation costs to be approximately $6.0 million, of which approximately $2.0 million was expended in 1998. The remaining costs will be incurred during 1999. A sizable portion of these costs represent the redeployment of existing employee resources rather than incremental expenses.

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Risks

Progress reports on the Year 2000 Program are presented regularly to the Company's Board of Directors and senior management. As the program continues, the Company may discover additional Year 2000-related challenges, including that remediation plans are not feasible or that the cost of such plans exceeds current expectations. In many cases, the Company is relying on written assurances from vendors that the current systems are, or that new or upgraded systems acquired by the Company will adequately address Year 2000-related issues. The Company believes that one of its principal Year 2000-related risks is the effect Year 2000-related issues will have on its vendors, especially its utilities vendors. A substantial part of the Company's day-to-day operations is dependent on power, transportation systems, and telecommunication services, as to which alternative sources of service may not be available. The Company will continue to investigate the readiness of its suppliers, including utilities, and pursue the availability of alternatives to further diminish the extent of any impact Year 2000-related issues may have on the Company. Although there can be no assurance that the Company will be able to complete all of the modifications in the required time frame or that no unanticipated events will occur, it is management's belief that the Company is taking adequate action to address Year 2000-related issues. However, because of the range of possible issues and the large number of variables involved, it is impossible to quantify the potential cost of problems should the Company's remediation efforts or the efforts of those it does business with not be successful. If either the Company, or the Company's vendors, fail to adequately address Year 2000-related issues, the Company may suffer business interruptions. If such interruptions cause the Company to be unable to fulfill its obligations to third parties, the Company may potentially be exposed to third-party liability.

Contingency Planning

The Company is developing contingency measures to address the possibility that it will not have fully addressed Year 2000-related issues by December 31, 1999. Each of the Company's business units is developing a contingency plan based upon templates and suggested procedures that have been provided by the Year 2000 Risk Manager. Each business unit contingency plan will identify the risk and document the steps that need to be taken to allow the Company to continue to meet the needs of its customers in the event of a Year 2000-related failure. The Company expects each business unit to complete its contingency plan by the end of the second quarter of 1999.

The above section, even if incorporated by reference into other documents or disclosures, is a Year 2000 Readiness Disclosure as defined under the Year 2000 Information and Readiness Disclosure Act of 1998.

Recently Issued Accounting Guidance

In June 1998, the Financial Accounting Standards Board (FASB) issued SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities," which the Company is required to adopt effective January 1, 2000. SFAS No. 133 will require the Company to recognize all derivatives on the Consolidated Balance Sheet at fair value. Additionally, changes in derivative fair values will either: (i) be recognized in earnings as offsets to the changes in fair value of related hedged assets, liabilities and firm commitments; or (ii) for forecasted transactions, deferred and recorded as a component of Accumulated other comprehensive income in stockholders' equity until the hedged transactions occur and then are recognized in earnings. The ineffective portion of a derivative's change in fair value will be immediately recognized in earnings. The Company does not believe the effect of adopting SFAS No. 133 will be material to its results of operations or financial position.

Forward-Looking Statements

All statements, other than statements of historical fact, contained within "Management's Discussion and Analysis of Financial Condition and Results of Operations" constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995.

Factors that could cause actual results to differ materially from those expressed or implied by the forward-looking statements include, but are not limited to, the following: general

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and economic conditions in the agricultural industry or in localities where the Company or its customers operate; weather conditions; the impact of competitive products; pressure on prices realized by the Company for its products; constraints on supplies of raw materials used in manufacturing certain of the Company's products; capacity constraints limiting the production of certain products; difficulties or delays in the development, production, testing and marketing of products; difficulties or delays in receiving required governmental and regulatory approvals; market acceptance issues, including the failure of products to generate anticipated sales levels; difficulties in integrating acquired businesses and in realizing related cost savings and other benefits; the effects of and change in trade, monetary and fiscal policies, laws and regulations; foreign exchange rates and fluctuations in those rates; the costs and effects of legal proceedings, including environmental, and administrative proceedings involving the Company; the completion of the Company's Year 2000 Program; and the other risk factors reported from time to time in the Company's Securities and Exchange Commission reports.

Report of Management

Management of IMC Global Inc. is responsible for the preparation, integrity and fair presentation of the financial information included in this report. The financial statements have been prepared in accordance with generally accepted accounting principles and necessarily include certain amounts that are based on management's estimates and judgment.

Management is responsible for maintaining a system of internal accounting controls to provide reasonable assurance as to the integrity and reliability of the financial statements, the proper safeguarding and use of assets, and the accurate execution and recording of transactions. Such controls are based on established policies and procedures and are implemented by trained personnel. The system of internal accounting controls is monitored by the Company's internal auditors to confirm that the system is proper and operating effectively. The Company's policies and procedures prescribe that the Company and its subsidiaries are to maintain ethical standards and that its business practices are to be consistent with those standards.

The Company's financial statements have been audited by Ernst & Young LLP, independent auditors. Their audit was conducted in accordance with generally accepted auditing standards and included consideration of the Company's internal control system. Management has made available to Ernst & Young LLP all of the Company's financial records and related data, as well as minutes of the meetings of the Board of Directors. Management believes that all representations made to Ernst & Young LLP were valid and appropriate.

The Board of Directors, operating through its Audit Committee composed entirely of non-employee directors, provides oversight to the financial reporting process. The Audit Committee meets periodically with management, the internal auditors and Ernst & Young LLP, jointly and separately, to review financial reporting matters, internal accounting controls and audit results to assure that all parties are properly fulfilling their responsibilities. Both Ernst & Young LLP and the internal auditors have unrestricted access to the Audit Committee.

J. Bradford James
Senior Vice President and Chief Financial Officer

Anne M. Scavone
Vice President and Controller

Report of Independent Auditors

To the Board of Directors and Stockholders of IMC Global Inc.

We have audited the accompanying consolidated balance sheet of IMC Global Inc. as of December 31, 1998 and 1997 and the related consolidated statements of operations, cash flows and stockholders' equity for each of the three years in the period ended December 31, 1998. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of IMC Global Inc. at December 31, 1998 and 1997, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 1998, in conformity with generally accepted accounting principles.

Ernst & Young LLP
Chicago, Illinois
January 28, 1999

Consolidated Statement of Operations

(In millions, except per share amounts)	*Years ended December 31* 1998	1997	1996
Net sales	$ 2,696.2	$ 2,116.0	$ 2,143.3
Cost of goods sold	1,957.8	1,541.1	1,547.0
Gross margins	738.4	574.9	596.3
Selling, general and administrative expenses	169.5	131.8	132.6
Main Pass write-down	-	183.7	-
Merger and restructuring charges	176.1	-	37.3
Exploration expenses	20.9	-	-
Operating earnings	371.9	259.4	426.4
Interest expense	176.0	40.2	43.6
Other (income) expense, net	40.2	(5.4)	(5.9)
Earnings from continuing operations before minority interest	155.7	224.6	388.7
Minority interest	14.1	124.4	185.7
Earnings from continuing operations before income taxes	141.6	100.2	203.0
Provision for income taxes	84.5	30.4	81.3
Earnings from continuing operations	57.1	69.8	121.7
Discontinued operations:			
Earnings from discontinued operations	5.1	18.0	13.5
Estimated loss on disposal	(74.2)	-	-
Total earnings (loss) from discontinued operations	(69.1)	18.0	13.5
Earnings (loss) before extraordinary item	(12.0)	87.8	135.2
Extraordinary item - debt retirement	3.0	(24.9)	(8.1)
Net earnings (loss)	$ (9.0)	$ 62.9	$ 127.1
Basic earnings (loss) per share:			
Earnings from continuing operations	$ 0.50	$ 0.74	$ 1.31
Total earnings (loss) from discontinued operations	(0.61)	0.19	0.15
Extraordinary item - debt retirement	0.03	(0.26)	(0.09)
Net earnings (loss) per share	$ (0.08)	$ 0.67	$ 1.37
Basic weighted average number of shares outstanding	114.2	94.0	92.7
Diluted earnings (loss) per share:			
Earnings from continuing operations	$ 0.50	$ 0.74	$ 1.25
Total earnings (loss) from discontinued operations	(0.61)	0.19	0.14
Extraordinary item - debt retirement	0.03	(0.26)	(0.08)
Net earnings (loss) per share	$ (0.08)	$ 0.67	$ 1.31
Diluted weighted average number of shares outstanding	114.8	94.7	97.0

See Notes to Consolidated Financial Statements.

Consolidated Balance Sheet

(In millions, except per share amounts)	*As of December 31* 1998	1997
Assets		
Current assets:		
Cash and cash equivalents	$ 110.6	$ 109.7
Receivables, net	421.5	288.1
Inventories, net	580.6	592.8
Assets of discontinued operations held for sale	273.3	-
Deferred income taxes	91.1	54.2
Other current assets	5.5	17.4
Total current assets	1,482.6	1,062.2
Property, plant and equipment, net	3,697.4	2,506.0
Other assets	1,276.9	1,105.7
Total assets	$ 6,456.9	$ 4,673.9
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 255.9	$ 253.3
Accrued liabilities	240.9	230.9
Short-term debt and current maturities of long-term debt	408.3	188.9
Total current liabilities	905.1	673.1
Long-term debt, less current maturities	2,638.7	1,235.2
Deferred income taxes	566.6	389.7
Other noncurrent liabilities	486.1	440.2
Stockholders' equity:		
Common stock, $1 par value, authorized 300,000,000 shares; issued 125,072,811 and 124,668,286 shares in 1998 and 1997, respectively	125.0	124.6
Capital in excess of par value	1,697.3	1,690.3
Retained earnings	400.6	446.2
Accumulated other comprehensive income	(66.3)	(30.8)
Treasury stock, at cost, 10,738,520 and 10,691,520 shares in 1998 and 1997, respectively	(296.2)	(294.6)
Total stockholders' equity	1,860.4	1,935.7
Total liabilities and stockholders' equity	$ 6,456.9	$ 4,673.9

See Notes to Consolidated Financial Statements.

Consolidated Statement of Cash Flows

(In millions)	*Years ended December 31* 1998	1997	1996
Cash Flows from Operating Activities			
Net earnings (loss)	$ (9.0)	$ 62.9	$ 127.1
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Depreciation, depletion and amortization	251.7	183.2	171.0
Merger and restructuring charges	144.0	-	67.3
Estimated loss on disposal of discontinued operations	74.2	-	-
Estimated loss on sale of business	48.7	-	-
Minority interest	14.1	124.4	175.7
Main Pass write-down	-	112.2	-
Deferred income taxes	2.9	58.4	27.9
Other charges and credits, net	(38.4)	2.4	(26.3)
Changes in:			
Receivables	(18.2)	(12.3)	69.1
Inventories	(81.4)	3.9	(66.9)
Other current assets	(9.4)	2.1	18.9
Accounts payable	(64.9)	(2.8)	(21.8)
Accrued liabilities	(79.8)	29.0	(55.3)
Net current assets of discontinued operations	34.6	-	-
Net cash provided by operating activities	269.1	563.4	486.7
Cash Flows from Investing Activities			
Capital expenditures	(367.6)	(244.0)	(209.0)
Acquisitions, net of cash acquired	(393.3)	(91.4)	(7.1)
Proceeds from sale of business	44.8	-	-
Proceeds from sale of property, plant and equipment	6.4	8.8	12.4
Net cash used in investing activities	(709.7)	(326.6)	(203.7)
Net cash provided (used) before financing activities	(440.6)	236.8	283.0
Cash Flows from Financing Activities			
Cash distributions to the unitholders of PLP	(11.0)	-	-
Cash distributions from IMC-Agrico to PLP	-	(146.4)	(265.8)
Payments of long-term debt	(1,303.1)	(515.9)	(232.7)
Proceeds from issuance of long-term debt, net	2,370.2	805.3	244.6
Changes in short-term debt, net	(522.3)	(127.7)	(75.4)
Increase (decrease) in securitization of accounts receivable, net	(61.5)	6.0	(9.5)
Stock options exercised and restricted stock awards	8.9	5.5	18.0
Cash dividends paid	(36.6)	(29.7)	(34.5)
Purchase of treasury stock	(3.1)	(187.5)	-
Net cash provided by (used in) financing activities	441.5	(190.4)	(355.3)
Net change in cash and cash equivalents	0.9	46.4	(72.3)
Cash and cash equivalents - beginning of year	109.7	63.3	135.6
Cash and cash equivalents - end of year	$ 110.6	$ 109.7	$ 63.3

See Notes to Consolidated Financial Statements.

Consolidated Statement of Stockholders' Equity

(In millions, except per share amounts)	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income	Treasury Stock	Total Stockholders' Equity
Balance at December 31, 1995	$ 96.9	$ 793.6	$ 315.8	$ (8.5)	$ (107.4)	$ 1,090.4
Net earnings	-	-	127.1	-	-	127.1
Foreign currency translation adjustment	-	-	-	(8.7)	-	(8.7)
Comprehensive income	-	-	-	-	-	118.4
Dividends ($0.32 per share)	-	-	(29.9)	-	-	(29.9)
Stock options exercised	0.7	17.2	-	-	0.1	18.0
Issuance of common stock pursuant to acquisitions	0.4	14.5	-	-	-	14.9
Conversion of convertible notes	3.6	110.8	-	-	-	114.4
Balance at December 31, 1996	$ 101.6	$ 936.1	$ 413.0	$ (17.2)	$ (107.3)	$ 1,326.2
Net earnings	-	-	62.9	-	-	62.9
Foreign currency translation adjustment	-	-	-	(13.6)	-	(13.6)
Comprehensive income	-	-	-	-	-	49.3
Dividends ($0.32 per share)	-	-	(29.7)	-	-	(29.7)
Stock options exercised	0.3	5.2	-	-	-	5.5
Issuance of common stock pursuant to acquisitions	22.7	749.0	-	-	0.2	771.9
Purchase of treasury shares	-	-	-	-	(187.5)	(187.5)
Balance at December 31, 1997	$ 124.6	$ 1,690.3	$ 446.2	$ (30.8)	$ (294.6)	$ 1,935.7
Net loss	-	-	(9.0)	-	-	(9.0)
Foreign currency translation adjustment	-	-		(35.5)	-	(35.5)
Comprehensive loss	-	-	-	-	-	(44.5)
Dividends ($0.32 per share)	-	-	(36.6)	-	-	(36.6)
Stock options exercised and restricted stock awards	0.4	7.0	-	-	1.5	8.9
Purchase of treasury shares	-	-	-	-	(3.1)	(3.1)
Balance at December 31, 1998	$ 125.0	$ 1,697.3	$ 400.6	$ (66.3)	$ (296.2)	$ 1,860.4

See Notes to Consolidated Financial Statements.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Note 1

Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements include the accounts of the Company and all subsidiaries which are more than 50.0 percent owned and controlled. Additionally, its interest in the Exploration Program is proportionately consolidated by PLP at a rate of 56.4 percent of the exploration costs and 47.0 percent of the profits derived from oil and gas producing properties. Prior to its disposal in 1997, the Company proportionately consolidated its 25.0 percent interest in the sulphur operations of Main Pass. All significant intercompany accounts and transactions are eliminated in consolidation. Certain amounts in the consolidated financial statements for periods prior to December 31, 1998 have been reclassified to conform to the current presentation.

As discussed in more detail in Note 4, the AgriBusiness business unit has been presented as discontinued operations.

Use of Estimates

Management is required to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

Revenue Recognition

Revenue is recognized by the Company upon the transfer of title to the customer, which is generally at the time product is shipped.

Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less to be cash equivalents which are reflected at their approximate fair value.

Concentration of Credit Risk

Domestically, the Company sells its products to manufacturers, distributors and retailers primarily in the midwestern and southeastern United States and to governmental bodies such as states, provinces, counties and municipalities located in the Great Lakes region of the United States and Canada. Internationally, the Company's products are sold primarily through two North American export associations and various distributors. In 1998, sales to China accounted for approximately 15.0 percent of the Company's net sales. No single customer or group of affiliated customers accounted for more than ten percent of the Company's net sales.

Inventories

Inventories are valued at the lower-of-cost-or-market (net realizable value). Cost for substantially all of the Company's inventories is calculated on a cumulative annual-average cost basis.

Property, Plant and Equipment/Other Assets

Property (including mineral deposits), plant and equipment, including assets under capital leases, are carried at cost. Cost of significant assets includes capitalized interest incurred during the construction and development period. Expenditures for replacements and improvements are capitalized; maintenance and repair expenditures, except for repair and maintenance overhauls (Turnarounds), are charged to operations when incurred. Expenditures for Turnarounds are deferred when incurred and amortized into cost of goods sold on a straight-line basis, generally over an 18-month period. Turnarounds are large-scale maintenance projects that are performed regularly, usually every 18 to 24 months, on average. Turnarounds are necessary to maintain the operating capacity and efficiency rates of production plants. The deferred portion of the Turnaround expenditures is classified in Other assets in the Company's Consolidated Balance Sheet.

Depreciation and depletion expenses for mining operations, including mineral deposits, are determined using the unit-of-production method based on estimates of recoverable reserves. Other asset classes or groups are depreciated or amortized on a straight-line basis over their estimated useful lives as follows: buildings, ten to 45 years; machinery and equipment, three to 25 years; and leasehold improvements, over the lesser of the remaining useful life of the asset or the remaining term of the lease.

Goodwill, representing the excess of purchase cost over the fair value of net assets of acquired companies, is generally

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

amortized using the straight-line method over 40 years. At December 31, 1998 and 1997, goodwill, included in Other assets in the Consolidated Balance Sheet, totaled $1,064.2 million and $839.7 million, respectively. See Note 2, "Acquisitions," for detail regarding goodwill.

Using the methodology prescribed in SFAS No. 121, the Company reviews long-lived assets and the related intangible assets for impairment whenever events or changes in circumstances indicate the carrying amounts of such assets may not be recoverable. Once evidence of a potential impairment exists, recoverability of the respective assets is determined by comparing the forecasted undiscounted net cash flows of the operation to which the assets relate, to the carrying amount, including associated intangible assets, of such operation. If the operation is determined to be unable to recover the carrying amount of its assets, then intangible assets are written down first, followed by the other long-lived assets of the operation, to fair value. Fair value is determined based on discounted cash flows or appraised values, depending upon the nature of the assets.

Accrued Environmental Costs

As a producer and distributor of crop nutrients and salt, the Company is subject to a myriad of international, federal, state, provincial and local EHS laws in the United States, Canada, and Europe. These standards regulate: (i) the content and use of products; (ii) the conduct of mining and production operations including employee safety procedures; (iii) the management and handling of raw materials; (iv) air and water quality; (v) disposal of hazardous and solid wastes; and (vi) post-mining land reclamation. Compliance with these laws often requires the Company to incur costs. The Company also has incurred contingent environmental liability arising from three sources: facilities currently or formerly owned by the Company or its predecessors; facilities adjacent to currently or formerly owned facilities; and third-party Superfund sites. At facilities currently or formerly owned by the Company or its corporate predecessors, including FTX, PLP and their corporate predecessors, the historical use and handling of regulated chemical substances, crop nutrient products, and salt has resulted in soil and groundwater contamination, sometimes requiring the Company to undertake or fund cleanup efforts. Similarly, disposal of the Company's waste at third-party sites may result in liability for remedial costs.

Of the environmental costs discussed above, the following environmental costs are charged to the Company's operating expense: fines, penalties, and certain remedial action to address violations of the law; remediation of properties that are currently or were formerly owned or operated by the Company, when those properties do not contribute to current or future revenue generation; and liability for remediation of facilities adjacent to currently or formerly owned facilities or for third-party Superfund sites. Contingent environmental liabilities are recorded for environmental investigatory and non-capital remediation costs at identified sites when litigation has commenced or a claim or assessment has been asserted or is probable and the likelihood of an unfavorable outcome is probable.

Derivatives

The Company is exposed to the impact of interest rate changes, fluctuations in the functional currency of foreign operations, and the impact of fluctuations in the purchase price of natural gas consumed in operations, as well as changes in the market value of its financial instruments. The Company periodically enters into derivatives in order to minimize these risks, but not for trading purposes.

The functional currency of all operations outside the United States is the respective local currency. Foreign currency translation effects are included in Accumulated other comprehensive income in stockholders' equity. The Company uses foreign currency forward exchange contracts, which typically expire within one year, to hedge transaction exposure related to United States dollar-denominated assets and liabilities. Realized gains and losses on these contracts are recognized in the same period as the hedged transaction. The Company had foreign currency forward exchange contracts outstanding as of December 31, 1998 and 1997 with notional amounts of $106.2 million and $183.8 million, respectively, which approximated fair value.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Comprehensive Income

In 1998, the Company adopted SFAS No. 130, "Reporting Comprehensive Income." This Statement establishes rules for the reporting of comprehensive income and its components. Comprehensive income consists of net income and foreign currency translation effects and is presented in the Consolidated Statement of Stockholders' Equity. The adoption of SFAS No. 130 had no impact on total stockholders' equity. Prior year financial statements have been reclassified to conform to the SFAS No. 130 requirements. As of December 31, 1998, the Company's Accumulated other comprehensive income reduced stockholders' equity by $66.3 million.

Recently Issued Accounting Guidance

In June 1998, the FASB issued SFAS No. 133 which the Company is required to adopt effective January 1, 2000. SFAS No. 133 will require the Company to recognize all derivatives on the Consolidated Balance Sheet at fair value. Additionally, changes in derivative fair values will either: (i) be recognized in earnings as offsets to the changes in fair value of related hedged assets, liabilities and firm commitments; or (ii) for forecasted transactions, deferred and recorded as a component of Accumulated other comprehensive income in stockholders' equity until the hedged transactions occur and are then recognized in earnings. The ineffective portion of a derivative's change in fair value will be immediately recognized in earnings. The Company does not believe the effect of adopting SFAS No. 133 will be material to its results of operations or financial position.

Note 2

Acquisitions

Harris

In April 1998, the Company completed the acquisition of Harris for approximately $1.4 billion. Under the terms of the Harris Acquisition, the Company purchased all Harris equity for approximately $450.0 million in cash and assumed approximately $1.0 billion of debt. Harris, with annual sales of approximately $800.0 million, is a leading producer of salt, soda ash, boron chemicals and other inorganic chemicals, including potash crop nutrients.

For financial statement purposes, the Harris Acquisition was accounted for as a purchase and, accordingly, Harris' results are included in the consolidated financial statements since the date of acquisition. The purchase price, which was initially financed through proceeds borrowed under credit facilities and assumed debt, has been preliminarily allocated to acquired assets and liabilities based on estimated fair values at the date of acquisition. This allocation resulted in an excess of purchase price over identifiable net assets acquired, or goodwill, of approximately $326.0 million which is included in Other assets in the Consolidated Balance Sheet. This goodwill is being amortized on a straight-line basis over 40 years.

FTX

In December 1997, the Company completed a merger with FTX. The combination was accounted for as a purchase and resulted in the dissolution of FTX. In connection with the FTX Merger, each share of common stock of FTX was exchanged for 0.90 share of the Company's common stock plus one-third of a warrant, with each whole warrant entitling the holder to purchase one share of the Company's common stock for $44.50 per share. As a result of the transaction, 22.7 million shares were issued at an average market price of $32.28 per share. The warrants, which are publicly traded on the New York Stock Exchange and expire on the third anniversary of the FTX Merger, were valued at $3.56 per warrant. As a result of the FTX Merger, goodwill of $747.5 million was recorded and is being amortized on a straight-line basis over 40 years.

The FTX Merger resulted in the Company relinquishing its 25.0 percent interest in Main Pass to MMR, a newly formed public entity consisting of the former sulphur business of PLP and Main Pass. In connection with the FTX Merger, the Company recorded a pre-tax charge of $183.7 million, included in Operating earnings in the Consolidated Statement of Operations, to write down the assets of Main Pass to their fair value of approximately $14.1 million.

Other Business Acquisitions

In 1997, the Company completed several smaller acquisitions, including a potash mine and processing facility (Western Ag);

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

several retail distribution operations (Frankfort Supply, Sanderlin, Crop-Maker, So-Green and Hutson Ag Services, Inc.); a storage terminal company (Hutson Company, Inc.); and the purchase of the preferred stock of a subsidiary held by an unrelated third party. Total cash payments for these acquisitions were $91.4 million, and approximately 0.2 million shares of common stock of the Company were issued for $7.9 million. In 1996, the Company acquired several retail distribution operations (Madison Seed and Agri-Supply) and a precision farming operation (Top-Soil). Total cash payments for acquisitions during the year were $7.1 million. Hutson Company, Inc., Top-Soil and the retail distribution operations were acquired by the AgriBusiness business unit which has been classified as discontinued operations as of December 31, 1998.

These acquisitions were accounted for under the purchase method of accounting, and, accordingly, results of operations for the acquired businesses have been included in the Company's Consolidated Statement of Operations since the respective dates of acquisition.

Pro Forma Information (unaudited)

The unaudited pro forma information for the periods set forth below gives effect to the Harris Acquisition and the FTX Merger, including the contribution of Main Pass, as if the transactions had occurred as of January 1, 1997. Pro forma information for the Other Business Acquisitions, discussed above, has not been included as it would not be materially different from reported amounts. The pro forma information is presented for informational purposes only and is not necessarily indicative of the results of operations that actually would have been achieved had the acquisitions been consummated as of that time.

There was no common stock issued for acquisitions in 1998 while $771.9 million and $14.9 million of common stock was issued in 1997 and 1996, respectively. Liabilities assumed in acquisitions were $1,628.8 million, $357.5 million and $6.6 million in 1998, 1997 and 1996, respectively.

	1998	1997
Net sales	$ 2,923.4	$ 2,910.2
Earnings from continuing operations before minority interest	160.1	48.7
Earnings from continuing operations before income taxes	146.0	22.9
Earnings (loss) from continuing operations	63.8	(8.0)
Net loss	(4.8)	(14.9)
Net loss per diluted share	(0.04)	(0.13)

Note 3
Non-Recurring Charges

Restructuring Plan

During the fourth quarter of 1998, the Company developed and began execution of a plan to improve profitability. The Restructuring Plan was comprised of four major initiatives: (i) the combination of the potash and phosphates business units in an effort to realize certain operating and staff function synergies; (ii) restructuring of the phosphate rock mining, concentrated phosphate and salt production/distribution operations and processes in an effort to reduce costs; (iii) simplification of the current business activities by eliminating businesses not deemed part of the Company's core competencies; and (iv) reduction of operational and corporate headcount. In conjunction with the Restructuring Plan, the Company recorded pre-tax charges totaling $193.3 million ($162.0 million net of minority interest) in the fourth quarter of 1998. The Restructuring Plan (shown below in tabular format) primarily relates to the following:

Asset impairments The Restructuring Plan included the removal of property, plant and equipment, as well as the write-down to fair value of those assets made obsolete due to the decision to close certain facilities and forego or abandon certain mineral properties. In order to determine the write-

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

down of assets affected by the Restructuring Plan, and in accordance with SFAS No. 121, the Company performed an assessment of future cash flows and, accordingly, adjusted the assets to their appropriate fair values.

The majority of the impairment occurred at Phosphates' Florida production facilities where property, plant and equipment was written down by approximately $64.4 million to fair value. Phosphates developed a Mine Plan which identified asset reductions, lower operating costs and optimal phosphate rock management as key drivers in the restructuring of operations. The write-down of impaired assets in connection with the Mine Plan primarily consisted of facilities, production equipment, operating supplies, land and mineral reserves.

Salt recorded an $11.2 million write-down of property, plant and equipment at its Kansas and Canadian locations, as a result of the decision to consolidate certain facilities and achieve operating efficiencies. The majority of the write-down related to production equipment. The remaining $0.4 million of asset impairments was recorded at Feed Ingredients for the permanent closure of a limestone rock production facility.

The $76.0 million in asset impairment charges included $31.8 million pertaining to assets which will continue to be utilized until their respective disposal dates, primarily within the first nine months of 1999. The estimated fair value of these assets, which will be depreciated over their respective remaining periods of service, reflected estimated operating net cash flows until disposition.

Non-employee exit costs In accordance with the objective of the Mine Plan, to optimize phosphate rock management, Phosphates decided to permanently close a high-cost phosphate rock mine. As a result of this decision, the Company recorded a charge of $18.4 million for the demolition and other incremental costs of closure of the mine. The closure costs included approximately $15.5 million for incremental environmental land reclamation of the surrounding mined-out areas. The Company expects the demolition and closure activities to be essentially completed by the end of the third quarter of 1999.

The Company also decided to close certain production operations in connection with the Restructuring Plan, principally the uranium and urea operations of Phosphates. This decision was based on an analysis of the future outlook for these products, taking into consideration whether the operations were part of the Company's core businesses. These operations were determined to be non-core businesses and the Company recorded charges of approximately $12.8 million for demolition and closure, including environmental costs, of the uranium and urea production facilities. Additionally, environmental and closure costs of $2.4 million have been recognized for the planned closure of one of the Company's evaporated salt production facilities. The Company expects the demolition and closure activities to be completed by late-1999. Other various exit costs totaled $7.3 million.

In connection with the Restructuring Plan, the Company decided to discontinue its transportation of ammonia from Louisiana to its phosphate operations in Florida. This decision was based on current market conditions which secured the availability of ammonia to the Company and which made the high-cost transportation of ammonia from Louisiana to Florida unnecessary. As a result, the Company recorded a charge of $13.2 million for the net present value of costs associated with permanently idling leased equipment used in the transportation of ammonia from Louisiana.

Employee headcount reductions As part of the Restructuring Plan, headcount reductions were implemented at the Phosphates, Feed Ingredients, Salt and Kalium operations, as well as at the Company's corporate headquarters. Certain of these reductions were a result of the closing and/or exiting of production operations, as discussed above. To facilitate headcount reductions, the Company offered a voluntary retirement program for eligible employees. In addition, certain involuntary eliminations of positions, which were communicated prior to December 31, 1998, were necessary in order to achieve desired staffing levels. A total of 185 employees accepted the voluntary retirement plan by December 31, 1998, with 112 of those employees having left the Company as of that date. The remaining voluntarily terminated employees will leave the Company by June 1999. Additionally, a total of 454 employees were involuntarily terminated and had left the Company by the end of February 1999. Virtually all severance payments were disbursed subsequent to December 31, 1998.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

As a result of the employee terminations necessitated by the Restructuring Plan, settlement, curtailment and special termination charges of $19.7 million were recorded in accordance with SFAS No. 88. The related liabilities have been classified in Other noncurrent liabilities in the Company's Consolidated Balance Sheet. See Note 15, "Pension Plans and Other Benefits."

Inventories and spare parts of exited businesses

Phosphates recorded charges of approximately $17.2 million to reduce the carrying value of finished goods inventories on-hand to net realizable value at December 31, 1998, as a result of the decision to exit certain businesses.

The Restructuring Plan included a major reduction in production assets primarily used in the Phosphates business. The reduction was accomplished through the permanent shut-down of select mining facilities as well as a cut-back in concentrate facilities. Given the reduction in facilities and the resulting decrease in production, historical levels of spare parts inventory that had been maintained by the Company were no longer necessary or warranted. Therefore, the Company recorded a charge of $8.7 million for the write-off of spare parts inventory.

Details of the restructuring charges were as follows:

(In millions)	Restructuring Charges	*Activity* Cash Paid	Non-cash	Remaining Accrual
Asset impairments:				
Facilities closed prior to December 31, 1998	$ 44.2	$ -	$ 44.2	$ -
Facilities to be closed in 1999	31.8	-	31.8	-
Non-employee exit costs:				
Demolition and closure costs	33.6	-	-	33.6
Idled leased transportation equipment	13.2	-	-	13.2
Other	7.3	0.5	1.5	5.3
Employee headcount reductions:				
Severance benefits	17.6	0.2	-	17.4
Settlement, curtailment and special termination benefits	19.7	-	19.7	-
Inventories and spare parts of exited businesses:				
Finished goods inventories	17.2	-	17.2	-
Spare parts inventories	8.7	-	8.7	-
Total	$ 193.3	$ 0.7	$ 123.1	$ 69.5

All restructuring charges have been recorded as a separate line item on the Consolidated Statement of Operations, except for the finished goods inventory write-down which was recorded in Cost of goods sold.

Vigoro Merger

In March 1996, the Company completed a merger with Vigoro that resulted in Vigoro becoming a subsidiary of the Company. Upon consummation of the Vigoro Merger, the Company issued approximately 32.4 million shares of its common stock in exchange for all of the outstanding shares of Vigoro. The Vigoro Merger was structured to qualify as a tax-free reorganization for income tax purposes and was accounted for as a pooling of interests. Accordingly, the Company's financial statements for periods prior to the merger date have been restated to reflect the Vigoro Merger.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

In connection with the Vigoro Merger, the Company recorded charges totaling $20.2 million, primarily for consulting, legal and accounting services. Immediately following the Vigoro Merger, the Company adopted a plan to restructure its business operations into a decentralized organizational structure with five stand-alone business units. As a result, the Company recorded restructuring charges totaling $23.1 million. Of these amounts, $6.0 million has been included in discontinued operations. The charges consisted of $6.5 million for lease terminations resulting from office consolidations and $16.6 million for severance and related benefits from staff reductions resulting from the termination of approximately 120 employees, primarily middle management personnel, and other related actions. As of December 31, 1998, the following amounts were paid: (i) $20.2 million for charges relating to the Vigoro Merger; (ii) $6.4 million for lease terminations resulting from office consolidations; and (iii) $16.6 million relating to the termination of approximately 120 employees and other actions.

In connection with the 1996 restructuring plan, the Company undertook a detailed review of its accounting records and valuation of various assets and liabilities. As a result, the Company recorded charges totaling $58.3 million ($55.3 million net of minority interest) comprised of: (i) $26.3 million ($23.3 million net of minority interest) to Cost of goods sold of which $17.5 million was primarily related to the write-off of certain idle plant facilities and other obsolete assets, $5.0 million for environmental matters and $3.8 million for other matters; (ii) $2.4 million of general and administrative expenses for the write-off of miscellaneous assets; (iii) $16.6 million to Other income and expense, net, to reduce certain long-term assets to net realizable value and other provisions; and (iv) $13.0 million to Minority interest for the transfer of 0.85 percent interest of IMC-Agrico Distributable Cash, as defined in the IMC-Agrico Company Partnership Agreement from the Company to PLP. Of these amounts $7.7 million has been included in discontinued operations. As of December 31, 1998, $14.7 million has been paid and $31.1 million of non-cash write-offs were recorded.

Note 4
Discontinued Operations

In January 1999, the Company signed a definitive agreement to sell its AgriBusiness retail and wholesale distribution business unit. The Company anticipates the sale to be completed in the first quarter of 1999. The loss on disposal, net of income tax benefits of $21.1 million, is estimated to be $74.2 million and was recorded in the fourth quarter of 1998 in accordance with Accounting Principles Board (APB) Opinion No. 30, "Reporting the Results of Operations." The Consolidated Statement of Operations of the Company has been restated to report separately the operating results of AgriBusiness as discontinued operations. Interest expense has been allocated to discontinued operations based on the portion of the Company's short-term borrowing program that is specifically attributable to AgriBusiness and amounted to $13.2 million, $13.3 million and $13.1 million in 1998, 1997 and 1996, respectively.

Income taxes associated with the discontinued operations of AgriBusiness were $2.9 million, $13.1 million and $8.4 million for 1998, 1997 and 1996, respectively. For 1998, 1997 and 1996, AgriBusiness' revenues were $787.0 million, $872.6 million and $797.7 million, respectively.

For financial reporting purposes, the assets and liabilities of AgriBusiness to be sold, net of the estimated loss on disposal, have been classified in the Consolidated Balance Sheet as Assets of discontinued operations held for sale as of December 31, 1998, as follows:

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Assets:	
Accounts receivable	$ 63.7
Inventories	157.1
Other current assets	0.5
Property, plant and equipment, net	130.4
Other assets	6.0
Total assets	357.7
Liabilities:	
Accounts payable	69.8
Accrued liabilities	11.1
Other noncurrent liabilities	3.5
Total liabilities	84.4
Assets of discontinued operations held for sale	$ 273.3

Note 5
Other Divestitures

IMC Vigoro

In June 1998, the Company completed the sale of its IMC Vigoro business unit which consisted primarily of consumer lawn and garden and professional products for $44.8 million in cash. In connection with this transaction, the Company recorded a non-recurring charge of approximately $14.0 million, $9.1 million after tax benefits, or $0.08 per share. Of the $14.0 million charge, $4.1 million was included in Cost of goods sold and $9.9 million was included in Selling, general and administrative expenses in the Consolidated Statement of Operations.

IMC Chemicals

In December 1998, the Company signed a definitive agreement to sell its Chemicals business unit with the Company retaining an ongoing minority economic interest. The sale has a specified closing date in March 1999. Based on the terms of the sale agreement, the Company recorded a pretax charge of $44.1 million for the estimated loss on sale. This charge is included in Other income and expense, net in the Consolidated Statement of Operations.

Chemicals was established concurrent with the Harris Acquisition (see Note 2, "Acquisitions") in April 1998. Net sales and operating earnings for Chemicals since the date of acquisition were $311.8 million and $21.9 million, respectively.

Note 6
Minority Interest

Minority interest as included in the Consolidated Statement of Operations was $14.1 million, $124.4 million, and $185.7 million for 1998, 1997 and 1996, respectively. Prior to the FTX Merger, minority interest primarily consisted of PLP's 43.5 percent interest in IMC-Agrico. Subsequent to the FTX Merger, minority interest was largely comprised of the public unitholder interest in PLP (majority owned and consolidated by the Company since the FTX Merger), including an effective 21.1 percent minority interest in IMC-Agrico.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Note 7

Earnings Per Share

The following table sets forth the computation of basic and diluted earnings per share:

	1998	1997	1996
Basic earnings (loss) per share computation:			
Earnings from continuing operations	$ 57.1	$ 69.8	$ 121.7
Total earnings (loss) from discontinued operations	(69.1)	18.0	13.5
Extraordinary item - debt retirement	3.0	(24.9)	(8.1)
Net earnings (loss)	$ (9.0)	$ 62.9	$ 127.1
Basic weighted average common shares outstanding	114.2	94.0	92.7
Basic per share amounts:			
Earnings per share from continuing operations	$ 0.50	$ 0.74	$ 1.31
Total earnings (loss) from discontinued operations	(0.61)	0.19	0.15
Extraordinary item - debt retirement	0.03	(0.26)	(0.09)
Net earnings (loss) per share	$ (0.08)	$ 0.67	$ 1.37
Diluted earnings (loss) per share computation:			
Earnings from continuing operations	$ 57.1	$ 69.8	$ 121.7
Total earnings (loss) from discontinued operations	(69.1)	18.0	13.5
Extraordinary item - debt retirement	3.0	(24.9)	(8.1)
Net earnings (loss)	$ (9.0)	$ 62.9	$ 127.1
Basic weighted average common shares outstanding	114.2	94.0	92.7
Unexercised stock options	0.6	0.7	1.1
Convertible debt	-	-	3.2
Diluted weighted average common shares outstanding	114.8	94.7	97.0
Diluted per share amounts:			
Earnings per share from continuing operations	$ 0.50	$ 0.74	$ 1.25
Total earnings (loss) from discontinued operations	(0.61)	0.19	0.14
Extraordinary item - debt retirement	0.03	(0.26)	(0.08)
Net earnings (loss) per share	$ (0.08)	$ 0.67	$ 1.31

Options to purchase approximately 4.6 million, 3.1 million and 0.8 million shares of common stock were outstanding at December 31, 1998, 1997 and 1996, respectively, but were not included in the computation of diluted earnings per share because the exercise price was greater than the average market price of the common shares and, therefore, the effect would be antidilutive. Additionally, warrants to purchase approximately 8.4 million shares of common stock were outstanding at December 31, 1998 and 1997 but were not included in the computation of diluted earnings per share for the same reason as the options noted above. See Note 2, "Acquisitions."

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Note 8

Receivables

Accounts receivable as of December 31 were as follows:

	1998	1997
Trade	$ 349.4	$ 270.8
Non-trade	78.5	53.8
	427.9	324.6
Less:		
Allowances	6.4	7.5
Receivable interests sold	-	29.0
Receivables, net	$ 421.5	$ 288.1

The carrying value of accounts receivable was equal to the estimated fair value of such assets due to their short maturity.

Under an agreement with a financial institution, IMC-Agrico L.L.C., a special-purpose limited liability company of which IMC-Agrico is the sole equity owner, had transferred, on an ongoing basis, an undivided percentage interest in a designated pool of receivables, subject to limited recourse provisions related to the receivables generated from export transactions, in an amount not to exceed $65.0 million. This agreement expired in August 1998. As of December 31, 1997, IMC-Agrico L.L.C. had transferred a total of $61.5 million of such receivable interests, of which $32.5 million did not meet the criteria to be accounted for as a sale under SFAS No. 125, "Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities." As a result, short-term debt of $32.5 million was recorded in the Consolidated Balance Sheet as of December 31, 1997. Related costs, primarily from discount fees, totaled $2.0 million, $3.3 million and $3.6 million in 1998, 1997 and 1996, respectively.

Note 9

Inventories

Inventories as of December 31 were as follows:

	1998	1997
Products (principally finished)	$ 468.2	$ 499.7
Operating materials and supplies	136.3	109.9
	604.5	609.6
Less: Inventory allowances	23.9	16.8
Inventories, net	$ 580.6	$ 592.8

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Note 10
Property, Plant and Equipment

Property, plant and equipment as of December 31 were as follows:

	1998	1997
Land	$ 104.6	$ 121.3
Mineral properties and rights	1,431.7	713.4
Buildings and leasehold improvements	615.9	481.2
Machinery and equipment	3,520.8	2,958.0
Construction-in-progress	244.4	188.2
	5,917.4	4,462.1
Accumulated depreciation and depletion	(2,220.0)	(1,956.1)
Property, plant and equipment, net	$ 3,697.4	$ 2,506.0

The increase in Property, plant and equipment was a result of the Harris Acquisition. See Note 2, "Acquisitions." As of December 31, 1998, idle facilities of the Company included one phosphate rock mine and two concentrated phosphate plants, all of which will remain closed subject to improved market conditions. The net book value of these facilities totaled $72.1 million. In the opinion of management, the net book value of the Company's idle facilities is not in excess of net realizable value. Subsequent to December 31, 1998, the Company idled a second phosphate rock mine and resumed production at a concentrated phosphate plant.

Note 11
Other Assets

Other assets as of December 31 were as follows:

	1998	1997
Goodwill	$ 1,064.2	$ 839.7
Other	212.7	266.0
Other assets	$ 1,276.9	$ 1,105.7

The increase in Other assets was primarily due to the goodwill recorded in conjunction with the Harris Acquisition. See Note 2, "Acquisitions."

Note 12
Accrued Liabilities

Accrued liabilities as of December 31 were as follows:

	1998	1997
Salaries, wages and bonuses	$ 62.5	$ 35.3
Interest	47.1	14.4
Restructuring	36.7	13.0
Legal reserve	-	40.8
Other	94.6	127.4
Accrued liabilities	$ 240.9	$ 230.9

The decrease in the legal reserve in 1998 relates to the payment of previously settled litigation matters. See Note 3, "Non-Recurring Charges," for detail relating to the restructuring reserve.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Note 13

Financing Arrangements

Total indebtedness as of December 31, 1998 was approximately $3.0 billion, a $1.6 billion increase from total indebtedness as of December 31, 1997 of $1.4 billion. The primary reason for this increased indebtedness was the Harris Acquisition. See Note 2, "Acquisitions."

Short-term borrowings were $397.0 million and $179.7 million as of December 31, 1998 and 1997, respectively, which primarily consisted of commercial paper, revolving credit facilities, vendor financing arrangements and the portion of the sale of receivables classified as short-term debt as of December 31, 1997, as required by SFAS No. 125. The weighted average interest rate on short-term borrowings was 6.1 percent and 6.0 percent for 1998 and 1997, respectively. Long-term debt as of December 31 consisted of the following:

	1998	1997
Notes and debentures due 2001-2018, with interest rates ranging from 6.50% to 7.625%	$ 1,700.0	$ 300.0
Corporate commercial paper	596.9	-
Industrial revenue bonds, maturing through 2022, with interest rates ranging from 3.50% to 7.525%	92.8	102.1
Revolving credit facilities, variable rates	66.8	655.0
Other debt	193.5	187.3
	2,650.0	1,244.4
Less: current maturities	11.3	9.2
Total long-term debt, less current maturities	$ 2,638.7	$ 1,235.2

A portion of outstanding commercial paper is classified as long-term since it is supported by a long-term bank facility.

As part of a general debt restructuring subsequent to the Harris Acquisition, the Company issued approximately $1.1 billion of long-term notes and debentures with effective interest rates ranging from 6.50 percent to 7.625 percent with maturities from 2001 through 2018. The debt restructuring reduced the Company's short-term borrowings, primarily commercial paper, and retired the higher rate debt assumed as part of the Harris Acquisition.

Also in conjunction with the Harris Acquisition, the Company arranged a $1.0 billion bridge credit facility (Bridge Facility). The Bridge Facility is a 364-day, floating rate facility maturing in March 1999. In December 1998, the Bridge Facility was amended to reduce the amount available under the facility from $1.0 billion to $500.0 million. Commitment fees associated with the Bridge Facility are 15.0 basis points. The Company is currently negotiating an extension of this facility at a reduced amount.

Also in December 1998, the Company renewed and amended its $350.0 million short-term credit facility maturing in December 1999, and amended its $650.0 million long-term credit facility maturing in December 2002, (collectively with the Bridge Facility, the Credit Facilities). Commitment fees associated with the short-term and long-term facilities are 10.0 basis points and 11.0 basis points, respectively. The amount available for borrowing under the Credit Facilities is reduced by the balance of outstanding commercial paper, letters of credit and guarantees. As of December 31, 1998, the Company had a total of $977.6 million of commercial paper outstanding and $1.5 billion of commercial paper backup facilities. Net available borrowings, under the Credit Facilities, as of December 31, 1998 were $442.0 million. Outstanding letters of credit as of December 31, 1998 totaled $53.1 million. These Credit Facilities contain provisions which: (i) restrict the Company's ability to dispose of a substantial portion of its consolidated assets; (ii) limit the creation of additional liens on the Company's and its subsidiaries' assets; and (iii) limit the Company's subsidiaries incurrence of debt. These Credit Facilities also contain a leverage ratio test and other covenants.

The Company, through various subsidiaries, also maintains the following credit facilities: (i) a $100.0 million, five-year revolving credit facility maturing in December 2002 (Canadian Facility); (ii) a 50.0 million Australian Dollar, two-year revolving credit facility maturing in September 2000 and a 25.0 million Australian Dollar, five-year term loan facility maturing in

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

September 2003 (Australian Facilities); and (iii) a 45.0 million Pound Sterling, five-year revolving credit facility maturing in December 2003 (European Facility). As of December 31, 1998, $66.8 million was outstanding under the European Facility, while there were no outstanding obligations under either the Canadian Facility or the Australian Facilities. Commitment fees associated with the Canadian Facility, the Australian Facilities and the European Facility are 11.0 basis points, 30.0 basis points and 30.0 basis points, respectively.

The Company currently guarantees the payment of $75.0 million principal amount of industrial revenue bonds due 2015 issued by the Florida Polk County Industrial Development Authority (Polk County Bonds). As a result of the FTX Merger, the Company is not in technical compliance with one covenant in such guarantee. The Company has notified the Bank of New York, trustee for holders of the Polk County Bonds, regarding the issue. The holders of the Polk County Bonds have not sought to accelerate the Polk County Bonds or requested that any other action be taken. Because solicitation of a unanimous waiver of the technical default is impractical, the Company currently intends to take no action. The Company does not believe that any acceleration, redemption or refinancing of the Polk County Bonds would have a material adverse effect on the Company and its subsidiaries, taken as a whole because the Company believes it would be able to repay the Polk County Bonds from available sources of liquidity.

As of December 31, 1998, the estimated fair value of long-term debt described above was approximately the same as the carrying amount of such debt in the Consolidated Balance Sheet. The fair value was calculated in accordance with the requirements of SFAS No. 107, "Disclosures of Fair Value of Financial Instruments," and was estimated by discounting the future cash flows using rates currently available to the Company for debt instruments with similar terms and remaining maturities.

Extraordinary income of $3.0 million in 1998 and extraordinary charges of $24.9 million and $8.1 million in 1997 and 1996, respectively, related to the early extinguishment of debt.

Cash interest payments were $145.4 million, $56.8 million and $68.3 million in 1998, 1997 and 1996, respectively.

Scheduled maturities, excluding commercial paper borrowings and the revolving credit facilities, are as follows:

1999	$ 27.6
2000	41.8
2001	212.0
2002	314.0
2003 and beyond	1,407.2

Note 14
Other Noncurrent Liabilities

Other noncurrent liabilities as of December 31 were as follows:

	1998	1997
Employee and retiree benefits	$ 234.7	$ 231.0
Environmental	114.3	105.8
Restructuring	44.6	13.3
Deferred gain	36.0	36.8
Other	56.5	53.3
Noncurrent liabilities	$ 486.1	$ 440.2

See Note 3, "Non-Recurring Charges," for more detail on the restructuring reserve.

Note 15
Pension Plans and Other Benefits

The Company has non-contributory pension plans for a majority of its employees. Benefits are based on a combination of years of service and compensation levels, depending on the plan. Generally, contributions to the United States plans are made to meet minimum funding requirements of the Employee Retirement Income Security Act of 1974, while contributions to Canadian plans are made in accordance with Pension Benefits Acts, instituted by the provinces of Saskatchewan and Ontario. Employees in the United States and Canada whose pension benefits exceed Internal Revenue Code and Revenue Canada limitations, respectively, are covered by supplementary non-qualified, unfunded pension plans.

Notes to Consolidated Financial Statements

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The plans' assets consist mainly of corporate equity, United States government securities, corporate debt securities and units of participation in a collective short-term investment fund.

Effective January 1, 1998, the Company transitioned from a defined benefit pension plan to a defined contribution plan for certain employees who elected to do so (Transition). The Company accounted for the Transition in accordance with SFAS No. 88. The impact of the curtailment as a result of the Transition was not material.

The Company also provides certain health care benefit plans for certain retired employees. The plans may be either contributory or non-contributory and contain certain other cost-sharing features such as deductibles and coinsurance. The plans are unfunded. Employees are not vested and such benefits are subject to change.

The Company has adopted SFAS No. 132, "Employers' Disclosures about Pensions and Other Postretirement Benefits," effective December 31, 1998. The new standard does not change the measurement or recognition of costs for pension or other postretirement plans. It standardizes disclosures and eliminates those that are no longer useful.

The following tables, prepared in accordance with the new standard, set forth pension and postretirement obligations and plan assets for the Company's defined benefit plans, based on a September 30 measurement date, as of December 31:

	Pension Benefits		*Other Benefits*	
	1998	1997	1998	1997
Change in benefit obligation				
Benefit obligation as of January 1	$ 391.8	$ 233.8	$ 175.3	$ 71.8
Service cost	10.6	13.0	2.6	1.9
Interest cost	27.5	18.3	11.0	5.3
Plan amendment	6.1	2.9	4.1	-
Effect of settlements	(31.0)	-	-	-
Actuarial loss	41.3	0.7	17.2	2.0
Benefits paid	(48.1)	(13.6)	(9.1)	(2.3)
Acquisitions	36.4	136.7	-	96.6
Other	(1.2)	-	(3.3)	-
Curtailments	(7.0)	-	-	-
Benefit obligation as of December 31	$ 426.4	$ 391.8	$ 197.8	$ 175.3
Change in plan assets				
Fair value as of January 1	$ 380.8	$ 190.2	$ -	$ -
Actual return	0.5	29.5	-	-
Company contribution	37.5	11.2	9.1	2.3
Effect of settlements	(57.9)	-	-	-
Acquisitions	38.1	154.5	-	-
Asset transfer	-	9.0	-	-
Benefits paid	(48.1)	(13.6)	(9.1)	(2.3)
Fair value as of December 31	$ 350.9	$ 380.8	$ -	$ -
Funded status of the plan	$ (75.5)	$ (11.0)	$ (197.8)	$ (175.3)
Unrecognized net (gain) loss	74.5	1.5	7.4	(11.2)
Unrecognized transition liability (asset)	20.7	(1.3)	(1.6)	(1.7)
Unrecognized prior service cost	(0.5)	17.0	(5.3)	(10.2)
Prepaid (accrued) benefit cost	$ 19.2	$ 6.2	$ (197.3)	$ (198.4)
Amounts recognized in the consolidated balance sheet				
Prepaid benefit cost	$ 69.7	$ 63.1	$ 17.1	$ 17.9
Accrued benefit liability	(64.8)	(64.8)	(214.4)	(216.3)
Intangible asset	14.3	7.9	-	-
Total recognized	$ 19.2	$ 6.2	$ (197.3)	$ (198.4)

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The acquisition amounts relate to pension and postretirement liabilities and assets assumed in conjunction with the Harris Acquisition in April 1998, and the FTX Merger which occurred in December 1997. See Note 2, "Acquisitions" and Note 3, "Non-Recurring Charges."

Amounts applicable to the Company's pension plan with accumulated benefit obligations in excess of plan assets are as follows:

	1998	1997
Projected benefit obligation	$ 191.4	$ 113.6
Accumulated benefit obligation	$ 147.0	$ 81.3
Fair value of plan assets	$ 96.3	$ 35.3

	Pension Benefits		*Other Benefits*	
Actuarial assumptions	1998	1997	1998	1997
Discount rate	7.0%	7.5%	7.0%	7.5%
Expected return on plan assets	9.9%	9.6%	-	-
Rate of compensation increase	5.0%	5.1%	-	-

For measurement purposes, a 7.4 percent annual rate of increase in the per capita cost of covered pre-65 health care benefits was assumed for 1998 decreasing gradually to 4.7 percent in 2004 and thereafter; and a 7.5 percent annual rate of increase in the per capita cost of covered post-65 health care benefits was assumed for 1998 decreasing gradually to 5.0 percent in 2004.

The components of net pension and other benefits expense were:

	Pension Benefits			*Other Benefits*		
	1998	1997	1996	1998	1997	1996
Service cost for benefits earned during the year	$ 10.6	$ 13.0	$ 13.5	$ 2.6	$ 1.9	$ 1.7
Interest cost on projected benefit obligation	27.5	18.3	16.8	11.0	5.3	5.2
Return on plan assets	(33.5)	(18.1)	(16.8)	-	-	-
Net amortization and deferral	2.8	2.8	2.6	(1.4)	(1.8)	(1.8)
Curtailments and settlements	19.4	2.8	-	0.5	-	-
Net pension and other benefits expense	$ 26.8	$ 18.8	$ 16.1	$ 12.7	$ 5.4	$ 5.1

The curtailment and settlement charges included in the tables above were primarily recorded as part of the Restructuring Charge. See Note 3, "Non-Recurring Charges."

The assumed health care cost trend rate has a significant effect on the amounts reported. A one-percentage-point change in the assumed health care cost trend rate would have the following effects:

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	One Percentage Point Increase	One Percentage Point Decrease
Effect on total service and interest cost components	$ 0.7	$ (0.6)
Effect on postretirement benefit obligation	$ 10.8	$ (10.2)

The Company also has defined contribution pension and 401(k) investment savings plans (Plans) for certain of its employees in the United States and Canada. Under each of the Plans, participants are permitted to defer a portion of their compensation. Company contributions to the Plans are based on a percentage of employee contributions. In 1998, the Company added a profit sharing feature to the Plans for salaried and non-union hourly employees as a replacement for traditional pension plans. The Company contribution is based on the employee's age and pay and the Company's financial performance. The expense attributable to these plans was $18.1 million, $8.5 million and $6.4 million in 1998, 1997 and 1996, respectively.

In addition, the Company provides benefits such as workers' compensation and disability to certain former or inactive employees after employment but before retirement.

Note 16
Income Taxes

Two of the Company's three potash operations that are subject to Canadian taxes, IMC Kalium Canada Ltd. and IMC Central Canada Potash Inc., are included in the consolidated United States federal income tax return filed by the Company.

Deferred income taxes reflect the net tax effects of temporary differences between the amounts of assets and liabilities for accounting purposes and the amounts used for income tax purposes.

Significant components of the Company's deferred tax liabilities and assets as of December 31 were as follows:

	1998	1997
Deferred tax liabilities:		
Property, plant and equipment	$ 824.2	$ 433.4
Other liabilities	132.1	114.8
Total deferred tax liabilities	956.3	548.2
Deferred tax assets:		
Alternative minimum tax credit carryforwards	137.4	124.4
Net operating loss carryforward	96.7	-
Postretirement and postemployment benefits	45.8	43.1
Foreign tax credit carryforward	24.6	30.6
Sterlington litigation settlement	-	22.4
Reclamation and decommissioning accruals	22.3	23.8
Sale of AgriBusiness	20.0	-
Restructuring charges	58.1	9.5
Purchase accounting adjustments related to Harris Acquisition	28.2	-
Other assets	107.8	61.4
Subtotal	540.9	315.2
Valuation allowance	60.1	37.3
Total deferred tax assets	480.8	277.9
Net deferred tax liabilities	$ 475.5	$ 270.3

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(Dollars in millions, except per share amounts)

As of December 31, 1998, the Company had alternative minimum tax credit carryforwards of approximately $137.4 million, net operating loss carryforwards in the amount of $229.6 million, foreign tax credit carryforwards in the amount of $24.6 million, investment tax credit and other general business credit carryforwards in the amount of $10.7 million, and a carryover of charitable contributions in the amount of $17.8 million.

The alternative minimum tax credit carryforwards can be carried forward indefinitely. The net operating loss carryforwards have expiration dates ranging from 2005 through 2013. The foreign tax credit carryforward will expire in 2001 to the extent it remains unutilized. The investment tax credit and other general business credit carryforwards have expiration dates ranging from 1999 through 2008. The charitable contributions carryover has expiration dates ranging from 1999 through 2001.

Due to the uncertainty of the realization of certain tax carryforwards, the Company has established a valuation allowance against these carryforward benefits in the amount of $60.1 million.

Some of these carryforward benefits may be subject to limitations imposed by the Internal Revenue Code. Except to the extent that valuation allowances have been established, the Company believes these limitations will not prevent the carryforward benefits from being realized.

The provision for income taxes from continuing operations for the years ended December 31 consisted of the following:

	1998	1997	1996
Current			
Federal	$ 27.9	$ 11.9	$ 42.0
State and local	1.9	3.7	2.2
Foreign	43.1	48.3	12.0
	72.9	63.9	56.2
Deferred			
Federal	(20.7)	(37.0)	3.3
State and local	(2.9)	(8.4)	0.7
Foreign	35.2	11.9	21.1
	11.6	(33.5)	25.1
	$ 84.5	$ 30.4	$ 81.3

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The components of earnings from continuing operations including non-recurring items, and before income taxes and extraordinary item, and the effects of significant adjustments to tax computed at the federal statutory rate were as follows:

	1998	1997	1996
Domestic earnings	$ (18.0)	$ (5.0)	$ 151.7
Foreign earnings	159.6	105.2	51.3
Earnings from continuing operations before income taxes and extraordinary item	$ 141.6	$ 100.2	$ 203.0
Computed tax at the federal statutory rate of 35%	$ 49.6	$ 35.1	$ 70.9
Foreign income and withholding taxes	40.9	4.9	11.3
Percentage depletion in excess of basis	(26.6)	(9.5)	(9.0)
Vigoro Merger expenses not deductible for tax purposes	-	-	7.1
State income taxes, net of federal income tax benefit	(0.7)	(3.0)	1.9
Benefit of foreign sales corporation	(4.4)	(5.6)	(3.9)
Amortization of goodwill	9.1	-	-
Sale of Chemicals	16.8	-	-
Other items (none in excess of 5% of computed tax)	(0.2)	8.5	3.0
Provision for income taxes	$ 84.5	$ 30.4	$ 81.3
Effective tax rate	59.6%	30.3%	40.0%

The following supplemental information presents earnings from continuing operations before income taxes and non-recurring charges and the related reconciliation of the effective income tax rate before the impact of such non-recurring charges:

	1998	1997	1996
Domestic earnings	$ 203.6	$ 178.7	$ 236.6
Foreign earnings	159.6	105.2	51.3
Earnings from continuing operations before income taxes and non-recurring and extraordinary items	$ 363.2	$ 283.9	$ 287.9
Computed tax at the federal statutory rate of 35%	$ 127.1	$ 99.4	$ 100.8
Foreign income and withholding taxes	41.2	4.9	11.3
Percentage depletion in excess of basis	(26.6)	(9.5)	(9.0)
State income taxes, net of federal income tax benefit	6.0	4.0	4.4
Benefit of foreign sales corporation	(4.4)	(5.6)	(3.9)
Amortization of goodwill	9.1	-	-
Other items (none in excess of 5% of computed tax)	(18.3)	8.7	2.7
Provision for income taxes	$ 134.1	$ 101.9	$ 106.3
Effective tax rate	36.9%	35.9%	36.9%

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United States income and foreign withholding taxes are provided on the earnings of foreign subsidiaries that are expected to be remitted to the extent that taxes on the distribution of such earnings would not be offset by foreign tax credits. The Company has no present intention of remitting undistributed earnings of foreign subsidiaries aggregating $228.9 million as of December 31, 1998, and, accordingly, no deferred tax liability has been established relative to these earnings. If these amounts were not considered permanently reinvested, a deferred tax liability of $40.2 million would have been required. Income taxes paid, net of refunds received, were $84.9 million, $51.6 million and $73.8 million for 1998, 1997 and 1996, respectively.

Note 17
Capital Stock

Changes in the number of shares of common stock issued and in treasury were as follows:

	1998	1997
Common stock issued:		
Balance, beginning of year	124,668,286	101,639,885
Common stock issued	10,033	22,737,681
Stock options exercised	394,492	290,720
Balance, end of year	125,072,811	124,668,286
Treasury common stock:		
Balance, beginning of year	10,691,520	5,545,884
Common stock issued	-	(211,364)
Restricted stock awards	(53,000)	-
Purchases	100,000	5,357,000
Balance, end of year	10,738,520	10,691,520
Common stock outstanding, end of year	114,334,291	113,976,766

In connection with the FTX Merger, each share of common stock of FTX was exchanged for 0.90 share of the Company's common stock plus one-third of a warrant, with each whole warrant entitling the holder to purchase one share of the Company's common stock for $44.50 per share. As a result of the FTX Merger, 22.7 million shares were issued at an average market price of $32.28 per share. In addition, approximately 8.4 million warrants were issued, which are publicly traded on the New York Stock Exchange and will expire on the third anniversary of the FTX Merger. These warrants were valued at $3.56 per warrant and are convertible into approximately 8.4 million shares of common stock. See Note 2, "Acquisitions."

Pursuant to a Shareholder Rights Plan adopted by the Company in June 1989, a dividend of one preferred stock purchase right (Right) for each outstanding share of common stock of the Company was issued on July 12, 1989, to stockholders of record on that date. Under certain conditions, each Right may be exercised to purchase one two-hundredth of a share of Junior Participating Preferred Stock, Series C, par value $1 per share, at a price of $75, subject to adjustment. This preferred stock is designed to participate in dividends and vote on essentially equivalent terms with a whole share of common stock. The Rights generally become exercisable apart from the common stock only if a person or group acquires 15 percent or more of the outstanding common stock or makes a tender offer for 15 percent or more of the outstanding common stock. Upon the acquisition by a person or group of 15 percent or more of the common stock, each Right will entitle the

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holder to purchase, at the then-current exercise price of the Right, a number of shares of common stock having a market value at that time of twice the exercise price. The Rights may be redeemed at a price of $0.005 per Right under certain circumstances prior to their expiration on June 21, 1999. No event during 1998 made the Rights exercisable.

Note 18
Stock Plans

The Company has various stock option plans (Stock Plans) under which it may grant non-qualified stock options, stock appreciation rights (SARs) and restricted stock awards to officers and key managers of the Company, accounted for under APB Opinion No. 25, "Accounting for Stock Issued to Employees." The Company also has a non-qualified stock option plan for non-employee directors. The Stock Plans, as amended, provide for the issuance of a maximum of 10.6 million shares of common stock of the Company which may be authorized but unissued shares or treasury shares.

Under the terms of the Stock Plans, the option price per share may not be less than 100 percent of the fair market value on the date of the grant. Stock options and SARs granted under the Stock Plans extend for ten years and generally become exercisable either 50 percent one year after the date of the grant and 100 percent two years after the date of the grant, or in one-third increments: one-third one year after the date of the grant, two-thirds two years after the date of the grant, and 100 percent three years after the date of the grant.

In conjunction with the FTX Merger, outstanding FTX stock options for officers and key managers were converted into options of the Company to acquire approximately 1.4 million Company shares at a weighted average exercise price of $25.02 per share. Outstanding FTX stock options for non-employee directors of FTX were converted into options of the Company to acquire approximately 0.1 million Company shares at a weighted average exercise price of $18.50 per share. Additionally, FTX SARs and stock incentive units (SIUs) were converted into approximately 0.1 million Company SARs and approximately 0.2 million Company SIUs based on the Company's common stock at weighted average exercise prices of $15.63 and $24.44 per share, respectively. Due to change of control provisions, all converted FTX options, SARs and SIUs were considered fully vested at the date of the FTX Merger. See Note 2, "Acquisitions."

At the Company's 1996 Annual Meeting, the stockholders approved the 1996 long-term incentive plan which replaced a predecessor plan. The new plan became effective in October 1996. Under the plan, officers and key managers may be awarded stock and/or cash upon achievement of specified objectives over a three-year period ending December 31, 1999. Final payouts are made at the discretion of the Compensation Committee of the Company's Board of Directors whose members are not participants in the plan. Approximately $7.5 million, $8.6 million and $4.4 million were charged to earnings in 1998, 1997 and 1996, respectively, for performance awards earned for the relevant three-year period under the 1996 long-term incentive plan.

Excluding the SARs and SIUs converted in conjunction with the FTX Merger discussed above, there were no SARs granted in 1998, 1997 or 1996. For the SARs, a total of 69,357 shares, 8,525 shares and 26,775 shares were exercised in 1998, 1997 and 1996, respectively. For the SIUs, a total of 49,663 shares were exercised in 1998. There were no exercises during 1997 or 1996, as SIUs did not exist at the Company prior to the FTX Merger. When exercised, all SARs and SIUs are settled with cash payments to employees.

The following table summarizes stock option activity:

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

	1998		1997		1996	
	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
Outstanding at January 1	5,972,350	$ 29.05	3,805,519	$ 27.33	3,816,654	$ 22.98
Granted	2,008,245	28.61	1,222,219	37.63	841,500	40.78
Exercised	350,966	18.12	297,162	18.88	670,727	19.02
Cancelled	274,813	33.28	161,419	36.68	181,908	29.13
Converted FTX options	-	-	1,403,193	25.02	-	-
Outstanding at December 31	7,354,816	$ 29.30	5,972,350	$ 29.05	3,805,519	$ 27.33
Exercisable at December 31	4,530,065	$ 27.91	4,216,057	$ 25.26	2,294,731	$ 21.92
Available for future grant at December 31	574,338		2,307,770		3,368,570	

Data related to significant option ranges, weighted average exercise prices and contract lifes as of December 31, 1998 follows:

	Options Outstanding			*Options Exercisable*	
Range of Exercise Prices	Number of Options	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number of Options	Weighted Average Exercise Price
$10.17 to 16.50	413,862	4 years	$ 16.07	413,862	$ 16.07
$16.51 to 24.16	1,718,189	4 years	19.34	1,210,189	19.82
$24.17 to 37.13	2,925,198	4 years	29.59	1,700,964	28.60
$37.14 to 40.88	2,297,567	7 years	38.75	1,205,050	39.14
$10.17 to 40.88	7,354,816	5 years	$ 29.30	4,530,065	$ 27.91

The assumption regarding the stock options contractual life was that 100 percent of such options vested in the first year after issuance rather than ratably according to the applicable vesting period as provided by the terms of the grants.

If the Company's stock option plans' compensation cost had been determined based on the fair value at the grant date for awards beginning in 1995, consistent with the provisions of SFAS No. 123 "Accounting for Stock-Based Compensation," the Company's net earnings and earnings per share would have been reduced to the following pro forma amounts:

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

	1998	1997	1996
Net earnings (loss):			
As reported	$ (9.0)	$ 62.9	$ 127.1
Pro forma	(16.5)	51.4	123.6
Net earnings (loss) per share:			
Basic	$ (0.08)	$ 0.67	$ 1.37
Pro forma - basic	(0.14)	0.55	1.33
Diluted	(0.08)	0.67	1.31
Pro forma - diluted	(0.14)	0.54	1.27

For the pro forma disclosures, the estimated fair value of the options is amortized to expense over their expected six-year life. These pro forma amounts are not indicative of anticipated future disclosures because SFAS No. 123 does not apply to grants before 1995.

Weighted average fair values of options as of their grant date during 1998, 1997 and 1996 were $9.82, $12.74 and $14.61, respectively. The fair value of these options was estimated at the date of grant using the Black Scholes option pricing model using the following weighted average assumptions:

	1998	1997	1996
Expected dividend yield	0.90%	0.85%	0.85%
Expected stock price volatility	29.1%	25.0%	26.0%
Risk-free interest rate (7 year government)	4.7%	5.8%	6.3%
Expected life of options	6 years	6 years	6 years

Because the Company's employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion the existing models do not provide a reliable single measure of the value of the employee stock options.

Note 19
Commitments

The Company purchases natural gas, ammonia, electricity and coal from third parties under contracts extending, in some cases, for multiple years. Purchases under these contracts are generally based on prevailing market prices. These contracts generally range from one to four years. The Company has entered into a third-party sulphur purchase commitment, the term of which is indeterminable. Therefore, the dollar value of the sulphur commitments has been excluded from the schedule below after the year 2003.

The Company leases plants, warehouses, terminals, office facilities, railcars and various types of equipment under operating and capital leases. Lease terms generally range from three to five years, although some leases have longer terms.

A schedule of future minimum long-term purchase commitments and minimum lease payments under non-cancelable operating and capital leases as of December 31, 1998 follows:

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

	Purchase Commitments	Operating Leases	Capital Leases
1999	$ 410.1	$ 37.6	$ 5.8
2000	228.7	32.9	3.8
2001	203.9	30.6	2.6
2002	172.8	23.5	0.5
2003	173.0	22.6	0.5
Subsequent years	126.5	135.1	1.1
	$ 1,315.0	$ 282.3	$ 14.3
Less: Amount representing interest			1.7
Present value of minimum capital lease payments			$ 12.6

Assets recorded under capital leases are included in machinery and equipment in Property, plant and equipment, net in the Company's Consolidated Balance Sheet and were $21.6 million at December 31, 1998. Capital leases for 1997 were not significant to the Company.

Rental expense for 1998, 1997 and 1996 amounted to $54.5 million, $35.0 million and $31.5 million, respectively.

International Minerals & Chemical (Canada) Global Limited is committed under a service agreement with Potash Corporation of Saskatchewan Inc. (PCS) to produce annually from mineral reserves specified quantities of potash for a fixed fee plus a pro rata share of total production and capital costs at the potash mines located at Esterhazy, Saskatchewan. The agreement extends through June 30, 2001 and is renewable at the option of PCS for five additional five-year periods. Potash produced for PCS amounts to an annual minimum of approximately 0.5 million tons, but no more than approximately 1.1 million tons. During 1998, production of potash for PCS amounted to 598,359 tons, or 16 percent of the Esterhazy mine's total tons produced.

In conjunction with the FTX Merger, the Company, through its interest in PLP, participates in the Exploration Program. In accordance with the Exploration Program, PLP, MMR and the Investor fund 56.4 percent, 37.6 percent and 6.0 percent, respectively, of the exploration costs. As of December 31, 1998, PLP's total exploration spending-to-date was approximately $70.0 million. All revenue and other costs are allocated 47.0 percent to PLP, 48.0 percent to MMR and 5.0 percent to the Investor.

In November 1998, Phosphate Chemicals Export Association, Inc. (PhosChem), of which the Company's IMC-Agrico joint venture is a member, reached a two-year agreement through the year 2000 to supply DAP to the China National Chemicals Import and Export Corporation (Sinochem). This agreement provides Sinochem with an option to extend the agreement to December 31, 2002. Sinochem is a state company with government authority for the import of fertilizers into China. Under the contract's terms, Sinochem will receive monthly shipments at prices reflecting the market at the time of shipment.

Note 20
Contingencies

Mining Risks

Since December 1985, the Company has experienced an inflow of water into one of its two interconnected potash mines located at Esterhazy, Saskatchewan. As a result, the Company has incurred expenditures, certain of which due to their nature have been capitalized while others have been charged to expense, to control the inflow. Since the initial discovery of the inflow, the Company has been able to meet all sales obligations from production at the mines. The Company has considered, and continues to evaluate, alternatives to the operational methods employed at Esterhazy. However, the procedures utilized to control the water inflow have proven successful to date, and the Company currently intends to continue conventional shaft mining. Despite the relative success of these measures, there can be no assurance that the amounts required for remedial efforts will not increase in future years or that the water inflow, risk to employees or remediation costs will not

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

increase to a level which would cause the Company to change its mining process or abandon the mines.

Sterlington Litigation

In early 1998, the Company entered into a Preliminary Settlement Agreement with the plaintiffs in connection with the Louisiana class action arising out of a May 1991 explosion at a nitroparaffins plant located in Sterlington, Louisiana. The Preliminary Settlement Agreement settles all claims that members of the class have against the Company and releases the Company from further potential liabilities based on the claims of the members of the class. In January 1999, the court held a hearing on the fairness of the Preliminary Settlement Agreement. In February 1999, the court entered a written order approving the Settlement Agreement. The Company also has settled all the known claims of individuals and entities who opted out of the Louisiana class action. Settlement of the Louisiana third-party claims is intended to resolve the Company's known potential future liabilities in connection with the Sterlington explosion. In addition, the settlement is intended to protect the Company from the remaining claims for contribution and indemnity filed by ANGUS Chemical Company and the other remaining defendants with respect to the Sterlington explosion.

Potash Antitrust Litigation

The Company was a defendant, along with other Canadian and United States potash producers, in a class action antitrust lawsuit filed in federal court in 1993. The plaintiffs alleged a price-fixing conspiracy among North American potash producers beginning in 1987 and continuing until the filing of the complaint. The class action complaint against all defendants, including the Company, was dismissed by summary judgment in January 1997. The summary judgment dismissing the case is currently on appeal by the plaintiffs to the United States Court of Appeals for the Eighth Circuit (Court of Appeals). The Court of Appeals is expected to rule during calendar 1999.

In addition, in 1993 and 1994, class action antitrust lawsuits with allegations similar to those made in the federal case were filed against the Company and other Canadian and United States potash producers in state courts in Illinois and California. The Illinois case was dismissed for failure to state a claim. In the California litigation, all proceedings have been stayed pending the decision of the Court of Appeals.

FTX Merger Litigation

In August 1997, five identical class action lawsuits were filed in Chancery Court in Delaware by unitholders of PLP. Each case named the same defendants and broadly alleged that FTX and FMRP Inc. (FMRP) had breached fiduciary duties owed to the public unitholders of PLP. The Company was alleged to have aided and abetted these breaches of fiduciary duty.

In November 1997, an amended class action complaint was filed with respect to all cases. The amended complaint named the same defendants and raised the same broad allegations of breaches of fiduciary duty against FTX and FMRP for allegedly favoring the interests of FTX and FTX's common stockholders in connection with the FTX Merger. The plaintiffs claimed specifically that, by virtue of the FTX Merger, the public unitholders' interests in PLP's ownership of IMC-Agrico would become even more subject to the dominant interest of the Company. The amended complaint seeks certification as a class action and an injunction against the proposed FTX Merger or, in the alternative, rescissionary damages. The defendants' moved the court to dismiss the amended complaint in November 1998. The plaintiffs have until March 1999 to file their response. IMC intends to defend this action vigorously.

In May 1998, IMC and PLP (collectively, Plaintiffs) filed a lawsuit (IMC Action) in Delaware Chancery Court against certain former directors of FTX (Director Defendants), and MOXY. IMC alleges that the Director Defendants, as the directors of PLP's administrative managing general partner FTX, owed duties of loyalty to PLP and its limited partnership unitholders. IMC further alleges that the Director Defendants breached their duties by causing PLP to enter into a series of interrelated non-arm's-length transactions with MOXY, an affiliate of FTX.

IMC also alleges that MOXY knowingly aided and abetted and conspired with the Director Defendants to breach their

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

fiduciary duties. On behalf of the PLP public unitholders, IMC seeks to reform or rescind the contracts that PLP entered into with MOXY and to recoup the monies expended as a result of PLP's participation in those agreements. The Director Defendants and MOXY have filed motions to dismiss the Plaintiffs' claims. The defendants filed their briefs in support of their motions in January 1999. IMC filed its amended complaint, and its responses to the motions to dismiss in February 1999. No trial date has been scheduled. IMC intends to pursue this action vigorously.

In May 1998, Jacob Gottlieb filed an action (Gottlieb Action) on behalf of himself and all other PLP unitholders against the Director Defendants, MOXY and IMC asserting the same claims that IMC asserts in the IMC Action. Because IMC and PLP had already asserted these claims, IMC has filed a motion to dismiss the Gottlieb Action. The court has not set a briefing schedule for IMC's motion to dismiss. IMC intends to defend this action vigorously.

Pine Level Property Reserves

In October 1996, IMC-Agrico signed an agreement with Consolidated Minerals, Inc. (CMI) for the purchase of real property, Pine Level, containing approximately 100 million tons of phosphate rock reserves. In connection with the purchase, Phosphates has agreed to obtain all environmental, regulatory and related permits necessary to commence mining on the property.

Within five years from the date of this agreement, Phosphates is required to provide notice to CMI regarding one of the following: (i) whether they have obtained the permits necessary to commence mining any part of the property; (ii) whether they wish to extend the permitting period for an additional three years; or (iii) whether they wish to decline to extend the permitting period. If the permits necessary to commence mining the property have been obtained, Phosphates is obligated to pay CMI an initial royalty payment of $28.9 million. In addition to this royalty payment, Phosphates is required to pay CMI a mining royalty on phosphate rock mined from the property to the extent the permits are obtained.

Environmental Matters

The Company's contingent environmental liability arises from three sources: facilities currently or formerly owned by the Company or its predecessors; facilities adjacent to currently or formerly owned facilities; and third-party Superfund sites.

At facilities currently or formerly owned by the Company or its corporate predecessors, including FTX, PLP and their corporate predecessors, the historical use and handling of regulated chemical substances, crop nutrient products and salt has resulted in soil and groundwater contamination. Spills or other unintended releases of regulated substances have occurred previously at these facilities, and potentially could occur in the future, possibly requiring the Company to undertake or fund cleanup efforts. At some locations, the Company has agreed, pursuant to consent orders with the appropriate governmental agencies, to undertake certain investigations (which currently are in progress) to determine whether remedial action may be required to address contamination.

In a limited number of cases, the Company's current or former operations also allegedly have resulted in soil or groundwater contamination in neighboring areas. For instance, three lawsuits filed in 1998 in Louisiana contend that FTX's historic oil and gas operations may have resulted in contamination at and damage to neighboring marshland: Terrebone Parish School Board v. Texaco Inc.; Estate of Simoneaux v. Southern Natural Gas Co.; and Michael X. St. Martin v. Quintana Petroleum Corp. The suits seek unspecified damages for restoration of the marshes to their "pre-leased," "pre-operational," or "natural" conditions. Because the suits are in the early stages, it is difficult to determine the magnitude of exposure to the Company; however, the Company intends to vigorously contest these actions.

Finally, the Superfund, and equivalent state statutes impose liability without regard to fault or to the legality of a party's conduct, on certain categories of persons that are considered to have contributed to the release of "hazardous substances" into the environment. Currently, the Company is involved or concluding involvement at less than twenty Superfund or equivalent state sites.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

With regard to these contingent environmental liabilities, it is the Company's policy to accrue environmental investigatory and non-capital remediation costs for identified sites when litigation has commenced or a claim or assessment has been asserted or is probable and the likelihood of an unfavorable outcome is probable. In addition to these accrued amounts, material expenditures could be required by the Company in the future to remediate contamination at current or former sites or neighboring off-site areas. For other known sites, the Company estimates that any additional loss in excess of the accrued amounts would not be material. The Company cannot determine the cost of any remedial action that ultimately may be required at unknown sites, sites currently under investigation, sites for which investigations have not been performed, or sites at which unanticipated conditions are discovered. The Company's liability at the federal or state Superfund sites, either alone or in the aggregate, is not currently expected to be material.

The Company believes that, pursuant to several indemnification agreements, it is entitled to at least partial, and in many instances complete, indemnification for a portion of the costs that may be expended by the Company to remedy environmental issues at certain facilities. These agreements address issues that resulted from activities occurring prior to the Company's acquisition of facilities or businesses from parties including PPG Industries, Inc.; Kaiser Aluminum & Chemical Corporation; Beatrice Companies, Inc.; Estech, Inc.; ARCO; Conoco; the Williams Companies; Kerr-McGee Inc.; and certain other private parties. The Company has already received and anticipates receiving amounts pursuant to the indemnification agreements for certain of its expenses incurred to date as well as any future anticipated expenditures.

Other

Most of the Company's export sales of phosphate and potash crop nutrients are marketed through two North American export associations, PhosChem and Canpotex Limited (Canpotex). As a member, the Company is, subject to certain conditions, contractually obligated to reimburse the export association for its pro rata share of any losses or other liabilities incurred. There were no such operating losses or other liabilities in 1998, 1997 and 1996.

The Company also has certain other contingent liabilities with respect to litigation, claims and guarantees of debt obligations to third parties arising in the ordinary course of business. The Company does not believe that any of these contingent liabilities will have a material adverse impact on the Company's financial position.

Note 21
Operating Segments

The Company's reportable segments are strategic business units that offer different products and services. They are managed separately because each business requires different technology and marketing strategies. The Company's operations were restructured into a decentralized organizational structure with five stand-alone business units in July 1996.

As of December 31, 1998, the Company had four reportable segments: Phosphates, Kalium, Salt and Chemicals. The Company produces and markets phosphate crop nutrients through the Phosphates business unit. Potash crop nutrients, industrial grade potash and salt are produced and marketed through the Kalium business unit. Salt produces salt for use in road de-icing, food processing, water softeners and industrial applications. Chemicals produces soda and boron chemicals principally used in the manufacture of glass and numerous industrial and specialty chemical products. In December 1998, a definitive agreement was signed to sell the Chemicals business unit. See Note 5, "Other Divestitures."

The accounting policies of the segments are the same as those described in the summary of significant accounting policies. All intersegment sales prices are market-based. The Company evaluates performance based on operating earnings of the respective business units.

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Segment information for the years 1998, 1997 and 1996 was as follows:[a]

	IMC-Agrico Phosphates	IMC Kalium	IMC Salt	IMC Chemicals	Other[b]	Total
1998						
Net sales from external customers	$ 1,393.9	$ 604.2	$ 173.7	$ 311.8	$ 212.6	$ 2,696.2
Intersegment net sales	178.9	95.9	1.3	-	3.1	279.2
Gross margins[c]	375.6	283.1	57.0	40.8	5.0	761.5
Operating earnings[d]	337.3	257.1	33.3	21.9	(68.6)	581.0
Depreciation, depletion and amortization	84.5	54.0	26.5	38.0	48.7	251.7
Total assets	1,792.2	1,364.9	1,119.3	617.7	1,562.8	6,456.9
Capital expenditures	76.2	159.7	28.1	17.6	86.0	367.6
1997						
Net sales from external customers	$ 1,312.5	$ 537.7	$ -	$ -	$ 265.8	$ 2,116.0
Intersegment net sales	172.3	79.7	-	-	32.3	284.3
Gross margins	298.7	237.7	-	-	38.5	574.9
Operating earnings[e]	257.4	214.8	-	-	(29.1)	443.1
Depreciation, depletion and amortization	100.5	35.9	-	-	26.0	162.4
Total assets	1,752.2	891.1	-	-	2,030.6	4,673.9
Capital expenditures	82.3	123.3	-	-	38.4	244.0
1996						
Net sales from external customers	$ 1,492.5	$ 392.2	$ -	$ -	$ 258.6	$ 2,143.3
Intersegment net sales	168.8	72.6	-	-	155.8	397.2
Gross margins[f]	411.4	159.8	-	-	45.9	617.1
Operating earnings[g]	372.6	136.8	-	-	(24.7)	484.7
Depreciation, depletion and amortization	96.3	30.1	-	-	27.2	153.6
Total assets	1,670.8	697.4	-	-	1,117.0	3,485.2
Capital expenditures	84.1	83.3	-	-	41.6	209.0

[a] *The operating results and assets of Great Salt Lake Minerals (included in Kalium), Salt and Chemicals, acquired as part of the Harris Acquisition, and FTX, acquired as part of the FTX Merger, are included in the segment information since the dates of acquisition. See Note 2, "Acquisitions." The operating results of AgriBusiness have not been included in the segment information provided as this business has been classified as discontinued operations. However, AgriBusiness' assets have been included as part of total assets in the Other column. See Note 4, "Discontinued Operations."*

[b] *Segment information below the quantitative thresholds are attributable to two business units (Feed Ingredients and IMC Vigoro) and corporate headquarters. IMC Vigoro was sold in June 1998. Corporate headquarters includes the elimination of inter-business unit transactions, the goodwill recorded as a result of the FTX Merger in 1997 and oil and gas activities through its interest in PLP. See Note 2, "Acquisitions" Note 3, "Non-Recurring Charges" and Note 5, "Other Divestitures."*

[c] *Before non-recurring charges of $4.1 million related to the sale of IMC Vigoro in June 1998 and $19.0 million related to the Company-wide profit improvement program recorded in December 1998. See Note 3, "Non-Recurring Charges" and Note 5, "Other Divestitures."*

[d] *Before non-recurring charges of $14.0 million related to the sale of IMC Vigoro in June 1998 and $195.1 million primarily related to the Company-wide profit improvement program recorded in December 1998. See Note 3, "Non-Recurring Charges" and Note 5, "Other Divestitures."*

[e] *Before a non-recurring charge of $183.7 million related to the write-down of Main Pass. See Note 2, "Acquisitions."*

[f] *Before non-recurring charges of $20.8 million related to the Vigoro Merger. See Note 3, "Non-Recurring Charges."*

[g] *Before non-recurring charges of $58.3 million related to the Vigoro Merger. See Note 3, "Non-Recurring Charges."*

Notes to Consolidated Financial Statements

(Dollars in millions, except per share amounts)

Financial information relating to the Company's operations by geographic area was as follows:

Net Sales[a]	1998	1997	1996
United States	$ 1,277.9	$ 1,044.2	$ 999.1
China	406.2	459.6	485.0
Other	1,012.1	612.2	659.2
Consolidated	$ 2,696.2	$ 2,116.0	$ 2,143.3

[a] *Revenues are attributed to countries based on location of customer. Sales through Canpotex, one of the Company's export associations, have been allocated based on the Company's share of total Canpotex sales. Amounts reflect continuing operations only.*

Long-Lived Assets	1998	1997	1996
United States	$ 3,944.0	$ 3,233.2	$ 2,188.8
Canada	634.7	378.5	362.8
Other	395.6	-	-
Consolidated	$ 4,974.3	$ 3,611.7	$ 2,551.6

Quarterly Results (Unaudited)

(In millions, except per share amounts)

Quarter[a]	First	Second	Third	Fourth	Year
1998					
Net sales	$ 536.5	$ 793.4	$ 659.5	$ 706.8	$ 2,696.2
Gross margins	153.9	214.0	178.6	191.9	738.4
Earnings (loss) from continuing operations before income taxes	84.3	87.8	75.2	(105.7)	141.6
Earnings (loss) from continuing operations	54.7	56.9	48.7	(103.2)	57.1
Earnings (loss) before extraordinary item	48.0	87.0	37.8	(184.8)	(12.0)
Net earnings (loss)	$ 45.3	$ 87.0	$ 36.9	$ (178.2)	$ (9.0)
Basic earnings (loss) per share[b]:					
Earnings (loss) from continuing operations	$ 0.48	$ 0.50	$ 0.43	$ (0.90)	$ 0.50
Earnings (loss) from discontinued operations	(0.06)	0.26	(0.10)	(0.71)	(0.61)
Extraordinary item - debt retirement	(0.02)	-	(0.01)	0.06	0.03
Net earnings (loss) per share	$ 0.40	$ 0.76	$ 0.32	$ (1.55)	$ (0.08)
Diluted earnings (loss) per share[b]:					
Earnings (loss) from continuing operations	$ 0.48	$ 0.50	$ 0.43	$ (0.90)	$ 0.50
Earnings (loss) from discontinued operations	(0.06)	0.26	(0.10)	(0.71)	(0.61)
Extraordinary item - debt retirement	(0.02)	-	(0.01)	0.06	0.03
Net earnings (loss) per share	$ 0.40	$ 0.76	$ 0.32	$ (1.55)	$ (0.08)
1997					
Net sales	$ 524.9	$ 558.4	$ 499.8	$ 532.9	$ 2,116.0
Gross margins	149.3	155.6	135.0	135.0	574.9
Earnings (loss) from continuing operations before income taxes	69.3	76.0	59.6	(104.7)	100.2
Earnings (loss) from continuing operations	43.5	51.8	36.9	(62.4)	69.8
Earnings (loss) before extraordinary item	39.1	88.3	26.7	(66.3)	87.8
Net earnings (loss)	$ 39.1	$ 85.0	$ 26.7	$ (87.9)	$ 62.9
Basic earnings (loss) per share[b]:					
Earnings (loss) from continuing operations	$ 0.46	$ 0.55	$ 0.40	$ (0.67)	$ 0.74
Earnings (loss) from discontinued operations	(0.05)	0.39	(0.11)	(0.04)	0.19
Extraordinary item - debt retirement	-	(0.03)	-	(0.23)	(0.26)
Net earnings (loss) per share	$ 0.41	$ 0.91	$ 0.29	$ (0.94)	$ 0.67
Diluted earnings (loss) per share[b]:					
Earnings (loss) from continuing operations	$ 0.46	$ 0.55	$ 0.39	$ (0.66)	$ 0.74
Earnings (loss) from discontinued operations	(0.05)	0.38	(0.11)	(0.04)	0.19
Extraordinary item - debt retirement	-	(0.03)	-	(0.23)	(0.26)
Earnings (loss) per share	$ 0.41	$ 0.90	$ 0.28	$ (0.93)	$ 0.67

[a] *All quarterly amounts have been restated to reflect AgriBusiness as discontinued operations.*

[b] *Due to weighted average share differences, when stated on a quarter and year-to-date basis, the earnings per share for the years ended December 31, 1998 and 1997 do not equal the sum of the respective earnings per share for the four quarters then ended.*

1998 All four quarters operating results for 1998 reflect the FTX Merger while second, third and fourth quarter operating results reflect the Harris Acquisition.

Second quarter operating results include a non-recurring charge of $9.1 million, or $0.08 per share, related to the sale of the IMC Vigoro business unit.

Fourth quarter operating results include after-tax charges of $114.2 million, or $1.00 per share, related to a Company-wide profit improvement program and $48.7 million, or $0.42 per share, for the estimated loss on the divestiture of Chemicals.

1997 Fourth quarter operating results include an after-tax charge of $112.2 million, or $1.19 per share, from charges related to the write-down of the Company's 25.0 percent ownership in the Main Pass sulphur, oil and gas joint venture in connection with the FTX Merger.

Five Year Comparison

(In millions, except per share amounts)

	Years ended December 31				
	1998[a,b]	1997[b,c]	1996[b,d,e]	1995[d]	1994[d,f]
Statement of Operations Data:[g]					
Net sales	$ 2,696.2	$ 2,116.0	$ 2,143.3	$ 2,132.7	$ 1,675.2
Non-recurring charges	253.2	183.7	84.9	-	-
Earnings from continuing operations before income taxes	141.6	100.2	203.0	307.9	180.9
Provision for income taxes	84.5	30.4	81.3	112.7	81.1
Earnings from continuing operations before extraordinary item and cumulative effect of accounting change	57.1	69.8	121.7	195.2	99.8
Earnings (loss) from discontinued operations	(69.1)	18.0	13.5	23.8	24.4
Extraordinary item - debt retirement	3.0	(24.9)	(8.1)	(3.5)	(4.4)
Cumulative effect of accounting change	-	-	-	-	(5.9)
Net earnings (loss)	$ (9.0)	$ 62.9	$ 127.1	$ 215.5	$ 113.9
Basic earnings (loss) per share:					
Earnings from continuing operations before extraordinary item and cumulative effect of accounting change	$ 0.50	$ 0.74	$ 1.31	$ 2.15	$ 1.17
Earnings (loss) from discontinued operations	(0.61)	0.19	0.15	0.26	0.29
Extraordinary item - debt retirement	0.03	(0.26)	(0.09)	(0.04)	(0.05)
Cumulative effect of accounting change	-	-	-	-	(0.07)
Net earnings (loss)	$ (0.08)	$ 0.67	$ 1.37	$ 2.37	$ 1.34
Diluted earnings (loss) per share:					
Earnings from continuing operations before extraordinary item and cumulative effect of accounting change	$ 0.50	$ 0.74	$ 1.25	$ 2.09	$ 1.17
Earnings (loss) from discontinued operations	(0.61)	0.19	0.14	0.25	0.28
Extraordinary item - debt retirement	0.03	(0.26)	(0.08)	(0.04)	(0.05)
Cumulative effect of accounting change	-	-	-	-	(0.07)
Net earnings (loss)	$ (0.08)	$ 0.67	$ 1.31	$ 2.30	$ 1.33
Balance Sheet Data (at end of period):					
Total assets	$ 6,456.9	$ 4,673.9	$ 3,485.2	$ 3,521.8	$ 3,275.1
Working capital	577.5	389.1	582.6	507.6	355.2
Working capital ratio	1.6:1	1.6:1	2.7:1	2.0:1	1.9:1
Long-term debt, less current maturities	2,638.7	1,235.2	656.8	741.7	699.1
Total debt	3,047.0	1,424.1	711.9	889.5	791.2
Stockholders' equity	1,860.4	1,935.7	1,326.2	1,090.4	883.3
Total capitalization	4,907.4	3,359.8	2,038.1	1,979.9	1,674.5
Net debt/total capitalization	62.1%	42.4%	34.9%	44.9%	47.2%
Other Financial Data:					
Cash provided by operating activities	$ 269.1	$ 563.4	$ 486.7	$ 513.8	$ 403.2
Capital expenditures	367.6	244.0	209.0	146.0	97.7
Cash dividends paid	36.6	29.7	34.5	33.2	14.7
Dividends declared per share	0.32	0.32	0.32	0.31	0.19
Book value per share	16.28	16.98	13.80	11.25	9.20

[a] *Non-recurring charges include the following: (i) $195.1 million, $114.2 million after tax benefits, or $1.00 per share, resulting from the Company-wide profit improvement program; (ii) $44.1 million, $48.7 million after tax expense, or $0.42 per share, due to the estimated loss on disposal of Chemicals; and (iii) $14.0 million, $9.1 million after tax benefits, or $0.08 per share, as a result of the loss on sale of IMC Vigoro.*

[b] *See Notes to Consolidated Financial Statements for a description of acquisitions, divestitures, and non-recurring items.*

[c] *Non-recurring charges of $183.7 million, $112.2 million after tax benefits, or $1.19 per share, resulted from the write-down of the historical carrying value of the Company's 25.0 percent interest in Main Pass.*

[d] *Restated to reflect the Vigoro Merger which was accounted for as a pooling of interests.*

[e] *Non-recurring charges of $84.9 million, $59.9 million after tax benefits, or $0.62 per share, resulted from the restructuring of the Company into a decentralized organizational structure with five stand-alone business units immediately after the Vigoro Merger.*

[f] *Net earnings reflected the cumulative effect of adopting SFAS No. 112, "Employers' Accounting for Postemployment Benefits."*

[g] *Restated to reflect AgriBusiness as discontinued operations.*

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Northbrook, Illinois
Age: 63; Director since 1996

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Retired President and Chief Executive Officer
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St. Louis, Missouri
Age: 62; Director since 1994

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Phillip Gordon
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General Counsel and Assistant Secretary
Age: 55; joined Company in 1998

C. Steven Hoffman
Senior Vice President and
President, IMC International
Age: 50; joined Company in 1974

John U. Huber
Senior Vice President
Age: 60; joined Company in 1996

J. Bradford James
Senior Vice President and
Chief Financial Officer
Age: 52; joined Company in 1998

B. Russell Lockridge
Senior Vice President, Human Resources
Age: 49; joined Company in 1996

Carolyn W. Merritt
Senior Vice President
Environment, Health and Safety
Age: 52; joined Company in 1996

Robert M. Van Patten
Senior Vice President
Age: 53; joined Company in 1996

Lynn F. White
Senior Vice President, Corporate Development
Age: 46; joined Company in 1997

Louis J. Corna
Vice President of Tax and Assistant Treasurer
Age: 51; joined Company in 1998

E. Paul Dunn, Jr.
Vice President and Treasurer
Age: 45; joined Company in 1998

Anne M. Scavone
Vice President and Controller
Age: 35; joined Company in 1993

Rose Marie Williams
Corporate Secretary
Age: 45; joined Company in 1996

Business Unit Senior Management

John U. Huber
President
IMC Crop Nutrients
Age: 60; joined Company in 1996

Robert F. Clark
President
IMC Salt
Age: 55; joined Company in 1998

Kermit E. McCormack
Senior Vice President
IMC-Agrico Feed Ingredients
Age: 53; joined Company in 1995

Glossary

General

There are 17 elements or NUTRIENTS essential for plant growth. Of the six required in large amounts, three (oxygen, hydrogen and carbon) are obtained from soil, air and water. The other three – nitrogen (N), phosphorus (P) and potassium (K) – must be obtained from commercial fertilizers if soil fertility is to be maintained.

Fertilizers are sold in the U.S. by the SHORT TON (2,000 lbs.). In the international market, fertilizers are sold by the METRIC TON or TONNE (2,204 lbs.). To convert tonnes to tons, multiply the number of metric tons by 1.102. Conversely, to convert tons to tonnes, multiply the number of short tons by 0.907.

NUTRIENT ANALYSIS is the $N:P_2O_5:K_2O$ content, by weight, of any fertilizer product. For example, triple superphosphate, a phosphate fertilizer, has a nutrient analysis of 0-46-0. One short ton of triple superphosphate contains no nitrogen, 920 pounds of P_2O_5 and no potash.

BULK BLENDING is the physical combination of granular fertilizer materials to achieve a mixture containing a desired crop nutrient analysis for a specific use.

GRANULATION is the production of uniform granular product by either screening or the physical combination of small particles into larger particles of a defined size.

COMPACTION is the production of granular product by physical compression of small particles in the presence of a binding agent to form larger particles of a defined size.

FEED INGREDIENTS are products that supply essential nutrients to the diet of animals.

Most U.S. and Canadian fertilizer producers consider the DOMESTIC MARKET to be the U.S. and Canada, and the EXPORT MARKET to be the rest of the world. In reality, supply, demand and pricing developments in either market quickly and directly affect the other.

Nitrogen

NITROGEN (N) is essential for plant growth and is generally absorbed by plants in greater amounts than either phosphate or potash. Nitrogen is a key component of protein.

ANHYDROUS AMMONIA (NH_3), with an analysis of 82-0-0, is the basic building block for most nitrogen fertilizers but can also be applied directly to the soil as a fertilizer. About 20% of ammonia production is used for non-agricultural purposes. It is produced by combining nitrogen contained in air with hydrogen contained in natural gas or other hydrocarbon sources.

UREA contains 46% N and is made by combining carbon dioxide with ammonia. It leads all other nitrogen fertilizers in both world use and trade. Urea is used in combination with ammonium nitrate to manufacture nitrogen solutions. Significant quantities are used for non-fertilizer purposes.

FEED UREA is a source of non-protein nitrogen in commercial feeds for ruminant animals (cattle, sheep and goats).

AMMONIUM NITRATE (NH_4NO_3) has an analysis of 34-0-0 in the dry form and is half nitrate N and half ammonium N, making it the preferred product in some uses. It is also used in combination with urea to manufacture nitrogen solutions.

NITROGEN SOLUTIONS, a blend of urea and ammonium nitrate, vary in nitrogen content from 28% to 32% N. Nitrogen solutions are used in the manufacture of fluid fertilizers and in direct application to the soil.

NITRIC ACID, produced by combining ammonia, air and water, is used in the production of nitrate fertilizers and in numerous industrial applications.

Glossary

Phosphate

Phosphorus (P) is one of the three primary crop nutrients required for plant growth. Phosphorus plays a role in many physiological processes in the plant such as the utilization of sugar and starch, photosynthesis and the transfer of energy.

P2O5 is a traditional expression of the phosphate content of fertilizers. A fertilizer with the analysis of 0-46-0 (triple superphosphate, or TSP) would contain 46% P_2O_5 by weight.

Wet-process phosphoric acid, an intermediate product in the production of concentrated phosphate fertilizers, is produced by reacting phosphate rock with a mineral acid, usually sulphuric acid.

Diammonium phosphate (DAP) and monoammonium phosphate (MAP) are the world's leading concentrated phosphate products. These products are manufactured by combining phosphoric acid with ammonia. Typical grades, respectively, are 18-46-0 and 11-52-0.

Merchant grade phosphoric acid (MGA) contains less than 2% suspended solids, making it suitable for export or shipment to domestic customers. Its analysis is 0-54-0.

Triple superphosphate (TSP), a concentrated phosphate fertilizer with an analysis of 0-46-0, is made by acidulating phosphate rock with wet-process phosphoric acid.

Phosphate rock, predominantly calcium phosphate, is the raw material for essentially all phosphate fertilizers and industrial phosphate products.

BPL, literally meaning bone phosphate of lime, is a traditional measure of the phosphate content of phosphate rock.

Feed phosphates are a group of phosphorus-based products specifically for use as mineral supplements in animal feeds. The major phosphorus feed ingredients are monocalcium phosphate, dicalcium phosphate and tricalcium phosphate. All feed phosphates must be defluorinated to reduce their fluorine content to levels that are non-toxic to animals.

Phosphate Chemicals Export Association (PhosChem), formed under the Webb-Pomerene Act, is responsible for export marketing of concentrated phosphates produced in the U.S. by its member companies. IMC-Agrico manages PhosChem's dry product sales and marketing efforts on behalf of the other members. For 1999, IMC-Agrico's gross phosphate allocation is 52% of the association's P_2O_5 sales.

Potash

Potassium (K) is one of the three primary crop nutrients required for plant growth. It is required for several physiological functions in the plant including carbohydrate metabolism, the synthesis of proteins and the activation of enzymes.

Potash is a generic term to describe potassium fertilizers containing 22% to 62% K_2O. Potash is sold on its oxide or K_2O content. A fertilizer with the analysis of 0-0-62 would contain 62% K_2O by weight.

Potassium chloride (KCl), or muriate of potash, contains 60% to 62.5% K_2O and is the most widely used potassium fertilizer. The product varies in color from white to red with the white primarily used for industrial purposes, ice melting and liquid fertilizers. Coarse and granular red are suited to bulk blending with the standard grade primarily sold to export customers.

Potassium nitrate typically contains 44% K_2O and 13% nitrogen and is used on chloride-sensitive crops, fruit trees and high-value vegetable crops.

Glossary

Potassium sulphate (K_2SO_4) is a white material containing 48% to 53% K_2O and 18% sulphur. Potassium sulphate is used most often on potatoes, tobacco, turf grass and other crops which may be sensitive to chloride.

Potassium magnesium sulphate (K-Mag®) is produced from langbeinite ore near Carlsbad, NM. It contains 21% to 22% K_2O, 11% magnesium and 22% sulphur. This product is used on chloride-sensitive crops that are grown on soils deficient in these three nutrients.

Feed potassium products are mineral supplements produced specifically for animal feeds. They are potassium chloride, potassium sulphate and double sulphate of potassium and magnesium.

Canpotex Limited, formed under a Canadian statute similar to the Webb-Pomerene Act, is responsible for all offshore marketing of potassium chloride produced in Saskatchewan. In 1999, IMC Kalium's pro rata share of Canpotex sales will be about 35%.

Salt

Sodium chloride (NaCl), commonly known as salt, is essential to animal life, is used in numerous consumer and industrial applications, and is the leading highway de-icing agent.

Sodium (Na) and chloride (Cl) ions play many roles in the cells and tissues of animals. These elements are especially important in digestion, electrolyte balance and in the maintenance of proper pH in the body.

In the United States, industrial applications are the leading users of salt. Brines, a solution of salt in water, are the primary source of salt for industrial uses. The electrolysis of salt brine to produce elemental chlorine (Cl_2) and caustic soda (NaOH) accounts for 95% of all industrial uses of salt.

Dry salt is used in most non-industrial applications. Rock salt produced in underground mines is primarily used for de-icing and has a purity of 95% to 99%. Evaporated salt, with a purity of over 99%, is primarily used in food, consumer, livestock and other high-purity applications. Evaporated salt is manufactured by the removal of salt from a brine solution.

A salt mine is similar to a room-and-pillar potash mine. About one-half of the salt is removed and the remaining half supports the mine roof. Mined rock salt is used for de-icing and some industrial applications.

De-icing salts work by lowering the freezing temperature of water (and the surrounding ice and snow). De-icing provides safe and essential mobility during winter for motorists, and commercial and emergency vehicles. Because it is cost-effective and non-toxic to humans and animals, sodium chloride is the most commonly used de-icing salt. Other salts used for de-icing under special conditions include potassium chloride (KCl) and magnesium chloride ($MgCl_2$).

Water softener salt conditions or softens water by exchanging sodium ions for calcium and magnesium ions. This specialized salt is suitable for regenerating water softeners because its uniformly large size provides the necessary dissolution rate.

Feed salt is used to provide sodium and chloride not contained in the normal diet of animals. It is often used as a carrier for other essential minerals required by animals in trace amounts.

Releasable
SEP 1 9 2001 Date

Stockholder Information

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Chicago Stock Exchange
Ticker Symbol: IGL

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New York, New York 10005
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Independent Auditors
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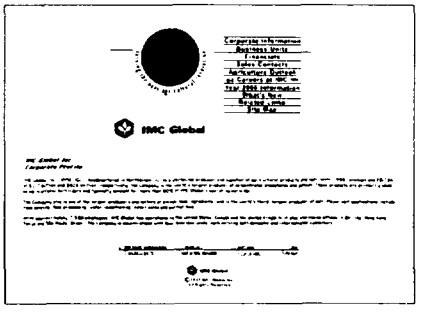
10-K Report
IMC Global's 1998 Form 10-K, filed in March 1999 with the Securities and Exchange Commission, is available to stockholders and interested individuals without charge by writing or calling the Company's headquarters as listed on this page.

IMC Global News Releases
As a service to stockholders and prospective investors, copies of IMC Global's recent news releases can be transmitted in the United States at no charge via fax by calling "Company News On Call" at 1-800-758-5804, ext. 433650. This electronic, menu-driven system allows callers to receive specific news releases within minutes of request.

News releases and other information about the Company also can be obtained by visiting IMC Global's Web site at www.imcglobal.com.

Annual Meeting of Stockholders
The 1999 annual meeting of IMC Global Inc. stockholders will be held at 12 noon (local time), Tuesday, April 27 at:
The Ritz-Carlton Chicago
Versailles Suite
160 East Pearson Street
Chicago, Illinois 60611-2124

A formal notice of that meeting, proxy statement and proxy voting card are being mailed to stockholders in accordance with Securities and Exchange Commission regulations.



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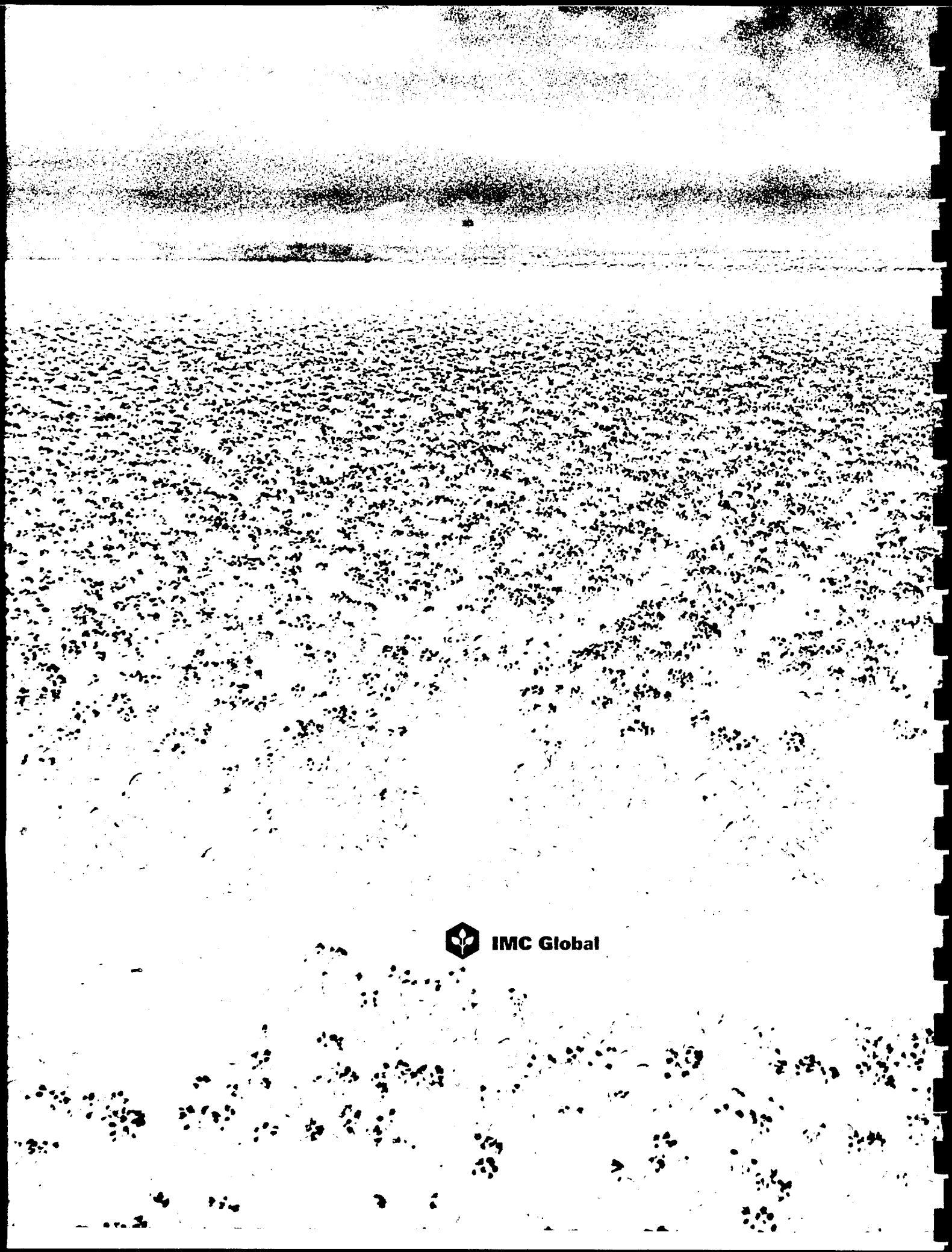
IMC Global

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IV

EPA ID: GAD003300092 **Site Name:** STOLLER CHEMICAL/PELHAM PHOSPHATE CO. **State ID:**

Alias Site Names: PELHAM PHOSPHATE COMPANY INC

City: PELHAM **County or Parish:** MITCHELL **State:** GA

Refer to Report Dated: **Report Type:** SITE REASSESSMENT 001

Report Developed by: STATE

DECISION:

[X] **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**

[X] **1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)**

[ ] **1b. Site may qualify for action, but is deferred to:**

[ ] **2. Further Assessment Needed Under CERCLA:**

2a. Priority: [ ] **Higher** [ ] **Lower**

2b. Other: (recommended action) NFRAP (No Futher Remedial Action Planned

DISCUSSION/RATIONALE:

The U.S. Environmental Protection Agency (EPA) has determined that no further remedial action by the Federal Superfund program is warranted at the referenced site, at this time. The basis for the no further remedial action planned (NFRAP) determination is provided in the attached document. A NFRAP designation means that no additional remedial steps under the Federal Superfund program will be taken at the site unless new information warranting further Superfund consideration or conditions not previously known to EPA regarding the site are disclosed. In accordance with EPA's decision regarding the tracking of NFRAP sites, the referenced site may be removed from the CERCLIS database and placed in a separate archival database as a historical record if no further Superfund interest is warranted. Archived sites may be returned to the CERCLIS site inventory if new information necessitating further Superfund consideration is discovered.

10067991

Site Decision Made by: BRIAN FARRIER

Signature: _____ **Date:** 12/02/2002

EPA Form # 9100-3

Site Reassessment Report

Stoller Chemical / Pelham Phosphate Company
Pelham, Mitchell County, Georgia

CERCLIS ID No.: GAD003300092

NFRAP APPROVED
12/2/2002

Prepared for
U.S. Environmental Protection Agency
Region IV

November 2002

State of Georgia
Department of Natural Resources
Environmental Protection Division
Hazardous Waste Management Bra

10067993

Prepared By:

Antonia S. Beavers

Antonia Beavers
Environmental Engineer

Reviewed By:

Alexandra Y. Cleary
Unit Coordinator

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SITE REASSESSMENT REPORT

Stoller Chemical / Pelham Phosphate Company
Mitchell County, Georgia
EPA ID No. GAD003300092

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) the U.S. Environmental Protection Agency (EPA), Waste Management Division, Region IV has authorized the Georgia Environmental Protection Division (EPD) to conduct a Site Reassessment (SRA) at the Stoller Chemical/ Pelham Phosphate Company Site in Pelham, Mitchell County, Georgia. The purpose of this investigation was to collect information concerning conditions at the site, to assess the immediate or potential threat posed to human health and the environment, to determine the need for an additional investigation under CERCLA/SARA or other authority, and support site evaluation using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL) if appropriate. The scope of this investigation included a review of available file information, a comprehensive target survey, and collecting non-sampling information on and off-site.

1.1 Evaluating Sites After Waste Removals

Because the Stoller Chemical/ Pelham Phosphate site has undergone removal actions under the authority of US Region IV EPA, it was evaluated for qualifying removal actions pursuant to the OSWER Directive, ***The Revised Hazard Ranking System: Evaluating Sites After Waste Removals,*** Publication 93451.1-03FS, October 1991. Under the revised HRS, waste removals, i.e. the physical removal from the site of hazardous substances or wastes containing hazardous substances, may be considered under certain circumstances. EPA established three requirements that must be met in order to consider the results of an action when scoring a site for the NPL. Those removal actions that meet all three requirements are termed qualifying removals. The requirements for considering removal actions are as follows:

- Removal of Waste: the removal action must physically remove waste from the site.
- Timing: the removal action must have occurred prior to the cutoff date applicable to the site.
- Proper Destruction or Disposal: the removed waste must be disposed or destroyed at a facility permitted under RCRA or TSCA or by the NRC.

The applicable cutoff date established for the site is March 8, 1994, which is the date of the Field Study Plan for the (ESI) (ESI) that was completed on October 17, 1994. (An (ESI) was completed for this site on October 17, 1994. Pursuant to the timing criteria of aforementioned OSWER Directive, for sites at which the first SI was conducted more than four years prior to HRS scoring, a later cutoff date may be considered by the Agency. Therefore, the actual completion date of the most recent removal action, December 17, 1998, has been established as the applicable cutoff date for the current site reassessment.)(Reference25).

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

2.1 LOCATION

The Stoller Chemical/ Pelham Phosphate Company is located at West Railroad Street within the city limits of Pelham, Georgia (Mitchell County), approximately one half mile west of U.S. Highway 19 (Reference 1). Previous reports have also referenced the site address as 106 Mitchell Street. The geographical coordinates of the site are 31° 08' 29" N latitude and 84° 09' 18" W longitude as depicted on the United States Geological Survey (USGS) Camilla, Georgia 7.5 minute Topographic Quadrangle Map. The City of Pelham's business district is located approximately one-half mile south of the site. The location of the site is shown on Figure 1. Topography in the area is gently rolling with elevations ranging from 150 to 400 feet above mean sea level (amsl), and the site lies at 300 feet amsl (Reference 1).

The climate in the area generally consists of long hot summers while the winters are cool and short (Reference 2). The average daily temperature in the winter is 55°F, and the average daily temperature in the summer is 79.3°F (Reference 33). The mean annual precipitation in the site area is approximately 48 inches and the mean annual lake pan evaporation is approximately 45 inches, yielding a net annual precipitation of 3 inches (Reference 3). The 2-year, 24-hour rainfall in the area is approximately 4 inches (Reference 4).

2.2 SITE DESCRIPTION

The Stoller Chemical/ Pelham Phosphate Company site is the location of a former manufacturer of phosphate-based fertilizers and agricultural chemicals that used emission control dust, which is a listed hazardous waste, in it's production process. The site is located on approximately two hundred fifty (250) acres, twenty-six of which were used in former facility operations (Reference 8). The inactive facility currently consists of a number of buildings in various states of disrepair including a portion of a chealate building, a granulator, weigh station, main office and storage warehouse (Reference 11). The storage warehouse located in the northwest area of the site is the location of product and material evaluated and deemed non-hazardous waste following hazard characterization (HAZCAT) of all onsite containerized wastes conducted in February of 1993 (Reference 10). The chealate building serves as storage for heavy equipment (Reference11). Seventeen acres of on-site heavy metal contaminated soil and sludge from two (2) former pretreatment surface impoundments have been stabilized/ solidified with fly ash and consolidated into a four-acre landfill at the site. There is also a scrap yard onsite that contains large pieces of scrap metal and several silos and storage tanks that were decommissioned during removal actions that were completed in November of 1998 (Reference 11).

Located in a mainly residential, light industrial area, the site is bordered by the Northern Georgia Railroad Line to the east, an undeveloped wooded area to the north, and residential areas to the south and west (Reference 1). It is partially fenced along the eastern and southern boundaries, but is still accessible (Reference 28).

2.3 OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

2.3.1 Background

In 1911, Mr. J.L. Hand constructed the Pelham Phosphate plant immediately north of the city of Pelham, Georgia, at the intersection of West Railroad Street and Mitchell Street. The Hand family operated the facility until it was sold to Chemical Enterprise Corporation in 1972 (Reference13).

The plant was later purchased by Mr. Jerry Stoller, of Stoller Chemical Corporation (Reference13), and continued operations until it was abandoned through bankruptcy proceedings on March 19, 1992 (Reference 6). All chemical inventory, raw materials, and equipment were abandoned unsecured at the site at that time (Reference 6). Mr. Stoller is listed in the State of Georgia's Hazardous Sites Response Program files as the last known property owner (Reference 22).

The facility was a super-phosphate plant that manufactured phosphate-based fertilizers and agricultural chemicals for the local agricultural industry. The primary activity of the facility was to process raw products such as ammonia, phosphate rock, and potash into NPK fertilizers (Reference39). A venturi scrubber system was used to treat waste steam from the process, and wastewater was collected in two surface impoundments and later recycled back to the scrubber system. The excess wastewater from this process was treated and discharged through the site's National Pollution Discharge Elimination System (NPDES) permit (References 11 and 12).

Other processes converted emission control dusts from the secondary production of steel and other mineral feedstock materials into a trace element product that was blended with the NPK fertilizer (Reference 39). The emission control dust is a listed hazardous waste, (RCRA Waste Code: K061), for its content of lead, cadmium, and chromium and was stored at the facility to maintain an inventory during periods of peak production. The emission control dust was originally stored outside with other bulk ingredients (outside waste pile) from 1975 until November 1981 when it was moved inside to a 14 foot by 18-foot concrete storage bin in the main fertilizer building (Reference 38)

Because the facility was storing hazardous materials, a Notification of Hazardous Waste Activity and a Resource Conservation and Recovery Act (RCRA) Part A Permit Application were filed for the facility in August 1980. According to the application, the facility was also operating under NPDES Permit Number 0000949 and air emission PSD permit number 287110114030. In July 1983, a Revised RCRA Part A and RCRA Part B Application were submitted for the facility. The facility was permitted as an Interim Status Facility and assigned EPA ID No. GAD003300092. (Reference12 and 38)

The RCRA Part B Application indicated the facility received zinc oxide dust generated by Florida Steel Mill located in Charlotte, North Carolina and Baldwin Florida and magnesium oxide dust from the Macalloy Corporation in Charleston, North Carolina (Reference12). An EPD Trip Report dated May 9, 1983 indicated emission control dust was also received from the So Green in Tifton, Georgia, which was documented by weigh bills showing receipt of the material (Reference29). However, by March 15, 1985, when EPD personnel conducted an inspection of the facility, K061 waste was no longer utilized in the manufacturing process, as it was no longer economical. The company was using a mixture of boron, zinc, and magnesium as its source of zinc and storing it inside the bin where the emission control dust was previously stored (Reference 30). Although EPD Consent Orders (EPD-HW-67 and EPD-HW-195) were executed to ensure the requirements of the Georgia Rules for Hazardous Waste Management were met, the outside waste pile received closure certification on October 22, 1986, followed by the receipt of closure certification of the inside waste pile on November 16, 1987. (Reference 22)

In a letter dated November 14, 1988, EPA notified the facility of RCRA regulations requiring post closure care permits (or demonstration of clean closure equivalency pursuant to 40 CFR 264) for certain land disposal units that received wastes after July 26, 1982 or certified closure according to 40 CFR Part 265 interim status standards after January 26, 1983. In a letter dated December 9, 1988, the facility opted to submit a clean closure equivalency demonstration in lieu of the post closure care requirements. By March 1992, the facility had ceased operations as its parent company, Stoller Chemical Company, filed for bankruptcy (Reference 6).

2.3.2 Emergency Response Actions

On July 13, 1992 the Technical Assistance Team (TAT) conducted a Site Investigation under the direction of EPA Region IV Emergency Response and Removal Branch (ERRB). The site investigation verified the presence of large quantities of hazardous substances on the site that posed an immediate threat to nearby residents and the environment. In addition to the numerous leaking tanks, abandoned vessels, and open vats of hazardous waste, the facilities' two 250,000-gallon surface impoundments, formerly used to collect and pretreat wastewater from the manufacturing operations, were actively releasing acidic process wastewater into the environment. Low pH wastewater, which was characteristic hazardous waste (Corrosive, <pH2), flowed from the surface impoundments into the creek system west of the site and through the adjacent neighborhood (Reference7).

Site conditions met the requirements of a removal action pursuant to 40 CFR §300.415 of the National Contingency Plan (Reference8). Members of the TAT documented the following sources onsite: 4 anhydrous ammonia cylinders, 70 tanks (including five vertical containers and two open vats with a capacity of 18,000 gallons of sulfuric acid); 25 transformers and capacitors containing PCB-laden cooling oil; 110 drums containing formaldehyde, caustic soda, and other wastes; approximately 1,200 5-gallon pails with known and unknown wastes; two 250,000-gallon surface impoundments with characteristic hazardous waste (corrosive, pH<2), four waste piles of raw processing material, various lab pack wastes, and 17-acres of soil contaminated with heavy metals that originated from former plant operations (Reference10).

An emergency response action was initiated on July 15, 1992, to eliminate and stabilize ongoing releases at the site. The acidic runoff was temporarily stopped by rebuilding an earthen dike and extending the two surface impoundments to a low area of the site. The inlet valves on a leaking ammonia cylinder were removed or locked. All other leaking containers were plugged until further disposal options could be arranged. A water treatment system was erected to adjust the pH of the wastewater. The discharge of treated wastewater under the facility's existing NPDES permit was initiated (Reference8 and Reference10).

2.3.3 Removal Actions

There were two primary removal actions conducted at Stoller Chemical/ Pelham Phosphate Company site. The following sections will briefly outline the actions taken to address site sources during both removal actions that were considered in this HRS evaluation. The first removal action was conducted from July 15,1992 until February 29,1996. Representative samples were collected from all tanks, drums, and containers found on-site. By February 25, 1993, an inventory was completed including all containers with product and waste. Hazard characterization (HAZCAT) analysis was performed on the various containers and the HAZCAT results along with an inventory of all labeled materials provided a waste-bulking scheme for subsequent disposal (Appendix C). To the extent possible, all corrosive liquids were incorporated into an on-site water treatment system for on-site neutralization, while the balance was disposed off-site at a RCRA approved disposal facility. The remaining product and non-hazardous waste was stored in a storage shed located in the northeast area of the site. Two of the anhydrous ammonia cylinders were transported to Custom Fertilizer Service in Ochlocknee, Georgia, for recycling. The remaining two cylinders' contents were removed and disposed, and they remain on-site. The twenty-five (25) transformers were transported to Transformer Salvage, Inc. in Dudley, South Carolina on May 15,1995 and May 29,1995 (Reference 10).

An extensive soil sampling survey was conducted to determine the nature and extent of soil contamination. Site soils were contaminated with heavy metals, predominantly lead. Soil with 500 parts per million (ppm) of total lead was considered contaminated (Reference10). Seventeen acres of contaminated soil (75,000 cubic yards) around the process area were excavated and stockpiled. Additionally, soil and debris surrounding the old sulfuric acid building, including buried tanks, the old acid chambers, and raw elemental sulfur, were determined to be a source of acid leaching to the site. This material was also excavated and stockpiled in storage cells (Reference8). Five buildings and their adjoining structures were demolished to allow access to contaminated soil or because they were in poor structural condition. Those buildings demolished include: the main fertilizer building, electric shop, boiler room, sulfur canning building, and the sulfuric acid building (Reference10).

The low pH wastewater in the two pretreatment surface impoundments, sulfuric acid released to the environment, and wastes bulked together based on the HAZCAT analysis were treated in the wastewater treatment system. The process included a pH adjustment using caustic soda to neutralize acid. Solids were precipitated out and treated as contaminated soil. Water samples were regularly collected to ensure that discharged water met the specifications of the NPDES permit. Approximately 4,000,000 gallons of acidic wastewater in the surface impoundments was treated in the onsite water treatment system and discharged. (Reference10)

A French drain was installed to divert runoff from the surface impoundments to dry them. The impoundments were dewatered using a series of high volume discharge pumps and a water treatment system. Excavation of the sediment and sludge in the surface impoundments began in October of 1994. The contaminated sediment and sludge in the surface impoundments were dredged and stockpiled for treatment. Kiln dust was selected as a drying agent for the lagoon sludge. The material was solidified with Kiln dust, sampled, excavated, and stockpiled (Reference 10).

The excavated sludge from the surface impoundments combined with the soil surrounding the old sulfuric acid building increased the volume of contaminated material from the estimated 75,000 cubic yards to 95,000 cubic yards. The EPA Emergency Response Team performed a treatability study on soil and sludge to determine the most feasible solidification matrix. Funding was not available to address all lead-contaminated soil. A pug mill was setup on-site and contaminated soil, K061 waste, and surface impoundments sludge were solidified with a portland cement mixture. Treated soil was sampled, stabilized and cured, and finally stockpiled onsite. Due to budget constraints, solidified material was sloped in a vault configuration (monolith) and placed over the remaining lead contaminated soil to act as a barrier to the migration and exposure threats. EPA determined the installation of a clay or synthetic cap would abate the immediate threats present at the site. The Georgia Environmental Protection Division (GA EPD) initially agreed to complete the removal action by installing a proposed clay clap; however, funding was not available and site work was halted on December 6, 1995. EPA then evaluated resources available to complete the installation of the cap (References 8 and 10).

EPA conducted a site inspection on August 15, 1997 to determine site conditions in preparation for the installation of the cap. The main office building and several buildings showed signs of vandalism and trespassing, some areas of the site were overgrown, and access to the site was readily accessible. Due to a lack of erosion control mechanisms, deep erosion channels were present throughout the site. There was also moderate to heavy erosion of the solidified waste. The material was placed in a vault configuration and was exposed for over two years (Reference 8).

The second removal action was conducted from March 31, 1998 to December 17, 1998. This phase of removal activities consisted of the containment of hazardous soils and the burial and

containment of debris left on site from previous removal actions. Soil containment operations involved consolidating the contaminated soil, installing sheet piling around the pile to restrict groundwater flow, capping the soil, and redirecting the site drainage flow around the landfill. Debris consolidation operations involved burying several debris piles on the site, treating and disposing of the contents of several above ground storage tanks (ASTs), demolishing several dilapidated buildings, and miscellaneous activities to clean up and secure the site (Reference 11).

Members of the Tetra Tech EM, Inc. Superfund Technical Assessment and Response Team (START) and the ERRS removal contractor, CMC, mobilized to characterize the nature of site contamination and to originate a plan to contain it. A bright yellow leachate seeped from the southernmost HDPE pipe and flowed north, combining with the water from the other pipes and eventually draining into the creek flowing northwest from the monolith. Members of the Tetra Tech EM, Inc. Superfund Technical Assessment and Response Team (START) collected leachate, surface soil, subsurface soil, and sediment samples from the leachate stream emanating from the monolith. Three high-density polyethylene (HDPE) pipes were installed under the monolith to carry water through it to a drainage ditch on the western edge of the monolith. The water originated from the network of underground pipes and sumps installed at the site during its operational years. (Reference 11)

From March 30, 1998 until April 2, 1998, test pits were dug around the monolith checking both the aerial extent of the monolith and the depth to a suitable clay layer beneath the monolith (maximum pit depth was 11 feet bls). This clay layer would serve as a confining unit and impede groundwater from entering the monolith from beneath. Beginning on May 4, 1998, the monolith was excavated and consolidated, reducing the area covered by the material from 7 acres to just over 4 acres. The soil was then excavated, hauled, spread, graded, smoothed, and compacted into the right shape with the appropriate equipment (Reference 11).

A total of 1,615 linear feet of piling was installed around the monolith from June 24, 1998 through September 18, 1998. Before installation each piece was treated with a sealant, Adeka Ultra Seal A-50, which was poured into the grooves on each piling and served as interlocks holding each piece together. Combined with the clay cap and lower confining clay layer, the pilings completely isolated the monolith from groundwater flow. Installation of the clay cap on the monolith began on June 10, 1998. The cap was installed in equal layers or lifts to reach the specified 3-foot thickness, and was excavated from an on-site borrow pit area north of the monolith. Topsoil was obtained from a large area west of the borrow pit area was installed over the clay cap (Reference11).

Three rings of pine straw bales were then staked down to the cap to slow future runoff. Drainage swales were built around the monolith to divert surface drainage away from it. The area between the swales and the cap was carefully graded and surveyed to ensure proper drainage northwest of the cap, channeling runoff into the creek. The underground drainage system was redesigned in the area of the monolith. Old HDPE piping was disconnected and new HDPE piping was attached to two concrete manholes at the southwest corner of the monolith. The new piping ran underground and emptied into the area where the contaminated soil was excavated, eventually draining into the creek (Reference 11).

During the previous removal actions, all aboveground storage tanks (ASTs) were tested for HAZCAT analysis. Those that were deemed hazardous were incorporated into the wastewater treatment system and managed either by on-site treatment or off-site disposal. No previous action was taken on those tanks whose contents were non-hazardous, and their contents remained in the tanks. On October 14, 1998, liquid was pumped out of the ASTs with a vacuum truck and mixed with kiln dust. A total of 12,500 gallons of liquid was removed from the tanks, solidified, and buried in the small retention cell. The tanks could be categorized into four types (fiberglass, steel,

stainless steel, and plastic), and tank disposal varied according to tank composition. The tanks were shredded and buried, or moved to the scrap yard for any potential cost recovery efforts. One tank released ammonia-smelling gas when mixed with kiln dust. Air monitoring instrumentation confirmed concentrations of ammonia of 3600 ppm. Respirators were donned by workers, and upon mixing with kiln dust, the ammonia concentrations returned to background levels. The mixture was then buried in the small retention cell. No offsite migration of the ammonia was detected. (Reference 11)

Two retention cells were constructed in the borrow area that was lined with clay and compacted at the site. The larger of the two cells measures 150 square feet and was filled with general construction debris such as wood, bricks, concrete, soil, rocks, and unused containers removed from the chealate building. The smaller cell (100 feet square) was excavated 15 feet west of the larger cell and contained nonhazardous industrial materials including solidified storage tank contents, used tyvek personal protection equipment, and sulfurous materials. Both cells were then covered in lifts with a common clay cap and compacted. A layer of topsoil was spread over the cells and seeded by the landscaping contractor. The third cell was located on the concrete foundation slab of the demolished production building contained wooden timbers, metal from the building demolition of the previous removal action, sulfurous material, concrete boulders, and empty 5-gallon buckets. Bulldozers compacted and graded the debris. The pile was then covered with clay to depth of 3 feet, then compacted and covered with a layer of topsoil (Reference 11).

Three buildings were demolished during this removal phase. The largest of the three was the former packaging building that was demolished following a windstorm on 8-18-98. The second building was a small cinder block building located south of the debris piles, and the third building was an equipment storage building located behind the command post. The OSC deemed it a safety hazard and all salvageable equipment were moved to the chealate building (Reference 11).

Large tracks of the site were graded and seeded with grass. Large pieces of scrap metal were collected and placed into an on-site metal scrap yard located just south of the borrow pit area. Rip rap was placed in several locations to slow down site runoff and prevent further erosion. A fence was installed along the eastern edge of the site along the train tracks to secure the site. The scale house was boarded and several pieces of heavy equipment were moved into the chealate building for security purposes. These actions concluded the final removal action at the site (Reference 11).

3.0 WASTE SOURCES

3.1 SOURCE DESCRIPTIONS

In accordance with Section 1.1 of this SRA, sources eligible for consideration for HRS purposes are those sources that do not meet the listed criteria for a qualifying removal. For the purposes of this SRA, and to be environmentally conservative, the sources present at the site at the time of US EPA's Site Investigation on May 13, 1992 will be considered for the migration pathways. Those sources included two 250,000 gallon surface impoundments, seventeen acres of heavy metal contaminated soil, four (4) unlined waste piles of raw processing materials, twenty-five (25) transformers and capacitors containing PCB laden oil, 4 cylinders containing anhydrous ammonia, two (2) cylinders and five vats of approximately 18,000 gallons of sulfuric acid (Reference10). As the Soil Pathway is evaluated based on current site conditions and areas of observed contamination, the following sources will be considered for its evaluation: a 4-acre landfill and soil with metal contaminated sampled during site assessment activities lead by GA EPD in June 2002 (Reference 11). See Section 2.0 for a complete discussion of waste characteristics.

3.2 SAMPLE LOCATIONS

For the purposes of this SRA, the sample locations considered were based on sources that were documented at the site during past investigations that may not be eligible for consideration as a source addressed during a qualifying removal action. Therefore, as an environmentally conservative measure, source sample locations were selected based on samples collected during those investigations. Hundreds of samples were collected from the site as part of the emergency response and removal activities conducted by EPA. The sampling grids for soil and sampling locations are attached in Appendix C. The two surface impoundments were sampled during the ESI conducted in 1994. Sample locations are described in Table 3-1 and depicted on Figure 4. Source sample analytical results are discussed in Section 3.3.

3.3 ANALYTICAL RESULTS

Emergency response contractors collected numerous samples at the site. Soil samples showed extensive heavy metals contamination, predominantly lead, as deep as 2 feet bls. Sample results of the stockpiles of raw material used by the plant in the manufacturing process indicated concentrations of arsenic, cadmium, chromium, and lead. PCBs were detected in composite samples collected from transformers (96 Report). Many of the drums and other containerized waste were sampled and analyzed using hazard characterization analysis and were not analyzed for specific constituents. Finally, the two surface impoundments were sampled during the ESI conducted in 1994. Those sample results indicated elevated levels of the following in the surface impoundments: antimony, arsenic, barium, copper, lead, mercury, potassium, zinc, carbon disulfide, methyl ethyl ketone, gamma-chlordane, alpha chlordane, fluoranthene, pyrene, and bis (2-ethylhexyl) phthalate. (Reference26)

3.4 CONCLUSIONS

A number of the sources at the site were addressed during the two removal actions described in Section 2.0. However, for the purposes of this SRA and to be environmentally conservative, sources documented onsite in during previous investigation were considered for the migration pathways. Based on sample analysis from previous investigations, the site sources contained elevated concentrations of both organic and inorganic constituents (96 RR and ESI). The 4-acre landfill was considered as a source for the soil exposure pathway.

4.0 **GROUNDWATER PATHWAY**

4.1 HYDROGEOLOGIC SETTING AND SITE GEOLOGY

The Stoller Chemical/ Pelham Phosphate site lies within the Tifton Upland District of the Coastal Plain Physiographic Province. The site lies on the border between the Tifton Upland and Dougherty Plain Physiographic Districts. The two districts are separated by the Solution Escarpment. The Dougherty Plain is at the base of the escarpment and the Tifton Upland is located at the crest of the escarpment. The Tifton Upland is characterized as a rolling upland, with numerous southeastward-flowing streams. The streams of the district tend to have a strongly developed dendritic drainage

pattern. Sinks and other solution features are absent from the district with the exception of the area immediately adjacent to the escarpment (Reference 17).

Soils beneath the Pelham Phosphate site are comprised of several soil types which include the Osier Pelham complex, Tifton loamy sands and sandy loams, and Carnegie sandy loams. Osier Pelham soils are associated with flood plains having a shallow water table of approximately one to two feet below land surface (bls) and rapid permeability (6-20 inches/hour), but tend to be poorly drained. Tifton loamy sand and sandy loams are well drained with moderate permeability (0.2-2.0 inches/hour) and increase in clay content with depth. Likewise, Carnegie sandy loams are well drained with moderately slow permeability (0.2-2.0 inches/hour) and increase in clay content with depth. Most of the soils are formed in sandy, loamy marine sediments. (Reference 2) The region is underlain by approximately 5,000 to 7,000 feet of sedimentary rock ranging in age from Miocene to early cretaceous. The site is underlain by an area of outcrop of the Miocene Age Hawthorne Formation. The Hawthorn Formation is underlain by the following formations in descending order: the Miocene Tampa Limestone, the Oligocene Suwanee Limestone, the Upper Eocene Ocala Limestone, the Middle Eocene Claiborne Group composed of the Lisbon and Talahatta Formations, and the Lower Eocene Wilcox Group (Tuscahoma Formation) (Reference 17).

The Hawthorne Formation is composed sand and sandy clay. The formation ranges from zero to approximately 100 feet in thickness in Mitchell County. The Hawthorne Formation is believed to be 50 feet thick beneath the site. The Hawthorne is a poor aquifer yielding 1 to 5 gallons per minute (gpm) to shallow wells. It is a poor aquifer because of its thinness, clayey character, and dissection by streams (Reference 17). The potentiometric surface of the Hawthorne Formation is roughly 10 to 20 feet bls. The hydraulic conductivity of the sediments similar to those that compose the Hawthorne Formation (sand, sandy clay) has been estimated to range from 1 to 10^{-7} centimeters per second (cm/s) (Reference 23).

The Tampa Limestone consists of sand, sandy marl, sandy limestone, and Fullers earth (clay). The unit is approximately 140 feet thick beneath the city of Pelham. The Tampa Limestone is considered to be a poor aquifer due to the presence of dense, impermeable marl beds, within only slightly less impermeable limestone and calcareous sands (Reference17). The hydraulic conductivity of sediment and rock similar to those that comprise the Tampa Limestone (sand, limestone, clay) has been estimated to range from 1 to 10^{-10} cm/s (Reference 23).

The Suwanee Limestone consists of pinkish white pure fossilferous limestone, ranging in thickness from 0 to 100 feet thick in Mitchell County. The unit yields small quantities of water to wells (Reference 17). The hydraulic conductivity of rock similar to the Suwanee Limestone has been shown to range from 10^{-4} to 10^{-7} cm/s (Reference 23).

The Ocala Limestone consists of bioclastic limestone and crystalline dolomitic limestone. The Ocala is approximately 310 feet beneath Pelham; regionally, the unit varies from 200 to 300 feet thick. The Ocala Limestone is considered to be a good aquifer, although its value as an aquifer is reduced beneath the Tifton Upland, in contrast to the Dougherty Plain, due to extensive recrystallization and dolomitization that has occurred. In Mitchell County, the Ocala Limestone yields up to 475 gpm (Reference 17). The hydraulic conductivity of rock similar to the Ocala Limestone has been shown to range from 1.0 to 10^{-3} cm/s (Reference 23).

The Claiborne Group is comprised of the Lisbon Formation and the underlying Tallahatta Formation. The Lisbon Formation consists of dense glauconitic, fossiliferous, sandy limestone containing sandstone and marl beds, while Tallahatta Formation consists of massive, clean, phosphatic sand containing shell fragments, fish teeth, and thin marl beds. The Lisbon Formation ranges from 70 – 100 feet in thickness whereas the Tallahatta Formation ranges from 275 – 390

feet in thickness in Mitchell County (Reference17). In the northwest portion of Mitchell County, the Lisbon Formation confines the underlying Tallahatta Formation, which has been referred to s the Claiborne Aquifer (Reference 18). The Lisbon is estimated to have a hydraulic conductivity ranging from 10^{-6} to 10^{-8} cm/s. The hydraulic conductivity of the water-yielding portion of the Claiborne Aquifer is estimated to be roughly 10^{-1}cm/s (Reference23). Wells screened in the aquifer may potentially yield up to 1000 gpm. The lower confining unit of the Claiborne aquifer is the glauconitic silt of the Tuscahoma Formation. The hydraulic conductivity of the Tuscahoma Formation is estimated to be 10^{-6} cm/s based on estimates of conductivity of similar sediments (Reference 24).

Groundwater beneath the site is estimated to flow northwest within the Hawthorne Formation under water table conditions (Reference1, Reference27). Due to potential perched and floodplain conditions, the water table may be encountered 10-20 feet beneath the site (Reference2).

4.2 GROUNDWATER TARGETS

Table 4-1 presents the number of people on public and private water sources within ¼, ½, 1, 2, 3, and 4 miles of the site according to the estimates from the U.S. Census database (Reference36). Most people within 4-miles of the site obtain water from public supply wells that serve approximately 1332 residential connections (Reference16). The three public supply wells for the City of Pelham are located within the city limits, and the nearest City of Pelham well is 0.75 miles south of the site as depicted in Figure 5. The city wells are installed in the Ocala Aquifer, which is approximately 300 feet below ground surface (bgs) and are drilled as deep as 700 to 800 feet deep. (Reference14, Reference15, Reference32) There are approximately 1500 people who obtain drinking water from private wells within a 4-mile radius of the site per the 1990 Census data (Reference36). The nearest private well was located at approximately 0.6 miles from the site. Depths of private wells are typically 200 to 300 feet bgs (Reference28).

4.3 GROUNDWATER SAMPLE LOCATIONS

In April of1993, members of the Emergency Response Team collected groundwater samples from seven on-site wells. The wells ranged in depth from approximately 20 to 40 feet below land surface (bls). Groundwater flow was determined to be in to the northwest direction, therefore, monitoring well MW-01 was considered upgradient. The samples were analyzed for Safe Drinking Water Act metals (Reference 26) Sample results are denoted in Table 4-2.

GA EPD contractors conducted site assessment activities in June 2002 to determine groundwater conditions at the site. Six (6) monitoring wells were installed in the surficial aquifer ranging in depth from approximately 15 to 30 feet bls . Based on water level data collected during the sampling event, groundwater flow within the surficial aquifer is in the northwest direction. Monitoring well PEL-EE-MW1-GW, located near the southern entrance gate away from the former processing area was designated as the background well. Sample locations are depicted on Figure 6 and sampling results are denoted in Table 4-3.

4.4 ANALYTICAL RESULTS

Analytical Results – 1993 Sampling Event

Eight inorganic constituents were detected in the six down gradient monitoring wells at elevated concentrations. For purposes of this SRA, elevated concentrations are concentrations exceeding the maximum contaminant level (MCL) or detections greater than three times the background concentration when the MCL has not been established. Beryllium was detected in wells 6 and 7 at a maximum concentration of 0.0046 mg/L. Boron was detected in wells 3 and 5 at a maximum concentration of 30.0 mg/L. Cadmium (0.007 mg/L) and magnesium (4.3 mg/L) were detected in monitoring well 3. Strontium was detected at wells 5 and 6 at a maximum concentration of 2.05 mg/L, and thallium (0.040 mg/L) was detected at well 6. Finally, mercury was detected in wells 4, 5, and 7 at a maximum concentration of 0.0074 mg/L. A summary of groundwater analytical results is presented in Table 4-2. The complete analytical results are attached in Appendix C.

Analytical Results - 2002 Sampling Event

One inorganic constituent, zinc, was detected at elevated concentrations in downgradient wells. Zinc was detected at elevated levels in monitoring wells PEL-EE-MW2-GW and PEL-EE-MW5-GW at concentrations of 0.0539 mg/L and 0.0525 mg/L respectively. A summary of groundwater analytical results is presented in Table 4-3. The complete analytical results are attached as Appendix F.

4.5 GROUNDWATER CONCLUSIONS

These analytical results indicate a release of inorganic contaminants to the shallow aquifer at the site. The samples were collected from wells drilled at depths ranging from 15 to 40 feet bls (Reference26, Reference27). The three public supply wells in the City of Pelham and all known private wells are drilled at a minimum of 200 to 300 feet deep in the Ocala (Floridian) aquifer (Reference28). There was no analytical data collected for the purposes of this SRA that indicate the public supply wells or private wells have been affected by site contamination.

5.0 **SURFACE WATER PATHWAY**

5.1 HYDROLOGIC SETTING

Surface water runoff is currently controlled through berms or swales built around the landfill cap to direct surface drainage. Site surface runoff is channeled through the berms into the adjacent intermittent creek west of the site, which flows from the site in the northwestern direction. The outlets of on-site manholes are connected to high-density polyethylene (HDPE) piping that underground to the north of the sloped landfill and eventually drains into the drainage creek (Reference11). An intermittent creek, which the local population has deemed, "Acid Branch Creek" originates near the site and flows in the northwest direction through the adjacent community (Reference 35). The intermittent creek flows more than eight miles before it becomes a perennially flowing body of water (Reference1, Reference24). The Stoller Chemical / Pelham Phosphate Company site is located outside the 500-year flood plain. (Reference9, Reference26)

5.2 SURFACE WATER TARGETS

There were no surface water targets evaluated for the site, as there are no nearby perennial bodies of water receiving overland flow from the site (Reference1, Ref24). Targets potentially impacted by sediment contamination along the banks of Acid Branch Creek are discussed under Section 6.3 of the Soil Exposure Pathway.

5.3 SURFACE WATER SAMPLE LOCATIONS

There were no surface water samples collected at the site, as no perennial body of water is present near the site (Reference1). The results of sediment samples along the banks of Acid Branch Creek are discussed under Section 6.3 of the Soil Exposure Pathway.

5.4 SURFACE WATER CONCLUSIONS

As surface water runoff travels greater than 8-miles before becoming a perennial body of water, and due to the intermittent nature and small size of Acid Branch Creek, no surface water targets were located along the surface water pathway (Reference1, Reference24).

6.0 SOIL EXPOSURE AND AIR PATHWAYS

6.1 PHYSICAL CONDITIONS

The inactive facility currently consists of a number of buildings in various states of disrepair including a portion of a chealate building, a granulator, weigh station, main office and storage warehouse (Reference 11). The storage warehouse located in the northwest area of the site is the location of product and material analyzed and deemed non-hazardous waste following hazard characterization (HAZCAT) of all onsite containerized wastes conducted in February of 1993 (Reference 10). The chealate building serves as storage for heavy equipment (Reference11). Seventeen acres of on-site heavy metal contaminated soil and sludge from two (2) former pretreatment surface impoundments have been stabilized/ solidified with portland cement mixture and consolidated into a four-acre landfill at the site. There is also a scrap yard onsite that contains large pieces of scrap metal and several silos and storage tanks that were decommissioned during removal actions that were completed in November of 1998 (Reference 11). Exposed sulfurous material is evident in the area of three (3) retention cells containing debris that was buried during removal actions conducted in 1998 (Reference11, Reference31)

6.2 SOIL AND AIR TARGETS

As the Stoller Chemical/ Pelham Phosphate site was abandoned after the company filed for bankruptcy in 1992, there currently no employees onsite. The nearest residence is located within 300 feet of known site contamination. The nearest school is the Pelham City School District located approximately 1 mile south of the site at 188 West Railroad Street in the City of Pelham (Reference28). The state designated threatened species listed in Mitchell County are depicted on in Table 6-1 (Reference34). There are no wetlands located within a 2-mile radius of the site (Reference26, Reference20). Per the 1990 US Census, the total population within a 4-mile radius of the site is 5,206 persons (Reference36).

6.3 SOIL SAMPLE LOCATIONS AND ANALYTICAL RESULTS

US EPA contractors sampled on-site soil extensively during the Emergency Response and Removal Actions that were initiated in July 1992 to determine the complete nature and extent of soil contamination. Concentrations of inorganics, predominantly lead (21,000 ppm), were detected as deep as 2 feet at the site (Reference6). During the ESI conducted in 1994, sediment samples were

collected along Acid Branch Creek within 20 feet of residential dwellings. The sediment was evaluated under the soil pathway as the surface water pathway was not evaluated for the site. Sample results for the sediments indicated elevated concentrations of inorganics. Sample locations are depicted on Figure 7 and the results are shown in Tables 6-2a and 6-2b. EPD contractors collected five(5) surface soil and two(2) sediment samples during the site assessment conducted in June 2002. Sample locations are depicted on Figure 6 and Tables 6-3 and 6-4.

6.4 AIR MONITORING

Air monitoring was not performed during the site reassessment inspection.

6.5 SOIL EXPOSURE AND AIR PATHWAY CONCLUSIONS

Inorganic constituents were detected in elevated concentrations in on-site soil during past investigations. The primary contaminant of concern was lead, which was detected in soil in concentrations as high as 21,000 mg/kg (Reference6, Reference10). During the 1994, inorganic constituents were detected in sediment samples collected along Acid Branch Creek at elevated concentrations within 20 feet of residential dwellings. These constituents posed a potential threat to nearby residents (Reference26). The former pretreatment surface impoundments that were collecting and actively releasing low pH wastewater to the adjacent neighborhood have been neutralized and the associated sludge has been excavated, solidified, and placed in an on-site landfill (Reference11, Reference26). Site soil contaminated with inorganic constituents, contaminated soil discovered in the old sulfuric acid building, sludge and sediment in the two (2) former surface impoundments, as well as the volume of K061 waste stockpiled onsite have been treated and placed in a landfill that is covered with a 3-foot clay cap and topsoil (Reference8,Reference11). Surface soil and sediment samples collected by GA EPD contractors in June 2002 did not exceed Type 3 industrial risk reduction standards or the US EPA sediment screening values (Reference27).

7.0 **SUMMARY AND CONCLUSIONS**

The Stoller Chemical/ Pelham has undergone emergency response and removal actions under the direction of US EPA to mitigate threats to human health and the environment. The large quantities of hazardous materials discovered during the site investigation conducted in July 1992 have been addressed via on-site treatment or off-site disposal of the materials. The most notable removal action conducted at the site was the closure of the surface impoundments, excavation of heavy metal contaminated soil, and consolidation of them into a four-acre clay capped landfill with drainage control. Based on the results of the site assessment activities conducted by GA EPD contractors, GA EPD plans to install more monitoring wells to monitor the landfill, dispose of the material stored in the storehouse and demolish it.

An environmentally conservative approach was utilized to generate this SAR. There may exist conditions at the site that may need to be addressed in future investigations. GA EPD plans to conduct further sampling at the site to characterize and properly dispose of the material currently stored in the on-site warehouse. Soil samples will be collected around the building and at other locations to determine the source and extent contamination at the site. Areas that exceed the State of Georgia notification criteria will be excavated and disposed offsite. A small volume of this material is expected. EPD is also considering the installation of additional monitoring wells to

further define the extent of contamination in groundwater. The site will have chain link fencing installed with a secured gate for access and appropriate signs.

REFERENCES

1. U.S. Geological Survey, 7.5 Minute Series Topographic Quadrangle Maps of Georgia: Camilla Georgia, 1971, Pelham Georgia, 1971.

2. U.S Department of Agriculture, Soil Conservation Service, Soil Survey of Baker and Mitchell Counties, Georgia, 1986.

3. U. S. Department of Commerce, Climatic Atlas of the United States, Washington, D.C.: GPO, June 1968; Reprint: 1983, National Oceanic and Atmospheric Administration.

4. U.S. Department of Commerce, Rainfall Frequency Atlas of the United States: Technical Paper No. 40, Washington, D.C.: GPO, 1961.

5. Myron D. Lair, Chief, Emergency Response and Removal Branch, U.S. Environmental Protection Agency (USEPA), Memorandum to Narindar Kumar, Acting Chief, Site Assessment Branch, USEPA, March 24, 1993. Subject: Referral on the Pelham Phosphate Site for Assessment and Hazardous Ranking.

6. De'Lyntoneus Moore, On-Scene Coordinator, Emergency Response and Removal Branch, U.S. Environmental Protection Agency (USEPA), Memorandum to Joseph R. Franzmathes, Director, Waste Management Division, USEPA, September 20, 1993. Subject: Request for Ceiling Increase at the Pelham Phosphate Company Site in Pelham, Mitchell County, Georgia.

7. John H. Hankinson, Regional Administrator, U.S. Environmental Protection Agency (USEPA) Region IV, Memorandum to Elliot P. Lewis, Assistant Administrator, Office of Solid Waste and Emergency Response, USEPA, September 1, 1995. Subject: Request for a Removal Action Ceiling Increase for the Stoller Chemical Company-Pelham Site, Pelham, Mitchell County, Georgia.

8. John H. Hankinson, Jr., Region Administrator, U.S. Environmental Protection Agency (USEPA) Region IV, Memorandum to Tim Fields, Jr., Acting Assistant Administrator, Office of Solid Waste and Emergency Response, USEPA, September 19, 1997. Subject: Request for a Removal Action Ceiling Increase and exemption from the $2 Million Dollar and the Twelve Month Statutory Limit at the Stoller Chemical Company-Pelham Site, Pelham, Mitchell County, Georgia.

9. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map 8, Mitchell County, Georgia, February 27,1996.

10. PRC Environmental Management, Inc., Revised CERCLA Removal Report for the Stoller Chemical Company Pelham, Mitchell County, Georgia. Technical Direction Document No. 04-9610-0011. December 13, 1996.

11. Tetra Tech EM, Inc., Letter Report Pelham Phosphate Site; Pelham, Mitchell County, Georgia. Technical Direction Document (TDD) No. 04-9710-0002, January 31, 1999.

12. General Engineering Laboratories, An Application for a RCRA Permit for the Storage of Hazardous Wastes-Part B, Submitted for Pelham Phosphate Company, Pelham, Georgia. July 25, 1983.

13. Pelham Phosphate Company, *History*, page 99. Date unknown.

14. Georgia Environmental Protection Division. Record of Conversation with Mr. Teddie Huey, Supervisor, Pelham Gas, Water, and Sewer. Subject: Public Supply Wells/ Private Wells, June 28, 2002.

15. Georgia Environmental Protection Division. Record of Conversation with Mr. Teddie Huey, Supervisor, Pelham Gas, Water, and Sewer. Subject: Public Supply Wells, October 8, 2002.

16. Georgia Environmental Protection Division. Record of Conversation with Ms. Lisa Austin, City of Pelham. Subject: Pelham Municipal Well Customers. November 8, 2002.

17. Georgia State Division of Conservation, Department of Mines, Mining and Geology Vaux Owen, Jr., 1963, Geology and Groundwater Resources of Mitchell County, Georgia, Information Circular 24.

18. Department of Natural Resources Environmental Protection Division, Georgia Geologic Survey,Stephen S. McFadden and P.D. Perriello, 1983, Hydrogeology of the Clayton and Claiborne Aquifers in Southwestern Georgia, Information Circular 55.

19. U.S. Environmental Protection Agency, *Superfund Chemical Data Matrix*. June 1996 Edition.

20. U.S. Department of the Interior, Fish And Wildlife Survey, National Wetlands Inventory. 1994 Pelham, Georgia and Camilla, Georgia National Wetlands Inventory Maps.

21. GA EPD, Hazardous Waste Management Branch (HWMB), File Information, Site ID GAD003300092.

22. GA EPD, Hazardous Waste Management Branch (HWMB), Hazardous Site Inventory File Information, Site # 10070.

23. R. A. Freeze and J.A. Cherry, 1979, Groundwater, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

24. Sandy Tucker, Geographic Information Systems Specialist, Drinking Water Compliance Program, GA EPD, Memorandum to Alexandra Y. Cleary, Unit Coordinator, Hazardous Waste Management Branch, GA EPD, November 18, 2002. Subject: Request for Information Stoller Chemical/ Pelham Phosphate GAD003300092.

25. U.S. Environmental Protection Agency, *The Revised Hazard Ranking System: Evaluating Sites After Waste Removals*. Publication 93451, 1-03FS, October 1991.

26. Black & Veatch Waste Science, Inc., *(ESI), Pelham Phosphate, Pelham, Mitchell County, Georgia* EPA ID No. GAD003300092, October 31, 1994.

27. Ecology & Environment, Inc. *Site Assessment Activities Report for the Pelham Phosphate Company Site (a.k.a. Stoller Chemical Company) Pelham, Georgia.* August 2002.

28. Georgia Environmental Protection Division, Trip Report for Pelham Phosphate Stoller Chemical Company Site Reassessment Report, March 13, June 24, and July 16, 2002.

29. Georgia Environmental Protection Division, Trip Report for Pelham Company, Inc. Site, May 9, 1983.

30. Georgia Environmental Protection Division, Trip Report for Pelham Company, Inc. Site, March 15, 1985.

31. Georgia Environmental Protection Division, Trip Report for Pelham Company, Inc. Site, February 21, 2002.

32. Georgia Wellhead Protection Plan for City of Pelham, Mitchell County, Permit # 2050003, August, 28, 1995.

33. U.S. Department of Agriculture-Natural Resources Conservation Service. Climate Information for Mitchell County in the State of Georgia. *National Water & Climate Center. http://*www.wrcc.nrcs.usda.gov.

34. Georgia Department of Natural Resource, Wildlife Resources Division, Nongame-Natural Heritage Section, Protected Animals of Georgia. 1999.

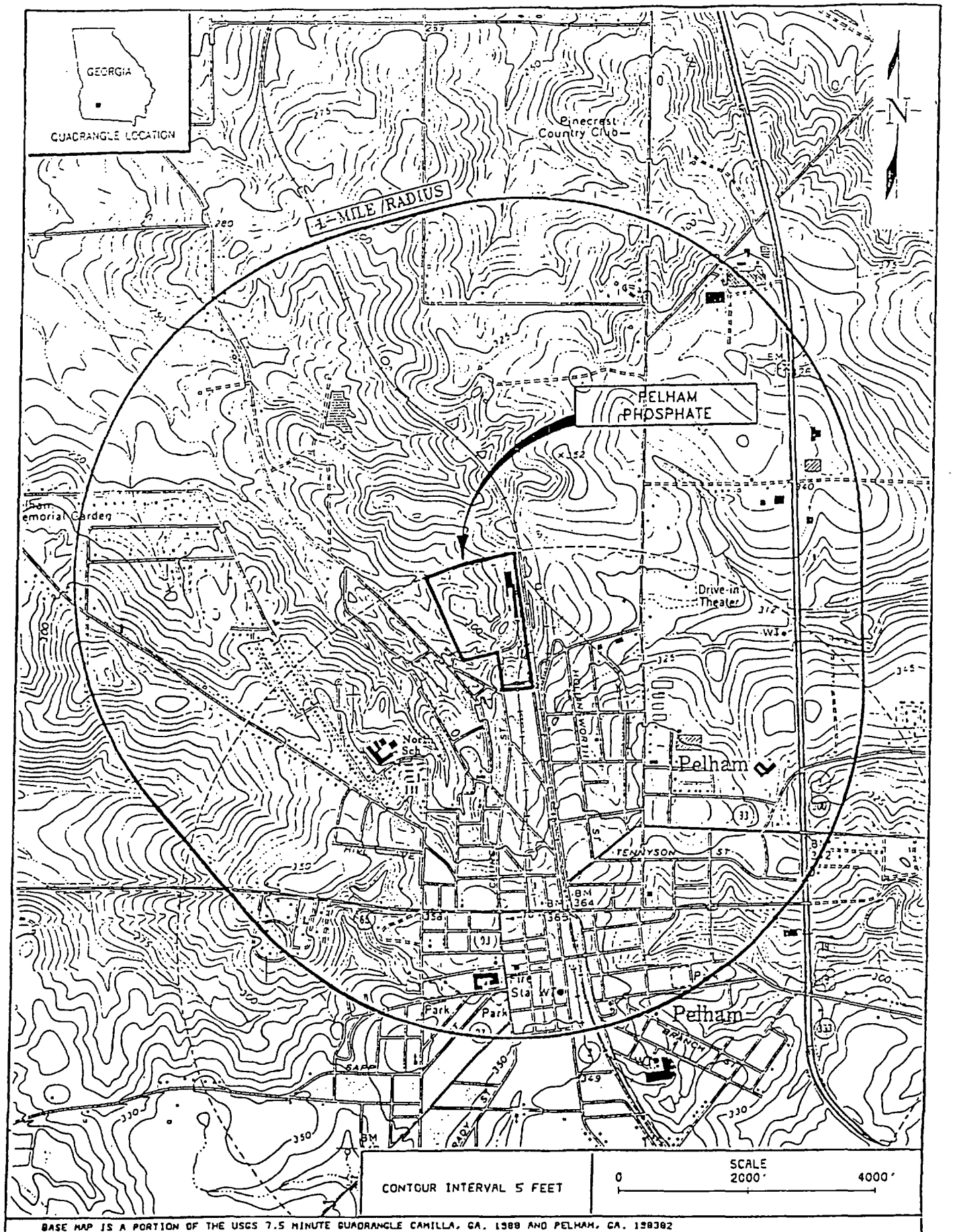
35. Myron D. Lair, Chief, Emergency Response and Removal Branch, U.S. Environmental Protection Agency (USEPA) Region IV, Memorandum to Narindar Kumar, Acting Chief, USEPA, March 24, 1993. Subject: Referral of the Pelham Phosphate Site for Assessment and Hazardous Ranking.

36. Georgia Environmental Protection Division, Hazardous Waste Management Branch, Population Statistics from US Census Bureau, 1990.

37. De'Lyntoneus Moore, On-Scene Coordinator, Emergency Response and Removal Branch, U.S. Environmental Protection Agency (USEPA), Memorandum to Joseph R. Franzmathes, Director, Waste Management Division, USEPA, August 24, 1992. Subject: Request for Removal Action at the Pelham Phosphate Company Site in Pelham, Mitchell County, Georgia

38. General Engineering Laboratories, *Certification of Closure Of An Inside Waste Pile Operated By Pelham Phosphate Company, EPA SI No. GAD003300092,* 1987.

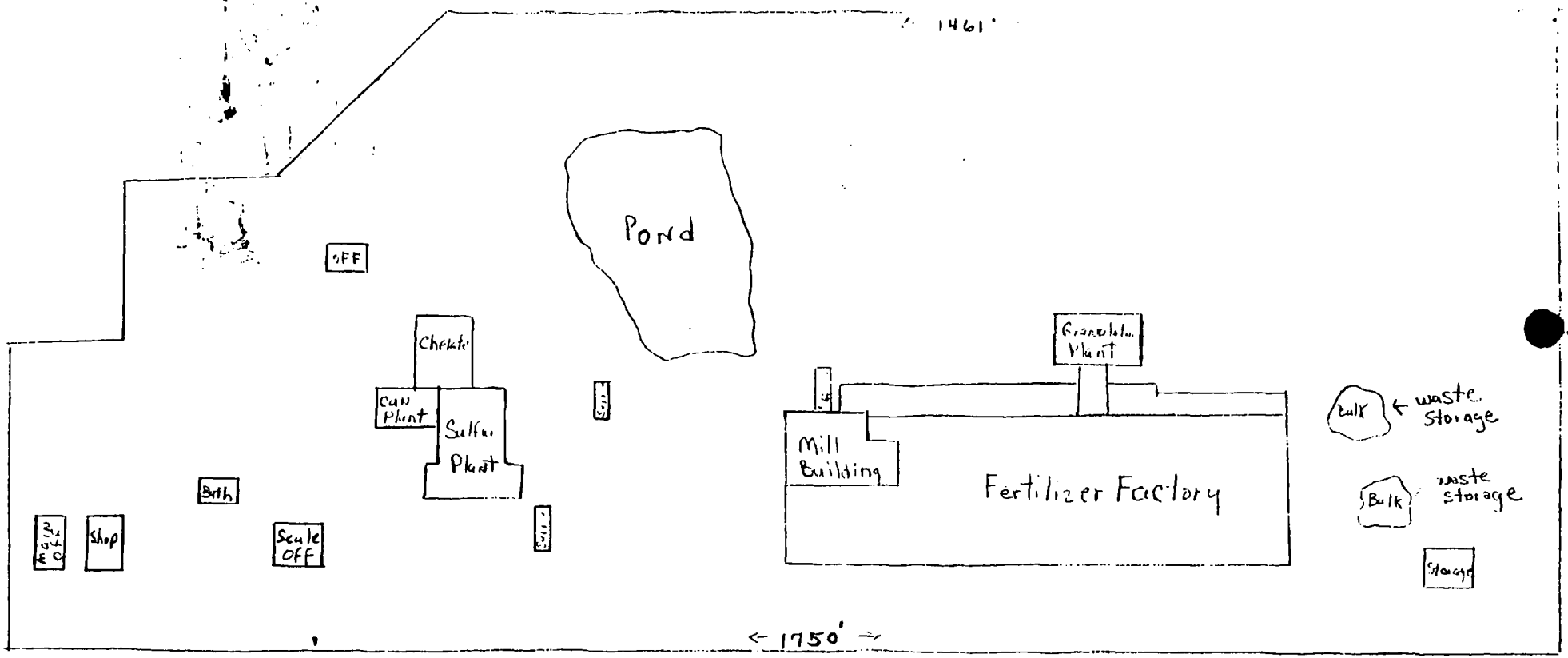
39. EPA Part A Application, Pelham Phosphate Company, August 2, 1983.



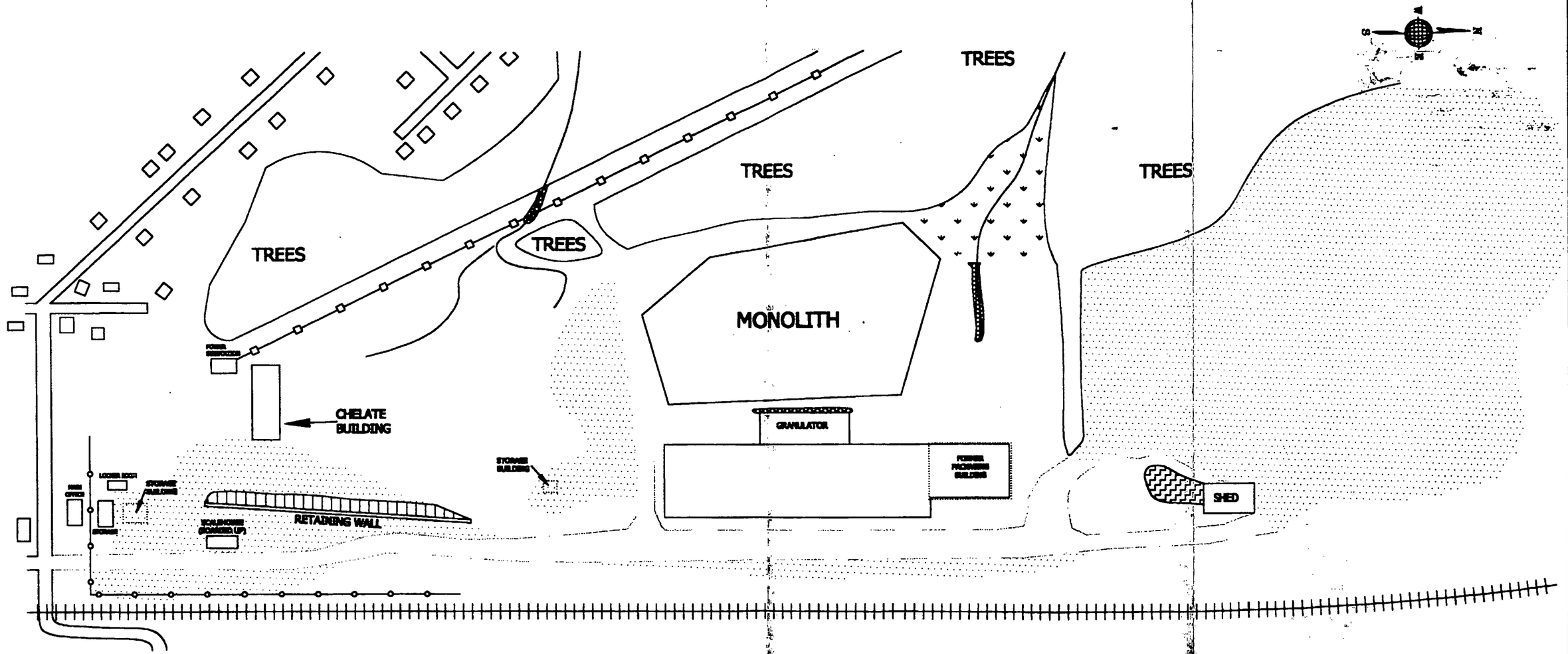
BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLE CAMILLA, GA. 1988 AND PELHAM, GA. 1983B2

SITE LOCATION MAP
PELHAM PHOSPHATE
PELHAM, MITCHELL COUNTY, GEORGIA

FIGURE 1



Pelham Phosphate, Co.



LEGEND

- DRAINAGE
- POWER LINES
- RAILROAD TRACKS
- EXISTING FENCE
- INSTALLED FENCE
- FILL DIRT
- RIP-RAP
- WETLAND
- SITE ROADS
- DEMOLISHED BUILDING
- GRADED AND SEEDED AREAS
- METAL SCRAPYARD
- RESIDENCES

APPROXIMATE SCALE

0 100 200

IN FEET

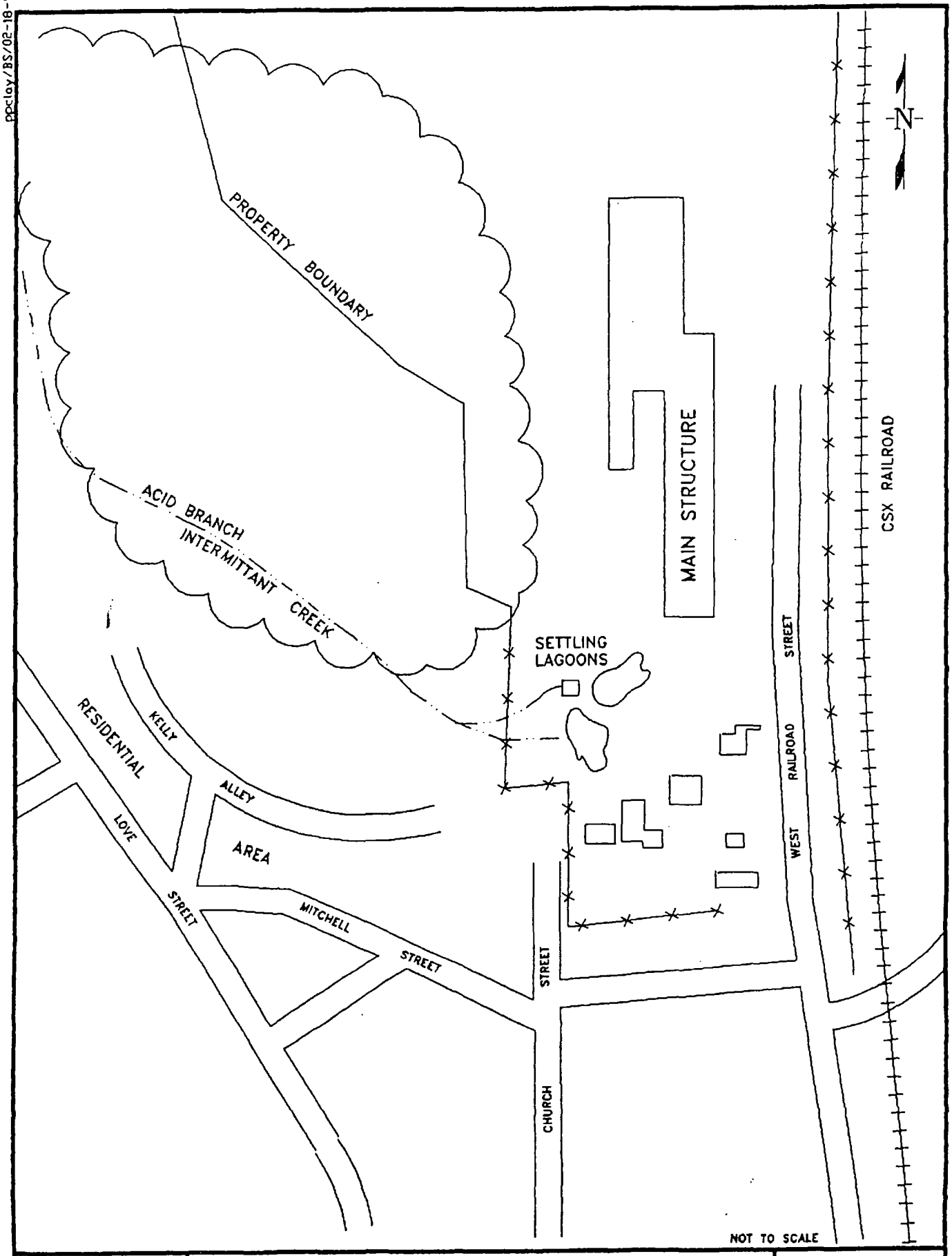
PELHAM PHOSPHATE
PELHAM, MITCHELL COUNTY, GEORGIA
TDD NO. 04-9710-0002

FIGURE 7
MISCELLANEOUS ACTIVITIES

TETRA TECH EM INC

START

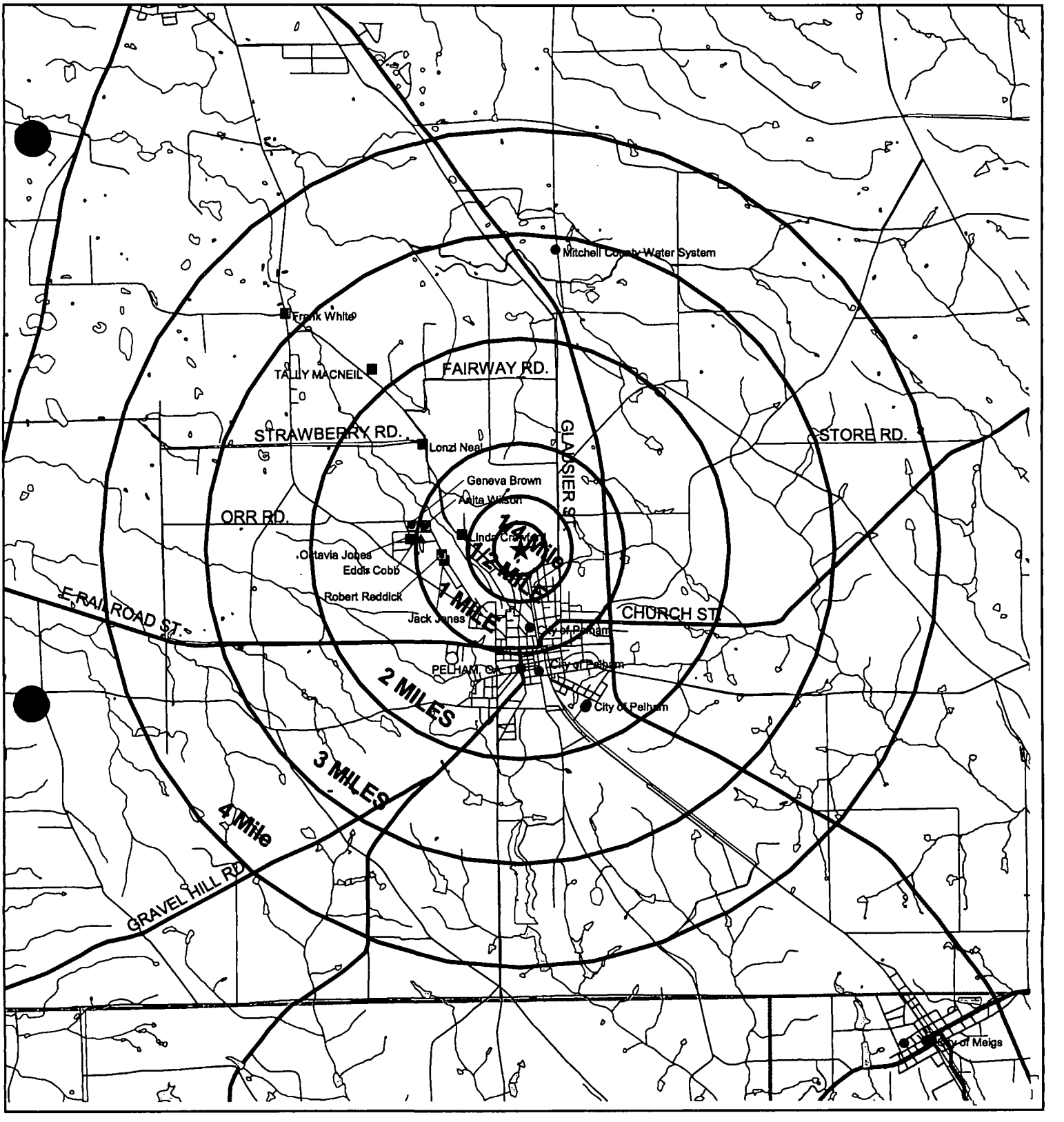
pbclay/BS/02-18-94



BAKER SCIENCE AND TECHNOLOGY CORP

SITE LAYOUT MAP
PELHAM PHOSPHATE
PELHAM, MITCHELL COUNTY, GEORGIA

FIGURE 2



Roads
State and US Highways
Interstate Highways
Rivers/Streams
Lake/Pond
Swamp/Marsh
Census Block Group Boundaries
Census Block Group with >zero domestic well

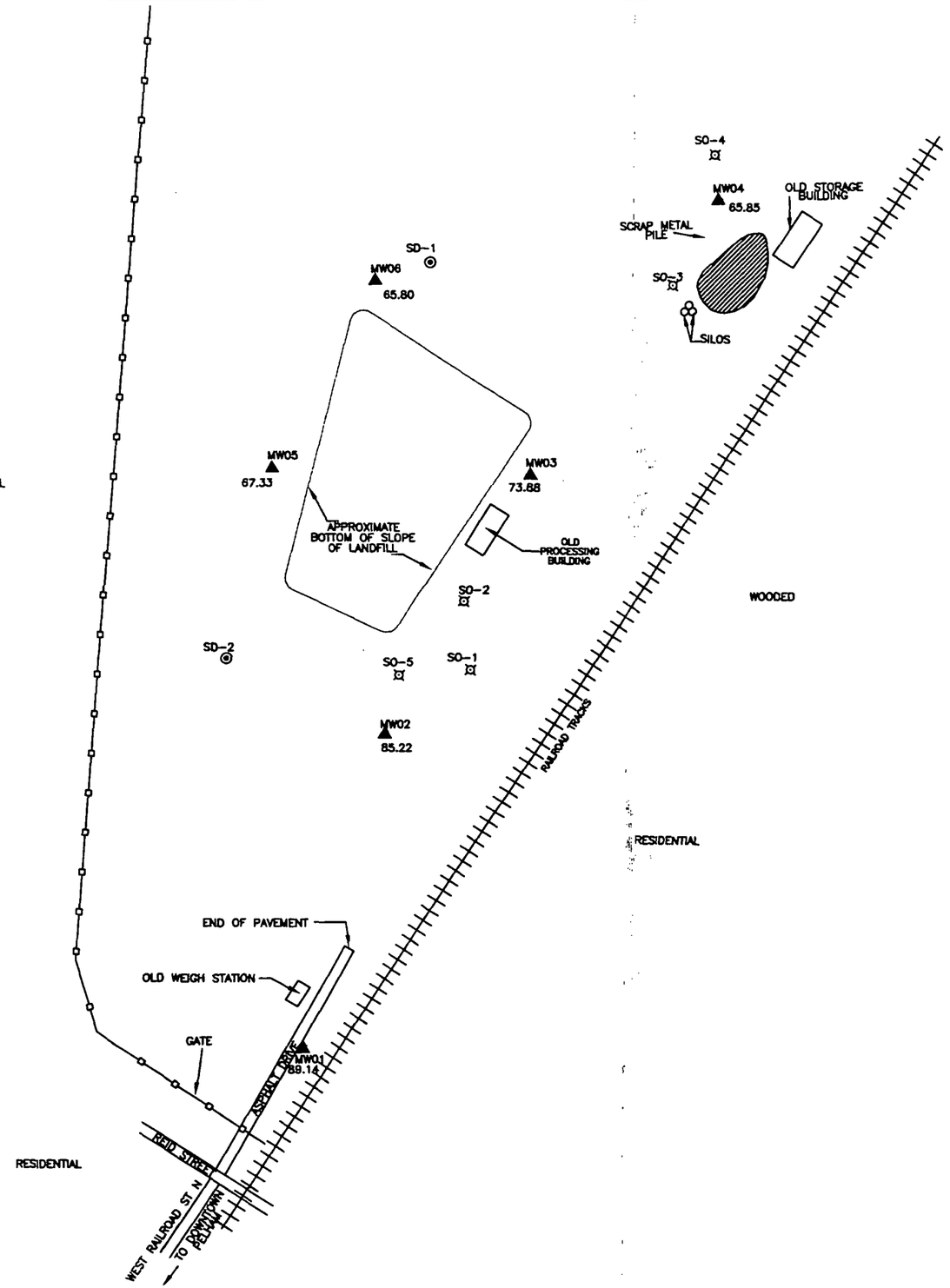
Public Supply Well
Household
IRRIGATION
Unused

Stoller Chemical
106 Mitchell Street
Pelham, Mitchell County

0.5 0 0.5 1 Miles

31 08' 27" 82 09' 18"

Sources: Wells from USGS GWSI (1999); EPD WRB Non-Municipal Wells (1997); EPD HWMB field surveys (2001); Surface Water Intakes from EPD GSB DR96-27(1996); Roads, Rivers, Wetlands from Georgia DOT (1993); Census data from U.S. Bureau of Census (1990)



LEGEND

- SCRAP METAL PILE
- RAILROAD
- FENCE
- MONITORING WELL
- SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION

SCALE IN FEET

0 250 500 750

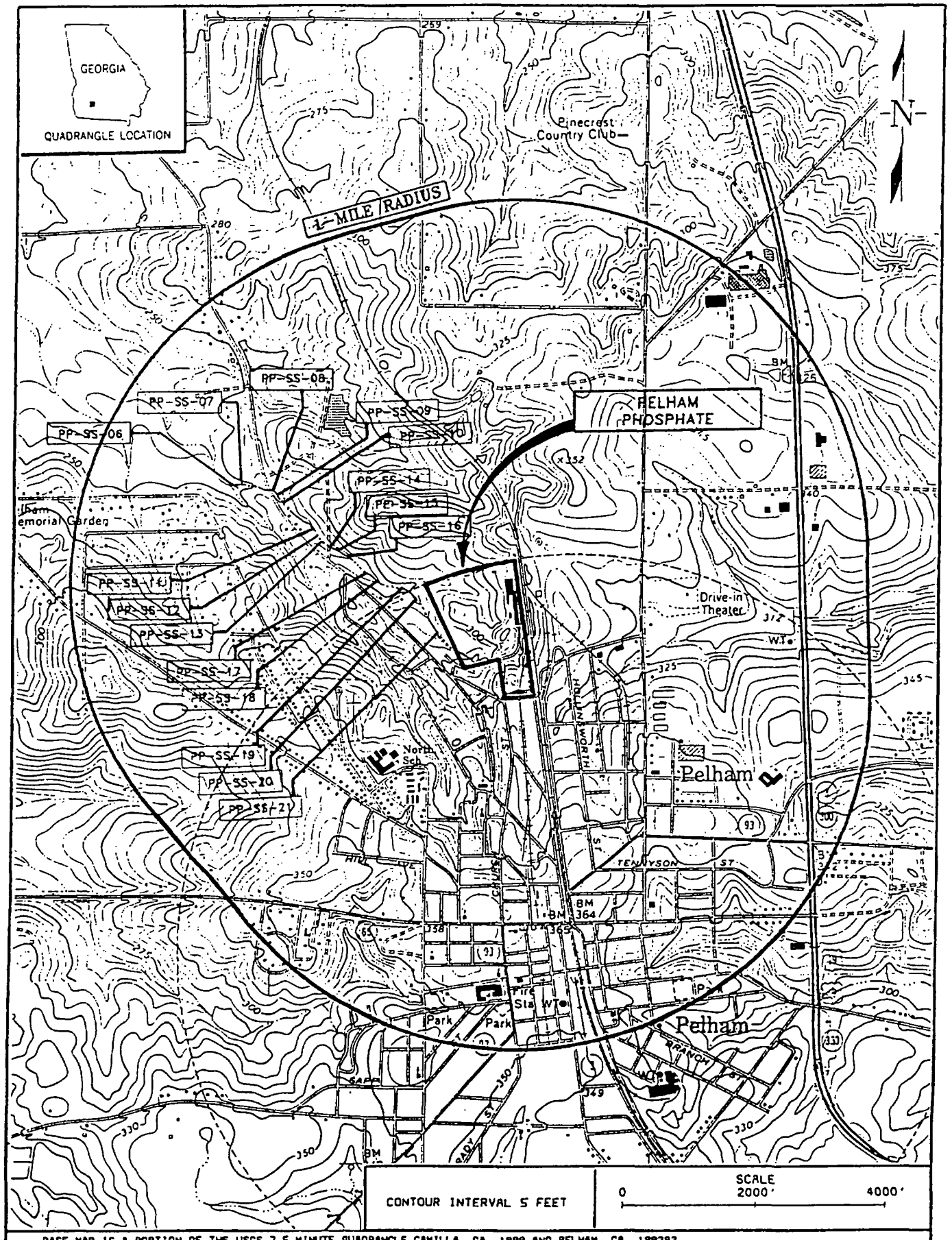
FIGURE 2-1
SITE LAYOUT AND SAMPLING LOCATIONS

PELHAM PHOSPHATE COMPANY
PELHAM, GEORGIA

ecology and environment, inc.
International Specialists in the Environment

DATE DRAWN 08/15/02

CAD FILE NO. TALCAD\PELHAM\001226.GD04.03/GD04S002B.DWG



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLE CAMILLA, GA. 1988 AND PELHAM, GA. 1983&82

SAMPLE LOCATION MAP
PELHAM PHOSPHATE
PELHAM, MITCHELL COUNTY, GEORGIA

FIGURE 4

Table 3-1
Sample Locations and Rationale, 1994

Table 1
Sample Locations and Rationale
Pelham Phosphate
Pelham, Mitchell County, Georgia

Sample Code	Sample Type	Location	Rationale
PP-SS-01	Surface Soil	Upgradient east of site	To establish background levels
PP-SS-02	Surface Soil	Upgradient east of site, 0.25 mile from SS-01	To establish background levels
PP-SS-03	Surface Soil	On site, south Settling Lagoon	To determine the absence or presence of contaminants
PP-SS-04	Surface Soil	Duplicate of SS-03	To determine the absence or presence of contaminants
PP-SS-05	Surface Soil	On site north Settling Lagoon	To determine the absence or presence of contaminants
PP-SS-06	Surface Soil	Creek bank near residence at 350 Love St.	To determine the absence or presence of contaminants
PP-SS-07	Surface Soil	Creek bank near residence un-known address	To determine the absence or presence of contaminants
PP-SS-08	Surface Soil	Creek bank near residence at 350-1 Love St.	To determine the absence or presence of contaminants
PP-SS-09	Surface Soil	Creek bank near residence at 348 Love St.	To determine the absence or presence of contaminants
PP-SS-10	Surface Soil	Creek bank near residence at 346 Love St.	To determine the absence or presence of contaminants
PP-SS-11	Surface Soil	Creek bank near residence at 336 Love St.	To determine the absence or presence of contaminants
PP-SS-12	Surface Soil	Creek bank near residence at 334 Love St.	To determine the absence or presence of contaminants
PP-SS-13	Surface Soil	Creek bank near residence at 332 Love St.	To determine the absence or presence of contaminants

SS - Surface Soil
PP- Pelham Phosphate

Table 1 (cont.)
Sample Locations and Rationale
Pelham Phosphate
Pelham, Mithchell County, Georgia

PP-SS-14	Surface Soil	Creek bank near residence at 328 Love St.	To determine the absence or presence of contaminants
PP-SS-15	Surface Soil	Creek bank near residence at 654 Love St.	To determine the absence or presence of contaminants
PP-SS-16	Surface Soil	Creek bank near residence at 646 Love St.	To determine the absence or presence of contaminants
PP-SS-17	Surface Soil	Creek bank near residence at 620 Love St.	To determine the absence or presence of contaminants
PP-SS-18	Surface Soil	Creek bank near residence at 630 Love St.	To determine the absence or presence of contaminants
PP-SS-19	Surface Soil	Creek bank near residence at 582 Love St.	To determine the absence or presence of contaminants
PP-SS-20	Surface Soil	Creek bank near residence at 582 Love St.	To determine the absence or presence of contaminants
PP-SS-21	Surface Soil	Creek bank near residence at 564 Love St..	To determine the absence or presence of contaminants

SS - Surface Soil
PP - Pelham Phosphate

GROUNDWATER USE WITHIN 4 MILES OF THE SITE

Table 4-1
Drinking Water Populations

----------Distance from the site (miles)----------

Ground Water Usage	0-0.25	0.25-0.50	0.50-1.0	1.0-2.0	2.0-3.0	3.0-4.0	Total
Total Population	67	182	551	1437	1597	1371	5206
Population on Private Wells	14	40	129	366	464	486	1500
Population on Public Wells	53	142	422	1071	1133	885	3706

Source-1990 Census Data

TABLE 4-2
Groundwater Analytical Results
April 1993

Analyte (mg/L)	Maximum Contaminant Level (MCL)	Background (MW-01)	MW-02	MW-0	MW-04	MW-05	MW-06	MW-07
Aluminum	---	97	3.2	23	30	44	93	42
Arsenic	0.050	0.050	ND	ND	ND	ND	ND	ND
Barium	2.0	0.19	0.021	0.11	1.5	1.6	0.067	0.32
Beryllium	0.004	0.0018	ND	ND	0.0012	0.0031	**0.0042**	**0.0046**
Boron	---	ND	ND	**0.55**	0.41	**30**	5.5	ND
Cadmium	0.005	ND	ND	**0.007**	ND	ND	ND	ND
Chromium	0.100	0.080	ND	0.014	0.043	0.027	ND	0.058
Cyanide	0.200	ND	ND	ND	0.035	ND	ND	ND
Copper	1.300	0.027	0.005	0.008	0.058	0.017	0.026	0.036
Lead	0.015	**0.077**	ND	**0.032**	**0.127**	ND	ND	**0.076**
Magnesium	---	0.17	0.16	**4.3**	0.85	1.1	1.7	0.13
Mercury	0.002	ND	ND	ND	**0.0074**	**0.0043**	ND	0.0012
Nickel	0.100	0.037	ND	0.013	0.018	0.029	0.030	0.051
Strontium	---	0.132	0.023	0.264	0.676	**1.01**	**2.05**	0.252
Sodium	---	290	2.6	19	35	44	860	12
Thallium	0.002	ND	ND	ND	ND	ND	**0.040**	ND
Vanadium	---	0.18	ND	0.034	0.069	0.030	0.054	0.69
Zinc	---	0.11	ND	0.22	0.59	0.15	0.11	0.160

ND Parameter analyzed but not detected above the sample quantiation limit (SQL)
MCL Maximum Contaminant Level
--- No MCL established for analyte
BOLD Concentration detected greater than or equal to SQL or greater than 3 times the background concentration.

TABLE 4-3
Groundwater Analytical Results
June 2002

Analyte (mg/L)	Maximum Contaminant Level (MCL) mg/L	PEL-EE-MW1-GW (Background well)	PEL-EE-MW2-GW mg/L	PEL-EE-MW3-GW mg/L	PEL-EE-MW4-GW mg/L	PEL-EE-MW5-GW mg/L	PEL-EE-MW5-GW Duplicate mg/L	PEL-EE-MW6-GW mg/L
Arsenic	0.050	0.00005	ND	ND	ND	ND	ND	ND
Barium	2.0	0.187	0.0733	ND	ND	ND	ND	0.0534
Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND
Chromium	0.100	ND	0.012	ND	ND	ND	ND	ND
Copper	1.300	ND	ND	ND	ND	ND	ND	ND
Lead	0.015	ND	**0.0069**	ND	ND	ND	ND	ND
Silver	---	ND	ND	ND	ND	ND	ND	ND
Zinc[B]	---	0.0733	0.0539	**2.650**	**3.920**	**1.050**	**1.030**	0.0834
Sulfate	250[1]	ND	8.2	660	310	860	710	1,800

ND Parameter analyzed but not detected above the detection limit
--- No MCL established for analyte
B analyte detected in method blank
1 Georgia Drinking Water Standard Secondary MCL
BOLD Concentration detected greater than or equal to MCL or greater than 3 times the background concentration

Table 6-1
State Designated Threatened Species
Mitchell County, Georgia

SPECIES	STATUS
Barbour's Map Turtle *Graptemys barbouri*	Threatened
Alligator Snapping Turtle *Macroclemys temminckii*	Threatened
Bluestripe Shiner *Cyprinella callitaenia*	Threatened
Purple Bankclimber *Elloptpideus sloatianus*	Threatened

Table 6-2A
Surface Soil Analytical Results (Organics), 1994

TABLE 2
Surface Soil Analytical Results
Organics
PELHAM PHOSPHATE
Pelham, Mitchell County, Georgia

PARAMETERS (µg/kg)	PP-SS-01	PP-SS-02	PP-SS-03	PP-SS-04	PP-SS-05	PP-SS-07	PP-SS-08	PP-SS-09	PP-SS-10	PP-SS-17	PP-SS-19	PP-SS-21
	BACKGROUNDS		SOURCE SAMPLES									
EXTRACTABLE ORGANICS												
(3-and/or 4-)Methylphenol	340U	370U	--	--	--	--	260J	--	--	--	--	--
Pentachlorophenol	820U	890U	--	--	--	360J	110J	--	--	--	--	--
Phenanthrene	340U	370U	120J	120J	230J	--	63J	58J	--	--	--	--
Fluoranthene	340U	44J	190J	180J	360J	72J	82J	52J	--	--	--	--
Pyrene	340U	41J	--	170J	--	--	68J	--	--	--	--	--
Chrysene	340U	370U	--	--	--	--	61J	--	--	--	--	--
Bis(2-Ethylhexyl)Phthalate	340U	370U	3900	2300	1000	--	--	--	--	1200	970	17000
Benzo(b and/or k)Fluoranthene	340U	370U	89J	--	200J	--	80J	86J	75J	--	--	--
Benzo(GHI)Perylene	340U	370U	--	--	170J	--	--	--	--	--	--	--

See Table 2 continued on following page for notes

TABLE 2 (cont.)
Surface Soil Analytical Results
Organics
PELHAM PHOSPHATE
Pelham, Mithcell County, Georgia

PARAMETER (µg/kg)	SS-01	SS-03	SS-04	SS-05	SS-06	SS-07	SS-08	SS-09	SS-10	SS-16	SS-18
		SOURCE SAMPLES									
MISCELLANEOUS EXTRACTABLE COMPOUNDS											
Benzeneacetic Acid	--	--	--	--	--	--	500JN	--	--	--	--
Hexadecanoic Acid	--	--	--	5000JN	--	2000JN	2000JN	--	--	--	--
Hydroxmethoxybenzaldehyde	--	--	--	--	--	2000JN	--	--	--	--	--
Octahydrotetramethyl-cyclopropanaphthalene	300JN	--	--	--	--	--	--	--	--	--	--
Pentadecanoic Acid	--	--	--	--	--	--	200JN	--	--	--	--
Pinene	--	--	--	--	--	5000JN	--	--	--	--	--
Tetradecanoic Acid	--	--	--	--	--	--	300JN	--	--	--	--
Unidentified Compounds/No.	1000J/2	8000J/11	8000J/6	20000J/16	2000J/2	20000J/14	7000J/11	4000J/7	5000J/5	500J/1	6000J/1

NOTES:

J Estimated Value.
N Presumptive evidence of presence of material.
U Material was analyzed for but not detected. The number is the minimum quantitation limit.
-- Material was analyzed for but not detected above the SQL.
Denotes sample concentration greater than or equal to SQL or greater than or equal to 3 times background concentration.

TABLE 2 (cont.)
Surface Soil Analytical Results
Organics
PELHAM PHOSPHATE
Pelham, Mitchell County, Georgia

PARAMETERS (µg/kg)	PP-SS-01	PP-SS-02	PP-SS-03	PP-SS-05	PP-SS-07	PP-SS-09	PP-SS-10	PP-SS-13	PP-SS-17	PP-SS-19
PURGEABLE ORGANICS	BACKGROUND		SOURCE SAMPLES							
Carbon Disulfide	10U	11U	3J	12J	--	--	--	--	4J	--
Methyl Ethyl Ketone	10U	11U	--	36	--	--	--	--	--	--
Tetrachloroethene (Tetrachloroethylene)	10U	11U	--	--	--	--	--	6J	--	--
1,1,1-Trichloroethane	10U	11U	--	--	--	--	--	--	--	2J

PARAMETER (µg/kg)	PP-SS-01	PP-SS-02	PP-SS-03	PP-SS-05	PP-SS-07	PP-SS-09	PP-SS-10	PP-SS-13	PP-SS-17	PP-SS-19
PESTICIDES	BACKGROUND		SOURCE SAMPLES							
4,4'-DDE (P,P'-DDE)	3.4U	3.7U	--	--	--	8.8	--	--	--	--
Endrin	3.4U	3.7U	--	--	11	--	--	--	--	--
4,4'-DDD (P,P'-DDD)	3.4U	3.7U	--	--	--	19	--	--	--	--
4,4'-DDT (P,P'-DDT)	3.4U	3.4U	--	--	--	--	6.7N	--	--	--
Gamma-Chlordane	1.7U	1.9U	--	2.7	--	3.1N	--	--	--	--
Alpha-Chlordane	1.7U	1.9U	--	6.4	--	3.6N	--	--	--	--

NOTES:

N Presumptive evidence of prescence of material.
J Estimated Value.
U Material was analyzed for but not detected. The number is the minimum quantitation limit.
-- Material was analyzed for but not detected above the SQL.
Denotes sample concentration greater than or equal to SQL or greater than or equal to 3 times background concentration.

Table 6-2B
Surface Soil Analytical Results (Inorganics), 1994

TABLE 3
Surface Soil Analytical Results
Metals
PELHAM PHOSPHATE
Pelham, Mitchell County, Georgia

	BACKGROUNDS		SOURCE SAMPLES								
PARAMETERS (mg/kg)	PP-SS-01	PP-SS-02	PP-SS-03	PP-SS-04	PP-SS-05	PP-SS-06	PP-SS-07	PP-SS-08	PP-SS-09	PP-SS-10	PP-SS-11
Aluminum	9100	3500J	9800J	10000J	12000J	200J	3000J	4300J	1900J	6200J	220J
Antimony	2.7U	3U	6.6J	6.7J	--	--	--	--	--	--	--
Arsenic	6J	4.8J	69J	70J	28J	9J	18J	9.1J	8J	18J	13J
Barium	21	19	59	67	190	16	61	69	61	100	22
Beryllium	0.75J	0.37J	0.48J	0.40J	0.33J	--	--	--	--	--	--
Calcium	46J	1200J	10000J	9300J	14000J	--	1900J	1200J	490J	9900J	--
Chromium	46J	18J	29J	30J	23J	2.5J	22J	29J	10J	86J	4.1J
Cobalt	2.1J	1.7	2.9J	3.4J	2.4J	--	--	--	--	--	--
Copper	56J	40UJ	750J	700J	540J	--	75J	--	130J	74J	--
Iron	37000J	17000J	19000J	21000J	16000J	7800J	11000J	10000J	2700J	9000J	4200J
Lead	25	38	760	770	590	96	520	260	450	650	130
Magnesium	650	160	1900	1900	950	22	130	130	97	270	23
Manganese	110J	77J	150J	150J	160J	1.5J	13J	27J	7.5J	55J	1.9J
Mercury	0.10U	0.11U	0.38	0.26	0.37	--	0.24	0.27	0.25	0.36	--
Potassium	380	120J	310J	340	1700	--	470	200J	150J	480	--
Vanadium	64J	21J	26J	28J	19J	1.4J	8.6J	28J	7.8J	14J	--
Zinc	49	62	600	540	330	--	35	87	--	180	--

TABLE 5 (cont.)
Surface Soil Analytical Results
Metals
PELHAM PHOSPHATE
Pelham, Mitchell County, Georgia

	BACKGROUNDS											
PARAMETERS (mg/kg)	PP-SS-01	PP-SS-02	PP-SS-12	PP-SS-13	PP-SS-14	PP-SS-15	PP-SS-16	PP-SS-17	PP-SS-18	PP-SS-19	PP-SS-20	PP-SS-21
Aluminum	9100	3500J	170J	250J	260J	2300J	920J	750J	550J	270J	380	670
Arsenic	6J	4.8J	3.4J	4.1J	3.2J	37J	12J	5.8J	24J	20J	27J	38J
Barium	21	19	6.3	12	7.1	21	26	24	19	8.2	--	22J
Beryllium	0.75J	0.37J	--	--	--	0.44J	--	--	--	--	--	--
Calcium	44000J	1200J	--	--	--	340J	--	360J	--	--	--	--
Chromium	46J	18J	2.2J	2.7J	2.8J	15J	12J	5.9J	32J	--	2.5J	5.3
Cobalt	2.1J	1.7	--	--	--	--	--	--	--	--	--	1.8J
Copper	56J	40UJ	--	--	--	--	--	30J	--	--	77J	--
Iron	37000J	17000J	4300J	3000J	2600J	19000J	7500J	2400J	9100J	4000J	3100	15000
Lead	25	38	59	88	58	150	170	190	410	170	190J	300J
Magnesium	650	160	15	26	19	52	37	32	24	17	31	29
Manganese	110J	77J	2.8J	2.2J	1.7J	13J	4.4J	3.8J	4.5J	0.97J	1.2	2.9
Mercury	0.10U	0.11U	--	--	--	--	--	0.14	--	--	0.16	0.89
Nickel	6U	2.5U	--	--	--	--	--	--	--	--	--	3.9
Potassium	380	120J	--	--	--	--	--	--	110	--	--	87J
Thallium	1.5U	1.6U	2.8J	--	--	--	--	--	--	--	--	--
Vanadium	64J	21J	--	--	1J	29J	9.6J	2.6J	20J	4.4J	--	12
Zinc	49	62	--	--	28	37	30	31	--	--	--	27

NOTES:

J Estimated Value.
U Material was analyzed for but not detected. The number is the minimum quantitation limit.
-- Material was analyzed for but not detected above the SQL.

Denotes sample concentration greater than or equal to SQL or greater than or equal to 3 times background concentration.

Table 6-3
Surface Soil Analytical Results, 2002

TABLE 3-3
SURFACE SOIL SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE COMPANY SITE
PELHAM, GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type III Sites[a]	PEL-SS01-0-1	PEL-SS02-0-1	PEL-SS03-0-1	PEL-SS04-0-1	PEL-SS05-0-1
Analyte/Concentration (mg/kg)						
Arsenic	41	ND	ND	6.24	12.6	ND
Barium	1,000	ND	ND	80.9	80.1	55.5
Cadmium	39	ND	ND	ND	ND	ND
Chromium (Total)	1,200	11.6	30.3	23.5	34.6	ND
Copper	1,500	ND	ND	31.2	59.7	ND
Lead	400	ND	185	162	257	42
Silver	10	ND	ND	ND	ND	ND
Zinc	2,800	10.7	1,200	541	221	77.8
Sulfate	NE	ND	ND	ND	1,100	2,600

Notes:

[a]Georgia Department of Natural Resources Risk Reduction Standards, Georgia Administrative Code (GAC) 391-3-19-.07(8)
Bold indicates reported value exceeds Risk Reduction Standards.

Key:

mg/kg = Milligrams per kilogram.

ND = Analyte not detected.

NE = No established value.

Table 6-4
Sediment Sample Analytical Results, 2002

TABLE 3-2
SEDIMENT SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE SITE
PELHAM, GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type III Sites[a]	SSV[b]	PEL-SED01	PEL-SED02
Analyte/Concentration (mg/kg)				
Arsenic	41	7.24	ND	2.51
Barium	1,000	NE	25	12.9
Cadmium	39	1	ND	ND
Chromium (Total)	1,200	52.3	8.62	11.4
Copper	1,500	18.7	ND	2.57
Lead	400	30.2	19.8	22.5
Silver	10	2	ND	ND
Zinc	2,800	124	22.0 B	6.58 B
Sulfate	NE	NE	ND	1,700

Notes:

[a] Georgia Department of Natural Resources Risk Reduction Standards, Georgia Administrative Code (GAC) 391-3-19-.07(8)

[b] United States Environmental Protectioni Agency Region 4 Sediment Screening Values (August 1999). These values are based on Practical Quantitation Limits (PQLs) or statistical interpretation of effects data bases from various literature sources, whichever is higher. The effects values are generally based on observations of direct toxicity.

Key:

GDNR = Georgia Department of Natural Resources.
mg/kg = Milligrams per kilogram.
ND = Analyte not detected.
NE = No established value.
SSV = United States Environmental Protection Agency Region 4 Sediment Screening Value.

Appendix C
US EPA Analytical Data

As	Cd	Cr	Pb	Sample #	Bays
7.3	-	19	68	3001	13, 23, 33
14	15	92	450	3002	2, 10, 25
—	1.2	57	27	3003	19, 22
34	4.7	29	320	3004	12, 31, 36
—	19	63	110	3005	8, 11
25	7.2	45	330	3006	3, 5, 6, 7, 15, 16, 17, 20, 32, 42
1400	26	64	9000	3007	24
21	9.2	52	1100	3008	26
8.0	3.5	41	42	3009	28
— mg/kg	10	41	110	3010	29

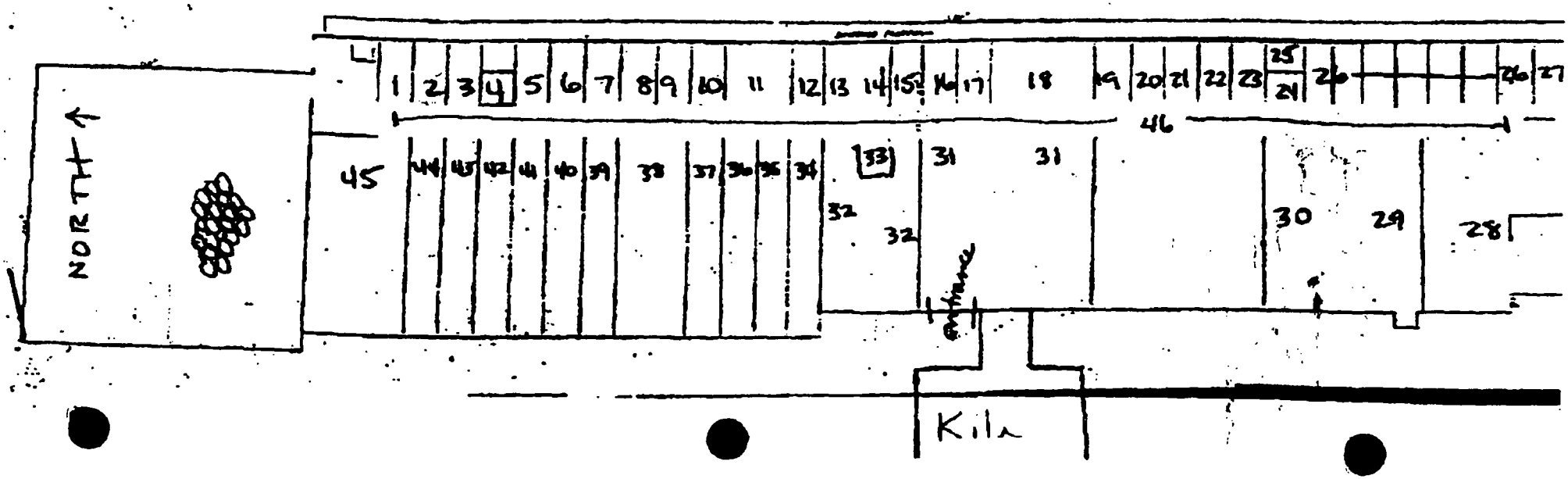
Stoller Pelham 2.2 > 28

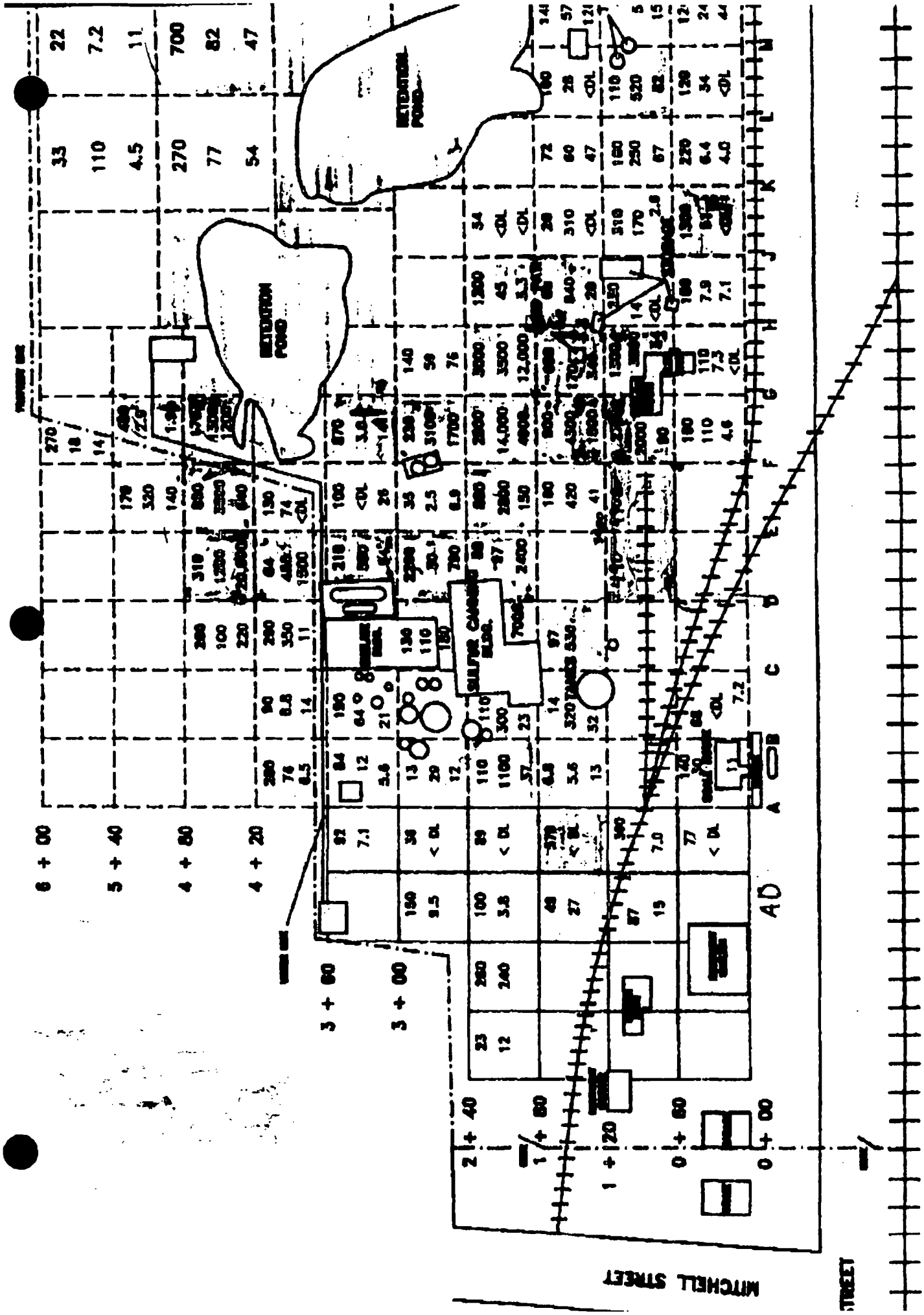
Pb	As	Cr	Cd	Sample #	Bays
340	20	50	5.2	3011	30
330	2.6	44	8.1	3012	Linear Comp.
330	28	26	5.4	3013	Kiln Bldg

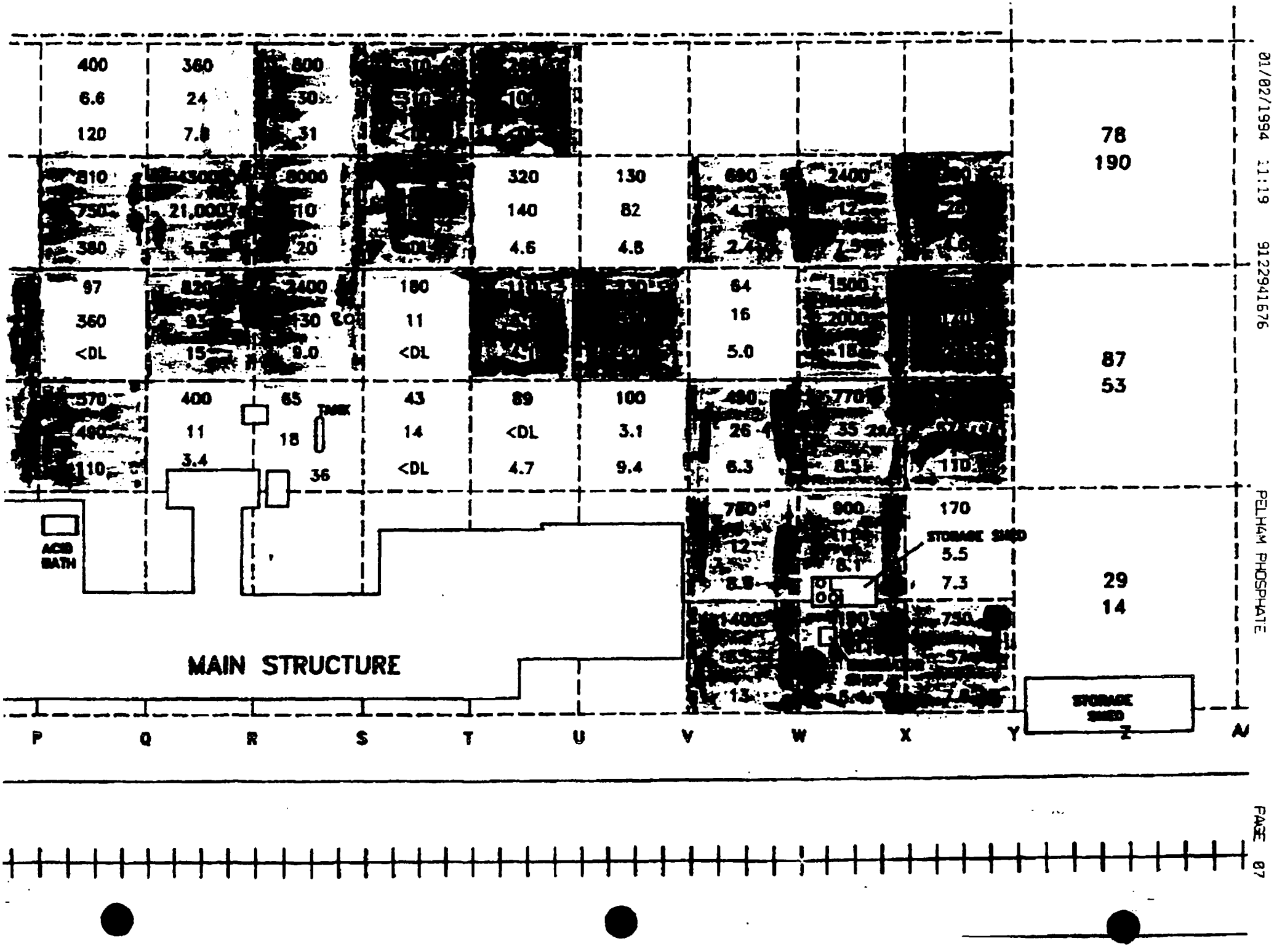
13 ≥ 300 ppm
5 ≥ 500 ppm

SDMS DOC ID10000114

Fertilizer Bldg Bay #'s for samples (3000 series)




RETENTION POND
RETENTION POND
MITCHELL STREET
6 + 00
5 + 40
4 + 80
4 + 20
3 + 80
3 + 00
2 + 40
1 + 80
1 + 20
0 + 80
0 + 00
A
B
C
D
E
F
G
H
J
K
L
M
N



01/02/1994 11:19 9122941676 PELHAM PHOSPHATE PAGE 07

PELHAM PHOSPHATE SUPERFUND SITE
PELHAM, GEORGIA
ANALYTICAL RESULTS
PHASE II

PRESENTED TO:

OHM REMEDIATION SERVICES, INC.

5335 TRIANGLE PARKWAY
SUITE 450
NORCROSS, GEORGIA 30092
(404) 729-3900

PRESENTED BY:

KIBER ENVIRONMENTAL SERVICES, INC.

4000 DEKALB TECHNOLOGY PARKWAY, N.E.
SUITE 200
ATLANTA, GEORGIA 30340
(404) 455-3944

April 1, 1993

KIBER ENVIRONMENTAL SERVICES, INC.

ANALYTICAL CASE NARRATIVE
FOR:

OHM REMEDIATION SERVICES, INC.

Pelham Phosphate Superfund Site

Project No. 0293-611-30320 and 30321

- A total of 35 soil samples, 14 transformer oil samples and 57 drum samples were delivered to Kiber Environmental Services, Inc. on 3-20-93 at 1030 hours. The samples were delivered by Brian Strickland of OHM Corporation. All samples arrived in good condition and the soil samples were packed on ice.

  Some samples appeared to be very soil-like in consistency while many of the samples appeared non-soil like and multicolored. Some of the samples arrived saturated with water and some had standing water in the sampling container.

- The analyses requested were total RCRA metals, pH, Hazscan and total PCB's.

- Methods of analyses are as follows:

Analyte	*Method*	*Instrument*
pH	SW-846 Method 9045	NA
Total mercury	SW-846 Method 7471	Bacarach Mercury Analyzer
Hazscan	Per Industry Standards	NA
Total PCB's (on the composite)	SW-846 Method 8080	Hewlett Packard 5890 GC/ECD
Total RCRA metals- (except mercury)	SW-846 Method 6010	Thermo Jarrell Ash ICAP

The above referenced data has been reviewed for compliance with all applicable portions of Kiber Environmental Services, Inc. QA/QC Program and all applicable methodologies. Any anomalies encountered during the analyses are noted above by the analyst.

pH

There were no apparent problems with the pH analyses.

RCRA Metals

All metals, with the exception of the mercury, were prepared for analyses by microwave digestion.

The results of the duplicate analyses indicate some fluctuation in the results, especially the lead levels. This could be attributed to several things. The first is the non-homogenous nature of the samples. Soil samples have a history of exhibiting the property of non-homogeneity due to the consistency of and soil make-up of the samples. In addition, many of the samples had a high moisture content. An increased percent moisture will greatly change the raw data and the final quantitation of the calculation, thus affecting the final result. Finally, lead has two specific interferences when utilizing ICAP analyses. Both iron and aluminum exhibit a matrix interference with lead, which could cause the lead levels to be effected based on the amount of these other metals in the sample.

Some of the recoveries were reported as slightly lower than the recoveries for the other metals. Silver historically exhibits lower recoveries when utilizing microwave digestion.

There were no further problems with the metals analyses.

Transformer Oil Analyses

The fourteen samples for analyses were divided up into two composite groupings of seven samples each. The report sheets list the composite sample numbers along with each sample number which was in the composite. The composites were created by placing approximately 2 grams of each sample in a fifty milliliter volumetric flask. The exact weights of each of the seven samples were recorded and the total taken into account in the final quantitation of the composite sample. The volumetric was diluted to volume with hexane and shaken well.

An aliquot of each composite sample was taken and injected onto a gas chromatographic instrument with an ECD detector. Results were obtained and quantitation took place following the methods stated in SW-846 method 8080.

There were no apparent problems with the PCB analyses.

Hazscan Analyses

A total of 68 hazscans were performed on the 57 drum samples submitted (11 of the drum samples were bi-layered). According to the drum logs submitted with the samples, many of the drums indicate a possibility of fertilizer and agriculture materials. Several of the samples were black, but the hazscan results showed that these were very different materials. Specific anomalies noted during the analyses are presented on the Hazscan report sheets.

Some of the drum samples gave a positive test result for sulfides. Because many of the samples were black and the positive result for the spot test is black, an interference in the test results could have occurred. However, a clear darkening in the test strip was shown for the samples which indicates a positive result.

Several of the samples also indicated a positive Bielstein result, which would indicate chlorides at or above the level of 10,000 ppm. Because many of these samples also had a lower pH, the chlorides could be from an acid such as hydrochloric.

There were no further problems during the Hazscan analyses.

- Unless otherwise noted Kiber will return all samples to the client thirty days after the report date.

The above referenced data has been reviewed for compliance with all applicable portions of Kiber Environmental Services, Inc. QA/QC Program and all applicable methodologies. Any anomalies encountered during the analyses are noted above by the analyst.

Kiber Environmental Services, Inc.

Analytical Summary Sheet
for:

OHM Corporation - Pelham Phosphate Superfund Site

Project Number: 0293-611-30320

Delivery Group # 7

Date Received: 3-20-93

Sample #	Kiber Lab #	pH	Results in mg/Kg							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
342	30320-1	3.91	4.6	26	<DL	7.0	6.4	<DL	<DL	<DL
343	30320-2	4.05	2.1	22	<DL	6.3	7.8	<DL	<DL	<DL
344	30320-3	4.76	3400	800	23	14	13,000	6.4	17	20
345	30320-4	4.41	520	970	<DL	120	1800	6.2	12	12
346	30320-5	4.53	170	430	<DL	20	1900	0.86	<DL	13
347	30320-6	4.55	35	690	<DL	29	1200	0.28	<DL	9.4
348	30320-7	4.28	<DL	32	<DL	6.2	6.7	<DL	<DL	1.3
349	30320-8	3.15	320	860	<DL	4.8	5700	3.0	<DL	10
350	30320-9	3.54	23	240	<DL	4.0	3800	1.1	<DL	3.2
351	30320-10	3.65	13	170	<DL	6.6	22	<DL	<DL	<DL
351-D	30320-10D	3.87	12	160	<DL	6.0	17	<DL	<DL	<DL

Kiber Environmental Services, Inc.

Analytical Summary Sheet
for:

OHM Corporation - Pelham Phosphate Superfund Site

Project Number: 0293-611-30320

Delivery Group # 7

Date Received: 3-20-93

Sample #	Kiber Lab #	pH	Results in mg/Kg							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
352	30320-11	3.70	12	60	<DL	10	12	<DL	<DL	0.74
353	30320-12	3.50	3.0	11	<DL	16	2.0	<DL	<DL	0.42
354	30320-13	4.21	<DL	580	<DL	26	23	<DL	<DL	<DL
355	30320-14	3.77	5.2	330	<DL	8.8	14	<DL	<DL	<DL
356	30320-15	4.80	3.9	86	<DL	18	5.6	<DL	<DL	1.3
357	30320-16	3.86	5.3	3.5	<DL	3.7	240	<DL	<DL	0.80
358	30320-17	5.41	<DL	35	<DL	14	200	<DL	<DL	<DL
359	30320-18	4.83	<DL	6.5	<DL	7.9	2.0	<DL	<DL	<DL
360	30320-19	4.27	<DL	5.2	<DL	3.4	<DL	<DL	<DL	0.35
361	30320-20	4.26	<DL	18	<DL	4.1	<DL	<DL	<DL	<DL
361-D	30320-20D	4.27	1.3	19	<DL	11	6.0	<DL	<DL	0.64

Kiber Environmental Services, Inc.

Analytical Summary Sheet
for:

OHM Corporation - Pelham Phosphate Superfund Site

Project Number: 0293-611-30320

Delivery Group # 7

Date Received: 3-20-93

Sample #	Kiber Lab #	pH	Results in mg/Kg							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
362	30320-21	3.91	4.5	4.3	<DL	2.4	7.3	<DL	<DL	<DL
363	30320-22	3.87	4.3	2.6	<DL	2.3	4.9	<DL	<DL	0.52
364	30320-23	2.50	72	17	<DL	24	2900	0.27	<DL	6.5
365	30320-24	4.07	3.8	12	<DL	6.2	78	<DL	<DL	<DL
366	30320-25	4.55	18	29	<DL	14	180	<DL	6.2	0.77
367	30320-26	5.90	47	34	<DL	6.0	110	<DL	<DL	<DL
368	30320-27	4.09	3.8	5.7	<DL	3.2	52	<DL	<DL	<DL
369	30320-28	5.75	240	74	<DL	7.4	580	1.7	<DL	0.62
370	30320-29	5.27	4.5	29	<DL	4.7	34	<DL	<DL	<DL
371	30320-30	3.84	41	58	<DL	34	320	<DL	<DL	1.2
371-D	30320-30D	3.92	8.1	37	<DL	11	140	<DL	<DL	<DL

Kiber Environmental Services, Inc.

Analytical Summary Sheet
for:

OHM Corporation - Pelham Phosphate Superfund Site

Project Number: 0293-611-30320

Delivery Group # 7

Date Received: 3-20-93

Sample #	Kiber Lab #	pH	Results in mg/Kg							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
372	30320-31	5.63	80	35	<DL	3.9	55	0.26	<DL	<DL
373	30320-32	5.85	7.0	63	<DL	17	31	<DL	<DL	0.61
374	30320-33	4.39	21	56	<DL	21	270	0.44	<DL	0.88
375	30320-34	5.78	140	170	<DL	12	390	2.0	9.8	1.2
376	30320-35	5.05	24	11	<DL	2.0	17	<DL	<DL	<DL

OHM Corporation

CHAIN-OF-CUS, JDY RECORD

Form 0019
Field Technical Services
Rev. 08/89

No. 107062

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: UCEPA
PROJECT LOCATION: Pelham, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: Tony Moore
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): RCRA METALS, pH

30370

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	342	3/19	745			Soil G 0+60 5'	1-8oz	14 day Turn Around Time
2	343		800			Soil G 0+60 8'	1-8oz	
3	344		800			Soil G 1+20 5'	1-8oz	
4	345		800			Soil G 1+20 8'	1-8oz	
5	346		820			Soil F 0+60 4'	1-8oz	
6	347		830			Soil F 1+20 5'	1-8oz	
7	348		835			Soil F 1+20 8'	1-8oz	
8	349		855			Soil F 2+40 5'	1-8oz	
9	350		900			Soil F 2+40 7'	1-8oz	
10	351	3/19	920			Soil F 4+20 4.5'	1-8oz	

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[illegible]	3-20	1030
2					
3					
4					

REMARKS: PLEASE REPORT RESULTS TO:
FLIP ALTMAN AT
PHONE: 729 3900
FAX: 729 3905

SAMPLER'S SIGNATURE: Brian Strickland #3852

LAB COPY

OHM Corporation

CHAIN-OF-CUS JDY RECORD

orm 0019
Field chnical Services
Rev. 08/89

No. 107063

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: Pelham GA
PROJ. NO.: 13340
PROJECT CONTACT: Randy Benefield
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: Tony Moore
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): RCRA METALS + pH; 30320

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	352	3/19	935			Soil E 1+80 5'	1-8oz	14 Day Turn Around Time
2	353		938			Soil E 1+80 8'		12
3	354		950			Soil E 4+20 5'		13
4	355		1000			Soil E 4+20 8'		14
5	356		1025			Soil D 2+40 5'		15
6	357		1027			Soil D 2+40 8'		16
7	358		1035			Soil D 3+00 5'		17
8	359		1040			Soil D 3+00 8'		18
9	360		1050			Soil D 3+60 5'		19
10	361	3/19	1055			Soil D 3+60 8'	1-8oz	20

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	Brian Strickland #3852	[illegible]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

LAB COPY

OHM Corporation

CHAIN-OF-CUS, JDY RECORD

Orm 0019
Field Technical Services
Rev. 08/89

No. 107064

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: Pelham, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: Tony Moore
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): RCRA METALS, pH

30370

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	RCRA METALS	pH							REMARKS
1	362	3/19	1105		✓	Soil D 4+20 5'	1-8oz	✓	✓							14 Day Turn Around Time
2	363	3/19	1110 ~~1320~~		✓	Soil D 4+20 8'	1-8oz	✓	✓							31
3	364	3/19	1320	✓	~~✓~~	Soil Surface Composite Sulfuric Acid Plant	1-8oz	✓	✓							32
4	365	3/19	1400		✓	LOVE STREET SURFACE GRAB FROM POINT Ø	1-8oz	✓	✓							33
5	366	3/19	1405		✓	LOVE STREET 1' GRAB FROM POINT Ø	1-8oz	✓	✓							34
6	367	3/19	1405		✓	LOVE STREET 3' GRAB FROM POINT Ø	1-8oz.	✓	✓							35
7	368	3/19	1410		✓	LOVE STREET SURFACE GRAB FROM POINT 100	1-8oz.	✓	✓							36
8	369	3/19	1410		✓	LOVE STREET 1' GRAB FROM POINT 100	1-8oz	✓	✓							37
9	370	3/19	1415		✓	LOVE STREET 3' GRAB FROM POINT 100	1-8oz	✓	✓							38
10	371	3/19	1420		✓	LOVE STREET SURFACE GRAB FROM POINT 100	1-8oz	✓	✓							39
																30

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	Brian Strickland #3852	[illegible]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

LAB COPY

OHM Corporation

CHAIN-OF-CUSTODY RECORD

Form 0019
Field Technical Services
Rev. 08/89

No. 107065

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA	PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340	PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900	
CLIENT'S REPRESENTATIVE: Tony Moore	PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): RCRA METALS, PH

30330

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	RCRA METALS	PH	REMARKS
1	372	3/19	1420		✓	LOVE STREET 1' GRAB FROM POINT 200	1-8oz	✓	✓	14 DAY TURN AROUND TIME
2	373	3/19	1425		✓	LOVE STREET 3' GRAB FROM POINT 200	1-8oz	✓	✓	32
3	374	3/19	1435		✓	LOVE STREET SURFACE GRAB FROM POINT 300	1-8oz	✓	✓	33
4	375	3/19	1435		✓	LOVE STREET 1' GRAB FROM POINT 300	1-8oz	✓	✓	34
5	376	3/19	1440		✓	LOVE STREET 3' GRAB FROM POINT 300	1-8oz	✓	✓	35
6										
7										
8										
9										
10										

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-5	BRIAN STRICKLAND #3852	[signature]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-1
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 342

SAMPLED (Date/Time/Init) : 3/19/93, 07:45, BS
ICP ANALYSIS (Date/Init) : 3/25/93, DL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.95	4.6	<DL	mg/Kg
Total Barium (Ba)	6010	0.244	26	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.487	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.365	7.0	<DL	mg/Kg
Total Lead (Pb)	6010	2.07	6.4	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.53	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.365	<DL	<DL	mg/Kg
pH	9045	NA	3.91	NA	NA

DL : Detection Limit
NA: Not Applicable

IBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-2
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 343

SAMPLED (Date/Time/Init) : 3/19/93, 08:00, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.87	2.1	<DL	mg/Kg
Total Barium (Ba)	6010	0.234	22	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.467	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.350	6.3	<DL	mg/Kg
Total Lead (Pb)	6010	1.99	7.8	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.38	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.350	<DL	<DL	mg/Kg
pH	9045	NA	4.05	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-3
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 344

SAMPLED (Date/Time/Init) : 3/19/93, 08:00, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	3.24	3400	<DL	mg/Kg
Total Barium (Ba)	6010	0.405	800	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.810	23	<DL	mg/Kg
Total Chromium (Cr)	6010	0.608	14	<DL	mg/Kg
Total Lead (Pb)	6010	17.2	13,000	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	6.4	<DL	mg/Kg
Total Selenium (Se)	6010	5.88	17	<DL	mg/Kg
Total Silver (Ag)	6010	0.608	20	<DL	mg/Kg
pH	9045	NA	4.76	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-4
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 345

SAMPLED (Date/Time/Init) : 3/19/93, 08:00, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	3.73	520	<DL	mg/Kg
Total Barium (Ba)	6010	0.466	970	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.932	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.699	120	<DL	mg/Kg
Total Lead (Pb)	6010	3.96	1800	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	6.2	<DL	mg/Kg
Total Selenium (Se)	6010	6.76	12	<DL	mg/Kg
Total Silver (Ag)	6010	0.699	12	<DL	mg/Kg
pH	9045	NA	4.41	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-5
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 346

SAMPLED (Date/Time/Init) : 3/19/93, 08:20, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.94	170	<DL	mg/Kg
Total Barium (Ba)	6010	0.242	430	<DL	mg/Kg
Total Cadmium (Cd)	6010	4.83	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	3.62	20	<DL	mg/Kg
Total Lead (Pb)	6010	20.6	1900	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	0.86	<DL	mg/Kg
Total Selenium (Se)	6010	35.0	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	3.60	13	<DL	mg/Kg
pH	9045	NA	4.53	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-6
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 347

SAMPLED (Date/Time/Init) : 3/19/93, 08:30, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.14	35	<DL	mg/Kg
Total Barium (Ba)	6010	0.267	690	<DL	mg/Kg
Total Cadmium (Cd)	6010	2.67	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	2.00	29	<DL	mg/Kg
Total Lead (Pb)	6010	11.3	1200	<DL	mg/Kg
Total Mercury (Hg)	7471	0.20	0.28	<DL	mg/Kg
Total Selenium (Se)	6010	19.3	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	2.00	9.4	<DL	mg/Kg
pH	9045	NA	4.55	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-7
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 348

SAMPLED (Date/Time/Init) : 3/19/93, 08:35, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.00	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.250	32	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.499	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.374	6.2	<DL	mg/Kg
Total Lead (Pb)	6010	2.12	6.7	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.62	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.374	1.3	<DL	mg/Kg
pH	9045	NA	4.28	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-8
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 349

SAMPLED (Date/Time/Init) : 3/19/93, 08:55, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.50	320	<DL	mg/Kg
Total Barium (Ba)	6010	0.313	860	<DL	mg/Kg
Total Cadmium (Cd)	6010	6.25	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	4.69	4.8	<DL	mg/Kg
Total Lead (Pb)	6010	26.6	5700	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	3.0	<DL	mg/Kg
Total Selenium (Se)	6010	45.5	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	4.69	10	<DL	mg/Kg
pH	9045	NA	3.15	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-9
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 350

SAMPLED (Date/Time/Init) : 3/19/93, 09:00, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.27	23	<DL	mg/Kg
Total Barium (Ba)	6010	0.284	240	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.568	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.426	4.0	<DL	mg/Kg
Total Lead (Pb)	6010	4.83	3800	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	1.1	<DL	mg/Kg
Total Selenium (Se)	6010	4.12	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.426	3.2	<DL	mg/Kg
pH	9045	NA	3.54	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-10MS
PROJECT # 611

METALS QUALITY ASSURANCE

OHM-PELHAM PHOSPHATE
SAMPLE # 351
MATRIX SPIKE

SAMPLED (Date/Time/Init): 3/19/93, 09:20, BS
ICP ANALYSIS (Date/Init): 3/25/93, AL
CV ANALYSIS (Date/Init): 3/23/93, LD

DATE REPORTED: 3/30/93

Matrix: SOIL

TARGET ANALYTE	DL	BLANK mg/kg	Sample Result mg/kg	Spike Added mg/kg	Matrix Spike mg/kg	% Recov.
Total Arsenic (As)	1.89	<DL	13	470	440	91
Total Barium (Ba)	0.236	<DL	170	470	590	89
Total Cadmium (Cd)	0.471	<DL	<DL	12	10	83
Total Chromium (Cr)	0.353	<DL	6.6	47	49	90
Total Lead (Pb)	2.00	<DL	22	120	120	82
Total Mercury (Hg)	0.2	<DL	<DL	0.500	0.4766	95
Total Selenium (Se)	3.42	<DL	<DL	470	470	100
Total Silver (Ag)	0.353	<DL	<DL	12	10	83

DL:Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-10
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 351

SAMPLED (Date/Time/Init) : 3/19/93, 09:20, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.89	13	<DL	mg/Kg
Total Barium (Ba)	6010	0.236	170	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.471	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.353	6.6	<DL	mg/Kg
Total Lead (Pb)	6010	2.00	22	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.42	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.353	<DL	<DL	mg/Kg
pH	9045	NA	3.65	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-10D
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 351
DUPLICATE

SAMPLED (Date/Time/Init) : 3/19/93, 09:20, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.85	12	<DL	mg/Kg
Total Barium (Ba)	6010	0.231	160	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.462	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.347	6.0	<DL	mg/Kg
Total Lead (Pb)	6010	1.97	17	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.35	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.347	<DL	<DL	mg/Kg
pH	9045	NA	3.87	NA	NA

DL: Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-11
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 352

SAMPLED (Date/Time/Init) : 3/19/93, 09:35, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.81	12	<DL	mg/Kg
Total Barium (Ba)	6010	0.226	60	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.451	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.338	10	<DL	mg/Kg
Total Lead (Pb)	6010	1.92	12	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.27	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.338	0.74	<DL	mg/Kg
pH	9045	NA	3.70	NA	NA

DL : Detection Limit
NA: Not Applicable

CIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-12
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 353

SAMPLED (Date/Time/Init) : 3/19/93, 09:38, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.85	3.0	<DL	mg/Kg
Total Barium (Ba)	6010	0.232	11	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.463	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.347	16	<DL	mg/Kg
Total Lead (Pb)	6010	1.97	2.0	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.36	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.347	0.42	<DL	mg/Kg
pH	9045	NA	3.50	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-13
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 354

SAMPLED (Date/Time/Init) : 3/19/93, 09:50, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.95	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.244	580	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.488	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.366	26	<DL	mg/Kg
Total Lead (Pb)	6010	2.08	23	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.54	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.366	<DL	<DL	mg/Kg
pH	9045	NA	4.21	NA	NA

DL : Detection Limit
NA: Not Applicable

'KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-14
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 355

SAMPLED (Date/Time/Init) : 3/19/93, 10:00, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.89	5.2	<DL	mg/Kg
Total Barium (Ba)	6010	0.236	330	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.472	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.354	8.8	<DL	mg/Kg
Total Lead (Pb)	6010	2.01	14	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.42	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.354	<DL	<DL	mg/Kg
pH	9045	NA	3.77	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-15
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 356

SAMPLED (Date/Time/Init) : 3/19/93, 10:25, BS
ICP ANALYSIS (Date/Init) : 3/26/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.86	3.9	<DL	mg/Kg
Total Barium (Ba)	6010	0.233	86	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.465	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.349	18	<DL	mg/Kg
Total Lead (Pb)	6010	1.98	5.6	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.38	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.349	1.3	<DL	mg/Kg
pH	9045	NA	4.80	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-16
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 357

SAMPLED (Date/Time/Init) : 3/19/93, 10:27, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.92	5.3	<DL	mg/Kg
Total Barium (Ba)	6010	0.240	3.5	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.480	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.360	3.7	<DL	mg/Kg
Total Lead (Pb)	6010	2.04	240	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.48	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.360	0.80	<DL	mg/Kg
pH	9045	NA	3.86	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-17
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 358

SAMPLED (Date/Time/Init) : 3/19/93, 10:35, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.06	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.257	35	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.514	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.386	14	<DL	mg/Kg
Total Lead (Pb)	6010	2.19	200	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.73	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.386	<DL	<DL	mg/Kg
pH	9045	NA	5.41	NA	NA

DL : Detection Limit
NA: Not Applicable

"IBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-18
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 359

SAMPLED (Date/Time/Init) : 3/19/93, 10:40, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.85	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.231	6.5	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.462	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.346	7.9	<DL	mg/Kg
Total Lead (Pb)	6010	1.96	2.0	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.35	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.346	<DL	<DL	mg/Kg
pH	9045	NA	4.83	NA	NA

DL : Detection Limit
NA: Not Applicable

'IBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-19
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 360

SAMPLED (Date/Time/Init) : 3/19/93, 10:50, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.87	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.234	5.2	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.467	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.350	3.4	<DL	mg/Kg
Total Lead (Pb)	6010	1.99	<DL	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.39	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.350	0.35	<DL	mg/Kg
pH	9045	NA	4.27	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-20
PROJECT# 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 361

SAMPLED (Date/Time/Init) : 3/19/93, 10:55, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.98	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.247	18	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.494	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.370	4.1	<DL	mg/Kg
Total Lead (Pb)	6010	2.10	<DL	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.58	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.370	<DL	<DL	mg/Kg
pH	9045	NA	4.26	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-20D
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 361
DUPLICATE

SAMPLED (Date/Time/Init) : 3/19/93, 10:55, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.02	1.3	<DL	mg/Kg
Total Barium (Ba)	6010	0.252	19	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.504	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.378	11	<DL	mg/Kg
Total Lead (Pb)	6010	2.14	6.0	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.65	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.378	0.64	<DL	mg/Kg
pH	9045	NA	4.27	NA	NA

DL: Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-20MS
PROJECT # 611

METALS QUALITY ASSURANCE

OHM-PELHAM PHOSPHATE
SAMPLE # 361
MATRIX SPIKE

SAMPLED (Date/Time/Init): 3/19/93, 10:55, BS
ICP ANALYSIS (Date/Init): 3/25/93, AL
CV ANALYSIS (Date/Init): 3/24/93, LD

DATE REPORTED: 3/30/93

Matrix: SOIL

TARGET ANALYTE	DL	BLANK mg/kg	Sample Result mg/kg	Spike Added mg/kg	Matrix Spike mg/kg	% Recov.
Total Arsenic (As)	1.93	<DL	<DL	480	410	85
Total Barium (Ba)	0.242	<DL	18	480	460	92
Total Cadmium (Cd)	0.484	<DL	<DL	12	11	92
Total Chromium (Cr)	0.363	<DL	4.1	48	60	116
Total Lead (Pb)	2.06	<DL	<DL	120	110	92
Total Mercury (Hg)	0.2	<DL	<DL	0.500	0.4851	97
Total Selenium (Se)	3.51	<DL	<DL	480	470	98
Total Silver (Ag)	0.363	<DL	<DL	12	9.5	79

DL:Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-21
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 362

SAMPLED (Date/Time/Init) : 3/19/93, 11:05, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.88	4.5	<DL	mg/Kg
Total Barium (Ba)	6010	0.234	4.3	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.468	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.351	2.4	<DL	mg/Kg
Total Lead (Pb)	6010	1.99	7.3	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.40	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.351	<DL	<DL	mg/Kg
pH	9045	NA	3.91	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-22
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 363

SAMPLED (Date/Time/Init) : 3/19/93, 11:10, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.97	4.3	<DL	mg/Kg
Total Barium (Ba)	6010	0.247	2.6	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.493	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.370	2.3	<DL	mg/Kg
Total Lead (Pb)	6010	2.10	4.9	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.57	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.370	0.52	<DL	mg/Kg
pH	9045	NA	3.87	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-23
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 364

SAMPLED (Date/Time/Init) : 3/19/93, 13:20, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.17	72	<DL	mg/Kg
Total Barium (Ba)	6010	0.271	17	<DL	mg/Kg
Total Cadmium (Cd)	6010	2.71	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	2.03	24	<DL	mg/Kg
Total Lead (Pb)	6010	11.5	2900	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	0.27	<DL	mg/Kg
Total Selenium (Se)	6010	19.6	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	2.03	6.5	<DL	mg/Kg
pH	9045	NA	2.50	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-24
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 365

SAMPLED (Date/Time/Init) : 3/19/93, 14:00, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.07	3.8	<DL	mg/Kg
Total Barium (Ba)	6010	0.259	12	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.518	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.389	6.2	<DL	mg/Kg
Total Lead (Pb)	6010	2.20	78	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.76	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.389	<DL	<DL	mg/Kg
pH	9045	NA	4.07	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-25
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 366

SAMPLED (Date/Time/Init) : 3/19/93, 14:05, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.15	18	<DL	mg/Kg
Total Barium (Ba)	6010	0.269	29	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.537	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.403	14	<DL	mg/Kg
Total Lead (Pb)	6010	2.29	180	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.90	6.2	<DL	mg/Kg
Total Silver (Ag)	6010	0.403	0.77	<DL	mg/Kg
pH	9045	NA	4.55	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-26
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 367

SAMPLED (Date/Time/Init) : 3/19/93, 14:05, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.13	47	<DL	mg/Kg
Total Barium (Ba)	6010	0.266	34	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.531	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.398	6.0	<DL	mg/Kg
Total Lead (Pb)	6010	2.26	110	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.85	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.398	<DL	<DL	mg/Kg
pH	9045	NA	5.90	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-27
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 368

SAMPLED (Date/Time/Init) : 3/19/93, 14:10, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.14	3.8	<DL	mg/Kg
Total Barium (Ba)	6010	0.268	5.7	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.535	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.401	3.2	<DL	mg/Kg
Total Lead (Pb)	6010	2.27	52	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.88	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.401	<DL	<DL	mg/Kg
pH	9045	NA	4.09	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-28
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 369

SAMPLED (Date/Time/Init) : 3/19/93, 14:10, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.14	240	<DL	mg/Kg
Total Barium (Ba)	6010	0.269	74	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.537	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.403	7.4	<DL	mg/Kg
Total Lead (Pb)	6010	2.29	580	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	1.7	<DL	mg/Kg
Total Selenium (Se)	6010	3.90	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.403	0.62	<DL	mg/Kg
pH	9045	NA	5.75	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-29
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 370

SAMPLED (Date/Time/Init) : 3/19/93, 14:15, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.06	4.5	<DL	mg/Kg
Total Barium (Ba)	6010	0.257	29	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.514	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.386	4.7	<DL	mg/Kg
Total Lead (Pb)	6010	2.19	34	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.73	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.386	<DL	<DL	mg/Kg
pH	9045	NA	5.27	NA	NA

DL : Detection Limit
NA: Not Applicable

:IBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-30
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 371

SAMPLED (Date/Time/Init) : 3/19/93, 14:20, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/23/92, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.12	41	<DL	mg/Kg
Total Barium (Ba)	6010	0.264	58	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.528	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.396	34	<DL	mg/Kg
Total Lead (Pb)	6010	2.25	320	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.83	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.396	1.2	<DL	mg/Kg
pH	9045	NA	3.84	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-30D
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 371
DUPLICATE

SAMPLED (Date/Time/Init) : 3/19/93, 14:20, BS
ICP ANALYSIS (Date/Init) : 3/25/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.12	8.1	<DL	mg/Kg
Total Barium (Ba)	6010	0.264	37	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.528	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.396	11	<DL	mg/Kg
Total Lead (Pb)	6010	2.25	140	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.83	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.396	<DL	<DL	mg/Kg
pH	9045	NA	3.92	NA	NA

DL: Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-30MS
PROJECT # 611

METALS QUALITY ASSURANCE

OHM-PELHAM PHOSPHATE
SAMPLE # 371

SAMPLED (Date/Time/Init): 3/19/93, 14:20, BS
ICP ANALYSIS (Date/Init): 3/25/93, AL
CV ANALYSIS (Date/Init): 3/24/93, LD

DATE REPORTED: 3/30/93

Matrix: SOIL

TARGET ANALYTE	DL	BLANK mg/kg	Sample Result mg/kg	Spike Added mg/kg	Matrix Spike mg/kg	% Recov.
Total Arsenic (As)	2.07	<DL	41	520	470	83
Total Barium (Ba)	0.259	<DL	58	520	460	77
Total Cadmium (Cd)	0.517	<DL	<DL	13	11	85
Total Chromium (Cr)	0.388	<DL	34	52	57	44
Total Lead (Pb)	2.20	<DL	320	130	220	*
Total Mercury (Hg)	0.2	<DL	<DL	0.500	0.4673	93
Total Selenium (Se)	3.75	<DL	1.2	520	420	90
Total Silver (Ag)	0.388	<DL	<DL	13	8.7	67

* Matrix Interfence
DL:Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-31
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 372

SAMPLED (Date/Time/Init) : 3/19/93, 14:20, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.19	80	<DL	mg/Kg
Total Barium (Ba)	6010	0.273	35	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.546	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.409	3.9	<DL	mg/Kg
Total Lead (Pb)	6010	2.32	55	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	0.26	<DL	mg/Kg
Total Selenium (Se)	6010	3.96	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.409	<DL	<DL	mg/Kg
pH	9045	NA	5.63	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-32
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 373

SAMPLED (Date/Time/Init) : 3/19/93, 14:25, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.07	7.0	<DL	mg/Kg
Total Barium (Ba)	6010	0.259	63	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.517	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.388	17	<DL	mg/Kg
Total Lead (Pb)	6010	2.20	31	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.75	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.388	0.61	<DL	mg/Kg
pH	9045	NA	5.85	NA	NA

DL : Detection Limit
NA: Not Applicable

'IBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-33
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 374

SAMPLED (Date/Time/Init) : 3/19/93, 14:35, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.32	21	<DL	mg/Kg
Total Barium (Ba)	6010	0.290	56	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.580	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.435	21	<DL	mg/Kg
Total Lead (Pb)	6010	2.47	270	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	0.44	<DL	mg/Kg
Total Selenium (Se)	6010	4.21	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.435	0.88	<DL	mg/Kg
pH	9045	NA	4.39	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-34
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 375

SAMPLED (Date/Time/Init) : 3/19/93, 14:35, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.32	140	<DL	mg/Kg
Total Barium (Ba)	6010	0.290	170	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.580	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.435	12	<DL	mg/Kg
Total Lead (Pb)	6010	2.47	390	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	2.0	<DL	mg/Kg
Total Selenium (Se)	6010	4.21	9.8	<DL	mg/Kg
Total Silver (Ag)	6010	0.435	1.2	<DL	mg/Kg
pH	9045	NA	5.78	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30320-35
PROJECT # 611

RCRA METALS RESULTS

OHM-PELHAM PHOSPHATE
SAMPLE # 376

SAMPLED (Date/Time/Init) : 3/19/93, 14:40, BS
ICP ANALYSIS (Date/Init) : 3/29/93, AL
CV ANALYSIS (Date/Init) : 3/24/93, LD

DATE REPORTED: 3/30/93

MATRIX : SOIL

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.04	24	<DL	mg/Kg
Total Barium (Ba)	6010	0.255	11	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.509	<DL	<DL	mg/Kg
Total Chromium (Cr)	6010	0.382	2.0	<DL	mg/Kg
Total Lead (Pb)	6010	2.17	17	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.69	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.382	<DL	<DL	mg/Kg
pH	9045	NA	5.05	NA	NA

DL : Detection Limit
NA: Not Applicable

KIBER Environmental Services | HAZ-SCAN | PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93

KEY:

-	=	NEGATIVE
+	=	POSITIVE
A	=	ACID
BN	=	BASE NEUTRAL
C	=	CHLORINE
CN	=	CYANIDE
L	=	LIQUID
O	=	ORGANIC
OX	=	OXIDIZER
P	=	PEROXIDE
PS	=	PARTIALLY SOL
S	=	SOLID
SU	=	SULFIDE

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2000 TOP LAYER	30321-1	BROWN OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL
2000 BOTTOM LAYER	30321-1	WHITE OPAQUE SLUDGE	-	-	-	+	-	-	-	-	-	-	5	BNL
2001	30321-2	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL
2002 TOP LAYER	30321-3	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2002 BOTTOM LAYER	30321-3	WHITE OPAQUE SLUDGE	-	-	-	+	-	-	-	-	-	-	3	AL
2003	30321-4	ORANGE CLOUDY LIQUID	-	-	-	+	-	-	-	-	+	-	8	CL
2004	30321-5	BROWN CLEAR LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2005 TOP LAYER	30321-6	BLACK OPAQUE LIQUID	-	-	-	+	-	-	+	-	-	-	5	SUL
2005 BOTTOM LAYER	30321-6	BROWN OPAQUE LIQUID	-	-	-	+	-	-	+	-	-	-	5	SUL

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2006	30321-7	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	1	ACL
2007	30321-8	BLACK OPAQUE LIQUID	-	-	-	+	-	-	+	-	-	-	2	ASUL
2008	30321-9	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	4	BNL
2009	30321-10	BLACK OPAQUE LIQUID	-	-	-	+	-	-	+	-	-	-	4	SUL
2010	30321-11	ORANGE CLOUDY LIQUID	-	-	-	+	-	-	-	-	-	-	1	AL
2011	30321-12	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	4	BNL
2012	30321-13	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	2	AL
2013 TOP LAYER	30321-14	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	4	CL
2013 BOTTOM LAYER	30321-14	WHITE OPAQUE SLUDGE	-	-	-	+	-	+	-	-	+	-	4	COXL

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2014	30321-15	BLACK OPAQUE LIQUID	-	-	-	+	-	+	-	-	+	-	0	ACOXL
2015	30321-16	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	0	AL
2016	30321-17	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	0	ACL
2017	30321-18	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL
2018*	30321-19	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	0	ACL
2019**	30321-20	BLACK OPAQUE LIQUID	-	-	-	+	-	+	-	-	+	-	2	ACOXL
2020	30321-21	ORANGE CLEAR LIQUID	-	-	-	+	-	-	-	-	-	-	10	BNL
2021	30321-22	GREY CLOUDY LIQUID	-	-	-	+	+	-	-	-	-	-	7	PL

* 2018/30321-19: The cyanide spot test turned green which could be an indication of nitrites in the sample.

** 2019/30321-20: The oxidizer spot test turned a slight black color.

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2022	30321-23	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	9	CL
2023	30321-24	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	12	CL
2024 TOP LAYER	30321-25	COLORLESS CLOUDY LIQUID	-	-	-	+	-	-	-	-	+	-	7	CL
2024 BOTTOM LAYER	30321-25	BROWN OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	7	CL
2025	30321-26	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	8	CL
2026	30321-27	BROWN OPAQUE SOLID	-	-	-	+	-	-	-	-	+	-	7	CS
2027	30321-28	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	3	AS
2028*	30321-29	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	0	ACL

* 2028/30321-29: This sample created a strong sulfur odor when it was burned.

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2029	30321-30	BROWN CLEAR LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2030	30321-31	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	0	ACL
2031	30321-32	GREEN CLEAR LIQUID	-	-	-	+	-	+	-	-	+	-	0	ACOXL
2032	30321-33	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2033	30321-34	BROWN OPAQUE SOLID	-	-	-	PS	-	-	-	-	+	-	7	CS
2034 TOP LAYER	30321-35	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	6	CL
2034 BOTTOM LAYER	30321-35	WHITE OPAQUE SLUDGE	-	-	-	+	-	-	-	-	+	-	6	CL
2035	30321-36	GREEN OPAQUE SOLID	-	-	-	PS	-	-	-	-	+	-	4	CS
2036	30321-37	GREY OPAQUE SLUDGE	-	-	-	PS	-	-	-	-	-	-	6	BNL

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2037	30321-38	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL
2038 TOP LAYER	30321-39	BROWN OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	5	CL
2038 BOTTOM LAYER	30321-39	GREEN OPAQUE SLUDGE	-	-	-	+	-	-	-	-	-	-	5	BNL
2039	30321-40	BLUE CLOUDY LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2040	30321-41	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	6	CL
2041	30321-42	GREEN OPAQUE SOLID	-	-	+	+	-	-	-	-	-	-	3	OAS
2042 TOP LAYER	30321-43	BROWN CLOUDY LIQUID	-	-	-	+	+	-	-	-	-	-	5	PI.
2042* BOTTOM LAYER	30321-43	COLORLESS CLOUDY GEL	-	-	PS	+	-	-	-	-	-	-	5	OL

* 2042/ 30321-43: The bottom layer formed a white emulsion in the hexane/DCM mix.

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2043*	30321-44	YELLOW CLEAR LIQUID	-	-	+	PS	-	-	-	-	-	-	4	OL
2044	30321-45	BROWN OPAQUE LIQUID	-	-	-	+	-	+	-	-	+	-	0	ACOXL
2045**	30321-46	GREEN CLOUDY LIQUID	-	-	+	+	-	-	-	+	-	-	7	OCNL
2046 TOP LAYER	30321-47	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL
2046 BOTTOM LAYER	30321-47	WHITE OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	7	BNL
2047	30321-48	YELLOW CLOUDY LIQUID	-	-	-	+	-	-	-	-	+	-	7	CL
2048	30321-49	GREEN CLOUDY LIQUID	-	-	-	+	+	-	-	-	+	-	7	PCL
2049	30321-50	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	5	BNL

* 2043/30321-44: Formed a white emulsion in water.

** 2045/30321-46: The cyanide test turned a weak pink color.

KIBER Environmental Services

HAZ-SCAN

PROJECT # 611-30321

OHM-PELHAM PHOSPHATE

SAMPLED (Date/Time/Init): 3/17/93 & 3/18/93, BS
ANALYSIS (Date/Time/Init): 3/30/93, SB & CC

DATE REPORTED: 3/31/93
(For key see back page)

KES SAMPLE #	LAB SAMPLE #	PHYSICAL DESCRIPTION	AIR REACTIVE +/-	WATER REACTIVE +/-	HEXANE/ DCM +/-	WATER SOLUBLE +/-	PEROXIDE +/-	OXIDIZER +/-	SULFIDE +/-	CYANIDE +/-	BIELSTEIN +/-	FLASHPOINT (at 140°F) +/-	pH	HAZSCAN CATAGORY
2050	30321-51	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	1	ACL
2051	30321-52	BLACK OPAQUE LIQIUD	-	-	-	+	-	-	-	-	-	-	7	BNL
2052	30321-53	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	3	AL
2053	30321-54	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	7	CL
2054 TOP LAYER	30321-55	BLACK OPAQUE LIQUID	-	-	-	+	-	-	-	-	-	-	6	BNL
2054 BOTTOM LAYER	30321-55	WHITE OPAQUE SLUDGE	-	-	-	+	-	-	-	-	-	-	7	BNL
2055	30321-56	BROWN OPAQUE LIQUID	-	-	-	+	-	-	-	-	+	-	9	CL
2056 TOP LAYER	30321-57	BLACK OPAQUE LIQIUD	-	-	-	+	-	-	-	-	-	-	4	BNL
2056 BOTTOM LAYER	30321-57	WHITE OPAQUE SLUDGE	-	-	-	+	-	-	-	-	-	-	4	BNL

PCB RESULTS

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30321-72
PROJECT # 611

GC PCB RESULTS

OHM-PELHAM PHOSPHATE
COMPOSITE #1
(2057, 2058, 2059, 2060, 2062
2063, 2064)
DATE REPORTED: 4/1/93

SAMPLED (Date/Time/Init): 3/18/93, 16:00, BS
EXTRACTED (Date / Init) : 3/26/93, DLL
ANALYSIS (Date/Time/Init): 3/31/93, 11:05, DLL

Quant Factor: 17.0

Sample Matrix: OIL
Analysis Method: 8080

TARGET COMPOUND LIST	CAS Number	MDL	PQL	Concentration ug/Kg
Aroclor-1016	12674-11-2	1700	6800	ND
Aroclor-1221	11104-28-2	1700	6800	ND
Aroclor-1232	11141-16-5	1700	6800	ND
Aroclor-1242	53469-21-9	1700	6800	ND
Aroclor-1248	12672-29-6	1700	6800	ND
Aroclor-1254	11097-69-1	1700	6800	3500E
Aroclor-1260	11096-82-5	1700	6800	4800E

E: Estimated , ND: Not Detected
MDL: Method Detection Limit
PQL: Practical Quantitation Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30321-73
PROJECT # 611

GC PCB RESULTS

OHM-PELHAM PHOSPHATE
COMPOSITE #2
(2065, 2067, 2068, 2069,
2070, 2071, 2072)
DATED REPORTED: 4/1/93

SAMPLED (Date/Time/Init): 3/18/93, 16:00, BS
EXTRACTED (Date / Init) : 3/26/93, DLL
ANALYSIS (Date/Time/Init): 3/30/93, 20:23, DLL

Quant Factor: 270.0

Sample Matrix: OIL
Analysis Method: 8080

TARGET COMPOUND LIST	CAS Number	MDL	PQL	Concentration ug/Kg
Aroclor-1016	12674-11-2	27000	108000	ND
Aroclor-1221	11104-28-2	27000	108000	ND
Aroclor-1232	11141-16-5	27000	108000	ND
Aroclor-1242	53469-21-9	27000	108000	ND
Aroclor-1248	12672-29-6	27000	108000	ND
Aroclor-1254	11097-69-1	27000	108000	ND
Aroclor-1260	11096-82-5	27000	108000	41,000E

E: Estimated , ND: Not Detected
MDL: Method Detection Limit
PQL: Practical Quantitation Limit

OHM Corporation

CHAIN-OF-CUS JDY RECORD

Form 0019
Fiel chnical Services
Rev. 08/89

No. 107070

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY

303.71

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS		REMARKS
1	2000	3/17	1400	✓		COMPOSITE FROM GROUP # 2000	1-32oz	✓	14 DAY TURN AROUND TIME
2	2001		1600	✓		COMPOSITE FROM GROUP # 2001			2
3	2002		1615	✓		COMPOSITE FROM GROUP # 2002			3
4	2003		1630	✓		COMPOSITE FROM GROUP # 2003			4
5	2004		1645	✓		COMPOSITE FROM GROUP # 2004			5
6	2005		1700	✓		COMPOSITE FROM GROUP # 2005			6
7	2006		1710	✓		COMPOSITE FROM GROUP # 2006			7
8	2007		1710	✓		COMPOSITE FROM GROUP # 2007			8
9	2008		1715	✓		COMPOSITE FROM GROUP # 2008			9
10	2009		1715	✓		COMPOSITE FROM GROUP # 2009			10

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-10	BRIAN STRICKLAND #3852	[signature]	3-20	10:30	
2						
3						
4						SAMPLER'S SIGNATURE: [signature] #3852

LAB COPY

OHM Corporation

CHAIN-OF-CUS. ODY RECORD

Form 001
Field Technical Service
Rev. 08/8

No. 107001

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY

30371

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	2010	3/17	1720	✓		COMPOSITE FROM GROUP # 2010	1-32oz	14 DAY TURN AROUND TIME
2	2011	3/17	1720	✓		COMPOSITE FROM GROUP # 2011	1-32oz	11
3	2012	3/17	1700	✓		COMPOSITE FROM GROUP # 2012	1-32oz	12
4	2013	3/17	1705	✓		COMPOSITE FROM GROUP # 2013	1-32oz	13
5	2014	3/17	1710	✓		COMPOSITE FROM GROUP # 2014	1-32oz	14
6	2015	3/17	1715	✓		COMPOSITE FROM GROUP # 2015	1-32oz	15
7	2016	3/17	1740	✓		COMPOSITE FROM GROUP # 2016	1-32oz	16
8	2017	3/17	1740	✓		COMPOSITE FROM GROUP # 2017	1-32oz	17
9	2018	3/18	0800	✓		COMPOSITE FROM GROUP # 2018	1-32oz	18
10	2019	3/18	0800	✓		COMPOSITE FROM GROUP # 2019	1-32oz	19
								20

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[signature]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

LAB COPY

OHM Corporation

CHAIN-OF-CUS . JDY RECORD

Form 0015
Field Technical Services
Rev. 08/89

No. 107002

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA 1
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY

30371

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	2020	3/18	0900		✓	GRAB FROM UNKNOWN # 2020	1-8oz	14 DAY TURN AROUND TIME 21
2	2021		0900		✓	GRAB FROM UNKNOWN	1-8oz	22
3	2022		0900		✓	GRAB FROM UNKNOWN	1-8oz	23
4	2023		0900		✓	GRAB FROM UNKNOWN	1-8oz	24
5	2024		0900		✓	GRAB FROM UNKNOWN	1-8oz	25
6	2025		0900		✓	GRAB FROM UNKNOWN	1-8oz	26
7	2026		0900		✓	GRAB FROM UNKNOWN	1-8oz	27
8	2027		0900		✓	GRAB FROM UNKNOWN	1-8oz	28
9	2028		0900		✓	GRAB FROM UNKNOWN	1-8oz	29
10	2029		0900		✓	GRAB FROM UNKNOWN	1-8oz	30

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[illegible]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

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OHM Corporation

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Form 0019
Field Technical Services
Rev. 08/89

No. 107003

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY

30321

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	2030	3/18	0900		✓	GRAB FROM UNKNOWN	1-8oz.	14 DAY TURNAROUND TIME
2	2031	↓	0900		↓	↓	↓	32
3	2032	↓	0900		↓	↓	↓	33
4	2033	↓	0900		↓	↓	↓	34
5	2034	↓	0945		↓	↓	↓	35
6	2035	↓	0945		↓	↓	↓	36
7	2036	↓	0945		↓	↓	↓	37
8	2037	↓	0945		↓	↓	↓	38
9	2038	↓	0945		↓	↓	↓	39
10	2039	↓	0945		↓	↓	↓	40

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[illegible]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [illegible] #3852

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Rev. 08/

No. 107004

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 739 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY

30321

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	2040	3/18	0945		✓	GRAB FROM UNKNOWN	1-8oz	14 DAY TURNAROUND TIME
2	2041		0945		✓		1-8oz	41
3	2042		0945		✓		1-8oz	42
4	2043		0945		✓		1-8oz	43
5	2044		0945		✓		1-8oz	44
6	2045		0945		✓		1-8oz	45
7	2046		1300	✓		COMPOSITE FROM GRAB	1-32oz	46
8	2047		1300	✓			1-32oz	47
9	2048		1300	✓			1-32oz	48
10	2049		1300	✓			1-32oz	49
								50

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #382	[illegible]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [illegible] #3852

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No. 107005

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA
PROJECT LOCATION: PELHAM, GA
PROJ. NO.: 13340
PROJECT CONTACT: RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): COMPATIBILITY, PCBS

30321

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	COMPATIBILITY	PCBS	REMARKS
1	2050	3/18	1300	✓		COMPOSITE FROM GROUP	1-32oz	✓		14 DAY TURN AROUND TIME
2	2051		1300	✓			1-32oz	✓		51
3	2052		1300	✓			1-32oz	✓		52
4	2053		1300	✓			1-32oz	✓		53
5	2054		1300	✓			1-32oz	✓		54
6	2055		1300	✓			1-32oz	✓		55
7	2056		1300	✓			1-32oz	✓		56
8	2057		1600		✓	TRANSFORMER OIL	1-8oz		✓	57
9	2058		1600		✓	TRANSFORMER OIL	1-8oz		✓	58
10	2059		1600		✓	TRANSFORMER OIL	1-8oz		✓	59
										60

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[illegible]	3-20	10:30
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

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No. 107006

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME	PROJECT LOCATION
USEPA	PELHAM, GA

PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.
13340	RANDY BENEFIELD	404 729 3900

CLIENT'S REPRESENTATIVE	PROJECT MANAGER/SUPERVISOR
TONY MOORE	FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): PCB'S

303.21

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	REMARKS
1	2060	3/18	1600			TRANSFORMER OIL	1-802	14 DAY TURN AROUND TIM
2	2062							61
3	2063							62 ~~63~~ ~~64~~ 63
4	2064							~~6~~ 64
5	2065							65
6	2067							66
7	2068							67
8	2069							68
9	2070							69
10	2071							70

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[signature]	3-20	1030
2					
3					
4					

REMARKS
THERE ARE NO SAMPLES FOR
#2061
#2066

SAMPLER'S SIGNATURE
Brian Strickland #3852

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No. 107007

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PROJECT NAME	PROJECT LOCATION
USEPA	PELHAM, GA

PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.
13340	RANDY BENEFIELD	404 729 3900

CLIENT'S REPRESENTATIVE	PROJECT MANAGER/SUPERVISOR
TONY MOORE	FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)

30321

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	PCB'S							REMARKS
1	2072	3/18	1600		✓	TRANSFORMER OIL	1-8oz	✓							14 DAY TURN AROUND TIM 71
2															
3															
4															
5															
6															
7															
8															
9															
10															

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1	BRIAN STRICKLAND	[signature]	3-20	1030
2					
3					
4					

REMARKS

SAMPLER'S SIGNATURE [signature] # 5252

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PELHAM PHOSPHATE SUPERFUND SITE
PELHAM, GEORGIA
ANALYTICAL RESULTS
PHASE III

PRESENTED TO:

OHM REMEDIATION SERVICES, INC.

5335 TRIANGLE PARKWAY
SUITE 450
NORCROSS, GEORGIA 30092
(404) 729-3900

PRESENTED BY:

KIBER ENVIRONMENTAL SERVICES, INC.

4000 DEKALB TECHNOLOGY PARKWAY, N.E.
SUITE 200
ATLANTA, GEORGIA 30340
(404) 455-3944

April 30, 1993

KIBER ENVIRONMENTAL SERVICES, INC.

ANALYTICAL CASE NARRATIVE
FOR:

OHM Corporation - Pelham Phosphate

Project No. 611-30420 and 30424

- A total of 67 soil samples and seven water samples were received by Kiber on 4-17-93 at 1000 hours. They were delivered by Randy Benefield, an employee of OHM Corporation (OHM). The sampler for the project, as listed on the chain-of-custody was Brian Strickland, also an OHM employee. In addition to these samples, five soils, previously received by Kiber (OHM numbers 104, 160, 210, 239 and 263), were requested to be analyzed for TCLP lead. The request came from Rob Lawyer of Weston - TAT. These samples were analyzed approximately sixty days after they were sampled.

- The analyses requested on the soils were total lead (54), TCLP lead (5), RCRA metals (13). The analyses requested on the waters (7) were the Safe Drinking Water Act List (SDWA) for Metals. Engineering Science (ES) in Atlanta, Georgia performed the analyses for the graphite furnace metals and the cyanide. Duplicate analyses were not requested as part of the analyses.

- Methods of analyses are as follows:

Analyte	*Method*	*Instrument*
Total lead	SW-846 Method 6010	Thermo Jarrell Ash ICAP
TCLP lead	SW-846 Method 6010 and 1311	Thermo Jarrell Ash ICAP
Total mercury	SW-846 Method 7470(w) and 7471(s)	Bacarach Mercury Analyzer
Total RCRA metals-(except mercury)	SW-846 Method 6010	Thermo Jarrell Ash ICAP
Total SDWA metals	SW-846 Method 6010	Thermo Jarrell Ash ICAP
	SW-846 Method 7481(Mo)	Atomic Absorption-Graphite Furnace
	SW-846 Method 7780 (Sr)	Atomic Absorption-Graphite Furnace
	EPA Method 210.2 (Be)	Atomic Absorption-Graphite Furnace
	SW-846 Method 7470 (Hg)	Bacarach Mercury Analyzer
Total Cyanide	EPA 335.2	Spectrophotometer

Inorganics-Graphite Furnace

During the analyses of the graphite furnace metals, there was a background interference with the antimony analyses due to the increased levels of the other metals in the samples. As a result, the detection limit for antimony was going to be reported as 50 ug/L (from ES). This is significantly higher than the SDWA limits, therefore the sample was analyzed by ICAP to obtain the lowest possible detection limit. The results for antimony are reported with a detection limit of 18 ug/L.

Additionally, there was no percent recovery detected for the matrix spike for Molybdenum. The lab control sample (blank spike) carried through the digestion procedure had a percent recovery of 104 and a relative percent difference of 1.9%. Because the blank spike exhibited acceptable recoveries, the low recovery from the matrix spike could be attributed to a matrix affect from the sample. There were no other difficulties encountered during the graphite furnace analyses

Inorganics-Cyanide

There were no difficulties encountered during the cyanide analyses.

Inorganics-ICAP

There were no problems encountered for the TCLP lead, total lead or the RCRA metals analyses; however, there was a low recovery in the matrix spike for the SDWA analyses for chromium and antimony. The lab control sample for the batch (blank spike) and an analytical bench spike performed were within the acceptable ranges of recovery. The low recoveries could be attributed to matrix affects.

There were no further difficulties encountered during the analyses.

- Unless otherwise noted Kiber will return all samples to the client thirty days after the report date.

TOTAL LEAD

KIBER ENVIRONMENTAL SERVICES

PROJECT # 611-30420

TOTAL LEAD RESULTS

PELHAM PHOSPHATE

PARAMETER : TOTAL LEAD
EPA METHOD # : 6010
ANALYSIS (Date/Init) : 4/20-21/93, AL

DATE REPORTED: 4/28/93

SAMPLE ID #	SAMPLE DATE	SAMPLE TIME	LAB ID #	DL	Result	Units
377	4/13/93	12:00	30420-1	1.90	29	mg/Kg
378	4/13/93	14:30	30420-2	1.98	14	mg/Kg
379	4/13/93	12:35	30420-3	2.12	87	mg/Kg
380	4/13/93	15:00	30420-4	2.01	53	mg/Kg
381	4/13/93	15:50	30420-5	20.9	78	mg/Kg
382	4/13/93	15:50	30420-6	2.13	190	mg/Kg
383	4/13/93	16:50	30420-7	2.00	36	mg/Kg
384	4/13/93	16:50	30420-8	2.04	4.6	mg/Kg
385	4/14/93	09:00	30420-9	1.91	150	mg/Kg
386	4/14/93	09:00	30420-10	2.05	39	mg/Kg
387	4/14/93	09:00	30420-11	2.04	54	mg/Kg
388	4/14/93	10:25	30420-12	1.83	14	mg/Kg
389	4/14/93	10:25	30420-13	2.14	9.3	mg/Kg
390	4/14/93	10:45	30420-14	1.87	17	mg/Kg
391	4/14/93	10:45	30420-15	1.92	10	mg/Kg
392	4/14/93	11:15	30420-16	1.77	8.1	mg/Kg
393	4/14/93	11:15	30420-17	1.99	11	mg/Kg
394	4/14/93	11:15	30420-18	1.84	15	mg/Kg
395	4/14/93	11:45	30420-19	1.84	8.0	mg/Kg
396	4/14/93	11:45	30420-20	2.02	13	mg/Kg
397	4/14/93	12:00	30420-21	1.86	9.3	mg/Kg
398	4/14/93	12:00	30420-22	2.00	18	mg/Kg
399	4/14/93	14:00	30420-23	1.85	5.0	mg/Kg
400	4/14/93	14:00	30420-24	1.91	4.7	mg/Kg
401	4/14/93	15:00	30420-25	2.34	14	mg/Kg
402	4/14/93	15:00	30420-26	1.99	27	mg/Kg
BLANK	--	--	30420-Blk	0.019	<DL	mg/Kg

DL: Detection Limit

KIBER ENVIRONMENTAL SERVICES

PROJECT # 611-30424

TOTAL LEAD RESULTS

PELHAM PHOSPHATE

PARAMETER : TOTAL LEAD
EPA METHOD # : 6010
ANALYSIS (Date/Init) : 4/21-22/93, AL

DATE REPORTED: 4/28/93

SAMPLE ID #	SAMPLE DATE	SAMPLE TIME	LAB ID #	DL	Result	Units
403	4/14/93	15:00	30420-27	2.01	22	mg/Kg
404	4/14/93	15:35	30420-28	1.79	19	mg/Kg
405	4/14/93	15:35	30420-29	2.08	14	mg/Kg
406	4/14/93	16:25	30420-30	1.82	33	mg/Kg
407	4/14/93	16:25	30420-31	2.01	4.6	mg/Kg
408	4/14/93	17:00	30420-32	1.88	6.6	mg/Kg
409	4/14/93	17:00	30420-33	1.98	10	mg/Kg
410	4/15/93	09:15	30420-34	1.94	12	mg/Kg
411	4/15/93	09:15	30420-35	2.09	13	mg/Kg
412	4/15/93	09:40	30420-36	1.75	<DL	mg/Kg
413	4/15/93	09:40	30420-37	1.93	6.0	mg/Kg
414	4/15/93	10:20	30420-38	1.94	21	mg/Kg
415	4/15/93	10:20	30420-39	2.22	12	mg/Kg
416	4/15/93	10:20	30420-40	1.90	23	mg/Kg
417	4/15/93	10:45	30420-41	2.17	1,400	mg/Kg
418	4/15/93	10:45	30420-42	2.16	6.6	mg/Kg
419	4/15/93	11:00	30420-43	1.89	18	mg/Kg
420	4/15/93	11:00	30420-44	2.32	7.3	mg/Kg
421	4/15/93	11:15	30420-45	1.68	15	mg/Kg
422	4/15/93	11:15	30420-46	2.17	8.0	mg/Kg
423	4/15/93	11:40	30420-47	1.90	12	mg/Kg
424	4/15/93	11:40	30420-48	2.28	12	mg/Kg
425	4/15/93	13:15	30420-49	1.93	16	mg/Kg
426	4/15/93	13:15	30420-50	2.02	12	mg/Kg
427	4/15/93	13:15	30420-51	2.11	5.2	mg/Kg
428	4/15/93	13:35	30420-52	1.88	7.8	mg/Kg
429	4/15/93	13:35	30420-53	1.92	6.6	mg/Kg
POO1	4/15/93	14:15	30420-54	2.23	8.3	mg/Kg
BLANK	--	--	30420-Blk	0.019	<DL	mg/Kg

DL: Detection Limit

TCLP LEAD

KIBER ENVIRONMENTAL SERVICES

PROJECT # 611-30424

TCLP LEAD RESULTS

PROJECT NAME: PELHAM PHOSPHATE
SAMPLED (Date/Init) : 2/19-21/93, BS
TCLP Extract (Date/Init) : 4/20/93, EC & PV
ANALYTE: TCLP LEAD
EPA METHOD: 6010
ICP ANALYSIS (Date/Init) : 4/23/93, AL

DATE REPORTED: 4/28/93

KES SAMPLE #	LAB #	DL	Result	Units
104	30424-1	0.019	0.09	mg/L
160	30424-2	0.019	0.48	mg/L
210	30424-3	0.019	16	mg/L
239	30424-4	0.019	0.06	mg/L
263	30424-5	0.019	11	mg/L
TCLP BLANK	30424-TB	0.019	<DL	mg/L
BLANK	30424-BLK	0.019	<DL	mg/L

DL: Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-55
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3001

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 113

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.81	7.3	<DL	mg/Kg
Total Barium (Ba)	6010	0.23	28	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.45	1.1	<DL	mg/Kg
Total Chromium (Cr)	6010	0.34	19	<DL	mg/Kg
Total Lead (Pb)	6010	1.92	68	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.28	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.34	0.79	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-56
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3002

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 124

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.98	14	<DL	mg/Kg
Total Barium (Ba)	6010	0.25	115	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.50	15	<DL	mg/Kg
Total Chromium (Cr)	6010	0.37	92	<DL	mg/Kg
Total Lead (Pb)	6010	2.11	450	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.60	9.6	<DL	mg/Kg
Total Silver (Ag)	6010	0.37	1.9	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-57
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3003

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 136

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.18	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.27	6.0	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.54	1.2	<DL	mg/Kg
Total Chromium (Cr)	6010	0.41	5.7	<DL	mg/Kg
Total Lead (Pb)	6010	2.31	27	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.94	13	<DL	mg/Kg
Total Silver (Ag)	6010	0.41	<DL	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-58
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3004

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 111

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.78	34	<DL	mg/Kg
Total Barium (Ba)	6010	0.22	160	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.44	4.7	<DL	mg/Kg
Total Chromium (Cr)	6010	0.33	29	<DL	mg/Kg
Total Lead (Pb)	6010	1.89	320	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.22	22	<DL	mg/Kg
Total Silver (Ag)	6010	0.33	3.4	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-60
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3006

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 120

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.92	25	<DL	mg/Kg
Total Barium (Ba)	6010	0.24	80	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.48	7.2	<DL	mg/Kg
Total Chromium (Cr)	6010	0.36	45	<DL	mg/Kg
Total Lead (Pb)	6010	2.04	330	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.48	14	<DL	mg/Kg
Total Silver (Ag)	6010	0.36	2.0	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-61
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3007

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/23/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 114

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.82	1,400	<DL	mg/Kg
Total Barium (Ba)	6010	0.23	800	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.46	26	<DL	mg/Kg
Total Chromium (Cr)	6010	0.34	64	<DL	mg/Kg
Total Lead (Pb)	6010	9.70	9,000	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	0.43	<DL	mg/Kg
Total Selenium (Se)	6010	3.31	120	<DL	mg/Kg
Total Silver (Ag)	6010	0.34	46	<DL	mg/Kg

DL : Detection Limit

RCRA METALS

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-59
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3005

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 110

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.76	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.22	76	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.44	19	<DL	mg/Kg
Total Chromium (Cr)	6010	0.33	63	<DL	mg/Kg
Total Lead (Pb)	6010	1.87	110	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.19	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.33	1.9	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-62
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3008

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 111

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.78	21	<DL	mg/Kg
Total Barium (Ba)	6010	0.22	110	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.44	9.2	<DL	mg/Kg
Total Chromium (Cr)	6010	0.33	52	<DL	mg/Kg
Total Lead (Pb)	6010	1.89	1100	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.22	38	<DL	mg/Kg
Total Silver (Ag)	6010	0.33	2.0	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-63
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3009

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/23/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 109

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.74	2.0	<DL	mg/Kg
Total Barium (Ba)	6010	0.22	140	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.44	3.5	<DL	mg/Kg
Total Chromium (Cr)	6010	0.33	41	<DL	mg/Kg
Total Lead (Pb)	6010	1.85	42	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.16	5.4	<DL	mg/Kg
Total Silver (Ag)	6010	0.33	1.4	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-64
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3010

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/22/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 122

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	1.95	<DL	<DL	mg/Kg
Total Barium (Ba)	6010	0.24	88	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.49	10	<DL	mg/Kg
Total Chromium (Cr)	6010	0.37	41	<DL	mg/Kg
Total Lead (Pb)	6010	2.07	110	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.54	<DL	<DL	mg/Kg
Total Silver (Ag)	6010	0.37	1.8	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-66
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3012

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/23/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 130

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.08	2.6	<DL	mg/Kg
Total Barium (Ba)	6010	0.26	88	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.52	8.1	<DL	mg/Kg
Total Chromium (Cr)	6010	0.39	44	<DL	mg/Kg
Total Lead (Pb)	6010	2.21	330	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.77	10	<DL	mg/Kg
Total Silver (Ag)	6010	0.39	1.6	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-67
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3013

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/23/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 128

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.05	28	<DL	mg/Kg
Total Barium (Ba)	6010	0.26	120	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.51	5.4	<DL	mg/Kg
Total Chromium (Cr)	6010	0.38	26	<DL	mg/Kg
Total Lead (Pb)	6010	2.18	330	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.71	18	<DL	mg/Kg
Total Silver (Ag)	6010	0.38	2.8	<DL	mg/Kg

DL : Detection Limit

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-65
PROJECT # 611

RCRA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # 3011

SAMPLED (Date/Time/Init) : 4/13/93, 16:00, RB
ICP ANALYSIS (Date/Init) : 4/23/93, AL
CV ANALYSIS (Date/Init) : 4/22/93, EC

DATE REPORTED: 4/29/93

MATRIX : SOIL
Quant Factor: 131

ANALYTE	EPA Method	DL	Result	Blank	Units
Total Arsenic (As)	6010	2.10	20	<DL	mg/Kg
Total Barium (Ba)	6010	0.26	160	<DL	mg/Kg
Total Cadmium (Cd)	6010	0.52	5.2	<DL	mg/Kg
Total Chromium (Cr)	6010	0.39	50	<DL	mg/Kg
Total Lead (Pb)	6010	2.23	340	<DL	mg/Kg
Total Mercury (Hg)	7471	0.2	<DL	<DL	mg/Kg
Total Selenium (Se)	6010	3.80	4.9	<DL	mg/Kg
Total Silver (Ag)	6010	0.39	2.8	<DL	mg/Kg

DL : Detection Limit

SAFE DRINKING WATER ACT METALS

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-68
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 01

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	97	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	0.050	<DL	mg/L
Total Barium (Ba)	6010	0.003	0.19	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	0.0018	<DL	mg/L
Total Boron (B)	6010	0.05	<DL	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	0.080	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.027	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	0.077	0.020	mg/L
Total Manganese (Mn)	6010	0.003	0.17	<DL	mg/L
Total Mercury (Hg)	7470	0.001	<DL	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.037	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	290	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	0.132	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.18	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.11	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-69
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 02

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	3.2	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	<DL	<DL	mg/L
Total Barium (Ba)	6010	0.003	0.021	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	<DL	<DL	mg/L
Total Boron (B)	6010	0.05	<DL	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	<DL	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.005	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	<DL	0.020	mg/L
Total Manganese (Mn)	6010	0.003	0.016	<DL	mg/L
Total Mercury (Hg)	7470	0.001	<DL	<DL	mg/L
Total Molybdenum (Mo)	7481	0.01	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	<DL	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	2.6	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	0.023	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	<DL	<DL	mg/L
Total Zinc (Zn)	6010	0.005	<DL	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-70
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 03

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANAYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	23	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	<DL	<DL	mg/L
Total Barium (Ba)	6010	0.003	0.11	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	<DL	<DL	mg/L
Total Boron (B)	6010	0.05	0.56	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	0.007	<DL	mg/L
Total Chromium (Cr)	6010	0.004	0.014	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.008	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	0.032	0.020	mg/L
Total Manganese (Mn)	6010	0.003	4.3	<DL	mg/L
Total Mercury (Hg)	7470	0.001	<DL	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.013	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	19	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	0.264	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.034	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.22	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-71
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 04

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	30	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	<DL	<DL	mg/L
Total Barium (Ba)	6010	0.003	1.5	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	0.0012	<DL	mg/L
Total Boron (B)	6010	0.05	0.41	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	0.043	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.058	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	0.035	<DL	mg/L
Total Lead (Pb)	6010	0.019	0.127	0.020	mg/L
Total Manganese (Mn)	6010	0.003	0.85	<DL	mg/L
Total Mercury (Hg)	7470	0.001	0.0074	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.018	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	35	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	0.676	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.069	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.59	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-72
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 05

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	44	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	<DL	<DL	mg/L
Total Barium (Ba)	6010	0.003	1.6	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	0.0031	<DL	mg/L
Total Boron (B)	6010	0.05	30	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	0.027	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.017	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	<DL	0.020	mg/L
Total Manganese (Mn)	6010	0.003	1.1	<DL	mg/L
Total Mercury (Hg)	7470	0.001	0.0043	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.029	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	44	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	1.01	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.030	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.15	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-74
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 07

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	42	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	0.082	<DL	mg/L
Total Barium (Ba)	6010	0.003	0.32	<DL	mg/L
Total Beryllium (Be)	210.2	0.0005	0.0046	<DL	mg/L
Total Boron (B)	6010	0.05	<DL	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	0.058	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.036	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	0.076	0.020	mg/L
Total Manganese (Mn)	6010	0.003	0.13	<DL	mg/L
Total Mercury (Hg)	7470	0.001	0.0012	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.051	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	12	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	0.252	<DL	mg/L
Total Thallium (Tl)	6010	0.033	<DL	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.69	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.160	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

KIBER ENVIRONMENTAL SERVICES

LAB SAMPLE # 30420-73
PROJECT # 611

SWDA METALS RESULTS

PELHAM PHOSPHATE
SAMPLE # MW # 06

SAMPLED (Date/Time/Init) : 4/16/93, 13:30, RB
ICP ANALYSIS (Date/Init) : 4/20/93, AL
CV ANALYSIS (Date/Init) : 4/20/93, EC
AA/GF ANALYSIS (Date/Init) : 4/29/93, ES
CN ANALYSIS (Date/Init) : 4/22/93, ES

DATE REPORTED: 4/29/93

MATRIX : WATER

SWDA METALS	EPA Method	DL	Result	Blank	Units
Total Aluminum (Al)	6010	0.028	93	<DL	mg/L
Total Antimony (Sb)	6010	0.018	<DL	<DL	mg/L
Total Arsenic (As)	6010	0.018	0.126	<DL	mg/L
Total Barium (Ba)	6010	0.003	0.067	<DL	mg/L
Total Beryllium (Be)	210.2	0.001	0.0042	<DL	mg/L
Total Boron (B)	6010	0.05	5.5	<DL	mg/L
Total Cadmium (Cd)	6010	0.005	<DL	<DL	mg/L
Total Chromium (Cr)	6010	0.004	<DL	<DL	mg/L
Total Copper (Cu)	6010	0.003	0.026	<DL	mg/L
Total Cyanide (CN)	335.2	0.02	<DL	<DL	mg/L
Total Lead (Pb)	6010	0.019	<DL	0.020	mg/L
Total Manganese (Mn)	6010	0.003	1.7	<DL	mg/L
Total Mercury (Hg)	7470	0.001	<DL	<DL	mg/L
Total Molybdenum (Mo)	7481	0.010	<DL	<DL	mg/L
Total Nickel (Ni)	6010	0.010	0.030	<DL	mg/L
Total Selenium (Se)	6010	0.033	<DL	<DL	mg/L
Total Silver (Ag)	6010	0.004	<DL	<DL	mg/L
Total Sodium (Na)	6010	0.023	860	0.65	mg/L
Total Strontium (Sr)	7780	0.0005	2.05	<DL	mg/L
Total Thallium (Tl)	6010	0.033	0.040	<DL	mg/L
Total Vanadium (V)	6010	0.005	0.054	<DL	mg/L
Total Zinc (Zn)	6010	0.005	0.11	<DL	mg/L

DL : Detection Limit
SWDA: Safe Water Drinking Act

CHAIN OF CUSTODY

OHM Corporation

CHAIN-OF-CUS . JDY RECORD

Form 0019
Field Technical Services
Rev 06 89

№ 115672

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: PELHAM PHOSPHATE
PROJECT LOCATION: PELHAM, GA
PROJECT NO.: 3320
PROJECT CONTACT: MIKE FEAGLES
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: TONY MOORE
PROJECT MANAGER/SUPERVISOR: MARK RAGATTI

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LEAD

30420

ITEM NO	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	LEAD	REMARKS
1	SH ~~372~~ 377	4/13/93	1200	✓		SOIL SAMPLE OF Y+00; Z+00; Y1+00; Z1+00; CENTER OF Z1+00 (SURFACE)	1	1	TURN AROUND TIME - 14 DAYS 30420-1
2	~~373~~ 378	—	1430	✓		5 PT 1' FOOT DEPTH SOIL SAMPLE OF Y+00; Z+00; Y1+00; Z1+00	1	1	2
3	~~374~~ 379		1235	✓		SOIL SAMPLE OF YZ+00; Z2+00; Y3+00; Z3+00; (SURFACE)	1	1	3
4	~~375~~ 380		1500	✓		5 PT 1 FOOT DEPTH SOIL SAMPLE OF Y2+00; Z2+00; Y3+00; Z3+00	1	1	4
5	~~376~~ 381		1550	✓		5 PT SURFACE SOIL SAMPLE OF GRIDS Y4; Y5; Z4; Z5	1	1	5
6	~~377~~ 382		1550	✓		5 PT (1 FOOT) SOIL SAMPLE OF GRIDS Y4; Y5; Z4; Z5	1	1	6
7	~~378~~ 383		1650	✓		5 PT SURFACE SOIL SAMPLE OF GRIDS Y6; Y7; Z6; Z7	1	1	7
8	~~379~~ 384		1650	✓		5 PT (1 FOOT) SOIL SAMPLE OF GRIDS Y6; Y7; Z6; Z7	1	1	8
9	~~380~~ 385	4/14/93	0900	✓		5 PT SURFACE SOIL SAMPLE OF GRIDS Y8; Y9; Z8; Z9;	1	1	9
10	~~381~~ 386	4/14/93	0900	✓		5 PT (1 FOOT) SOIL SAMPLE OF GRIDS Y8; Y9; Z8; Z9	1	1	10

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND #3852	[signature]	4/16	1800
2	1-10	[signature]	[signature]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

OHM

CHAIN-O. -CUSTODY RECORD

Fc
Field Technical
R

No. 71195

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: PELHAM PHOSPHATE
PROJECT LOCATION: PELHAM, GA
PROJ. NO.:
PROJECT CONTACT: ~~MIKE FEAGLES~~ RANDY BENEFIELD
PROJECT TELEPHONE NO.: 404 729 3900
CLIENT'S REPRESENTATIVE: Tony Moore
PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LEAD

30420

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	LEAD	REMARKS
1	SH ~~382~~ 387	4/14/93	0900	X		5pt (1 foot) soil SAMPLE OF GRIDS Y8; Y9; Z8; Z9	1	1	14 DAY TURN AROUND TIM 30426-1
2	~~385~~ 388	4/14/93	1025	X		5PT SURFACE SOIL SAMPLE OF GRIDS AA0; BB0; AA1; BB1	1	1	12
3	~~384~~ 389	"	1025	X		5PT (1 FOOT) SOIL SAMPLE OF GRIDS AA0; BB0; AA1; BB1	1	1	13
4	~~385~~ 390	"	1045	X		5PT SURFACE SOIL SAMPLE OF GRIDS AA2; AA3; BB2; BB3	1	1	14
5	~~386~~ 391	"	1045	X		5PT (1 FOOT) SOIL SAMPLE OF GRIDS AA2; AA3; BB2; BB3	1	1	15
6	~~387~~ 392	"	1115	X		5PT SURFACE SOIL SAMPLE OF GRIDS AA4; AA5; BB4; BB5	1	1	16
7	~~388~~ 393	"	1115	X		5PT (1FOOT) SOIL SAMPLE OF GRIDS AA4; AA5; BB4; BB5	1	1	17
8	~~389~~ 394	"	1115	X		5PT SURFACE SOIL SAMPLE OF GRIDS AA4; AA5; BB4; BB5	1	1	18
9	~~390~~ 395	"	1145	X		5PT SURFACE SOIL SAMPLE OF GRIDS AA6; AA7; BB6; BB7	1	1	19
10	~~391~~ 396	"	1145	X		5PT (1FOOT) SOIL SAMPLE OF GRIDS AA6; AA7; BB6; BB7	1	1	20

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND	[signature]	4/16	1600
2	11	[signature]	[signature]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [signature] #3852

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The Environmental Services Company

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CHAIN-(·CUSTODY RECORD

Field Technica

No. 71196

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

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PROJECT NAME	PROJECT LOCATION
PELHAM PHOSPHATE	PELHAM, GA.

PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.
13340	RANDY BENEFIELD ~~MIKE FEAGLES~~	404 729 3900

CLIENT'S REPRESENTATIVE	PROJECT MANAGER/SUPERVISOR
Tony Moore	FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LOAD 30420

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS		REMARKS
1	SH ~~392~~ 397	4/14/93	1200	X		5PT SURFACE SOIL SAMPLE IN GRIDS AA8; AA9; BB8; BB9	1	1	14 DAY TURN AROUND
2	~~393~~ 398	"	1200	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS AA8; AA9; BB8; BB9	1	1	21
3	~~394~~ 399	"	1400	X		5PT SURFACE SOIL SAMPL IN GRIDS AA10; AA11; BB10; BB11	1	1	22
4	~~395~~ 400	"	1400	X		5PT (1FOOT) SOIL SAMPLE IN GRIDS AA10; AA11; BB10; BB11	1	1	23
5	~~396~~ 401	"	1500	X		5PT SURFACE SOIL SAMPLE IN GRIDS CC0; CC1; DD0; DD1	1	1	24
6	~~397~~ 402	"	1500	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS CC0; CC1; DD0; DD1	1	1	25
7	~~398~~ 403	"	1500	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS CC0; CC1; DD0; DD1	1	1	26
8	~~399~~ 404	"	1535	X		5PT SURFACE SOIL SAMPLE IN GRIDS CC2; CC3; DD2; DD3	1	1	27
9	~~400~~ 405	"	1535	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS CC2; CC3; DD2; DD3	1	1	28
10	~~401~~ 406	"	1625	X		5PT SURFACE SOIL SAMPLE IN GRIDS CC4; CC5; DD4; DD5	1	1	29
									30

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	BRIAN STRICKLAND	[illegible]	4/14/93	1600
2	1-10	[illegible]	[illegible]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

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CHAIN-OF-CUSTODY RECORD

Field Technical R

No. 71234

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: USEPA

PROJECT LOCATION: PELHAM, GA

PROJ. NO.: 13340

PROJECT CONTACT: RANDY BENEFIELD

PROJECT TELEPHONE NO.: 404 729 3900

CLIENT'S REPRESENTATIVE: Tony Moore

PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LEAD

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	LEAD								REMARKS
1	SH ~~402~~ 407 4/	4/93	1625	X		5PT (1 Foot) SOIL SAMPLE IN GRIDS CC4; CC5; DD4; DD5	1	1								14 DAY TURN AROUND 3042 31
2	~~403~~ 408	"	1700	X		5PT SURFACE SOIL SAMPLE IN GRIDS CC6; CC7; DD6; DD7	1	1								32
3	~~404~~ 409	"	1700	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS CC6; CC7; DD6; DD7	1	1								33
4	~~405~~ 410 4/	5/93	0915	X		5PT SURFACE SOIL SAMPLE IN GRIDS CC8; CC9; DD8; DD9	1	1								34
5	~~406~~ 411	"	0915	X		5PT (1 FOOT) SOIL SAMPLE IN GRIDS CC8; CC9; DD8; DD9	1	1								35
6	407 412	"	0940	X		4PT SURFACE SOIL SAMPLE IN GRIDS CC10; CC11; DD10 & CENTER POINT	1	1								36
7	~~408~~ 413	"	0940	X		4PT (1 FOOT) SOIL SAMPLE IN GRIDS CC10; CC11; DD10 & CENTER POINT	1	1								37
8	~~XXX~~															
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	BRIAN STRICKLAND	[signature]	4/16	1600
2	1-7	[signature]	[signature]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Bruno Strickland #3852

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CHAIN-OF-CUSTODY RECORD

Field Technical

No. 79730

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: PELHAM PHOSPHATE

PROJECT LOCATION: PELHAM, GA

PROJ. NO.: 13340

PROJECT CONTACT: RANDY BENEFIELD

PROJECT TELEPHONE NO.: 404 729 3900

CLIENT'S REPRESENTATIVE: TONY MOORE

PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LEAD

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	LEAD	REMARKS
1	SH ~~409~~ 414	4/15/93	1020	✓		5PT SURFACE SOIL SAMPLE IN GRIDS EE1; EE2; FF1; FF2	1	1	14 DAY TURN AROUND TIM
2	~~410~~ 415		1020	✓		5PT (1 FOOT) SOIL SAMPLE IN GRIDS EE1; EE2; FF1; FF2	1	1	38 39
3	~~411~~ 416		1020	✓		5PT SURFACE SOIL SAMPLE IN GRIDS EE1; EE2; FF1; FF2	1	1	40
✓ 4	~~412~~ 417		1045	✓		5PT SURFACE SOIL SAMPLE IN GRID EE3	1	1	41
5	~~413~~ 418		1045		✓	1 PT GRAB (1 FOOT) IN CENTER OF GRID EE3	1	1	42
6	~~414~~ 419		1100	✓		5PT SURFACE SOIL SAMPLE IN GRID EE4	1	1	43
7	~~415~~ 420		1100		✓	1 PT (1 FOOT) GRAB IN CENTER OF GRID EE4	1	1	44
8	~~416~~ 421		1115	✓		5 PT SURFACE SOIL SAMPLE IN GRID EE5	1	1	45
9	~~417~~ 422		1115		✓	1 PT (1 FOOT) GRAB IN CENTER OF GRID EE5	1	1	46
10	—								

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-9	BRIAN STRICKLAND	[illegible]	4/16	[illegible]
2	1-9	[illegible]	[illegible]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: Brian Strickland #3852

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OHM

CHAIN-OF-CUSTODY RECORD

Field Technical R

No. 71235

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: PELHAM PHOSPHATE

PROJECT LOCATION: PELHAM, GA

PROJ. NO.: 3340

PROJECT CONTACT: ~~MIKE FERGUES~~ RANDY BOURFIELD

PROJECT TELEPHONE NO.: 404 729 3900

CLIENT'S REPRESENTATIVE: Tony Moore

PROJECT MANAGER/SUPERVISOR: FLIP ALTMAN

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): LEAD

30420

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	LEAD	REMARKS
1	SH 418 423	4/15/93	1140	✓		4PT SURFACE SOIL SAMPLE IN GRIDS EE6; EE7; FF7	1	1	14 DAY TURN AROUND T
2	~~419~~ 424	4/15/93	1140	✓		4PT (1 FOOT) SOIL SAMPLE IN GRIDS EE6; EE7	1	1	47
3	~~420~~ 425		1315	✓		4PT SURFACE SOIL SAMPLE IN GRIDS EE8; EE9; FF8	1	1	48
4	~~421~~ 426		1315	✓		4PT (1 FOOT) SOIL SAMPLE IN GRIDS EE8; EE9; FF8	1	1	49
5	~~422~~ 427		1315	✓		4PT (1 FOOT) SOIL SAMPLE IN GRIDS EE8; EE9; FF8	1	1	50
6	~~423~~ 428		1335	✓		5PT SURFACE SOIL SAMPLE IN GRID EE10	1	1	51
7	~~424~~ 429		1335		✓	1PT (1 FOOT) SOIL SAMPLE IN GRID CENTER OF EE10	1	1	52
8	P001		1415	✓		PILE SAMPLE LOCATED IN GRID FF2	1	1	53
9									54
10									

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-8	BRIAN STRICKLAND	[signature]	4/16	1000
2	1-8	[signature]	[signature]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [signature] #3852

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OHM Corporation

CHAIN-OF-CUSTODY RECORD

Form 0019
Field Technical Services
Rev. 08/89

№ 115663

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: Pelham Phosphate
PROJECT LOCATION: Pelham, GA
PROJ. NO.: 13340
PROJECT CONTACT: Randy Benefield
PROJECT TELEPHONE NO.: (912) 294-3775
CLIENT'S REPRESENTATIVE: Weston TAT / R. Lamar
PROJECT MANAGER/SUPERVISOR: ~~Mark Rigatti~~ Flip Altman

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): Totals, RCRA Metals, 30420, ~~30240~~ SH

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Totals	RCRA Metals	30420	~~30240~~ SH	REMARKS
1	3001	4/13	1600	X		Bays 13, 23, 33	1	1				14 Day Turn Around Time
2	3002			X		Bays 2, 10, 25	1	1				55
3	3003			X		Bays 19, 22	1	1				56
4	3004			X		Bays 12, 31, 36	1	1				57
5	3005			X		Bays 8, 11	1	1				58
6	3006			X		Bays 3, 5, 6, 7, 15, 16, 17, 20, 32, 42	1	1				59
7	3007			X		Bay 24						60
8	3008			X		Bay 26						61
9	3009			X		Bay 28						62
10	3010			X		Bay 29						63
												64

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-10	Brian Strickland #382	[signature]	4/16	1600	
2	11	[signature]	[signature]	4-17	0900	
3						
4						SAMPLER'S SIGNATURE: [signature]

OHM Corporation

CHAIN-OF-CUSTODY RECORD

Form 0019
Field Technical Services
Rev. 08/89

№ 115664

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME: Pelham Phosphate
PROJECT LOCATION: Pelham GA
PROJ. NO.: 13340
PROJECT CONTACT: Randy Beaufield
PROJECT TELEPHONE NO.: (912) 294-3775
CLIENT'S REPRESENTATIVE: Weston TAT / R. Lawyer
PROJECT MANAGER/SUPERVISOR: Flip Altman

~~30240~~ SH 30420

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): Totals RCRA Metals

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Totals	RCRA Metals	REMARKS
✓1	3011	4/13	1600	X		Bay 30	1	1		14 DAY TURN AROUND TIME
✓2	3012			X		Bay 46 - Linear Composite	1	1		65
✓3	3013			X		Bay 47 - Kiln Bldg	1	1		66
4										67
5										
6										
7										
8										
9										
10										

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-3	BRIAN STRICKLAND #382	[illegible]	4/16	1800
2	1-3	[illegible]	[illegible]	4-17	0900
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [illegible]

REGION 4 T

ATHENS, GEORGIA 3061.

PROJ. NO.	PROJECT NAME
	PELHAM PHOSPHATE

SAMPLERS (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Water/Wastewater: (Gal G (ext org. Pest) (EP) (herb) / 40 ml vial (VOA) / 250 ml G (TOX) / P (Bod, TSS, Cl, R, Sod, etc) / ILG (phenol) (O&G) (pest) / ILP (met, hard) (Toc, COD, N, P, etc) / 0.5-ILP (S⁻) / Nitrogen-ILP (CN) / 8 oz G (ext org. pest, herb) (met) (EP) / 4 oz G (VOA) / P or G (CN, S⁻, N, P, COD, etc) / 8 oz G (ext org. pest, heru, VOA) / 8 oz G (EP) (met, CN, S⁻, FP) (FP, BTU) / Metals, CN	Soil/Sed/Slag	Waste	Misc	REMARKS/TAG NUMBERS 30420	
1	4/16/93	1330		✓	MW #01	2						✓		PERSERVATIVES ARE HNO_3 & NITRIC ACID	68
2		1355		✓	MW #02	2						✓			69
3		1450		✓	MW #03	2						✓			70
4		1515		✓	MW #04	2						✓			71
5		1530		✓	MW #05	2						✓			72
6		1600		✓	MW #06	2						✓			73
7		1630		✓	MW #07	2						✓			74

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Remarks
	4/16/93 1700			4-17 0900		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	

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T4- 4818

REGION 4 T

COLLEGE STATION RO/
ATHENS, GEORGIA 3061.

PROJ. NO.	PROJECT NAME
	PELHAM PHOSPHATE

SAMPLERS (Signature) [signature] C.H. Dubois

STA NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Water/Wastewater: (Gal G (ext org, Pest) (EP) (herb)	40 ml vial (VOA)	250 ml G (TOX)	P (Bod, TSS, Cl, Fl, Sol, etc)	ILG (phenol) (O&G) (pest)	ILP (met, herb) (Toc, COD, N, P, etc)	0.5-ILP (S⁻)	Vegetable ILP (CN)	8 oz G (ext org, pest, herb) (met) (EP)	4 oz G (VOA)	P or G (CN, S⁻, N, P, COD, etc)	8 oz G (ext org, pest, herb, VOA)	8 oz G (EP) (met, CN, S⁻, FP) (FP, DTU)	Soil/Sed/Slag: METALS, CN	Waste	Misc	REMARKS/TAG NUMBERS 30420	
1	4/16/93	1330		✓	MW #01	2														✓			PERSERVATIVES ARE HNO_3 & UNTREATED	6
2		1355		✓	MW #02	2														✓				69
3		1450		✓	MW #03	2														✓				70
4		1515		✓	MW #04	2														✓				71
5		1530		✓	MW #05	2														✓				72
6		1600		✓	MW #06	2														✓				7.
7		1630		✓	MW #07	2														✓				7

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Remarks
[signature]	4/16/93 1700	[signature]	[signature]	4-17 0900	[signature]	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
[signature]						

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T4-4818

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-05

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE37

UG/KG	ANALYTICAL RESULTS
510UR	PHENOL
510U	BIS(2-CHLOROETHYL) ETHER
510U	2-CHLOROPHENOL
510U	1,3-DICHLOROBENZENE
510U	1,4-DICHLOROBENZENE
510U	1,2-DICHLOROBENZENE
510U	2-METHYLPHENOL
510U	2,2'-CHLOROISOPROPYLETHER
510U	(3-AND/OR 4-)METHYLPHENOL
510U	N-NITROSODI-N-PROPYLAMINE
510U	HEXACHLOROETHANE
510U	NITROBENZENE
510U	ISOPHORONE
510U	2-NITROPHENOL
510UJ	2,4-DIMETHYLPHENOL
510U	BIS(2-CHLOROETHOXY) METHANE
510U	2,4-DICHLOROPHENOL
510U	1,2,4-TRICHLOROBENZENE
510U	NAPHTHALENE
510U	4-CHLOROANILINE
510U	HEXACHLOROBUTADIENE
510U	4-CHLORO-3-METHYLPHENOL
510U	2-METHYLNAPHTHALENE
510U	HEXACHLOROCYCLOPENTADIENE (HCCP)
510U	2,4,6-TRICHLOROPHENOL
1200U	2,4,5-TRICHLOROPHENOL
510U	2-CHLORONAPHTHALENE
1200U	2-NITROANILINE
510U	DIMETHYL PHTHALATE
510U	ACENAPHTHYLENE
510U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1200U	3-NITROANILINE
510UR	ACENAPHTHENE
1200U	2,4-DINITROPHENOL
1200U	4-NITROPHENOL
510U	DIBENZOFURAN
510U	2,4-DINITROTOLUENE
510U	DIETHYL PHTHALATE
510U	4-CHLOROPHENYL PHENYL ETHER
510U	FLUORENE
1200U	4-NITROANILINE
1200U	2-METHYL-4,6-DINITROPHENOL
510U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
510U	4-BROMOPHENYL PHENYL ETHER
510U	HEXACHLOROBENZENE (HCB)
1200U	PENTACHLOROPHENOL
230J	PHENANTHRENE
510U	ANTHRACENE
510U	CARBAZOLE
510U	DI-N-BUTYLPHTHALATE
360J	FLUORANTHENE
510U	PYRENE
510U	BENZYL BUTYL PHTHALATE
510U	3,3'-DICHLOROBENZIDINE
510U	BENZO(A)ANTHRACENE
510U	CHRYSENE
1000	BIS(2-ETHYLHEXYL) PHTHALATE
510U	DI-N-OCTYLPHTHALATE
200J	BENZO(B AND/OR K)FLUORANTHENE
510U	BENZO-A-PYRENE
510U	INDENO (1,2,3-CD) PYRENE
510U	DIBENZO(A,H)ANTHRACENE
170J	BENZO(GHI)PERYLENE
36	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE34

UG/KG	ANALYTICAL RESULTS
370UR	PHENOL
370U	BIS(2-CHLOROETHYL) ETHER
370U	2-CHLOROPHENOL
370U	1,3-DICHLOROBENZENE
370U	1,4-DICHLOROBENZENE
370U	1,2-DICHLOROBENZENE
370U	2-METHYLPHENOL
370U	2,2'-CHLOROISOPROPYLETHER
370U	(3-AND/OR 4-)METHYLPHENOL
370U	N-NITROSODI-N-PROPYLAMINE
370U	HEXACHLOROETHANE
370U	NITROBENZENE
370U	ISOPHORONE
370U	2-NITROPHENOL
370UJ	2,4-DIMETHYLPHENOL
370U	BIS(2-CHLOROETHOXY) METHANE
370U	2,4-DICHLOROPHENOL
370U	1,2,4-TRICHLOROBENZENE
370U	NAPHTHALENE
370U	4-CHLOROANILINE
370U	HEXACHLOROBUTADIENE
370U	4-CHLORO-3-METHYLPHENOL
370U	2-METHYLNAPHTHALENE
370U	HEXACHLOROCYCLOPENTADIENE (HCCP)
370U	2,4,6-TRICHLOROPHENOL
890U	2,4,5-TRICHLOROPHENOL
370U	2-CHLORONAPHTHALENE
890U	2-NITROANILINE
370U	DIMETHYL PHTHALATE
370U	ACENAPHTHYLENE
370U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
890U	3-NITROANILINE
370UR	ACENAPHTHENE
890U	2,4-DINITROPHENOL
890U	4-NITROPHENOL
370U	DIBENZOFURAN
370U	2,4-DINITROTOLUENE
370U	DIETHYL PHTHALATE
370U	4-CHLOROPHENYL PHENYL ETHER
370U	FLUORENE
890U	4-NITROANILINE
890U	2-METHYL-4,6-DINITROPHENOL
370U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
370U	4-BROMOPHENYL PHENYL ETHER
370U	HEXACHLOROBENZENE (HCB)
890U	PENTACHLOROPHENOL
370U	PHENANTHRENE
370U	ANTHRACENE
370U	CARBAZOLE
370U	DI-N-BUTYLPHTHALATE
44J	FLUORANTHENE
41J	PYRENE
370U	BENZYL BUTYL PHTHALATE
370U	3,3'-DICHLOROBENZIDINE
370U	BENZO(A)ANTHRACENE
370U	CHRYSENE
370U	BIS(2-ETHYLHEXYL) PHTHALATE
370U	DI-N-OCTYLPHTHALATE
370U	BENZO(B AND/OR K)FLUORANTHENE
370U	BENZO-A-PYRENE
370U	INDENO (1,2,3-CD) PYRENE
370U	DIBENZO(A,H)ANTHRACENE
370U	BENZO(GHI)PERYLENE
11	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE40

UG/KG	ANALYTICAL RESULTS
440UR	PHENOL
440U	BIS(2-CHLOROETHYL) ETHER
440U	2-CHLOROPHENOL
440U	1,3-DICHLOROBENZENE
440U	1,4-DICHLOROBENZENE
440U	1,2-DICHLOROBENZENE
440U	2-METHYLPHENOL
440U	2,2'-CHLOROISOPROPYLETHER
260J	(3-AND/OR 4-)METHYLPHENOL
440U	N-NITROSODI-N-PROPYLAMINE
440U	HEXACHLOROETHANE
440U	NITROBENZENE
440U	ISOPHORONE
440U	2-NITROPHENOL
440UJ	2,4-DIMETHYLPHENOL
440U	BIS(2-CHLOROETHOXY) METHANE
440U	2,4-DICHLOROPHENOL
440U	1,2,4-TRICHLOROBENZENE
440U	NAPHTHALENE
440U	4-CHLOROANILINE
440U	HEXACHLOROBUTADIENE
440U	4-CHLORO-3-METHYLPHENOL
440U	2-METHYLNAPHTHALENE
440U	HEXACHLOROCYCLOPENTADIENE (HCCP)
440U	2,4,6-TRICHLOROPHENOL
1100U	2,4,5-TRICHLOROPHENOL
440U	2-CHLORONAPHTHALENE
1100U	2-NITROANILINE
440U	DIMETHYL PHTHALATE
440U	ACENAPHTHYLENE
440U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1100U	3-NITROANILINE
440UR	ACENAPHTHENE
1100U	2,4-DINITROPHENOL
1100U	4-NITROPHENOL
440U	DIBENZOFURAN
440U	2,4-DINITROTOLUENE
440U	DIETHYL PHTHALATE
440U	4-CHLOROPHENYL PHENYL ETHER
440U	FLUORENE
1100U	4-NITROANILINE
1100U	2-METHYL-4,6-DINITROPHENOL
440U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
440U	4-BROMOPHENYL PHENYL ETHER
440U	HEXACHLOROBENZENE (HCB)
110J	PENTACHLOROPHENOL
63J	PHENANTHRENE
440U	ANTHRACENE
440U	CARBAZOLE
440U	DI-N-BUTYLPHTHALATE
82J	FLUORANTHENE
68J	PYRENE
440U	BENZYL BUTYL PHTHALATE
440U	3,3'-DICHLOROBENZIDINE
440U	BENZO(A)ANTHRACENE
61J	CHRYSENE
440U	BIS(2-ETHYLHEXYL) PHTHALATE
440U	DI-N-OCTYLPHTHALATE
80J	BENZO(B AND/OR K)FLUORANTHENE
440U	BENZO-A-PYRENE
440U	INDENO (1,2,3-CD) PYRENE
440U	DIBENZO(A,H)ANTHRACENE
440U	BENZO(GHI)PERYLENE
26	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE41

UG/KG	ANALYTICAL RESULTS
450UR	PHENOL
450U	BIS(2-CHLOROETHYL) ETHER
450U	2-CHLOROPHENOL
450U	1,3-DICHLOROBENZENE
450U	1,4-DICHLOROBENZENE
450U	1,2-DICHLOROBENZENE
450U	2-METHYLPHENOL
450U	2,2'-CHLOROISOPROPYLETHER
450U	(3-AND/OR 4-)METHYLPHENOL
450U	N-NITROSODI-N-PROPYLAMINE
450U	HEXACHLOROETHANE
450U	NITROBENZENE
450U	ISOPHORONE
450U	2-NITROPHENOL
450UJ	2,4-DIMETHYLPHENOL
450U	BIS(2-CHLOROETHOXY) METHANE
450U	2,4-DICHLOROPHENOL
450U	1,2,4-TRICHLOROBENZENE
450U	NAPHTHALENE
450U	4-CHLOROANILINE
450U	HEXACHLOROBUTADIENE
450U	4-CHLORO-3-METHYLPHENOL
450U	2-METHYLNAPHTHALENE
450U	HEXACHLOROCYCLOPENTADIENE (HCCP)
450U	2,4,6-TRICHLOROPHENOL
1100U	2,4,5-TRICHLOROPHENOL
450U	2-CHLORONAPHTHALENE
1100U	2-NITROANILINE
450U	DIMETHYL PHTHALATE
450U	ACENAPHTHYLENE
450U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1100U	3-NITROANILINE
450UR	ACENAPHTHENE
1100U	2,4-DINITROPHENOL
1100U	4-NITROPHENOL
450U	DIBENZOFURAN
450U	2,4-DINITROTOLUENE
450U	DIETHYL PHTHALATE
450U	4-CHLOROPHENYL PHENYL ETHER
450U	FLUORENE
1100U	4-NITROANILINE
1100U	2-METHYL-4,6-DINITROPHENOL
450U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
450U	4-BROMOPHENYL PHENYL ETHER
450U	HEXACHLOROBENZENE (HCB)
1100U	PENTACHLOROPHENOL
450U	PHENANTHRENE
450U	ANTHRACENE
450U	CARBAZOLE
450U	DI-N-BUTYLPHTHALATE
58J	FLUORANTHENE
52J	PYRENE
450U	BENZYL BUTYL PHTHALATE
450U	3,3'-DICHLOROBENZIDINE
450U	BENZO(A)ANTHRACENE
450U	CHRYSENE
450U	BIS(2-ETHYLHEXYL) PHTHALATE
450U	DI-N-OCTYLPHTHALATE
86J	BENZO(B AND/OR K)FLUORANTHENE
450U	BENZO-A-PYRENE
450U	INDENO (1,2,3-CD) PYRENE
450U	DIBENZO(A,H)ANTHRACENE
450U	BENZO(GHI)PERYLENE
27	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE39

UG/KG	ANALYTICAL RESULTS
440UR	PHENOL
440U	BIS(2-CHLOROETHYL) ETHER
440U	2-CHLOROPHENOL
440U	1,3-DICHLOROBENZENE
440U	1,4-DICHLOROBENZENE
440U	1,2-DICHLOROBENZENE
440U	2-METHYLPHENOL
440U	2,2'-CHLOROISOPROPYLETHER
440U	(3-AND/OR 4-)METHYLPHENOL
440U	N-NITROSODI-N-PROPYLAMINE
440U	HEXACHLOROETHANE
440U	NITROBENZENE
440U	ISOPHORONE
440U	2-NITROPHENOL
440UJ	2,4-DIMETHYLPHENOL
440U	BIS(2-CHLOROETHOXY) METHANE
440U	2,4-DICHLOROPHENOL
440U	1,2,4-TRICHLOROBENZENE
440U	NAPHTHALENE
440U	4-CHLOROANILINE
440U	HEXACHLOROBUTADIENE
440U	4-CHLORO-3-METHYLPHENOL
440U	2-METHYLNAPHTHALENE
440U	HEXACHLOROCYCLOPENTADIENE (HCCP)
440U	2,4,6-TRICHLOROPHENOL
1100U	2,4,5-TRICHLOROPHENOL
440U	2-CHLORONAPHTHALENE
1100U	2-NITROANILINE
440U	DIMETHYL PHTHALATE
440U	ACENAPHTHYLENE
440U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1100U	3-NITROANILINE
440UR	ACENAPHTHENE
1100U	2,4-DINITROPHENOL
1100U	4-NITROPHENOL
440U	DIBENZOFURAN
440U	2,4-DINITROTOLUENE
440U	DIETHYL PHTHALATE
440U	4-CHLOROPHENYL PHENYL ETHER
440U	FLUORENE
1100U	4-NITROANILINE
1100U	2-METHYL-4,6-DINITROPHENOL
440U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
440U	4-BROMOPHENYL PHENYL ETHER
440U	HEXACHLOROBENZENE (HCB)
360J	PENTACHLOROPHENOL
440U	PHENANTHRENE
440U	ANTHRACENE
440U	CARBAZOLE
440U	DI-N-BUTYLPHTHALATE
72J	FLUORANTHENE
440U	PYRENE
440U	BENZYL BUTYL PHTHALATE
440U	3,3'-DICHLOROBENZIDINE
440U	BENZO(A)ANTHRACENE
440U	CHRYSENE
440U	BIS(2-ETHYLHEXYL) PHTHALATE
440U	DI-N-OCTYLPHTHALATE
440U	BENZO(B AND/OR K)FLUORANTHENE
440U	BENZO-A-PYRENE
440U	INDENO (1,2,3-CD) PYRENE
440U	DIBENZO(A,H)ANTHRACENE
440U	BENZO(GHI)PERYLENE
26	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE35

UG/KG	ANALYTICAL RESULTS
620UR	PHENOL
620U	BIS(2-CHLOROETHYL) ETHER
620U	2-CHLOROPHENOL
620U	1,3-DICHLOROBENZENE
620U	1,4-DICHLOROBENZENE
620U	1,2-DICHLOROBENZENE
620U	2-METHYLPHENOL
620U	2,2'-CHLOROISOPROPYLETHER
620U	(3-AND/OR 4-)METHYLPHENOL
620U	N-NITROSODI-N-PROPYLAMINE
620U	HEXACHLOROETHANE
620U	NITROBENZENE
620U	ISOPHORONE
620U	2-NITROPHENOL
620UJ	2,4-DIMETHYLPHENOL
620U	BIS(2-CHLOROETHOXY) METHANE
620U	2,4-DICHLOROPHENOL
620U	1,2,4-TRICHLOROBENZENE
620U	NAPHTHALENE
620U	4-CHLOROANILINE
620U	HEXACHLOROBUTADIENE
620U	4-CHLORO-3-METHYLPHENOL
620U	2-METHYLNAPHTHALENE
620U	HEXACHLOROCYCLOPENTADIENE (HCCP)
620U	2,4,6-TRICHLOROPHENOL
1500U	2,4,5-TRICHLOROPHENOL
620U	2-CHLORONAPHTHALENE
1500U	2-NITROANILINE
620U	DIMETHYL PHTHALATE
620U	ACENAPHTHYLENE
620U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1500U	3-NITROANILINE
620UR	ACENAPHTHENE
1500U	2,4-DINITROPHENOL
1500U	4-NITROPHENOL
620U	DIBENZOFURAN
620U	2,4-DINITROTOLUENE
620U	DIETHYL PHTHALATE
620U	4-CHLOROPHENYL PHENYL ETHER
620U	FLUORENE
1500U	4-NITROANILINE
1500U	2-METHYL-4,6-DINITROPHENOL
620U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
620U	4-BROMOPHENYL PHENYL ETHER
620U	HEXACHLOROBENZENE (HCB)
1500U	PENTACHLOROPHENOL
120J	PHENANTHRENE
620U	ANTHRACENE
620U	CARBAZOLE
620U	DI-N-BUTYLPHTHALATE
190J	FLUORANTHENE
620U	PYRENE
620U	BENZYL BUTYL PHTHALATE
620U	3,3'-DICHLOROBENZIDINE
620U	BENZO(A)ANTHRACENE
620U	CHRYSENE
3900	BIS(2-ETHYLHEXYL) PHTHALATE
620U	DI-N-OCTYLPHTHALATE
89J	BENZO(B AND/OR K)FLUORANTHENE
620U	BENZO-A-PYRENE
620U	INDENO (1,2,3-CD) PYRENE
620U	DIBENZO(A,H)ANTHRACENE
620U	BENZO(GHI)PERYLENE
47	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84977 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-01

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1300 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE33

UG/KG	ANALYTICAL RESULTS
340UR	PHENOL
340U	BIS(2-CHLOROETHYL) ETHER
340U	2-CHLOROPHENOL
340U	1,3-DICHLOROBENZENE
340U	1,4-DICHLOROBENZENE
340U	1,2-DICHLOROBENZENE
340U	2-METHYLPHENOL
340U	2,2'-CHLOROISOPROPYLETHER
340U	(3-AND/OR 4-)METHYLPHENOL
340U	N-NITROSODI-N-PROPYLAMINE
340U	HEXACHLOROETHANE
340U	NITROBENZENE
340U	ISOPHORONE
340U	2-NITROPHENOL
340UJ	2,4-DIMETHYLPHENOL
340U	BIS(2-CHLOROETHOXY) METHANE
340U	2,4-DICHLOROPHENOL
340U	1,2,4-TRICHLOROBENZENE
340U	NAPHTHALENE
340U	4-CHLOROANILINE
340U	HEXACHLOROBUTADIENE
340U	4-CHLORO-3-METHYLPHENOL
340U	2-METHYLNAPHTHALENE
340U	HEXACHLOROCYCLOPENTADIENE (HCCP)
340U	2,4,6-TRICHLOROPHENOL
820U	2,4,5-TRICHLOROPHENOL
340U	2-CHLORONAPHTHALENE
820U	2-NITROANILINE
340U	DIMETHYL PHTHALATE
340U	ACENAPHTHYLENE
340U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
820U	3-NITROANILINE
340UR	ACENAPHTHENE
820U	2,4-DINITROPHENOL
820U	4-NITROPHENOL
340U	DIBENZOFURAN
340U	2,4-DINITROTOLUENE
340U	DIETHYL PHTHALATE
340U	4-CHLOROPHENYL PHENYL ETHER
340U	FLUORENE
820U	4-NITROANILINE
820U	2-METHYL-4,6-DINITROPHENOL
340U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
340U	4-BROMOPHENYL PHENYL ETHER
340U	HEXACHLOROBENZENE (HCB)
820U	PENTACHLOROPHENOL
340U	PHENANTHRENE
340U	ANTHRACENE
340U	CARBAZOLE
340U	DI-N-BUTYLPHTHALATE
340U	FLUORANTHENE
340U	PYRENE
340U	BENZYL BUTYL PHTHALATE
340U	3,3'-DICHLOROBENZIDINE
340U	BENZO(A)ANTHRACENE
340U	CHRYSENE
340U	BIS(2-ETHYLHEXYL) PHTHALATE
340U	DI-N-OCTYLPHTHALATE
340U	BENZO(B AND/OR K)FLUORANTHENE
340U	BENZO-A-PYRENE
340U	INDENO (1,2,3-CD) PYRENE
340U	DIBENZO(A,H)ANTHRACENE
340U	BENZO(GHI)PERYLENE
3	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE36

UG/KG	ANALYTICAL RESULTS
660UR	PHENOL
660U	BIS(2-CHLOROETHYL) ETHER
660U	2-CHLOROPHENOL
660U	1,3-DICHLOROBENZENE
660U	1,4-DICHLOROBENZENE
660U	1,2-DICHLOROBENZENE
660U	2-METHYLPHENOL
660U	2,2'-CHLOROISOPROPYLETHER
660U	(3-AND/OR 4-)METHYLPHENOL
660U	N-NITROSODI-N-PROPYLAMINE
660U	HEXACHLOROETHANE
660U	NITROBENZENE
660U	ISOPHORONE
660U	2-NITROPHENOL
660UJ	2,4-DIMETHYLPHENOL
660U	BIS(2-CHLOROETHOXY) METHANE
660U	2,4-DICHLOROPHENOL
660U	1,2,4-TRICHLOROBENZENE
660U	NAPHTHALENE
660U	4-CHLOROANILINE
660U	HEXACHLOROBUTADIENE
660U	4-CHLORO-3-METHYLPHENOL
660U	2-METHYLNAPHTHALENE
660U	HEXACHLOROCYCLOPENTADIENE (HCCP)
660U	2,4,6-TRICHLOROPHENOL
1600U	2,4,5-TRICHLOROPHENOL
660U	2-CHLORONAPHTHALENE
1600U	2-NITROANILINE
660U	DIMETHYL PHTHALATE
660U	ACENAPHTHYLENE
660U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1600U	3-NITROANILINE
660UR	ACENAPHTHENE
1600U	2,4-DINITROPHENOL
1600U	4-NITROPHENOL
660U	DIBENZOFURAN
660U	2,4-DINITROTOLUENE
660U	DIETHYL PHTHALATE
660U	4-CHLOROPHENYL PHENYL ETHER
660U	FLUORENE
1600U	4-NITROANILINE
1600U	2-METHYL-4,6-DINITROPHENOL
660U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
660U	4-BROMOPHENYL PHENYL ETHER
660U	HEXACHLOROBENZENE (HCB)
1600U	PENTACHLOROPHENOL
120J	PHENANTHRENE
660U	ANTHRACENE
660U	CARBAZOLE
660U	DI-N-BUTYLPHTHALATE
180J	FLUORANTHENE
170J	PYRENE
660U	BENZYL BUTYL PHTHALATE
660U	3,3'-DICHLOROBENZIDINE
660U	BENZO(A)ANTHRACENE
660U	CHRYSENE
2300	BIS(2-ETHYLHEXYL) PHTHALATE
660U	DI-N-OCTYLPHTHALATE
660U	BENZO(B AND/OR K)FLUORANTHENE
660U	BENZO-A-PYRENE
660U	INDENO (1,2,3-CD) PYRENE
660U	DIBENZO(A,H)ANTHRACENE
660U	BENZO(GHI)PERYLENE
50	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-10

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE42

UG/KG	ANALYTICAL RESULTS
440UR	PHENOL
440U	BIS(2-CHLOROETHYL) ETHER
440U	2-CHLOROPHENOL
440U	1,3-DICHLOROBENZENE
440U	1,4-DICHLOROBENZENE
440U	1,2-DICHLOROBENZENE
440U	2-METHYLPHENOL
440U	2,2'-CHLOROISOPROPYLETHER
440U	(3-AND/OR 4-)METHYLPHENOL
440U	N-NITROSODI-N-PROPYLAMINE
440U	HEXACHLOROETHANE
440U	NITROBENZENE
440U	ISOPHORONE
440U	2-NITROPHENOL
440UJ	2,4-DIMETHYLPHENOL
440U	BIS(2-CHLOROETHOXY) METHANE
440U	2,4-DICHLOROPHENOL
440U	1,2,4-TRICHLOROBENZENE
440U	NAPHTHALENE
440U	4-CHLOROANILINE
440U	HEXACHLOROBUTADIENE
440U	4-CHLORO-3-METHYLPHENOL
440U	2-METHYLNAPHTHALENE
440U	HEXACHLOROCYCLOPENTADIENE (HCCP)
440U	2,4,6-TRICHLOROPHENOL
1100U	2,4,5-TRICHLOROPHENOL
440U	2-CHLORONAPHTHALENE
1100U	2-NITROANILINE
440U	DIMETHYL PHTHALATE
440U	ACENAPHTHYLENE
440U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1100U	3-NITROANILINE
440UR	ACENAPHTHENE
1100U	2,4-DINITROPHENOL
1100U	4-NITROPHENOL
440U	DIBENZOFURAN
440U	2,4-DINITROTOLUENE
440U	DIETHYL PHTHALATE
440U	4-CHLOROPHENYL PHENYL ETHER
440U	FLUORENE
1100U	4-NITROANILINE
1100U	2-METHYL-4,6-DINITROPHENOL
440U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
440U	4-BROMOPHENYL PHENYL ETHER
440U	HEXACHLOROBENZENE (HCB)
1100U	PENTACHLOROPHENOL
440U	PHENANTHRENE
440U	ANTHRACENE
440U	CARBAZOLE
440U	DI-N-BUTYLPHTHALATE
440U	FLUORANTHENE
440U	PYRENE
440U	BENZYL BUTYL PHTHALATE
440U	3,3'-DICHLOROBENZIDINE
440U	BENZO(A)ANTHRACENE
440U	CHRYSENE
440U	BIS(2-ETHYLHEXYL) PHTHALATE
440U	DI-N-OCTYLPHTHALATE
75J	BENZO(B AND/OR K)FLUORANTHENE
440U	BENZO-A-PYRENE
440U	INDENO (1,2,3-CD) PYRENE
440U	DIBENZO(A,H)ANTHRACENE
440U	BENZO(GHI)PERYLENE
25	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE38

UG/KG	ANALYTICAL RESULTS
420UR	PHENOL
420U	BIS(2-CHLOROETHYL) ETHER
420U	2-CHLOROPHENOL
420U	1,3-DICHLOROBENZENE
420U	1,4-DICHLOROBENZENE
420U	1,2-DICHLOROBENZENE
420U	2-METHYLPHENOL
420U	2,2'-CHLOROISOPROPYLETHER
420U	(3-AND/OR 4-)METHYLPHENOL
420U	N-NITROSODI-N-PROPYLAMINE
420U	HEXACHLOROETHANE
420U	NITROBENZENE
420U	ISOPHORONE
420U	2-NITROPHENOL
420UJ	2,4-DIMETHYLPHENOL
420U	BIS(2-CHLOROETHOXY) METHANE
420U	2,4-DICHLOROPHENOL
420U	1,2,4-TRICHLOROBENZENE
420U	NAPHTHALENE
420U	4-CHLOROANILINE
420U	HEXACHLOROBUTADIENE
420U	4-CHLORO-3-METHYLPHENOL
420U	2-METHYLNAPHTHALENE
420U	HEXACHLOROCYCLOPENTADIENE (HCCP)
420U	2,4,6-TRICHLOROPHENOL
1000U	2,4,5-TRICHLOROPHENOL
420U	2-CHLORONAPHTHALENE
1000U	2-NITROANILINE
420U	DIMETHYL PHTHALATE
420U	ACENAPHTHYLENE
420U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1000U	3-NITROANILINE
420UR	ACENAPHTHENE
1000U	2,4-DINITROPHENOL
1000U	4-NITROPHENOL
420U	DIBENZOFURAN
420U	2,4-DINITROTOLUENE
420U	DIETHYL PHTHALATE
420U	4-CHLOROPHENYL PHENYL ETHER
420U	FLUORENE
1000U	4-NITROANILINE
1000U	2-METHYL-4,6-DINITROPHENOL
420U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
420U	4-BROMOPHENYL PHENYL ETHER
420U	HEXACHLOROBENZENE (HCB)
1000U	PENTACHLOROPHENOL
420U	PHENANTHRENE
420U	ANTHRACENE
420U	CARBAZOLE
420U	DI-N-BUTYLPHTHALATE
420U	FLUORANTHENE
420U	PYRENE
420U	BENZYL BUTYL PHTHALATE
420U	3,3'-DICHLOROBENZIDINE
420U	BENZO(A)ANTHRACENE
420U	CHRYSENE
420U	BIS(2-ETHYLHEXYL) PHTHALATE
420U	DI-N-OCTYLPHTHALATE
420U	BENZO(B AND/OR K)FLUORANTHENE
420U	BENZO-A-PYRENE
420U	INDENO (1,2,3-CD) PYRENE
420U	DIBENZO(A,H)ANTHRACENE
420U	BENZO(GHI)PERYLENE
21	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84987 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: S6-11

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1015 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE43

UG/KG	ANALYTICAL RESULTS
410UR	PHENOL
410U	BIS(2-CHLOROETHYL) ETHER
410U	2-CHLOROPHENOL
410U	1,3-DICHLOROBENZENE
410U	1,4-DICHLOROBENZENE
410U	1,2-DICHLOROBENZENE
410U	2-METHYLPHENOL
410U	2,2'-CHLOROISOPROPYLETHER
410U	(3-AND/OR 4-)METHYLPHENOL
410U	N-NITROSODI-N-PROPYLAMINE
410U	HEXACHLOROETHANE
410U	NITROBENZENE
410U	ISOPHORONE
410U	2-NITROPHENOL
410UJ	2,4-DIMETHYLPHENOL
410U	BIS(2-CHLOROETHOXY) METHANE
410U	2,4-DICHLOROPHENOL
410U	1,2,4-TRICHLOROBENZENE
410U	NAPHTHALENE
410U	4-CHLOROANILINE
410U	HEXACHLOROBUTADIENE
410U	4-CHLORO-3-METHYLPHENOL
410U	2-METHYLNAPHTHALENE
410U	HEXACHLOROCYCLOPENTADIENE (HCCP)
410U	2,4,6-TRICHLOROPHENOL
990U	2,4,5-TRICHLOROPHENOL
410U	2-CHLORONAPHTHALENE
990U	2-NITROANILINE
410U	DIMETHYL PHTHALATE
410U	ACENAPHTHYLENE
410U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
990U	3-NITROANILINE
410UR	ACENAPHTHENE
990U	2,4-DINITROPHENOL
990U	4-NITROPHENOL
410U	DIBENZOFURAN
410U	2,4-DINITROTOLUENE
410U	DIETHYL PHTHALATE
410U	4-CHLOROPHENYL PHENYL ETHER
410U	FLUORENE
990U	4-NITROANILINE
990U	2-METHYL-4,6-DINITROPHENOL
410U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
410U	4-BROMOPHENYL PHENYL ETHER
410U	HEXACHLOROBENZENE (HCB)
990U	PENTACHLOROPHENOL
410U	PHENANTHRENE
410U	ANTHRACENE
410U	CARBAZOLE
410U	DI-N-BUTYLPHTHALATE
410U	FLUORANTHENE
410U	PYRENE
410U	BENZYL BUTYL PHTHALATE
410U	3,3'-DICHLOROBENZIDINE
410U	BENZO(A)ANTHRACENE
410U	CHRYSENE
410U	BIS(2-ETHYLHEXYL) PHTHALATE
410U	DI-N-OCTYLPHTHALATE
410U	BENZO(B AND/OR K)FLUORANTHENE
410U	BENZO-A-PYRENE
410U	INDENO (1,2,3-CD) PYRENE
410U	DIBENZO(A,H)ANTHRACENE
410U	BENZO(GHI)PERYLENE
20	PERCENT MOISTURE

REMARKS

REMARKS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services
College Station Road, Ath

5/06

No Metals Yet

*****MEMORANDUM******

DATE: 05/14/94

SUBJECT: Results of Extractable Organic
94-0358 STOLLER/PELHAM PHOSP
PELHAM GA
CASE NO: 21776

FROM: Charles H. Hooper
Chief, Laboratory Evaluation/Quality

TO: JOE SLYKERMAN

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

ORGANIC DATA QUALIFIER REPORT

Case Number 21776 Project Number 94-0358 SAS Number
Site ID. Stoller/Pelham Phosp, Pelham, GA

Affected Sample	Compound or Fraction	Flag Used	Reason
Volatiles			
84981	carbon disulfide	J	<quantitation limit
84989	tetrachloroethene	J	<quantitation limit
84993	carbon disulfide	J	<quantitation limit
84995	1,1,1-trichloroethane	J	<quantitation limit
Extractables			
all soil samples	phenol	R	unacceptable spike recovery
	acenaphthene	R	unacceptable spike recovery
	2,4-dimethylphenol	J	low blind spike recovery
84978	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84979	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84980	fluoranthene	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	pyrene	J	<quantitation limit
84981	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b.k)fluoranthene	J	<quantitation limit
	benzo(g,h,i)perylene	J	<quantitation limit
84983	pentachlorophenol	J	<quantitation limit
	fluoranthene	J	<quantitation limit
84984	4-methylphenol	J	<quantitation limit
	pentachlorophenol	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
	chrysene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84985	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84985,84986	benzo(b/k)fluoranthene	J	<quantitation limit
Pesticides			
84985	alpha-chlordane	N	difference between columns
	gamma-chlordane	N	difference between columns
84986	4,4'-DDT	N	difference between columns

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84997 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-21

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1245 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE53

UG/KG	ANALYTICAL RESULTS
400UR	PHENOL
400U	BIS(2-CHLOROETHYL) ETHER
400U	2-CHLOROPHENOL
400U	1,3-DICHLOROBENZENE
400U	1,4-DICHLOROBENZENE
400U	1,2-DICHLOROBENZENE
400U	2-METHYLPHENOL
400U	2,2'-CHLOROISOPROPYLETHER
400U	(3-AND/OR 4-)METHYLPHENOL
400U	N-NITROSODI-N-PROPYLAMINE
400U	HEXACHLOROETHANE
400U	NITROBENZENE
400U	ISOPHORONE
400U	2-NITROPHENOL
400UJ	2,4-DIMETHYLPHENOL
400U	BIS(2-CHLOROETHOXY) METHANE
400U	2,4-DICHLOROPHENOL
400U	1,2,4-TRICHLOROBENZENE
400U	NAPHTHALENE
400U	4-CHLOROANILINE
400U	HEXACHLOROBUTADIENE
400U	4-CHLORO-3-METHYLPHENOL
400U	2-METHYLNAPHTHALENE
400U	HEXACHLOROCYCLOPENTADIENE (HCCP)
400U	2,4,6-TRICHLOROPHENOL
970U	2,4,5-TRICHLOROPHENOL
400U	2-CHLORONAPHTHALENE
970U	2-NITROANILINE
400U	DIMETHYL PHTHALATE
400U	ACENAPHTHYLENE
400U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
970U	3-NITROANILINE
400UR	ACENAPHTHENE
970U	2,4-DINITROPHENOL
970U	4-NITROPHENOL
400U	DIBENZOFURAN
400U	2,4-DINITROTOLUENE
400U	DIETHYL PHTHALATE
400U	4-CHLOROPHENYL PHENYL ETHER
400U	FLUORENE
970U	4-NITROANILINE
970U	2-METHYL-4,6-DINITROPHENOL
400U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
400U	4-BROMOPHENYL PHENYL ETHER
400U	HEXACHLOROBENZENE (HCB)
970U	PENTACHLOROPHENOL
400U	PHENANTHRENE
400U	ANTHRACENE
400U	CARBAZOLE
400U	DI-N-BUTYLPHTHALATE
400U	FLUORANTHENE
400U	PYRENE
400U	BENZYL BUTYL PHTHALATE
400U	3,3'-DICHLOROBENZIDINE
400U	BENZO(A)ANTHRACENE
400U	CHRYSENE
17000	BIS(2-ETHYLHEXYL) PHTHALATE
400U	DI-N-OCTYLPHTHALATE
400U	BENZO(B AND/OR K)FLUORANTHENE
400U	BENZO-A-PYRENE
400U	INDENO (1,2,3-CD) PYRENE
400U	DIBENZO(A,H)ANTHRACENE
400U	BENZO(GHI)PERYLENE
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

EXTRACTABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84993 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-17

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1145 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE49

UG/KG	ANALYTICAL RESULTS
400UR	PHENOL
400U	BIS(2-CHLOROETHYL) ETHER
400U	2-CHLOROPHENOL
400U	1,3-DICHLOROBENZENE
400U	1,4-DICHLOROBENZENE
400U	1,2-DICHLOROBENZENE
400U	2-METHYLPHENOL
400U	2,2'-CHLOROISOPROPYLETHER
400U	(3-AND/OR 4-)METHYLPHENOL
400U	N-NITROSODI-N-PROPYLAMINE
400U	HEXACHLOROETHANE
400U	NITROBENZENE
400U	ISOPHORONE
400U	2-NITROPHENOL
400UJ	2,4-DIMETHYLPHENOL
400U	BIS(2-CHLOROETHOXY) METHANE
400U	2,4-DICHLOROPHENOL
400U	1,2,4-TRICHLOROBENZENE
400U	NAPHTHALENE
400U	4-CHLOROANILINE
400U	HEXACHLOROBUTADIENE
400U	4-CHLORO-3-METHYLPHENOL
400U	2-METHYLNAPHTHALENE
400U	HEXACHLOROCYCLOPENTADIENE (HCCP)
400U	2,4,6-TRICHLOROPHENOL
970U	2,4,5-TRICHLOROPHENOL
400U	2-CHLORONAPHTHALENE
970U	2-NITROANILINE
400U	DIMETHYL PHTHALATE
400U	ACENAPHTHYLENE
400U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
970U	3-NITROANILINE
400UR	ACENAPHTHENE
970U	2,4-DINITROPHENOL
970U	4-NITROPHENOL
400U	DIBENZOFURAN
400U	2,4-DINITROTOLUENE
400U	DIETHYL PHTHALATE
400U	4-CHLOROPHENYL PHENYL ETHER
400U	FLUORENE
970U	4-NITROANILINE
970U	2-METHYL-4,6-DINITROPHENOL
400U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
400U	4-BROMOPHENYL PHENYL ETHER
400U	HEXACHLOROBENZENE (HCB)
970U	PENTACHLOROPHENOL
400U	PHENANTHRENE
400U	ANTHRACENE
400U	CARBAZOLE
400U	DI-N-BUTYLPHTHALATE
400U	FLUORANTHENE
400U	PYRENE
400U	BENZYL BUTYL PHTHALATE
400U	3,3'-DICHLOROBENZIDINE
400U	BENZO(A)ANTHRACENE
400U	CHRYSENE
1200	BIS(2-ETHYLHEXYL) PHTHALATE
400U	DI-N-OCTYLPHTHALATE
400U	BENZO(B AND/OR K)FLUORANTHENE
400U	BENZO-A-PYRENE
400U	INDENO (1,2,3-CD) PYRENE
400U	DIBENZO(A,H)ANTHRACENE
400U	BENZO(GHI)PERYLENE
19	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84995 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-19

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1215 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE51

UG/KG	ANALYTICAL RESULTS
400UR	PHENOL
400U	BIS(2-CHLOROETHYL) ETHER
400U	2-CHLOROPHENOL
400U	1,3-DICHLOROBENZENE
400U	1,4-DICHLOROBENZENE
400U	1,2-DICHLOROBENZENE
400U	2-METHYLPHENOL
400U	2,2'-CHLOROISOPROPYLETHER
400U	(3-AND/OR 4-)METHYLPHENOL
400U	N-NITROSODI-N-PROPYLAMINE
400U	HEXACHLOROETHANE
400U	NITROBENZENE
400U	ISOPHORONE
400U	2-NITROPHENOL
400UJ	2,4-DIMETHYLPHENOL
400U	BIS(2-CHLOROETHOXY) METHANE
400U	2,4-DICHLOROPHENOL
400U	1,2,4-TRICHLOROBENZENE
400U	NAPHTHALENE
400U	4-CHLOROANILINE
400U	HEXACHLOROBUTADIENE
400U	4-CHLORO-3-METHYLPHENOL
400U	2-METHYLNAPHTHALENE
400U	HEXACHLOROCYCLOPENTADIENE (HCCP)
400U	2,4,6-TRICHLOROPHENOL
960U	2,4,5-TRICHLOROPHENOL
400U	2-CHLORONAPHTHALENE
960U	2-NITROANILINE
400U	DIMETHYL PHTHALATE
400U	ACENAPHTHYLENE
400U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
960U	3-NITROANILINE
400UR	ACENAPHTHENE
960U	2,4-DINITROPHENOL
960U	4-NITROPHENOL
400U	DIBENZOFURAN
400U	2,4-DINITROTOLUENE
400U	DIETHYL PHTHALATE
400U	4-CHLOROPHENYL PHENYL ETHER
400U	FLUORENE
960U	4-NITROANILINE
960U	2-METHYL-4,6-DINITROPHENOL
400U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
400U	4-BROMOPHENYL PHENYL ETHER
400U	HEXACHLOROBENZENE (HCB)
960U	PENTACHLOROPHENOL
400U	PHENANTHRENE
400U	ANTHRACENE
400U	CARBAZOLE
400U	DI-N-BUTYLPHTHALATE
400U	FLUORANTHENE
400U	PYRENE
400U	BENZYL BUTYL PHTHALATE
400U	3,3'-DICHLOROBENZIDINE
400U	BENZO(A)ANTHRACENE
400U	CHRYSENE
970	BIS(2-ETHYLHEXYL) PHTHALATE
400U	DI-N-OCTYLPHTHALATE
400U	BENZO(B AND/OR K)FLUORANTHENE
400U	BENZO-A-PYRENE
400U	INDENO (1,2,3-CD) PYRENE
400U	DIBENZO(A,H)ANTHRACENE
400U	BENZO(GHI)PERYLENE
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84988 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-12

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1030 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE44

UG/KG	ANALYTICAL RESULTS
410UR	PHENOL
410U	BIS(2-CHLOROETHYL) ETHER
410U	2-CHLOROPHENOL
410U	1,3-DICHLOROBENZENE
410U	1,4-DICHLOROBENZENE
410U	1,2-DICHLOROBENZENE
410U	2-METHYLPHENOL
410U	2,2'-CHLOROISOPROPYLETHER
410U	(3-AND/OR 4-)METHYLPHENOL
410U	N-NITROSODI-N-PROPYLAMINE
410U	HEXACHLOROETHANE
410U	NITROBENZENE
410U	ISOPHORONE
410U	2-NITROPHENOL
410UJ	2,4-DIMETHYLPHENOL
410U	BIS(2-CHLOROETHOXY) METHANE
410U	2,4-DICHLOROPHENOL
410U	1,2,4-TRICHLOROBENZENE
410U	NAPHTHALENE
410U	4-CHLOROANILINE
410U	HEXACHLOROBUTADIENE
410U	4-CHLORO-3-METHYLPHENOL
410U	2-METHYLNAPHTHALENE
410U	HEXACHLOROCYCLOPENTADIENE (HCCP)
410U	2,4,6-TRICHLOROPHENOL
910U	2,4,5-TRICHLOROPHENOL
410U	2-CHLORONAPHTHALENE
990U	2-NITROANILINE
410U	DIMETHYL PHTHALATE
410U	ACENAPHTHYLENE
410U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
990U	3-NITROANILINE
410UR	ACENAPHTHENE
990U	2,4-DINITROPHENOL
990U	4-NITROPHENOL
410U	DIBENZOFURAN
410U	2,4-DINITROTOLUENE
410U	DIETHYL PHTHALATE
410U	4-CHLOROPHENYL PHENYL ETHER
410U	FLUORENE
990U	4-NITROANILINE
990U	2-METHYL-4,6-DINITROPHENOL
410U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
410U	4-BROMOPHENYL PHENYL ETHER
410U	HEXACHLOROBENZENE (HCB)
990U	PENTACHLOROPHENOL
410U	PHENANTHRENE
410U	ANTHRACENE
410U	CARBAZOLE
410U	DI-N-BUTYLPHTHALATE
410U	FLUORANTHENE
410U	PYRENE
410U	BENZYL BUTYL PHTHALATE
410U	3,3'-DICHLOROBENZIDINE
410U	BENZO(A)ANTHRACENE
410U	CHRYSENE
410U	BIS(2-ETHYLHEXYL) PHTHALATE
410U	DI-N-OCTYLPHTHALATE
410U	BENZO(B AND/OR K)FLUORANTHENE
410U	BENZO-A-PYRENE
410U	INDENO (1,2,3-CD) PYRENE
410U	DIBENZO(A,H)ANTHRACENE
410U	BENZO(GHI)PERYLENE
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84996 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-20

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1230 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE52

UG/KG	ANALYTICAL RESULTS
380UR	PHENOL
380U	BIS(2-CHLOROETHYL) ETHER
380U	2-CHLOROPHENOL
380U	1,3-DICHLOROBENZENE
380U	1,4-DICHLOROBENZENE
380U	1,2-DICHLOROBENZENE
380U	2-METHYLPHENOL
380U	2,2'-CHLOROISOPROPYLETHER
380U	(3-AND/OR 4-)METHYLPHENOL
380U	N-NITROSODI-N-PROPYLAMINE
380U	HEXACHLOROETHANE
380U	NITROBENZENE
380U	ISOPHORONE
380U	2-NITROPHENOL
380UJ	2,4-DIMETHYLPHENOL
380U	BIS(2-CHLOROETHOXY) METHANE
380U	2,4-DICHLOROPHENOL
380U	1,2,4-TRICHLOROBENZENE
380U	NAPHTHALENE
380U	4-CHLOROANILINE
380U	HEXACHLOROBUTADIENE
380U	4-CHLORO-3-METHYLPHENOL
380U	2-METHYLNAPHTHALENE
380U	HEXACHLOROCYCLOPENTADIENE (HCCP)
380U	2,4,6-TRICHLOROPHENOL
930U	2,4,5-TRICHLOROPHENOL
380U	2-CHLORONAPHTHALENE
930U	2-NITROANILINE
380U	DIMETHYL PHTHALATE
380U	ACENAPHTHYLENE
380U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
930U	3-NITROANILINE
380UR	ACENAPHTHENE
930U	2,4-DINITROPHENOL
930U	4-NITROPHENOL
380U	DIBENZOFURAN
380U	2,4-DINITROTOLUENE
380U	DIETHYL PHTHALATE
380U	4-CHLOROPHENYL PHENYL ETHER
380U	FLUORENE
930U	4-NITROANILINE
930U	2-METHYL-4,6-DINITROPHENOL
380U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
380U	4-BROMOPHENYL PHENYL ETHER
380U	HEXACHLOROBENZENE (HCB)
930U	PENTACHLOROPHENOL
380U	PHENANTHRENE
380U	ANTHRACENE
380U	CARBAZOLE
380U	DI-N-BUTYLPHTHALATE
380U	FLUORANTHENE
380U	PYRENE
380U	BENZYL BUTYL PHTHALATE
380U	3,3'-DICHLOROBENZIDINE
380U	BENZO(A)ANTHRACENE
380U	CHRYSENE
380U	BIS(2-ETHYLHEXYL) PHTHALATE
380U	DI-N-OCTYLPHTHALATE
380U	BENZO(B AND/OR K)FLUORANTHENE
380U	BENZO-A-PYRENE
380U	INDENO (1,2,3-CD) PYRENE
380U	DIBENZO(A,H)ANTHRACENE
380U	BENZO(GHI)PERYLENE
15	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00
D. NO.: HE35 MD NO: HE35

ANALYTICAL RESULTS UG/KG

8000J 11 UNIDENTIFIED COMPOUNDS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MAN[illegible]ENT SYSTEM
EPA-REGION IV ESD, [illegible]ENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84989 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-13

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1045 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE45

UG/KG	ANALYTICAL RESULTS
400UR	PHENOL
400U	BIS(2-CHLOROETHYL) ETHER
400U	2-CHLOROPHENOL
400U	1,3-DICHLOROBENZENE
400U	1,4-DICHLOROBENZENE
400U	1,2-DICHLOROBENZENE
400U	2-METHYLPHENOL
400U	2,2'-CHLOROISOPROPYLETHER
400U	(3-AND/OR 4-)METHYLPHENOL
400U	N-NITROSODI-N-PROPYLAMINE
400U	HEXACHLOROETHANE
400U	NITROBENZENE
400U	ISOPHORONE
400U	2-NITROPHENOL
400UJ	2,4-DIMETHYLPHENOL
400U	BIS(2-CHLOROETHOXY) METHANE
400U	2,4-DICHLOROPHENOL
400U	1,2,4-TRICHLOROBENZENE
400U	NAPHTHALENE
400U	4-CHLOROANILINE
400U	HEXACHLOROBUTADIENE
400U	4-CHLORO-3-METHYLPHENOL
400U	2-METHYLNAPHTHALENE
400U	HEXACHLOROCYCLOPENTADIENE (HCCP)
400U	2,4,6-TRICHLOROPHENOL
960U	2,4,5-TRICHLOROPHENOL
400U	2-CHLORONAPHTHALENE
960U	2-NITROANILINE
400U	DIMETHYL PHTHALATE
400U	ACENAPHTHYLENE
400U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
960U	3-NITROANILINE
400UR	ACENAPHTHENE
960U	2,4-DINITROPHENOL
960U	4-NITROPHENOL
960U	DIBENZOFURAN
400U	2,4-DINITROTOLUENE
400U	DIETHYL PHTHALATE
400U	4-CHLOROPHENYL PHENYL ETHER
400U	FLUORENE
960U	4-NITROANILINE
960U	2-METHYL-4,6-DINITROPHENOL
400U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
400U	4-BROMOPHENYL PHENYL ETHER
400U	HEXACHLOROBENZENE (HCB)
960U	PENTACHLOROPHENOL
400U	PHENANTHRENE
400U	ANTHRACENE
400U	CARBAZOLE
400U	DI-N-BUTYLPHTHALATE
400U	FLUORANTHENE
400U	PYRENE
400U	BENZYL BUTYL PHTHALATE
400U	3,3'-DICHLOROBENZIDINE
400U	BENZO(A)ANTHRACENE
400U	CHRYSENE
400U	BIS(2-ETHYLHEXYL) PHTHALATE
400U	DI-N-OCTYLPHTHALATE
400U	BENZO(B AND/OR K)FLUORANTHENE
400U	BENZO-A-PYRENE
400U	INDENO (1,2,3-CD) PYRENE
400U	DIBENZO(A,H)ANTHRACENE
400U	BENZO(GHI)PERYLENE
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84991 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-15

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1115 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE47

UG/KG	ANALYTICAL RESULTS
410UR	PHENOL
410U	BIS(2-CHLOROETHYL) ETHER
410U	2-CHLOROPHENOL
410U	1,3-DICHLOROBENZENE
410U	1,4-DICHLOROBENZENE
410U	1,2-DICHLOROBENZENE
410U	2-METHYLPHENOL
410U	2,2'-CHLOROISOPROPYLETHER
410U	(3-AND/OR 4-)METHYLPHENOL
410U	N-NITROSODI-N-PROPYLAMINE
410U	HEXACHLOROETHANE
410U	NITROBENZENE
410U	ISOPHORONE
410U	2-NITROPHENOL
410UJ	2,4-DIMETHYLPHENOL
410U	BIS(2-CHLOROETHOXY) METHANE
410U	2,4-DICHLOROPHENOL
410U	1,2,4-TRICHLOROBENZENE
410U	NAPHTHALENE
410U	4-CHLOROANILINE
410U	HEXACHLOROBUTADIENE
410U	4-CHLORO-3-METHYLPHENOL
410U	2-METHYLNAPHTHALENE
410U	HEXACHLOROCYCLOPENTADIENE (HCCP)
410U	2,4,6-TRICHLOROPHENOL
980U	2,4,5-TRICHLOROPHENOL
410U	2-CHLORONAPHTHALENE
980U	2-NITROANILINE
410U	DIMETHYL PHTHALATE
410U	ACENAPHTHYLENE
410U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
980U	3-NITROANILINE
410UR	ACENAPHTHENE
980U	2,4-DINITROPHENOL
980U	4-NITROPHENOL
410U	DIBENZOFURAN
410U	2,4-DINITROTOLUENE
410U	DIETHYL PHTHALATE
410U	4-CHLOROPHENYL PHENYL ETHER
410U	FLUORENE
980U	4-NITROANILINE
980U	2-METHYL-4,6-DINITROPHENOL
410U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
410U	4-BROMOPHENYL PHENYL ETHER
410U	HEXACHLOROBENZENE (HCB)
980U	PENTACHLOROPHENOL
410U	PHENANTHRENE
410U	ANTHRACENE
410U	CARBAZOLE
410U	DI-N-BUTYLPHTHALATE
410U	FLUORANTHENE
410U	PYRENE
410U	BENZYL BUTYL PHTHALATE
410U	3,3'-DICHLOROBENZIDINE
410U	BENZO(A)ANTHRACENE
410U	CHRYSENE
410U	BIS(2-ETHYLHEXYL) PHTHALATE
410U	DI-N-OCTYLPHTHALATE
410U	BENZO(B AND/OR K)FLUORANTHENE
410U	BENZO-A-PYRENE
410U	INDENO (1,2,3-CD) PYRENE
410U	DIBENZO(A,H)ANTHRACENE
410U	BENZO(GHI)PERYLENE
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84990 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-14

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1100 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE46

UG/KG	ANALYTICAL RESULTS
420UR	PHENOL
420U	BIS(2-CHLOROETHYL) ETHER
420U	2-CHLOROPHENOL
420U	1,3-DICHLOROBENZENE
420U	1,4-DICHLOROBENZENE
420U	1,2-DICHLOROBENZENE
420U	2-METHYLPHENOL
420U	2,2'-CHLOROISOPROPYLETHER
420U	(3-AND/OR 4-)METHYLPHENOL
420U	N-NITROSODI-N-PROPYLAMINE
420U	HEXACHLOROETHANE
420U	NITROBENZENE
420U	ISOPHORONE
420U	2-NITROPHENOL
420UJ	2,4-DIMETHYLPHENOL
420U	BIS(2-CHLOROETHOXY) METHANE
420U	2,4-DICHLOROPHENOL
420U	1,2,4-TRICHLOROBENZENE
420U	NAPHTHALENE
420U	4-CHLOROANILINE
420U	HEXACHLOROBUTADIENE
420U	4-CHLORO-3-METHYLPHENOL
420U	2-METHYLNAPHTHALENE
420U	HEXACHLOROCYCLOPENTADIENE (HCCP)
420U	2,4,6-TRICHLOROPHENOL
1000U	2,4,5-TRICHLOROPHENOL
420U	2-CHLORONAPHTHALENE
1000U	2-NITROANILINE
420U	DIMETHYL PHTHALATE
420U	ACENAPHTHYLENE
420U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1000U	3-NITROANILINE
420UR	ACENAPHTHENE
1000U	2,4-DINITROPHENOL
1000U	4-NITROPHENOL
420U	DIBENZOFURAN
420U	2,4-DINITROTOLUENE
420U	DIETHYL PHTHALATE
420U	4-CHLOROPHENYL PHENYL ETHER
420U	FLUORENE
1000U	4-NITROANILINE
1000U	2-METHYL-4,6-DINITROPHENOL
420U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
420U	4-BROMOPHENYL PHENYL ETHER
420U	HEXACHLOROBENZENE (HCB)
1000U	PENTACHLOROPHENOL
420U	PHENANTHRENE
420U	ANTHRACENE
420U	CARBAZOLE
420U	DI-N-BUTYLPHTHALATE
420U	FLUORANTHENE
420U	PYRENE
420U	BENZYL BUTYL PHTHALATE
420U	3,3'-DICHLOROBENZIDINE
420U	BENZO(A)ANTHRACENE
420U	CHRYSENE
420U	BIS(2-ETHYLHEXYL) PHTHALATE
420U	DI-N-OCTYLPHTHALATE
420U	BENZO(B AND/OR K)FLUORANTHENE
420U	BENZO-A-PYRENE
420U	INDENO (1,2,3-CD) PYRENE
420U	DIBENZO(A,H)ANTHRACENE
420U	BENZO(GHI)PERYLENE
23	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE48

UG/KG	ANALYTICAL RESULTS
400UR	PHENOL
400U	BIS(2-CHLOROETHYL) ETHER
400U	2-CHLOROPHENOL
400U	1,3-DICHLOROBENZENE
400U	1,4-DICHLOROBENZENE
400U	1,2-DICHLOROBENZENE
400U	2-METHYLPHENOL
400U	2,2'-CHLOROISOPROPYLETHER
400U	(3-AND/OR 4-)METHYLPHENOL
400U	N-NITROSODI-N-PROPYLAMINE
400U	HEXACHLOROETHANE
400U	NITROBENZENE
400U	ISOPHORONE
400U	2-NITROPHENOL
400UJ	2,4-DIMETHYLPHENOL
400U	BIS(2-CHLOROETHOXY) METHANE
400U	2,4-DICHLOROPHENOL
400U	1,2,4-TRICHLOROBENZENE
400U	NAPHTHALENE
400U	4-CHLOROANILINE
400U	HEXACHLOROBUTADIENE
400U	4-CHLORO-3-METHYLPHENOL
400U	2-METHYLNAPHTHALENE
400U	HEXACHLOROCYCLOPENTADIENE (HCCP)
400U	2,4,6-TRICHLOROPHENOL
960U	2,4,5-TRICHLOROPHENOL
400U	2-CHLORONAPHTHALENE
960U	2-NITROANILINE
400U	DIMETHYL PHTHALATE
400U	ACENAPHTHYLENE
400U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
960U	3-NITROANILINE
400UR	ACENAPHTHENE
960U	2,4-DINITROPHENOL
960U	4-NITROPHENOL
400U	DIBENZOFURAN
400U	2,4-DINITROTOLUENE
400U	DIETHYL PHTHALATE
400U	4-CHLOROPHENYL PHENYL ETHER
400U	FLUORENE
960U	4-NITROANILINE
960U	2-METHYL-4,6-DINITROPHENOL
400U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
400U	4-BROMOPHENYL PHENYL ETHER
400U	HEXACHLOROBENZENE (HCB)
960U	PENTACHLOROPHENOL
400U	PHENANTHRENE
400U	ANTHRACENE
400U	CARBAZOLE
400U	DI-N-BUTYLPHTHALATE
400U	FLUORANTHENE
400U	PYRENE
400U	BENZYL BUTYL PHTHALATE
400U	3,3'-DICHLOROBENZIDINE
400U	BENZO(A)ANTHRACENE
400U	CHRYSENE
400U	BIS(2-ETHYLHEXYL) PHTHALATE
400U	DI-N-OCTYLPHTHALATE
400U	BENZO(B AND/OR K)FLUORANTHENE
400U	BENZO-A-PYRENE
400U	INDENO (1,2,3-CD) PYRENE
400U	DIBENZO(A,H)ANTHRACENE
400U	BENZO(GHI)PERYLENE
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84977 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-01
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1300 STOP: 00/00/00
D. NO.: HE33 MD NO: HE33

ANALYTICAL RESULTS UG/KG

300JN	OCTAHYDROTETRAMETHYLCYCLOPROPANAPHTHALENE
1000J	2 UNIDENTIFIED COMPOUNDS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

EXTRACTABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE50

UG/KG	ANALYTICAL RESULTS
420UR	PHENOL
420U	BIS(2-CHLOROETHYL) ETHER
420U	2-CHLOROPHENOL
420U	1,3-DICHLOROBENZENE
420U	1,4-DICHLOROBENZENE
420U	1,2-DICHLOROBENZENE
420U	2-METHYLPHENOL
420U	2,2'-CHLOROISOPROPYLETHER
420U	(3-AND/OR 4-)METHYLPHENOL
420U	N-NITROSODI-N-PROPYLAMINE
420U	HEXACHLOROETHANE
420U	NITROBENZENE
420U	ISOPHORONE
420U	2-NITROPHENOL
420UJ	2,4-DIMETHYLPHENOL
420U	BIS(2-CHLOROETHOXY) METHANE
420U	2,4-DICHLOROPHENOL
420U	1,2,4-TRICHLOROBENZENE
420U	NAPHTHALENE
420U	4-CHLOROANILINE
420U	HEXACHLOROBUTADIENE
420U	4-CHLORO-3-METHYLPHENOL
420U	2-METHYLNAPHTHALENE
420U	HEXACHLOROCYCLOPENTADIENE (HCCP)
420U	2,4,6-TRICHLOROPHENOL
1000U	2,4,5-TRICHLOROPHENOL
420U	2-CHLORONAPHTHALENE
1000U	2-NITROANILINE
420U	DIMETHYL PHTHALATE
420U	ACENAPHTHYLENE
420U	2,6-DINITROTOLUENE

UG/KG	ANALYTICAL RESULTS
1000U	3-NITROANILINE
420UR	ACENAPHTHENE
1000U	2,4-DINITROPHENOL
1000U	4-NITROPHENOL
420U	DIBENZOFURAN
420U	2,4-DINITROTOLUENE
420U	DIETHYL PHTHALATE
420U	4-CHLOROPHENYL PHENYL ETHER
420U	FLUORENE
1000U	4-NITROANILINE
1000U	2-METHYL-4,6-DINITROPHENOL
420U	N-NITROSODIPHENYLAMINE/DIPHENYLAMINE
420U	4-BROMOPHENYL PHENYL ETHER
420U	HEXACHLOROBENZENE (HCB)
1000U	PENTACHLOROPHENOL
420U	PHENANTHRENE
420U	ANTHRACENE
420U	CARBAZOLE
420U	DI-N-BUTYLPHTHALATE
420U	FLUORANTHENE
420U	PYRENE
420U	BENZYL BUTYL PHTHALATE
420U	3,3'-DICHLOROBENZIDINE
420U	BENZO(A)ANTHRACENE
420U	CHRYSENE
420U	BIS(2-ETHYLHEXYL) PHTHALATE
420U	DI-N-OCTYLPHTHALATE
420U	BENZO(B AND/OR K)FLUORANTHENE
420U	BENZO-A-PYRENE
420U	INDENO (1,2,3-CD) PYRENE
420U	DIBENZO(A,H)ANTHRACENE
420U	BENZO(GHI)PERYLENE
22	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00
D. NO.: HE34 MD NO: HE34

ANALYTICAL RESULTS UG/KG

1000J 3 UNIDENTIFIED COMPOUNDS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MAN[illegible]MENT SYSTEM
EPA-REGION IV ESD, [illegible]ENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00
D. NO.: HE36 MD NO: HE36

ANALYTICAL RESULTS UG/KG

8000J 6 UNIDENTIFIED COMPOUNDS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00
D. NO.: HE38 MD NO: HE38

ANALYTICAL RESULTS UG/KG

2000J 2 UNIDENTIFIED COMPOUNDS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-05
CASE.NO.: 21776. SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00
D. NO.: HE37 MD NO: HE37

ANALYTICAL RESULTS UG/KG

20000J	16 UNIDENTIFIED COMPOUNDS
5000JN	HEXADECANOIC ACID

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00
D. NO.: HE39 MD NO: HE39

ANALYTICAL RESULTS UG/KG

20000J	14 UNIDENTIFIED COMPOUNDS
5000JN	PINENE
2000JN	HYDROXYMETHOXYBENZALDEHYDE
2000JN	HEXADECANOIC ACID

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-OC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00
D. NO.: HE48 MD NO: HE48

ANALYTICAL RESULTS UG/KG

500J 1 UNIDENTIFIED COMPOUND

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00
D. NO.: HE41 MD NO: HE41

ANALYTICAL RESULTS UG/KG

4000J	7 UNIDENTIFIED COMPOUNDS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-10
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00
D. NO.: HE42 MD NO: HE42

ANALYTICAL RESULTS UG/KG

5000J 5 UNIDENTIFIED COMPOUNDS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00
D. NO.: HE50 MD NO: HE50

ANALYTICAL RESULTS UG/KG

600J 1 UNIDENTIFIED COMPOUND

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

MISCELLANEOUS EXTRACTABLE COMPOUNDS - DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00
D. NO.: HE40 MD NO: HE40

ANALYTICAL RESULTS UG/KG

500JN	BENZENEACETIC ACID
300JN	TETRADECANOIC ACID
200JN	PENTADECANOIC ACID
2000JN	HEXADECANOIC ACID
7000J	11 UNIDENTIFIED COMPOUNDS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services Division
College Station Road, Athens, Ga. 30613

*****MEMORANDUM******

DATE: 08/08/94

SUBJECT: Results of Metals Analysis;
94-C358 STOLLER/PELHAM PHOSP
PELHAM GA
CASE NO: 21776

FROM: Charles H. Hooper SK Bennett/acting
Chief, Laboratory Evaluation/Quality Assurance Section

TO: JOE SLUNERMAN

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

INORGANIC DATA QUALIFIERS REPORT

Case Number: 21776
Project Number: 94-0358
Site: Stoller/Pelham Phosp, Pelham, GA

Element	Flag	Samples Affected	Reason
all soils			
Sb,As,Ni,Ag,V	U	All positives >IDL but <CRDL	baseline instability
Al,Ba,Ca,Fe,Na, Zn	U	All positives >IDL but <10X contaminant level	positives in blanks
SDG group MDHE31			
Sb	JN	All positives with Al or Fe concentrations in solution >180000ug/L	Suspected positive interference as noted in the contractor ICS
Cd	JN	All positives with Fe concentrations in solution >110000 ug/L	Suspected positive interference as noted in the contractor ICS
Pb	J	All positives with Al concentrations in solution >86000 ug/L	Suspected negative interference as noted in the contractor ICS
Se	J	All positives with Fe or Al concentrations in solution >32000 ug/L	Suspected negative interference as noted in the contractor ICS
SDG group MDHE52			
As	JN	All positives with Al or Fe concentrations in solution >190000ug/L	Suspected positive interference as noted in the contractor ICS
Cd	JN	All positives with Fe concentrations in solution >100000 ug/L	Suspected positive interference as noted in the contractor ICS
Tl	JN	All positives with Al concentrations in solution >130000 ug/L	Suspected positive interference as noted in the contractor ICS
Pb	J	All positives with Al concentrations in solution >75000 ug/L	Suspected negative interference as noted in the contractor ICS
Se	J	All positives with Fe or Al concentrations in solution >77000 ug/L	Suspected negative interference as noted in the contractor ICS
all soil samples			
Co	J	MDHE33,35,36,37,53	%RSD >20% for plasma multiple exposure
Sb	J	MDHE35	%RSD >20% for ICP multiple exposure
K	J	MDHE34,35,40,41,53	%RSD >20% for ICP multiple exposure
V	J	MDHE38,46	%RSD >20% for ICP multiple exposure
Cr	J	MDHE46,52	%RSD >20% for ICP multiple exposure
As	J	MDHE46	%RSD >20% for ICP multiple exposure

IX. Data Qualifiers Summary Continued 21776

Element	Flag	Samples Affected	Reason
Tl	J	MDHE44	%RSD >20% for ICP multiple exposure
Sb	U	MDHE36,37,41,42,45, 46,47,50,53	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Cd	U	MDHE37	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Cr	U	MDHE51	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Tl	U	MDHE45,46	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Be	J	MDHE33,34,35,36,37,47	result >IDL but <CRDL and %RSD >20% for ICP multiple exposure
Sb	J	MDHE35,36	Only 2X CRDL standard analysis required by SOW for ICP analysis
Be	J	MDHE33,34,35,36,37,47	only 2X CRDL standard analysis required by SOW for ICP analysis
Cr	J	MDHE38,44	Only 2X CRDL standard analysis required by SOW for ICP analysis
Cr	J	SDG group MDHE31	matrix spike recovery 51.3%
Cu	J	SDG group MDHE31	matrix spike recovery 52.1%
Mn	J	SDG group MDHE31	matrix spike recovery 64.7%
V	J	SDG group MDHE31	matrix spike recovery 60.3%
Cu	J	SDG group MDHE52	matrix spike recovery 46.9%
Pb	J	positives in SDG group MDHE52	matrix spike recovery 153.1%
Al	J	SDG group MDHE31	matrix duplicate RSD 90.5%
As	J	SDG group MDHE31	matrix duplicate RSD 82.5%
Ca	J	SDG group MDHE31	matrix duplicate RSD 48.2%
Cr	J	SDG group MDHE31	matrix duplicate RSD 36.5%
Cu	J	SDG group MDHE31	matrix duplicate RSD 60.0%
Fe	J	SDG group MDHE31	matrix duplicate RSD 88.7%
Mn	J	SDG group MDHE31	matrix duplicate RSD 50.1%
V	J	SDG group MDHE31	matrix duplicate RSD 70.4%
Cu	J	SDG group MDHE52	matrix duplicate RSD 40.1%
Cr	J	SDG group MDHE31	serial dilution 10.9%
As	J	SDG group MDHE52	serial dilution 11.6%

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00
MD NUMBER: HE34

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
5500J	ALUMINUM	77J	MANGANESE
2U	ANTIMONY	0.11U	MERCURY
4.8J	ARSENIC	2.5U	NICKEL
19	BARIUM	120J	POTASSIUM
0.37J	BERYLLIUM	1.1U	SELENIUM
0.69U	CADMIUM	1U	SILVER
1200J	CALCIUM	130U	SODIUM
18J	CHROMIUM	1.6U	THALLIUM
1.7	COBALT	NA	TIN
40UJ	COPPER	21J	VANADIUM
17000J	IRON	62	ZINC
38	LEAD	13	PERCENT MOISTURE
160	MAGNESIUM		

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: S9-05
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00
MD NUMBER: HE37

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
12000J	ALUMINUM	160J	MANGANESE
9U	ANTIMONY	0.37	MERCURY
28J	ARSENIC	8U	NICKEL
190	BARIUM	1700	POTASSIUM
0.33J	BERYLLIUM	1.5U	SELENIUM
1U	CADMIUM	3U	SILVER
14000J	CALCIUM	350U	SODIUM
23J	CHROMIUM	2.1U	THALLIUM
2.4J	COBALT	NA	TIN
540J	COPPER	19J	VANADIUM
16000J	IRON	330	ZINC
590	LEAD	33	PERCENT MOISTURE
950	MAGNESIUM		

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00
MD NUMBER: HE36

MG/KG	ANALYTICAL RESULTS
16000J	ALUMINUM
0.2J	ANTIMONY
76J	ARSENIC
67	BARIUM
0.40J	BERYLLIUM
1.1U	CADMIUM
9300J	CALCIUM
30J	CHROMIUM
3.4J	COBALT
700J	COPPER
21000J	IRON
770	LEAD
1900	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
150J	MANGANESE
0.26	MERCURY
8U	NICKEL
340	POTASSIUM
1.9U	SELENIUM
3U	SILVER
330U	SODIUM
2.6U	THALLIUM
NA	TIN
28J	VANADIUM
540	ZINC
46	PERCENT MOISTURE

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84977 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-01
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1300 STOP: 00/00/00
MD NUMBER: HE33

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
9100	ALUMINUM	110J	MANGANESE
2.7U	ANTIMONY	0.10U	MERCURY
6J	ARSENIC	6U	NICKEL
21	BARIUM	380	POTASSIUM
0.75J	BERYLLIUM	1U	SELENIUM
0.62U	CADMIUM	2U	SILVER
44000J	CALCIUM	140U	SODIUM
46J	CHROMIUM	1.5U	THALLIUM
2.1J	COBALT	NA	TIN
56J	COPPER	64J	VANADIUM
37000J	IRON	49	ZINC
25	LEAD	04	PERCENT MOISTURE
650	MAGNESIUM		

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00
MD NUMBER: HE35

MG/KG	ANALYTICAL RESULTS
9800J	ALUMINUM
6.6J	ANTIMONY
69J	ARSENIC
59	BARIUM
0.48J	BERYLLIUM
1.2U	CADMIUM
10000J	CALCIUM
29J	CHROMIUM
2.9J	COBALT
750J	COPPER
19000J	IRON
760	LEAD
1900	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
150J	MANGANESE
0.38	MERCURY
50	NICKEL
310J	POTASSIUM
1.9U	SELENIUM
3U	SILVER
380U	SODIUM
2.7U	THALLIUM
NA	TIN
26J	VANADIUM
600	ZINC
48	PERCENT MOISTURE

REMARKS

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IX. Data Qualifiers Summary Continued 21776

Element	Flag	Samples Affected	Reason
Ba	J	SDG group MDHE52	serial dilution 38.9%
Ca	J	SDG group MDHE52	serial dilution 20.5%
Cu	J	SDG group MDHE52	serial dilution 18.9%

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00
MD NUMBER: HE38

MG/KG	ANALYTICAL RESULTS
200J	ALUMINUM
2.3U	ANTIMONY
9J	ARSENIC
16	BARIUM
0.25U	BERYLLIUM
0.76U	CADMIUM
140U	CALCIUM
2.5J	CHROMIUM
1.3U	COBALT
30UJ	COPPER
7800J	IRON
96	LEAD
22	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
1.5J	MANGANESE
0.13U	MERCURY
2.8U	NICKEL
90U	POTASSIUM
1.3U	SELENIUM
1U	SILVER
140U	SODIUM
1.8U	THALLIUM
NA	TIN
1.4J	VANADIUM
8U	ZINC
21	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00
MD NUMBER: NE39

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
3000J	ALUMINUM	13J	MANGANESE
3.7U	ANTIMONY	0.24	MERCURY
18J	ARSENIC	3.1U	NICKEL
61	BARIUM	470	POTASSIUM
0.28U	BERYLLIUM	1.4U	SELENIUM
0.85U	CADMIUM	1U	SILVER
1900J	CALCIUM	240U	SODIUM
22J	CHROMIUM	2U	THALLIUM
1.4U	COBALT	NA	TIN
75J	COPPER	8.6J	VANADIUM
11000J	IRON	35	ZINC
520	LEAD	29	PERCENT MOISTURE
130	MAGNESIUM		

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84987 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-11
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1015 STOP: 00/00/00
MD NUMBER: HE43

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
220J	ALUMINUM	1.9J	MANGANESE
3.4U	ANTIMONY	0.13U	MERCURY
13J	ARSENIC	2.8U	NICKEL
22	BARIUM	100U	POTASSIUM
0.26U	BERYLLIUM	1.3U	SELENIUM
0.78U	CADMIUM	1U	SILVER
140U	CALCIUM	150U	SODIUM
4.1J	CHROMIUM	1.8U	THALLIUM
1.3U	COBALT	NA	TIN
20UJ	COPPER	1UJ	VANADIUM
4200J	IRON	8U	ZINC
130	LEAD	23	PERCENT MOISTURE
23	MAGNESIUM		

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00
MD NUMBER: HE40

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
4500J	ALUMINUM	27J	MANGANESE
3.5U	ANTIMONY	0.27	MERCURY
9.1J	ARSENIC	2.9U	NICKEL
69	BARIUM	200J	POTASSIUM
0.27U	BERYLLIUM	1.3U	SELENIUM
0.60U	CADMIUM	1U	SILVER
1200J	CALCIUM	230U	SODIUM
29J	CHROMIUM	1.9U	THALLIUM
1.3U	COBALT	NA	TIN
40UJ	COPPER	28J	VANADIUM
10000J	IRON	87	ZINC
260	LEAD	25	PERCENT MOISTURE
130	MAGNESIUM		

REMARKS

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FOOTNOTES
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*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84990 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-14
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1100 STOP: 00/00/00
MD NUMBER: HE46

MG/KG	ANALYTICAL RESULTS
2600J	ALUMINUM
4U	ANTIMONY
3.2J	ARSENIC
7.1	BARIUM
0.25U	BERYLLIUM
0.76U	CADMIUM
150U	CALCIUM
2.6J	CHROMIUM
1.3U	COBALT
10UJ	COPPER
2600J	IRON
58	LEAD
19	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
1.7J	MANGANESE
0.13U	MERCURY
2.8U	NICKEL
90U	POTASSIUM
1.3U	SELENIUM
1U	SILVER
170U	SODIUM
3U	THALLIUM
NA	TIN
1J	VANADIUM
28	ZINC
21	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84988 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-12
CASE NUMBER: 21776 SAS NUMBER.

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1030 STOP: 00/00/00
MD NUMBER: HE44

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
170J	ALUMINUM	2.8J	MANGANESE
2.2U	ANTIMONY	0.12U	MERCURY
3.4J	ARSENIC	2.7U	NICKEL
6.3	BARIUM	90U	POTASSIUM
0.24U	BERYLLIUM	1.2U	SELENIUM
0.73U	CADMIUM	1U	SILVER
90U	CALCIUM	140U	SODIUM
2.2J	CHROMIUM	2.8J	THALLIUM
1.2U	COBALT	NA	TIN
9UJ	COPPER	0.98UJ	VANADIUM
4300J	IRON	5U	ZINC
59	LEAD	18	PERCENT MOISTURE
15	MAGNESIUM		

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00
MD NUMBER: HE41

MG/KG	ANALYTICAL RESULTS
1900J	ALUMINUM
20U	ANTIMONY
8J	ARSENIC
61	BARIUM
0.28U	BERYLLIUM
0.85U	CADMIUM
490J	CALCIUM
10J	CHROMIUM
1.4U	COBALT
130J	COPPER
2700J	IRON
450	LEAD
97	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
7.5J	MANGANESE
0.25	MERCURY
3.1U	NICKEL
150J	POTASSIUM
1.4U	SELENIUM
2U	SILVER
220U	SODIUM
2U	THALLIUM
NA	TIN
7.8J	VANADIUM
30U	ZINC
29	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO: 94-0358 SAMPLE NO. 84989 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-13
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1045 STOP: 00/00/00
MD NUMBER: HE45

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
250J	ALUMINUM	2.2J	MANGANESE
4U	ANTIMONY	0.12U	MERCURY
4.1J	ARSENIC	2.7U	NICKEL
12	BARIUM	90U	POTASSIUM
0.25U	BERYLLIUM	1.2U	SELENIUM
0.75U	CADMIUM	1U	SILVER
140U	CALCIUM	160U	SODIUM
2.7J	CHROMIUM	3U	THALLIUM
1.2U	COBALT	NA	TIN
20UJ	COPPER	10J	VANADIUM
3000J	IRON	8U	ZINC
88	LEAD	20	PERCENT MOISTURE
26	MAGNESIUM		

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-10
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00
MD NUMBER: HE42

MG/KG	ANALYTICAL RESULTS
6200J	ALUMINUM
1.0	ANTIMONY
18J	ARSENIC
100	BARIUM
0.28U	BERYLLIUM
0.85U	CADMIUM
9900J	CALCIUM
86J	CHROMIUM
1.4U	COBALT
74J	COPPER
9000J	IRON
650	LEAD
270	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
55J	MANGANESE
0.36	MERCURY
3.1U	NICKEL
480	POTASSIUM
1.4U	SELENIUM
2U	SILVER
330U	SODIUM
2U	THALLIUM
NA	TIN
14J	VANADIUM
180	ZINC
30	PERCENT MOISTURE

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00
MD NUMBER: HE50

MG/KG	ANALYTICAL RESULTS
5550	ALUMINUM
7U	ANTIMONY
24J	ARSENIC
19	BARIUM
0.23U	BERYLLIUM
0.70U	CADMIUM
100U	CALCIUM
32J	CHROMIUM
1.2U	COBALT
20UJ	COPPER
9100J	IRON
410	LEAD
24	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
4.5J	MANGANESE
0.12U	MERCURY
2.6U	NICKEL
110	POTASSIUM
1.2U	SELENIUM
1U	SILVER
180U	SODIUM
1.6U	THALLIUM
NA	TIN
20J	VANADIUM
20U	ZINC
14	PERCENT MOISTURE

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84993 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-17
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1145 STOP: 00/00/00
MD NUMBER: HE49

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
750J	ALUMINUM	3.8J	MANGANESE
3.4U	ANTIMONY	0.14	MERCURY
5.6J	ARSENIC	2.9U	NICKEL
24	BARIUM	93U	POTASSIUM
0.26U	BERYLLIUM	1.3U	SELENIUM
0.79U	CADMIUM	0.53U	SILVER
360J	CALCIUM	190U	SODIUM
5.9J	CHROMIUM	1.8U	THALLIUM
1.3U	COBALT	NA	TIN
30J	COPPER	2.6J	VANADIUM
2400J	IRON	31	ZINC
190	LEAD	24	PERCENT MOISTURE
32	MAGNESIUM		

REMARKS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services Division
College Station Road, Athens, Ga. 30613

*****MEMORANDUM******

DATE: 01/08/94

SUBJECT: Results of Specified Analysis;
94-0158 STOLLER/PELHAM PHOSP
PELHAM GA
CASE NO: 21776

FROM: Charles H. Hooper
Chief, Laboratory Evaluation/Quality Assurance Section

TO: JOE BLYTHERMAN

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00
MD NUMBER: HE48

MG/KG	ANALYTICAL RESULTS
920J	ALUMINUM
3.2U	ANTIMONY
12J	ARSENIC
26	BARIUM
0.24U	BERYLLIUM
0.73U	CADMIUM
240U	CALCIUM
12J	CHROMIUM
1.2U	COBALT
200J	COPPER
7500J	IRON
170	LEAD
37	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
4.4J	MANGANESE
0.12U	MERCURY
2.7U	NICKEL
90U	POTASSIUM
1.2U	SELENIUM
1U	SILVER
170U	SODIUM
1.7U	THALLIUM
NA	TIN
9.6J	VANADIUM
30	ZINC
18	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84991 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-15
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1115 STOP: 00/00/00
MD NUMBER: HE47

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
2300J	ALUMINUM	13J	MANGANESE
7U	ANTIMONY	0.10U	MERCURY
37J	ARSENIC	2.9U	NICKEL
21	BARIUM	100U	POTASSIUM
0.44J	BERYLLIUM	1.3U	SELENIUM
0.80U	CADMIUM	2U	SILVER
340J	CALCIUM	150U	SODIUM
15J	CHROMIUM	1.9U	THALLIUM
1.3U	COBALT	NA	TIN
30UJ	COPPER	29J	VANADIUM
19000J	IRON	37	ZINC
150	LEAD	25	PERCENT MOISTURE
52	MAGNESIUM		

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO.: 94-0358 SAMPLE NO. 84996 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-20
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1230 STOP: 00/00/00
MD NUMBER: HE52

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
360	ALUMINUM	1.2	MANGANESE
3.2U	ANTIMONY	0.16	MERCURY
27J	ARSENIC	2.7U	NICKEL
20UJ	BARIUM	86U	POTASSIUM
0.24U	BERYLLIUM	0.97U	SELENIUM
0.73U	CADMIUM	0.49U	SILVER
150UJ	CALCIUM	160U	SODIUM
2.5J	CHROMIUM	1.5U	THALLIUM
1.2U	COBALT	NA	TIN
77J	COPPER	6U	VANADIUM
3100	IRON	20U	ZINC
190J	LEAD	18	PERCENT MOISTURE
31	MAGNESIUM		

REMARKS

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INORGANIC DATA QUALIFIERS REPORT

Case Number: 21776
Project Number: 94-0358
Site: Stoller/Pelham Phosp, Pelham, GA

Element	Flag	Samples Affected	Reason
all soils			
Sb,As,Ni,Ag,V	U	All positives >IDL but <CRDL	baseline instability
Al,Ba,Ca,Fe,Na, Zn	U	All positives >IDL but <10X contaminant level	positives in blanks
SDG group MDHE31			
Sb	JN	All positives with Al or Fe concentrations in solution >180000ug/L	Suspected positive interference as noted in the contractor ICS
Cd	JN	All positives with Fe concentrations in solution >110000 ug/L	Suspected positive interference as noted in the contractor ICS
Pb	J	All positives with Al concentrations in solution >86000 ug/L	Suspected negative interference as noted in the contractor ICS
Se	J	All positives with Fe or Al concentrations in solution >32000 ug/L	Suspected negative interference as noted in the contractor ICS
SDG group MDHE52			
As	JN	All positives with Al or Fe concentrations in solution >190000ug/L	Suspected positive interference as noted in the contractor ICS
Cd	JN	All positives with Fe concentrations in solution >100000 ug/L	Suspected positive interference as noted in the contractor ICS
Tl	JN	All positives with Al concentrations in solution >130000 ug/L	Suspected positive interference as noted in the contractor ICS
Pb	J	All positives with Al concentrations in solution >75000 ug/L	Suspected negative interference as noted in the contractor ICS
Se	J	All positives with Fe or Al concentrations in solution >77000 ug/L	Suspected negative interference as noted in the contractor ICS
all soil samples			
Co	J	MDHE33,35,36,37,53	%RSD >20% for plasma multiple exposure
Sb	J	MDHE35	%RSD >20% for ICP multiple exposure
K	J	MDHE34,35,40,41,53	%RSD >20% for ICP multiple exposure
V	J	MDHE38,46	%RSD >20% for ICP multiple exposure
Cr	J	MDHE46,52	%RSD >20% for ICP multiple exposure
As	J	MDHE46	%RSD >20% for ICP multiple exposure

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84995 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-19
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1215 STOP: 00/00/00
MD NUMBER: HE51

MG/KG	ANALYTICAL RESULTS	MG/KG	ANALYTICAL RESULTS
270J	ALUMINUM	0.97J	MANGANESE
3U	ANTIMONY	0.12U	MERCURY
20J	ARSENIC	2.5U	NICKEL
8.2	BARIUM	90U	POTASSIUM
0.23U	BERYLLIUM	1.2U	SELENIUM
0.69U	CADMIUM	1U	SILVER
70U	CALCIUM	150U	SODIUM
3UJ	CHROMIUM	1.6U	THALLIUM
1.2U	COBALT	NA	TIN
6UJ	COPPER	4.4J	VANADIUM
4000J	IRON	5U	ZINC
170	LEAD	13	PERCENT MOISTURE
17	MAGNESIUM		

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

METALS DATA REPORT 06/07/94

PROJECT NO. 94-0358 SAMPLE NO. 84997 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-21
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1245 STOP: 00/00/00
MD NUMBER: HE53

MG/KG	ANALYTICAL RESULTS
670	ALUMINUM
6U	ANTIMONY
38J	ARSENIC
22J	BARIUM
0.24U	BERYLLIUM
0.72U	CADMIUM
140UJ	CALCIUM
5.3	CHROMIUM
1.8J	COBALT
50UJ	COPPER
15000	IRON
300J	LEAD
29	MAGNESIUM

MG/KG	ANALYTICAL RESULTS
2.9	MANGANESE
0.89	MERCURY
3.9	NICKEL
87J	POTASSIUM
0.96U	SELENIUM
2U	SILVER
170U	SODIUM
1.4U	THALLIUM
NA	TIN
12	VANADIUM
27	ZINC
17	PERCENT MOISTURE

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IX. Data Qualifiers Summary Continued 21776

Element	Flag	Samples Affected	Reason
Tl	J	MDHE44	%RSD >20% for ICP multiple exposure
Sb	U	MDHE36,37,41,42,45, 46,47,50,53	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Cd	U	MDHE37	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Cr	U	MDHE51	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Tl	U	MDHE45,46	%RSD >20% for ICP multiple exposure and result >IDL but <CRDL
Be	J	MDHE33,34,35,36,37,47	result >IDL but <CRDL and %RSD >20% for ICP multiple exposure
Sb	J	MDHE35,36	Only 2X CRDL standard analysis required by SOW for ICP analysis
Be	J	MDHE33,34,35,36,37,47	only 2X CRDL standard analysis required by SOW for ICP analysis
Cr	J	MDHE38,44	Only 2X CRDL standard analysis required by SOW for ICP analysis
Cr	J	SDG group MDHE31	matrix spike recovery 51.3%
Cu	J	SDG group MDHE31	matrix spike recovery 52.1%
Mn	J	SDG group MDHE31	matrix spike recovery 64.7%
V	J	SDG group MDHE31	matrix spike recovery 60.3%
Cu	J	SDG group MDHE52	matrix spike recovery 46.9%
Pb	J	positives in SDG group MDHE52	matrix spike recovery 153.1%
Al	J	SDG group MDHE31	matrix duplicate RSD 90.5%
As	J	SDG group MDHE31	matrix duplicate RSD 82.5%
Ca	J	SDG group MDHE31	matrix duplicate RSD 48.2%
Cr	J	SDG group MDHE31	matrix duplicate RSD 36.5%
Cu	J	SDG group MDHE31	matrix duplicate RSD 60.0%
Fe	J	SDG group MDHE31	matrix duplicate RSD 88.7%
Mn	J	SDG group MDHE31	matrix duplicate RSD 50.1%
V	J	SDG group MDHE31	matrix duplicate RSD 70.4%
Cu	J	SDG group MDHE52	matrix duplicate RSD 40.1%
Cr	J	SDG group MDHE31	serial dilution 10.9%
As	J	SDG group MDHE52	serial dilution 11.6%

IX. Data Qualifiers Summary Continued 21776

Element	Flag	Samples Affected	Reason
Ba	J	SDG group MDHE52	serial dilution 38.9%
Ca	J	SDG group MDHE52	serial dilution 20.5%
Cu	J	SDG group MDHE52	serial dilution 18.9%

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

```
PROJECT NO. 94-0358   SAMPLE NO. 84977  SAMPLE TYPE: SOIL        PROG ELEM: SSF   COLLECTED BY: A SPAUGH
SOURCE: STOLLER/PELHAM PHOSP                                     CITY: PELHAM                ST: GA
STATION ID: SS-01                                                COLLECTION START: 03/21/94  1300   STOP: 00/00/00
CASE.NO.: 21776          SAS NO.:                                D. NO.: HE33               MD NO: HE33
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RESULTS	UNITS	PARAMETER
0.52U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00
D. NO.: HE34 MD NO: HE34

RESULTS	UNITS	PARAMETER
0.57U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00
D. NO.: HE35 MD NO: HE35

RESULTS	UNITS	PARAMETER
0.96U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO..94-0358 SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04
CASE.NO.: 21776 SAS NO :

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00
D. NO.: HE36 MD NO: HE36

RESULTS	UNITS	PARAMETER
0.93U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-05
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00
D. NO.: HE37 MD NO: HE37

RESULTS	UNITS	PARAMETER
0.740	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00
D. NO : HE38 MD NO: HE38

RESULTS	UNITS	PARAMETER
0.63U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO.: 94-0358 SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00
D. NO.: HE39 MD NO: HE39

RESULTS	UNITS	PARAMETER
0.70U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00
D. NO.: HF40 MD NO: HF40

RESULTS	UNITS	PARAMETER
0.670	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00
D. NO.: HF41 MD NO: HF41

RESULTS	UNITS	PARAMETER
0.71U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

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**  PROJECT NO. 94-0358   SAMPLE NO. 84991  SAMPLE TYPE: SOIL      PROG ELEM: SSF   COLLECTED BY: A SPAUGH   **
**  SOURCE: STOLLER/PELHAM PHOSP                                   CITY: PELHAM              ST: GA          **
**  STATION ID: SS-15                                              COLLECTION START: 03/22/94  1115   STOP: 00/00/00  **
**  CASE NO.: 21776          SAS NO.:                              D. NO.: HE47              MD NO: HE47     **
**                                                                                                          **
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RESULTS	UNITS	PARAMETER
0.67U	MG/KG	CYANIDE

FOOTNOTES

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO.: 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00
D. NO.: HE48 MD NO: HE48

RESULTS	UNITS	PARAMETER
0.61U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84988 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-12
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1030 STOP: 00/00/00
D. NO.: HE44 MD NO: HE44

RESULTS	UNITS	PARAMETER
0.610U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84987 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-11
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1015 STOP: 00/00/00
D. NO.: HE43 MD NO: HE43

RESULTS	UNITS	PARAMETER
0.650U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84989 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-13
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1045 STOP: 00/00/00
D. NO.: HE45 MD NO: HE45

RESULTS	UNITS	PARAMETER
0.62U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID. SS-10
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00
D. NO.: HE42 MD NO: HE42

RESULTS	UNITS	PARAMETER
0.710	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84990 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-14
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1100 STOP: 00/00/00
D. NO.: HE46 MD NO: HE46

RESULTS	UNITS	PARAMLIEP
0.63U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00
D. NO.: HE50 MD NO: HE50

RESULTS	UNITS	PARAMETER
.580U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84996 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-20
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1230 STOP: 00/00/00
D. NO.: HE52 MD NO: HE52

RESULTS	UNITS	PARAMETER
0.61U	MG/KG	CYANIDE

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-05
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00
D. NUMBER: HE37

UG/KG	ANALYTICAL RESULTS
2.6U	ALPHA-BHC
2.6U	BETA-BHC
2.6U	DELTA-BHC
2.6U	GAMMA-BHC (LINDANE)
2.6U	HEPTACHLOR
2.6U	ALDRIN
2.6U	HEPTACHLOR EPOXIDE
2.6U	ENDOSULFAN I (ALPHA)
5.1U	DIELDRIN
5.1U	4,4'-DDE (P,P'-DDE)
5.1U	ENDRIN
5.1U	ENDOSULFAN II (BETA)
5.1U	4,4'-DDD (P,P'-DDD)
5.1U	ENDOSULFAN SULFATE
5.1U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
26U	METHOXYCHLOR
5.1U	ENDRIN KETONE
5.1U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.7	GAMMA-CHLORDANE /2
6.4	ALPHA-CHLORDANE /2
260U	TOXAPHENE
51U	PCB-1016 (AROCLOR 1016)
100U	PCB-1221 (AROCLOR 1221)
51U	PCB-1232 (AROCLOR 1232)
51U	PCB-1242 (AROCLOR 1242)
51U	PCB-1248 (AROCLOR 1248)
51U	PCB-1254 (AROCLOR 1254)
51U	PCB-1260 (AROCLOR 1260)
36	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
*C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PESTICIDES/PCB'S DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00
D. NUMBER: HE39

UG/KG	ANALYTICAL RESULTS
2.3U	ALPHA-BHC
2.3U	BETA-BHC
2.3U	DELTA-BHC
2.3U	GAMMA-BHC (LINDANE)
2.3U	HEPTACHLOR
2.3U	ALDRIN
2.3U	HEPTACHLOR EPOXIDE
2.3U	ENDOSULFAN I (ALPHA)
4.4U	DIELDRIN
4.4U	4,4'-DDE (P,P'-DDE)
11	ENDRIN
4.4U	ENDOSULFAN II (BETA)
4.4U	4,4'-DDD (P,P'-DDD)
4.4U	ENDOSULFAN SULFATE
4.4U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
23U	METHOXYCHLOR
4.4U	ENDRIN KETONE
4.4U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.3U	GAMMA-CHLORDANE /2
2.3U	ALPHA-CHLORDANE /2
230U	TOXAPHENE
44U	PCB-1016 (AROCLOR 1016)
89U	PCB-1221 (AROCLOR 1221)
44U	PCB-1232 (AROCLOR 1232)
44U	PCB-1242 (AROCLOR 1242)
44U	PCB-1248 (AROCLOR 1248)
44U	PCB-1254 (AROCLOR 1254)
44U	PCB-1260 (AROCLOR 1260)
26	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
*C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

Eric Lombard

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services Division
College Station Road, Athens, Ga. 30613

S2014.

*****MEMORANDUM******

DATE: 05/14/94 ~~Pelham Phos~~

SUBJECT: Results of Pesticide/PCB Analysis;
94-0358 STOLLER/PELHAM PHOSP
PELHAM GA
CASE NO: 21776

FROM: for Charles H. Hooper
Chief, Laboratory Evaluation/Quality Assurance Section

TO: JOE SLYKERMAN

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

Friday
7/15

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84995 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-19
CASE.NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1215 STOP: 00/00/00
D. NO.: HE51 MD NO: HE51

RESULTS	UNITS	PARAMETER
0.580	MG/KG	CYANIDE

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84993 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-17
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1145 STOP: 00/00/00
D. NO.: HE49 MD NO: HE49

RESULTS	UNITS	PARAMETER
0.66U	MG/KG	CYANIDE

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

06/07/94

SPECIFIED ANALYSIS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84997 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-21
CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1245 STOP: 00/00/00
D. NO.: HE53 MD NO: HE53

RESULTS*	UNITS	PARAMETER
0.60U	MG/KG	CYANIDE

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00
D. NUMBER: HE41

UG/KG	ANALYTICAL RESULTS
2.3U	ALPHA-BHC
2.3U	BETA-BHC
2.3U	DELTA-BHC
2.3U	GAMMA-BHC (LINDANE)
2.3U	HEPTACHLOR
2.3U	ALDRIN
2.3U	HEPTACHLOR EPOXIDE
2.3U	ENDOSULFAN I (ALPHA)
4.5U	DIELDRIN
8.8	4,4'-DDE (P,P'-DDE)
4.5U	ENDRIN
4.5U	ENDOSULFAN II (BETA)
19	4,4'-DDD (P,P'-DDD)
4.5U	ENDOSULFAN SULFATE
4.5U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
23U	METHOXYCHLOR
4.5U	ENDRIN KETONE
4.5U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
3.1N	GAMMA-CHLORDANE /2
3.6N	ALPHA-CHLORDANE /2
230U	TOXAPHENE
45U	PCB-1016 (AROCLOR 1016)
91U	PCB-1221 (AROCLOR 1221)
45U	PCB-1232 (AROCLOR 1232)
45U	PCB-1242 (AROCLOR 1242)
45U	PCB-1248 (AROCLOR 1248)
45U	PCB-1254 (AROCLOR 1254)
45U	PCB-1260 (AROCLOR 1260)
27	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 , SAMPLE NO. 84977 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-01
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1300 STOP: 00/00/00
D. NUMBER: HE33

UG/KG	ANALYTICAL RESULTS
1.7U	ALPHA-BHC
1.7U	BETA-BHC
1.7U	DELTA-BHC
1.7U	GAMMA-BHC (LINDANE)
1.7U	HEPTACHLOR
1.7U	ALDRIN
1.7U	HEPTACHLOR EPOXIDE
1.7U	ENDOSULFAN I (ALPHA)
3.4U	DIELDRIN
3.4U	4,4'-DDE (P,P'-DDE)
3.4U	ENDRIN
3.4U	ENDOSULFAN II (BETA)
3.4U	4,4'-DDD (P,P'-DDD)
3.4U	ENDOSULFAN SULFATE
3.4U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
17U	METHOXYCHLOR
3.4U	ENDRIN KETONE
3.4U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
1.7U	GAMMA-CHLORDANE /2
1.7U	ALPHA-CHLORDANE /2
170U	TOXAPHENE
34U	PCB-1016 (AROCLOR 1016)
68U	PCB-1221 (AROCLOR 1221)
34U	PCB-1232 (AROCLOR 1232)
34U	PCB-1242 (AROCLOR 1242)
34U	PCB-1248 (AROCLOR 1248)
34U	PCB-1254 (AROCLOR 1254)
34U	PCB-1260 (AROCLOR 1260)
3	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00
D. NUMBER: HE34

UG/KG	ANALYTICAL RESULTS
1.9U	ALPHA-BHC
1.9U	BETA-BHC
1.9U	DELTA-BHC
1.9U	GAMMA-BHC (LINDANE)
1.9U	HEPTACHLOR
1.9U	ALDRIN
1.9U	HEPTACHLOR EPOXIDE
1.9U	ENDOSULFAN I (ALPHA)
3.7U	DIELDRIN
3.7U	4,4'-DDE (P,P'-DDE)
3.7U	ENDRIN
3.7U	ENDOSULFAN II (BETA)
3.7U	4,4'-DDD (P,P'-DDD)
3.7U	ENDOSULFAN SULFATE
3.7U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
19U	METHOXYCHLOR
3.7U	ENDRIN KETONE
3.7U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
1.9U	GAMMA-CHLORDANE /2
1.9U	ALPHA-CHLORDANE /2
190U	TOXAPHENE
37U	PCB-1016 (AROCLOR 1016)
75U	PCB-1221 (AROCLOR 1221)
37U	PCB-1232 (AROCLOR 1232)
37U	PCB-1242 (AROCLOR 1242)
37U	PCB-1248 (AROCLOR 1248)
37U	PCB-1254 (AROCLOR 1254)
37U	PCB-1260 (AROCLOR 1260)
11	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00
D. NUMBER: HE38

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.1U	DIELDRIN
4.1U	4,4'-DDE (P,P'-DDE)
4.1U	ENDRIN
4.1U	ENDOSULFAN II (BETA)
4.1U	4,4'-DDD (P,P'-DDD)
4.1U	ENDOSULFAN SULFATE
4.1U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.1U	ENDRIN KETONE
4.1U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
41U	PCB-1016 (AROCLOR 1016)
84U	PCB-1221 (AROCLOR 1221)
41U	PCB-1232 (AROCLOR 1232)
41U	PCB-1242 (AROCLOR 1242)
41U	PCB-1248 (AROCLOR 1248)
41U	PCB-1254 (AROCLOR 1254)
41U	PCB-1260 (AROCLOR 1260)
21	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PESTICIDES/PCB'S DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00
D. NUMBER: HE40

UG/KG	ANALYTICAL RESULTS
2.3U	ALPHA-BHC
2.3U	BETA-BHC
2.3U	DELTA-BHC
2.3U	GAMMA-BHC (LINDANE)
2.3U	HEPTACHLOR
2.3U	ALDRIN
2.3U	HEPTACHLOR EPOXIDE
2.3U	ENDOSULFAN I (ALPHA)
4.4U	DIELDRIN
4.4U	4,4'-DDE (P,P'-DDE)
4.4U	ENDRIN
4.4U	ENDOSULFAN II (BETA)
4.4U	4,4'-DDD (P,P'-DDD)
4.4U	ENDOSULFAN SULFATE
4.4U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
23U	METHOXYCHLOR
4.4U	ENDRIN KETONE
4.4U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.3U	GAMMA-CHLORDANE /2
2.3U	ALPHA-CHLORDANE /2
230U	TOXAPHENE
44U	PCB-1016 (AROCLOR 1016)
89U	PCB-1221 (AROCLOR 1221)
44U	PCB-1232 (AROCLOR 1232)
44U	PCB-1242 (AROCLOR 1242)
44U	PCB-1248 (AROCLOR 1248)
44U	PCB-1254 (AROCLOR 1254)
44U	PCB-1260 (AROCLOR 1260)
26	PERCENT MOISTURE

REMARKS

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ORGANIC DATA QUALIFIER REPORT

Case Number 21776 Project Number 94-0358 SAS Number
Site ID. Stoller/Pelham Phosp, Pelham, GA

Affected Sample	Compound or Fraction	Flag Used	Reason
Volatiles			
84981	carbon disulfide	J	<quantitation limit
84989	tetrachloroethene	J	<quantitation limit
84993	carbon disulfide	J	<quantitation limit
84995	1,1,1-trichloroethane	J	<quantitation limit
Extractables			
all soil samples	phenol	R	unacceptable spike recovery
	acenaphthene	R	unacceptable spike recovery
	2,4-dimethylphenol	J	low blind spike recovery
84978	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84979	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84980	fluoranthene	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	pyrene	J	<quantitation limit
84981	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b.k)fluoranthene	J	<quantitation limit
	benzo(g,h,i)perylene	J	<quantitation limit
84983	pentachlorophenol	J	<quantitation limit
	fluoranthene	J	<quantitation limit
84984	4-methylphenol	J	<quantitation limit
	pentachlorophenol	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
	chrysene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84985	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84985,84986	benzo(b/k)fluoranthene	J	<quantitation limit
Pesticides			
84985	alpha-chlordane	N	difference between columns
	gamma-chlordane	N	difference between columns
84986	4,4'-DDT	N	difference between columns

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358, SAMPLE NO. 84987 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-11
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1015 STOP: 00/00/00
D. NUMBER: HE43

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.1U	DIELDRIN
4.1U	4,4'-DDE (P,P'-DDE)
4.1U	ENDRIN
4.1U	ENDOSULFAN II (BETA)
4.1U	4,4'-DDD (P,P'-DDD)
4.1U	ENDOSULFAN SULFATE
4.1U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.1U	ENDRIN KETONE
4.1U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
41U	PCB-1016 (AROCLOR 1016)
82U	PCB-1221 (AROCLOR 1221)
41U	PCB-1232 (AROCLOR 1232)
41U	PCB-1242 (AROCLOR 1242)
41U	PCB-1248 (AROCLOR 1248)
41U	PCB-1254 (AROCLOR 1254)
41U	PCB-1260 (AROCLOR 1260)
20	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-10
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00
D. NUMBER: HE42

UG/KG	ANALYTICAL RESULTS
2.2U	ALPHA-BHC
2.2U	BETA-BHC
2.2U	DELTA-BHC
2.2U	GAMMA-BHC (LINDANE)
2.2U	HEPTACHLOR
2.2U	ALDRIN
2.2U	HEPTACHLOR EPOXIDE
2.2U	ENDOSULFAN I (ALPHA)
4.3U	DIELDRIN
4.3U	4,4'-DDE (P,P'-DDE)
4.3U	ENDRIN
4.3U	ENDOSULFAN II (BETA)
4.3U	4,4'-DDD (P,P'-DDD)
4.3U	ENDOSULFAN SULFATE
6.7N	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
22U	METHOXYCHLOR
4.3U	ENDRIN KETONE
4.3U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.2U	GAMMA-CHLORDANE /2
2.2U	ALPHA-CHLORDANE /2
220U	TOXAPHENE
43U	PCB-1016 (AROCLOR 1016)
88U	PCB-1221 (AROCLOR 1221)
43U	PCB-1232 (AROCLOR 1232)
43U	PCB-1242 (AROCLOR 1242)
43U	PCB-1248 (AROCLOR 1248)
43U	PCB-1254 (AROCLOR 1254)
43U	PCB-1260 (AROCLOR 1260)
25	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
*C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358, SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00
D. NUMBER: HE36

UG/KG	ANALYTICAL RESULTS
3.4U	ALPHA-BHC
3.4U	BETA-BHC
3.4U	DELTA-BHC
3.4U	GAMMA-BHC (LINDANE)
3.4U	HEPTACHLOR
3.4U	ALDRIN
3.4U	HEPTACHLOR EPOXIDE
3.4U	ENDOSULFAN I (ALPHA)
6.5U	DIELDRIN
6.5U	4,4'-DDE (P,P'-DDE)
6.5U	ENDRIN
6.5U	ENDOSULFAN II (BETA)
6.5U	4,4'-DDD (P,P'-DDD)
6.5U	ENDOSULFAN SULFATE
6.5U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
34U	METHOXYCHLOR
6.5U	ENDRIN KETONE
6.5U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
3.4U	GAMMA-CHLORDANE /2
3.4U	ALPHA-CHLORDANE /2
340U	TOXAPHENE
65U	PCB-1016 (AROCLOR 1016)
130U	PCB-1221 (AROCLOR 1221)
65U	PCB-1232 (AROCLOR 1232)
65U	PCB-1242 (AROCLOR 1242)
65U	PCB-1248 (AROCLOR 1248)
65U	PCB-1254 (AROCLOR 1254)
65U	PCB-1260 (AROCLOR 1260)
50	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358, SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00
D. NUMBER: HE35

UG/KG	ANALYTICAL RESULTS
3.2U	ALPHA-BHC
3.2U	BETA-BHC
3.2U	DELTA-BHC
3.2U	GAMMA-BHC (LINDANE)
3.2U	HEPTACHLOR
3.2U	ALDRIN
3.2U	HEPTACHLOR EPOXIDE
3.2U	ENDOSULFAN I (ALPHA)
6.2U	DIELDRIN
6.2U	4,4'-DDE (P,P'-DDE)
6.2U	ENDRIN
6.2U	ENDOSULFAN II (BETA)
6.2U	4,4'-DDD (P,P'-DDD)
6.2U	ENDOSULFAN SULFATE
6.2U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
32U	METHOXYCHLOR
6.2U	ENDRIN KETONE
6.2U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
3.2U	GAMMA-CHLORDANE /2
3.2U	ALPHA-CHLORDANE /2
320U	TOXAPHENE
62U	PCB-1016 (AROCLOR 1016)
130U	PCB-1221 (AROCLOR 1221)
62U	PCB-1232 (AROCLOR 1232)
62U	PCB-1242 (AROCLOR 1242)
62U	PCB-1248 (AROCLOR 1248)
62U	PCB-1254 (AROCLOR 1254)
62U	PCB-1260 (AROCLOR 1260)
47	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PESTICIDES/PCB'S DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84988 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-12
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1030 STOP: 00/00/00
D. NUMBER: HE44

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.1U	DIELDRIN
4.1U	4,4'-DDE (P,P'-DDE)
4.1U	ENDRIN
4.1U	ENDOSULFAN II (BETA)
4.1U	4,4'-DDD (P,P'-DDD)
4.1U	ENDOSULFAN SULFATE
4.1U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.1U	ENDRIN KETONE
4.1U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
41U	PCB-1016 (AROCLOR 1016)
83U	PCB-1221 (AROCLOR 1221)
41U	PCB-1232 (AROCLOR 1232)
41U	PCB-1242 (AROCLOR 1242)
41U	PCB-1248 (AROCLOR 1248)
41U	PCB-1254 (AROCLOR 1254)
41U	PCB-1260 (AROCLOR 1260)
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84989 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-13
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1045 STOP: 00/00/00
D. NUMBER: HE45

UG/KG	ANALYTICAL RESULTS
2.0U	ALPHA-BHC
2.0U	BETA-BHC
2.0U	DELTA-BHC
2.0U	GAMMA-BHC (LINDANE)
2.0U	HEPTACHLOR
2.0U	ALDRIN
2.0U	HEPTACHLOR EPOXIDE
2.0U	ENDOSULFAN I (ALPHA)
4.0U	DIELDRIN
4.0U	4,4'-DDE (P,P'-DDE)
4.0U	ENDRIN
4.0U	ENDOSULFAN II (BETA)
4.0U	4,4'-DDD (P,P'-DDD)
4.0U	ENDOSULFAN SULFATE
4.0U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
20U	METHOXYCHLOR
4.0U	ENDRIN KETONE
4.0U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.0U	GAMMA-CHLORDANE /2
2.0U	ALPHA-CHLORDANE /2
200U	TOXAPHENE
40U	PCB-1016 (AROCLOR 1016)
80U	PCB-1221 (AROCLOR 1221)
40U	PCB-1232 (AROCLOR 1232)
40U	PCB-1242 (AROCLOR 1242)
40U	PCB-1248 (AROCLOR 1248)
40U	PCB-1254 (AROCLOR 1254)
40U	PCB-1260 (AROCLOR 1260)
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84991 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-15
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1115 STOP: 00/00/00
D. NUMBER: HE47

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.1U	DIELDRIN
4.1U	4,4'-DDE (P,P'-DDE)
4.1U	ENDRIN
4.1U	ENDOSULFAN II (BETA)
4.1U	4,4'-DDD (P,P'-DDD)
4.1U	ENDOSULFAN SULFATE
4.1U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.1U	ENDRIN KETONE
4.1U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
41U	PCB-1016 (AROCLOR 1016)
83U	PCB-1221 (AROCLOR 1221)
41U	PCB-1232 (AROCLOR 1232)
41U	PCB-1242 (AROCLOR 1242)
41U	PCB-1248 (AROCLOR 1248)
41U	PCB-1254 (AROCLOR 1254)
41U	PCB-1260 (AROCLOR 1260)
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84995 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-19
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1215 STOP: 00/00/00
D. NUMBER: HE51

UG/KG	ANALYTICAL RESULTS
2.0U	ALPHA-BHC
2.0U	BETA-BHC
2.0U	DELTA-BHC
2.0U	GAMMA-BHC (LINDANE)
2.0U	HEPTACHLOR
2.0U	ALDRIN
2.0U	HEPTACHLOR EPOXIDE
2.0U	ENDOSULFAN I (ALPHA)
4.0U	DIELDRIN
4.0U	4,4'-DDE (P,P'-DDE)
4.0U	ENDRIN
4.0U	ENDOSULFAN II (BETA)
4.0U	4,4'-DDD (P,P'-DDD)
4.0U	ENDOSULFAN SULFATE
4.0U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
20U	METHOXYCHLOR
4.0U	ENDRIN KETONE
4.0U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.0U	GAMMA-CHLORDANE /2
2.0U	ALPHA-CHLORDANE /2
200U	TOXAPHENE
40U	PCB-1016 (AROCLOR 1016)
81U	PCB-1221 (AROCLOR 1221)
40U	PCB-1232 (AROCLOR 1232)
40U	PCB-1242 (AROCLOR 1242)
40U	PCB-1248 (AROCLOR 1248)
40U	PCB-1254 (AROCLOR 1254)
40U	PCB-1260 (AROCLOR 1260)
18	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00
D. NUMBER: HE48

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.0U	DIELDRIN
4.0U	4,4'-DDE (P,P'-DDE)
4.0U	ENDRIN
4.0U	ENDOSULFAN II (BETA)
4.0U	4,4'-DDD (P,P'-DDD)
4.0U	ENDOSULFAN SULFATE
4.0U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.0U	ENDRIN KETONE
4.0U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
40U	PCB-1016 (AROCLOR 1016)
82U	PCB-1221 (AROCLOR 1221)
40U	PCB-1232 (AROCLOR 1232)
40U	PCB-1242 (AROCLOR 1242)
40U	PCB-1248 (AROCLOR 1248)
40U	PCB-1254 (AROCLOR 1254)
40U	PCB-1260 (AROCLOR 1260)
18	PERCENT MOISTURE

REMARKS

REMARKS

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84990 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-14
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1100 STOP: 00/00/00
D. NUMBER: HE46

UG/KG	ANALYTICAL RESULTS
2.2U	ALPHA-BHC
2.2U	BETA-BHC
2.2U	DELTA-BHC
2.2U	GAMMA-BHC (LINDANE)
2.2U	HEPTACHLOR
2.2U	ALDRIN
2.2U	HEPTACHLOR EPOXIDE
2.2U	ENDOSULFAN I (ALPHA)
4.3U	DIELDRIN
4.3U	4,4'-DDE (P,P'-DDE)
4.3U	ENDRIN
4.3U	ENDOSULFAN II (BETA)
4.3U	4,4'-DDD (P,P'-DDD)
4.3U	ENDOSULFAN SULFATE
4.3U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
22U	METHOXYCHLOR
4.3U	ENDRIN KETONE
4.3U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.2U	GAMMA-CHLORDANE /2
2.2U	ALPHA-CHLORDANE /2
220U	TOXAPHENE
43U	PCB-1016 (AROCLOR 1016)
86U	PCB-1221 (AROCLOR 1221)
43U	PCB-1232 (AROCLOR 1232)
43U	PCB-1242 (AROCLOR 1242)
43U	PCB-1248 (AROCLOR 1248)
43U	PCB-1254 (AROCLOR 1254)
43U	PCB-1260 (AROCLOR 1260)
23	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358) SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00
D. NUMBER: HE50

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.2U	DIELDRIN
4.2U	4,4'-DDE (P,P'-DDE)
4.2U	ENDRIN
4.2U	ENDOSULFAN II (BETA)
4.2U	4,4'-DDD (P,P'-DDD)
4.2U	ENDOSULFAN SULFATE
4.2U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.2U	ENDRIN KETONE
4.2U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
42U	PCB-1016 (AROCLOR 1016)
85U	PCB-1221 (AROCLOR 1221)
42U	PCB-1232 (AROCLOR 1232)
42U	PCB-1242 (AROCLOR 1242)
42U	PCB-1248 (AROCLOR 1248)
42U	PCB-1254 (AROCLOR 1254)
42U	PCB-1260 (AROCLOR 1260)
22	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
*C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED. SEE CHLORDANE CONSTITUENTS.
2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84993 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-17
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1145 STOP: 00/00/00
D. NUMBER: HE49

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.0U	DIELDRIN
4.0U	4,4'-DDE (P,P'-DDE)
4.0U	ENDRIN
4.0U	ENDOSULFAN II (BETA)
4.0U	4,4'-DDD (P,P'-DDD)
4.0U	ENDOSULFAN SULFATE
4.0U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.0U	ENDRIN KETONE
4.0U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
40U	PCB-1016 (AROCLOR 1016)
82U	PCB-1221 (AROCLOR 1221)
40U	PCB-1232 (AROCLOR 1232)
40U	PCB-1242 (AROCLOR 1242)
40U	PCB-1248 (AROCLOR 1248)
40U	PCB-1254 (AROCLOR 1254)
40U	PCB-1260 (AROCLOR 1260)
19	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84996 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-20
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1230 STOP: 00/00/00
D. NUMBER: HE52

UG/KG	ANALYTICAL RESULTS
2.0U	ALPHA-BHC
2.0U	BETA-BHC
2.0U	DELTA-BHC
2.0U	GAMMA-BHC (LINDANE)
2.0U	HEPTACHLOR
2.0U	ALDRIN
2.0U	HEPTACHLOR EPOXIDE
2.0U	ENDOSULFAN I (ALPHA)
3.8U	DIELDRIN
3.8U	4,4'-DDE (P,P'-DDE)
3.8U	ENDRIN
3.8U	ENDOSULFAN II (BETA)
3.8U	4,4'-DDD (P,P'-DDD)
3.8U	ENDOSULFAN SULFATE
3.8U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
20U	METHOXYCHLOR
3.8U	ENDRIN KETONE
3.8U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.0U	GAMMA-CHLORDANE /2
2.0U	ALPHA-CHLORDANE /2
200U	TOXAPHENE
38U	PCB-1016 (AROCLOR 1016)
78U	PCB-1221 (AROCLOR 1221)
38U	PCB-1232 (AROCLOR 1232)
38U	PCB-1242 (AROCLOR 1242)
38U	PCB-1248 (AROCLOR 1248)
38U	PCB-1254 (AROCLOR 1254)
38U	PCB-1260 (AROCLOR 1260)
15	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD. ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84997 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-21
CASE NUMBER: 21776 SAS NUMBER:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1245 STOP: 00/00/00
D. NUMBER: HE53

UG/KG	ANALYTICAL RESULTS
2.1U	ALPHA-BHC
2.1U	BETA-BHC
2.1U	DELTA-BHC
2.1U	GAMMA-BHC (LINDANE)
2.1U	HEPTACHLOR
2.1U	ALDRIN
2.1U	HEPTACHLOR EPOXIDE
2.1U	ENDOSULFAN I (ALPHA)
4.0U	DIELDRIN
4.0U	4,4'-DDE (P,P'-DDE)
4.0U	ENDRIN
4.0U	ENDOSULFAN II (BETA)
4.0U	4,4'-DDD (P,P'-DDD)
4.0U	ENDOSULFAN SULFATE
4.0U	4,4'-DDT (P,P'-DDT)

UG/KG	ANALYTICAL RESULTS
21U	METHOXYCHLOR
4.0U	ENDRIN KETONE
4.0U	ENDRIN ALDEHYDE
--	CHLORDANE (TECH. MIXTURE) /1
2.1U	GAMMA-CHLORDANE /2
2.1U	ALPHA-CHLORDANE /2
210U	TOXAPHENE
40U	PCB-1016 (AROCLOR 1016)
81U	PCB-1221 (AROCLOR 1221)
40U	PCB-1232 (AROCLOR 1232)
40U	PCB-1242 (AROCLOR 1242)
40U	PCB-1248 (AROCLOR 1248)
40U	PCB-1254 (AROCLOR 1254)
40U	PCB-1260 (AROCLOR 1260)
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84980 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-04

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1420 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE36

UG/KG	ANALYTICAL RESULTS
17U	CHLOROMETHANE
17U	BROMOMETHANE
17U	VINYL CHLORIDE
17U	CHLOROETHANE
17U	METHYLENE CHLORIDE
140U	ACETONE
17U	CARBON DISULFIDE
17U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
17U	1,1-DICHLOROETHANE
17U	1,2-DICHLOROETHENE (TOTAL)
17U	CHLOROFORM
17U	1,2-DICHLOROETHANE
40U	METHYL ETHYL KETONE
17U	1,1,1-TRICHLOROETHANE
17U	CARBON TETRACHLORIDE
17U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
17U	1,2-DICHLOROPROPANE
17U	CIS-1,3-DICHLOROPROPENE
17U	TRICHLOROETHENE(TRICHLOROETHYLENE)
17U	DIBROMOCHLOROMETHANE
17U	1,1,2-TRICHLOROETHANE
17U	BENZENE
17U	TRANS-1,3-DICHLOROPROPENE
17U	BROMOFORM
17U	METHYL ISOBUTYL KETONE
17U	METHYL BUTYL KETONE
17U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
17U	1,1,2,2-TETRACHLOROETHANE
17U	TOLUENE
17U	CHLOROBENZENE
17U	ETHYL BENZENE
17U	STYRENE
17U	TOTAL XYLENES
40	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PURGEABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358 SAMPLE NO. 84981 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-05

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1445 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE37

UG/KG	ANALYTICAL RESULTS
17U	CHLOROMETHANE
17U	BROMOMETHANE
17U	VINYL CHLORIDE
17U	CHLOROETHANE
17U	METHYLENE CHLORIDE
150U	ACETONE
12J	CARBON DISULFIDE
17U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
17U	1,1-DICHLOROETHANE
17U	1,2-DICHLOROETHENE (TOTAL)
17U	CHLOROFORM
17U	1,2-DICHLOROETHANE
36	METHYL ETHYL KETONE
17U	1,1,1-TRICHLOROETHANE
17U	CARBON TETRACHLORIDE
17U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
17U	1,2-DICHLOROPROPANE
17U	CIS-1,3-DICHLOROPROPENE
17U	TRICHLOROETHENE(TRICHLOROETHYLENE)
17U	DIBROMOCHLOROMETHANE
17U	1,1,2-TRICHLOROETHANE
17U	BENZENE
17U	TRANS-1,3-DICHLOROPROPENE
17U	BROMOFORM
17U	METHYL ISOBUTYL KETONE
17U	METHYL BUTYL KETONE
17U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
17U	1,1,2,2-TETRACHLOROETHANE
17U	TOLUENE
17U	CHLOROBENZENE
17U	ETHYL BENZENE
17U	STYRENE
17U	TOTAL XYLENES
40	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358, SAMPLE NO. 84977 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-01

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1300 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE33

UG/KG	ANALYTICAL RESULTS
10U	CHLOROMETHANE
10U	BROMOMETHANE
10U	VINYL CHLORIDE
10U	CHLOROETHANE
10U	METHYLENE CHLORIDE
10U	ACETONE
10U	CARBON DISULFIDE
10U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
10U	1,1-DICHLOROETHANE
10U	1,2-DICHLOROETHENE (TOTAL)
10U	CHLOROFORM
10U	1,2-DICHLOROETHANE
10U	METHYL ETHYL KETONE
10U	1,1,1-TRICHLOROETHANE
10U	CARBON TETRACHLORIDE
10U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
10U	1,2-DICHLOROPROPANE
10U	CIS-1,3-DICHLOROPROPENE
10U	TRICHLOROETHENE(TRICHLOROETHYLENE)
10U	DIBROMOCHLOROMETHANE
10U	1,1,2-TRICHLOROETHANE
10U	BENZENE
10U	TRANS-1,3-DICHLOROPROPENE
10U	BROMOFORM
10U	METHYL ISOBUTYL KETONE
10U	METHYL BUTYL KETONE
10U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
10U	1,1,2,2-TETRACHLOROETHANE
10U	TOLUENE
10U	CHLOROBENZENE
10U	ETHYL BENZENE
10U	STYRENE
10U	TOTAL XYLENES
4	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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ORGANIC DATA QUALIFIER REPORT

Case Number 21776 Project Number 94-0358 SAS Number
Site ID. Stoller/Pelham Phosp, Pelham, GA

Affected Sample	Compound or Fraction	Flag Used	Reason
Volatiles			
84981	carbon disulfide	J	<quantitation limit
84989	tetrachloroethene	J	<quantitation limit
84993	carbon disulfide	J	<quantitation limit
84995	1,1,1-trichloroethane	J	<quantitation limit
Extractables			
all soil samples	phenol	R	unacceptable spike recovery
	acenaphthene	R	unacceptable spike recovery
	2,4-dimethylphenol	J	low blind spike recovery
84978	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84979	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84980	fluoranthene	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	pyrene	J	<quantitation limit
84981	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	benzo(b.k)fluoranthene	J	<quantitation limit
	benzo(g,h,i)perylene	J	<quantitation limit
84983	pentachlorophenol	J	<quantitation limit
	fluoranthene	J	<quantitation limit
84984	4-methylphenol	J	<quantitation limit
	pentachlorophenol	J	<quantitation limit
	phenanthrene	J	<quantitation limit
	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
	chrysene	J	<quantitation limit
	benzo(b/k)fluoranthene	J	<quantitation limit
84985	fluoranthene	J	<quantitation limit
	pyrene	J	<quantitation limit
84985,84986	benzo(b/k)fluoranthene	J	<quantitation limit
Pesticides			
84985	alpha-chlordane	N	difference between columns
	gamma-chlordane	N	difference between columns
84986	4,4'-DDT	N	difference between columns

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84989 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-13

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1045 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE45

UG/KG	ANALYTICAL RESULTS
14U	CHLOROMETHANE
14U	BROMOMETHANE
14U	VINYL CHLORIDE
14U	CHLOROETHANE
14U	METHYLENE CHLORIDE
30U	ACETONE
14U	CARBON DISULFIDE
14U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
14U	1,1-DICHLOROETHANE
14U	1,2-DICHLOROETHENE (TOTAL)
14U	CHLOROFORM
14U	1,2-DICHLOROETHANE
14U	METHYL ETHYL KETONE
14U	1,1,1-TRICHLOROETHANE
14U	CARBON TETRACHLORIDE
14U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
14U	1,2-DICHLOROPROPANE
14U	CIS-1,3-DICHLOROPROPENE
14U	TRICHLOROETHENE(TRICHLOROETHYLENE)
14U	DIBROMOCHLOROMETHANE
14U	1,1,2-TRICHLOROETHANE
14U	BENZENE
14U	TRANS-1,3-DICHLOROPROPENE
14U	BROMOFORM
14U	METHYL ISOBUTYL KETONE
14U	METHYL BUTYL KETONE
6J	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
14U	1,1,2,2-TETRACHLOROETHANE
14U	TOLUENE
14U	CHLOROBENZENE
14U	ETHYL BENZENE
14U	STYRENE
14U	TOTAL XYLENES
27	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services Division
College Station Road, Athens, Ga. 30613

*****MEMORANDUM******

DATE: 05/14/94

SUBJECT: Results of Purgeable Organic Analysis;
94-C358 STOLLER/PELHAM PHOSP
PELHAM GA
CASE NO: 21776

FROM: Charles H. Hooper
Chief, Laboratory Evaluation/Quality Assurance Section

TO: JOE SLYKERMAN

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84979 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-03

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1415 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE35

UG/KG	ANALYTICAL RESULTS
14U	CHLOROMETHANE
14U	BROMOMETHANE
14U	VINYL CHLORIDE
14U	CHLOROETHANE
14U	METHYLENE CHLORIDE
110U	ACETONE
3J	CARBON DISULFIDE
14U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
14U	1,1-DICHLOROETHANE
14U	1,2-DICHLOROETHENE (TOTAL)
14U	CHLOROFORM
14U	1,2-DICHLOROETHANE
40U	METHYL ETHYL KETONE
14U	1,1,1-TRICHLOROETHANE
14U	CARBON TETRACHLORIDE
14U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
14U	1,2-DICHLOROPROPANE
14U	CIS-1,3-DICHLOROPROPENE
14U	TRICHLOROETHENE(TRICHLOROETHYLENE)
14U	DIBROMOCHLOROMETHANE
14U	1,1,2-TRICHLOROETHANE
14U	BENZENE
14U	TRANS-1,3-DICHLOROPROPENE
14U	BROMOFORM
14U	METHYL ISOBUTYL KETONE
14U	METHYL BUTYL KETONE
14U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
14U	1,1,2,2-TETRACHLOROETHANE
14U	TOLUENE
14U	CHLOROBENZENE
14U	ETHYL BENZENE
14U	STYRENE
14U	TOTAL XYLENES
30	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84978 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-02

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/21/94 1315 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE34

UG/KG	ANALYTICAL RESULTS
11U	CHLOROMETHANE
11U	BROMOMETHANE
11U	VINYL CHLORIDE
11U	CHLOROETHANE
11U	METHYLENE CHLORIDE
11U	ACETONE
11U	CARBON DISULFIDE
11U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
11U	1,1-DICHLOROETHANE
11U	1,2-DICHLOROETHENE (TOTAL)
11U	CHLOROFORM
11U	1,2-DICHLOROETHANE
11U	METHYL ETHYL KETONE
11U	1,1,1-TRICHLOROETHANE
11U	CARBON TETRACHLORIDE
11U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
11U	1,2-DICHLOROPROPANE
11U	CIS-1,3-DICHLOROPROPENE
11U	TRICHLOROETHENE(TRICHLOROETHYLENE)
11U	DIBROMOCHLOROMETHANE
11U	1,1,2-TRICHLOROETHANE
11U	BENZENE
11U	TRANS-1,3-DICHLOROPROPENE
11U	BROMOFORM
11U	METHYL ISOBUTYL KETONE
11U	METHYL BUTYL KETONE
11U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
11U	1,1,2,2-TETRACHLOROETHANE
11U	TOLUENE
11U	CHLOROBENZENE
11U	ETHYL BENZENE
11U	STYRENE
11U	TOTAL XYLENES
12	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84982 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-06

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0830 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE38

UG/KG	ANALYTICAL RESULTS
13U	CHLOROMETHANE
13U	BROMOMETHANE
13U	VINYL CHLORIDE
13U	CHLOROETHANE
13U	METHYLENE CHLORIDE
13U	ACETONE
13U	CARBON DISULFIDE
13U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
13U	1,1-DICHLOROETHANE
13U	1,2-DICHLOROETHENE (TOTAL)
13U	CHLOROFORM
13U	1,2-DICHLOROETHANE
13U	METHYL ETHYL KETONE
13U	1,1,1-TRICHLOROETHANE
13U	CARBON TETRACHLORIDE
13U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
13U	1,2-DICHLOROPROPANE
13U	CIS-1,3-DICHLOROPROPENE
13U	TRICHLOROETHENE(TRICHLOROETHYLENE)
13U	DIBROMOCHLOROMETHANE
13U	1,1,2-TRICHLOROETHANE
13U	BENZENE
13U	TRANS-1,3-DICHLOROPROPENE
13U	BROMOFORM
13U	METHYL ISOBUTYL KETONE
13U	METHYL BUTYL KETONE
13U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
13U	1,1,2,2-TETRACHLOROETHANE
13U	TOLUENE
13U	CHLOROBENZENE
13U	ETHYL BENZENE
13U	STYRENE
13U	TOTAL XYLENES
24	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84983 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-07

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0845 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE39

UG/KG	ANALYTICAL RESULTS
13U	CHLOROMETHANE
13U	BROMOMETHANE
13U	VINYL CHLORIDE
13U	CHLOROETHANE
13U	METHYLENE CHLORIDE
50U	ACETONE
13U	CARBON DISULFIDE
13U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
13U	1,1-DICHLOROETHANE
13U	1,2-DICHLOROETHENE (TOTAL)
13U	CHLOROFORM
13U	1,2-DICHLOROETHANE
13U	METHYL ETHYL KETONE
13U	1,1,1-TRICHLOROETHANE
13U	CARBON TETRACHLORIDE
13U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
13U	1,2-DICHLOROPROPANE
13U	CIS-1,3-DICHLOROPROPENE
13U	TRICHLOROETHENE(TRICHLOROETHYLENE)
13U	DIBROMOCHLOROMETHANE
13U	1,1,2-TRICHLOROETHANE
13U	BENZENE
13U	TRANS-1,3-DICHLOROPROPENE
13U	BROMOFORM
13U	METHYL ISOBUTYL KETONE
13U	METHYL BUTYL KETONE
13U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
13U	1,1,2,2-TETRACHLOROETHANE
13U	TOLUENE
13U	CHLOROBENZENE
13U	ETHYL BENZENE
13U	STYRENE
13U	TOTAL XYLENES
25	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84984 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-08

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0900 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE40

UG/KG	ANALYTICAL RESULTS
15U	CHLOROMETHANE
15U	BROMOMETHANE
15U	VINYL CHLORIDE
15U	CHLOROETHANE
15U	METHYLENE CHLORIDE
120U	ACETONE
15U	CARBON DISULFIDE
15U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
15U	1,1-DICHLOROETHANE
15U	1,2-DICHLOROETHENE (TOTAL)
15U	CHLOROFORM
15U	1,2-DICHLOROETHANE
15U	METHYL ETHYL KETONE
15U	1,1,1-TRICHLOROETHANE
15U	CARBON TETRACHLORIDE
15U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
15U	1,2-DICHLOROPROPANE
15U	CIS-1,3-DICHLOROPROPENE
15U	TRICHLOROETHENE(TRICHLOROETHYLENE)
15U	DIBROMOCHLOROMETHANE
15U	1,1,2-TRICHLOROETHANE
15U	BENZENE
15U	TRANS-1,3-DICHLOROPROPENE
15U	BROMOFORM
15U	METHYL ISOBUTYL KETONE
15U	METHYL BUTYL KETONE
15U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
15U	1,1,2,2-TETRACHLOROETHANE
15U	TOLUENE
15U	CHLOROBENZENE
15U	ETHYL BENZENE
15U	STYRENE
15U	TOTAL XYLENES
34	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84986 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-10

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0945 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE42

UG/KG	ANALYTICAL RESULTS
14U	CHLOROMETHANE
14U	BROMOMETHANE
14U	VINYL CHLORIDE
14U	CHLOROETHANE
14U	METHYLENE CHLORIDE
70U	ACETONE
14U	CARBON DISULFIDE
14U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
14U	1,1-DICHLOROETHANE
14U	1,2-DICHLOROETHENE (TOTAL)
14U	CHLOROFORM
14U	1,2-DICHLOROETHANE
30U	METHYL ETHYL KETONE
14U	1,1,1-TRICHLOROETHANE
14U	CARBON TETRACHLORIDE
14U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
14U	1,2-DICHLOROPROPANE
14U	CIS-1,3-DICHLOROPROPENE
14U	TRICHLOROETHENE(TRICHLOROETHYLENE)
14U	DIBROMOCHLOROMETHANE
14U	1,1,2-TRICHLOROETHANE
14U	BENZENE
14U	TRANS-1,3-DICHLOROPROPENE
14U	BROMOFORM
14U	METHYL ISOBUTYL KETONE
14U	METHYL BUTYL KETONE
14U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
14U	1,1,2,2-TETRACHLOROETHANE
14U	TOLUENE
14U	CHLOROBENZENE
14U	ETHYL BENZENE
14U	STYRENE
14U	TOTAL XYLENES
31	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84991 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-15

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1115 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE47

UG/KG	ANALYTICAL RESULTS
13U	CHLOROMETHANE
13U	BROMOMETHANE
13U	VINYL CHLORIDE
13U	CHLOROETHANE
13U	METHYLENE CHLORIDE
20U	ACETONE
13U	CARBON DISULFIDE
13U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
13U	1,1-DICHLOROETHANE
13U	1,2-DICHLOROETHENE (TOTAL)
13U	CHLOROFORM
13U	1,2-DICHLOROETHANE
13U	METHYL ETHYL KETONE
13U	1,1,1-TRICHLOROETHANE
13U	CARBON TETRACHLORIDE
13U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
13U	1,2-DICHLOROPROPANE
13U	CIS-1,3-DICHLOROPROPENE
13U	TRICHLOROETHENE(TRICHLOROETHYLENE)
13U	DIBROMOCHLOROMETHANE
13U	1,1,2-TRICHLOROETHANE
13U	BENZENE
13U	TRANS-1,3-DICHLOROPROPENE
13U	BROMOFORM
13U	METHYL ISOBUTYL KETONE
13U	METHYL BUTYL KETONE
13U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
13U	1,1,2,2-TETRACHLOROETHANE
13U	TOLUENE
13U	CHLOROBENZENE
13U	ETHYL BENZENE
13U	STYRENE
13U	TOTAL XYLENES
25	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84985 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-09

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 0930 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE41

UG/KG	ANALYTICAL RESULTS
18U	CHLOROMETHANE
18U	BROMOMETHANE
18U	VINYL CHLORIDE
18U	CHLOROETHANE
18U	METHYLENE CHLORIDE
30U	ACETONE
18U	CARBON DISULFIDE
18U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
18U	1,1-DICHLOROETHANE
18U	1,2-DICHLOROETHENE (TOTAL)
18U	CHLOROFORM
18U	1,2-DICHLOROETHANE
18U	METHYL ETHYL KETONE
18U	1,1,1-TRICHLOROETHANE
18U	CARBON TETRACHLORIDE
18U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
18U	1,2-DICHLOROPROPANE
18U	CIS-1,3-DICHLOROPROPENE
18U	TRICHLOROETHENE(TRICHLOROETHYLENE)
18U	DIBROMOCHLOROMETHANE
18U	1,1,2-TRICHLOROETHANE
18U	BENZENE
18U	TRANS-1,3-DICHLOROPROPENE
18U	BROMOFORM
18U	METHYL ISOBUTYL KETONE
18U	METHYL BUTYL KETONE
18U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
18U	1,1,2,2-TETRACHLOROETHANE
18U	TOLUENE
18U	CHLOROBENZENE
18U	ETHYL BENZENE
18U	STYRENE
18U	TOTAL XYLENES
43	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84987 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-11

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1015 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE43

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
12U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84990 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-14

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1100 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE46

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
12U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84988 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-12

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1030 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE44

UG/KG	ANALYTICAL RESULTS
14U	CHLOROMETHANE
14U	BROMOMETHANE
14U	VINYL CHLORIDE
14U	CHLOROETHANE
14U	METHYLENE CHLORIDE
30U	ACETONE
14U	CARBON DISULFIDE
14U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
14U	1,1-DICHLOROETHANE
14U	1,2-DICHLOROETHENE (TOTAL)
14U	CHLOROFORM
14U	1,2-DICHLOROETHANE
30U	METHYL ETHYL KETONE
14U	1,1,1-TRICHLOROETHANE
14U	CARBON TETRACHLORIDE
14U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
14U	1,2-DICHLOROPROPANE
14U	CIS-1,3-DICHLOROPROPENE
14U	TRICHLOROETHENE(TRICHLOROETHYLENE)
14U	DIBROMOCHLOROMETHANE
14U	1,1,2-TRICHLOROETHANE
14U	BENZENE
14U	TRANS-1,3-DICHLOROPROPENE
14U	BROMOFORM
14U	METHYL ISOBUTYL KETONE
14U	METHYL BUTYL KETONE
14U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
14U	1,1,2,2-TETRACHLOROETHANE
14U	TOLUENE
14U	CHLOROBENZENE
14U	ETHYL BENZENE
14U	STYRENE
14U	TOTAL XYLENES
26	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84992 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-16

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1130 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE48

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
12U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
15	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD. ATHENS. GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 SAMPLE NO. 84993 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-17

CASE NO.: 21776 SAS NO.:

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1145 STOP: 00/00/00

D. NO.: HE49

UG/KG	ANALYTICAL RESULTS
14U	CHLOROMETHANE
14U	BROMOMETHANE
14U	VINYL CHLORIDE
14U	CHLOROETHANE
14U	METHYLENE CHLORIDE
20U	ACETONE
4J	CARBON DISULFIDE
14U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
14U	1,1-DICHLOROETHANE
14U	1,2-DICHLOROETHENE (TOTAL)
14U	CHLOROFORM
14U	1,2-DICHLOROETHANE
20U	METHYL ETHYL KETONE
14U	1,1,1-TRICHLOROETHANE
14U	CARBON TETRACHLORIDE
14U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
14U	1,2-DICHLOROPROPANE
14U	CIS-1,3-DICHLOROPROPENE
14U	TRICHLOROETHENE(TRICHLOROETHYLENE)
14U	DIBROMOCHLOROMETHANE
14U	1,1,2-TRICHLOROETHANE
14U	BENZENE
14U	TRANS-1,3-DICHLOROPROPENE
14U	BROMOFORM
14U	METHYL ISOBUTYL KETONE
14U	METHYL BUTYL KETONE
14U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
14U	1,1,2,2-TETRACHLOROETHANE
14U	TOLUENE
14U	CHLOROBENZENE
14U	ETHYL BENZENE
14U	STYRENE
14U	TOTAL XYLENES
28	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358, SAMPLE NO. 84994 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-18

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1200 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE50

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
12U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
18	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358 , SAMPLE NO. 84996 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-20

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1230 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE52

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
12U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
20	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PURGEABLE ORGANICS DATA REPORT 05/13/94

PROJECT NO. 94-0358, SAMPLE NO. 84997 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-21

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1245 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE53

UG/KG	ANALYTICAL RESULTS
12U	CHLOROMETHANE
12U	BROMOMETHANE
12U	VINYL CHLORIDE
12U	CHLOROETHANE
12U	METHYLENE CHLORIDE
20U	ACETONE
12U	CARBON DISULFIDE
12U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
12U	1,1-DICHLOROETHANE
12U	1,2-DICHLOROETHENE (TOTAL)
12U	CHLOROFORM
12U	1,2-DICHLOROETHANE
12U	METHYL ETHYL KETONE
12U	1,1,1-TRICHLOROETHANE
12U	CARBON TETRACHLORIDE
12U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
12U	1,2-DICHLOROPROPANE
12U	CIS-1,3-DICHLOROPROPENE
12U	TRICHLOROETHENE(TRICHLOROETHYLENE)
12U	DIBROMOCHLOROMETHANE
12U	1,1,2-TRICHLOROETHANE
12U	BENZENE
12U	TRANS-1,3-DICHLOROPROPENE
12U	BROMOFORM
12U	METHYL ISOBUTYL KETONE
12U	METHYL BUTYL KETONE
12U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
12U	1,1,2,2-TETRACHLOROETHANE
12U	TOLUENE
12U	CHLOROBENZENE
12U	ETHYL BENZENE
12U	STYRENE
12U	TOTAL XYLENES
16	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
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*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

05/13/94

PURGEABLE ORGANICS DATA REPORT

PROJECT NO. 94-0358, SAMPLE NO. 84995 SAMPLE TYPE: SOIL
SOURCE: STOLLER/PELHAM PHOSP
STATION ID: SS-19

PROG ELEM: SSF COLLECTED BY: A SPAUGH
CITY: PELHAM ST: GA
COLLECTION START: 03/22/94 1215 STOP: 00/00/00

CASE NO.: 21776 SAS NO.: D. NO.: HE51

UG/KG	ANALYTICAL RESULTS
13U	CHLOROMETHANE
13U	BROMOMETHANE
13U	VINYL CHLORIDE
13U	CHLOROETHANE
13U	METHYLENE CHLORIDE
20U	ACETONE
13U	CARBON DISULFIDE
13U	1,1-DICHLOROETHENE(1,1-DICHLOROETHYLENE)
13U	1,1-DICHLOROETHANE
13U	1,2-DICHLOROETHENE (TOTAL)
13U	CHLOROFORM
13U	1,2-DICHLOROETHANE
13U	METHYL ETHYL KETONE
2J	1,1,1-TRICHLOROETHANE
13U	CARBON TETRACHLORIDE
13U	BROMODICHLOROMETHANE

UG/KG	ANALYTICAL RESULTS
13U	1,2-DICHLOROPROPANE
13U	CIS-1,3-DICHLOROPROPENE
13U	TRICHLOROETHENE(TRICHLOROETHYLENE)
13U	DIBROMOCHLOROMETHANE
13U	1,1,2-TRICHLOROETHANE
13U	BENZENE
13U	TRANS-1,3-DICHLOROPROPENE
13U	BROMOFORM
13U	METHYL ISOBUTYL KETONE
13U	METHYL BUTYL KETONE
13U	TETRACHLOROETHENE(TETRACHLOROETHYLENE)
13U	1,1,2,2-TETRACHLOROETHANE
13U	TOLUENE
13U	CHLOROBENZENE
13U	ETHYL BENZENE
13U	STYRENE
13U	TOTAL XYLENES
24	PERCENT MOISTURE

REMARKS

REMARKS

FOOTNOTES
*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
*U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
*R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.

10067994

Appendix D
Telephone Logs

RECORD OF TELEPHONIC CONVERSATION
HAZARDOUS WASTE MANAGEMENT PROGRAM

DATE: June 28, 2002
TIME: 11:30 PM

FILE: Stoller Chemical / Pelham Phosphate Company

SPOKE WITH: Mr. Teddie Huey
TITLE: Supervisor, Pelham Gas, Water, and Sewer Department
ADDRESS: P.O. Box 268
CITY: Pelham
STATE/ZIP: Georgia/ 31779
TELEPHONE NUMBER: (229) 294-6018

SUBJECT: Public Supply Wells / Private Wells

SUMMARY OF CALL: I phoned Mr. Huey to ask about the construction of the public supply wells that serve the City of Pelham. He said the city uses three (3) municipal wells. The wells are drilled to approximately 700 to 800 feet. The column pipe that holds the casing extends to about 300 feet, and the shaft with the casing of the column pipe extends to the same depth. Water is encountered at a little over 200 feet. The wells are open hole below 300 feet. The wells are drilled into the saturated limestone. Specifically, the Cotton Avenue well was drilled down to about 847 feet in 1972, while the remaining two wells were drilled into the Ocala aquifer in approximately the 1930's at similar depths. I then asked Mr. Huey if he knew where the nearest private wells were located beyond the city limits. He said there is possibly a house ½ to ¾ miles north of the above reference site, west 1-1.5 miles of the site, 2.5 miles south of the site, and 1-1.5 miles east of the site. This was based on the extent of the city's water lines. He said there may be some residents about one mile northwest of the site in the vicinity of First Street with private wells. He then stated that a two-inch water line runs along Mitchell Street, and an eight-inch line ran into the Stoller Chemical / Pelham Phosphate site at one time, but has been disconnected. When asked about Acid Branch Creek, Mr. Huey said the creek is intermittent and usually dries up in the summer. Finally, I asked it he knew anything about a recent fire at the site. He said the smoke stacks from the railroad came through and burned for about eight miles. The Forestry Unit came in with a firebreak machine and extinguished the fire at the site.

ACTION REQUIRED:

Complete Site Reassessment Evaluation.

SIGNATURE: Antonia S. Beaver

FOLLOW-UP RESPONSES/ADDITIONAL COMMENTS: None.

SIGNATURE:

RECORD OF TELEPHONIC CONVERSATION
HAZARDOUS WASTE MANAGEMENT PROGRAM

DATE: October 8, 2002
TIME: 2:45 PM

FILE: Stoller Chemical / Pelham Phosphate Company

SPOKE WITH: Mr. Teddie Huey
TITLE: Supervisor, Pelham Gas, Water, and Sewer Department
ADDRESS: P.O. Box 268
CITY: Pelham
STATE/ZIP: Georgia/ 31779
TELEPHONE NUMBER: (229) 294-6018

SUBJECT: Public Supply Wells

SUMMARY OF CALL: I called Mr. Huey to verify some basic information about the three (3) public supply wells that serve the City of Pelham. When asked how many people are serviced within a four-mile radius of the above referenced site, he stated there are 1650 to 1700 connections. I then asked him if the wells are in a blended system, and he explained the following: the flow from each of the wells goes into a pressure controlled distribution system, then on to a tank that has a capacity of 250,000 gallons. The minimum pressure allowed in the tank is 40 pounds/ square inch which indicates the tank is 75 percent empty, which causes the wells to pump water to the system. When the system reaches 57 pounds/ square inch, the tank is full and the wells cut off. When asked about the pumping rates of the wells, Mr. Huey gave the following information: Well #1, located on Hurst Street pumps approximately 460 gallons/ minute, Well #2 (West Railroad Street) pumps 775 gallons/ minute, and Well #3 (Cotton Avenue) pumps 875 gallons/ minute. Each well contributes equally to the system. Finally, I asked Mr. Huey if the Stoller Chemical / Pelham Phosphate site lies within the wellhead protection area of he wells. He said it does not because the wellhead protection area of the wells has a 15-foot control radius and a 100-foot management zone and the site is outside both of those areas. He also stated that the City of Pelham has a wellhead protection permit with the state's Drinking Water Program.

ACTION REQUIRED:

Complete Site Reassessment Evaluation.

SIGNATURE: Antonio S Beaven

FOLLOW-UP RESPONSES/ADDITIONAL COMMENTS: None.

SIGNATURE:

R:\telephon.form

RECORD OF TELEPHONIC CONVERSATION
HAZARDOUS WASTE MANAGEMENT PROGRAM

DATE: November 8, 2002
TIME: 10:40 AM

FILE: Stoller Chemical/ Pelham Phosphate

SPOKE WITH: Lisa Austin
TITLE: Utility Billing Clerk
ADDRESS: City Hall
CITY: Pelham
STATE/ZIP: Georgia, 31779
TELEPHONE NUMBER: 229-294-7900

SUBJECT: City of Pelham Public Supply Wells

SUMMARY OF CALL: I called Ms. Austin and asked how many of the City of Pelham's connections to the three public supply wells were residential connections. She stated there were currently 1332 residential connections and 215 commercial connections.

ACTION REQUIRED: None

SIGNATURE: Antonia S. Beavers

FOLLOW-UP RESPONSES/ADDITIONAL COMMENTS: None

SIGNATURE:

Appendix E
Population Statistics from the U.S. Census Bureau, 1990

Stoller Chemical
106 Mitchell Street
Pelham, Mitchell County

LAT 31° 08' 27"N / LONG 82° 09' 18"W

	Population		Households		Households Domestic Well		Households Public Water		Population Domestic Well		Population Public Water	
RAD	Ring	Total	Ring	Total	Ring	Total	Ring	Total	Ring	Total	Ring	Total
0.25	67	67	23	23	5	5	18	18	14	14	53	53
0.50	182	249	60	83	13	18	47	65	40	54	142	195
1.00	551	800	174	257	40	58	134	199	129	183	422	617
2.00	1437	2238	456	713	115	174	341	539	366	549	1071	1688
3.00	1597	3835	524	1237	151	325	373	912	464	1014	1133	2821
4.00	1371	5206	484	1721	168	493	316	1228	486	1500	885	3707

Source: Census of Populaton and Housing, 1990: Summary Tape File 3 on CD-ROM Georgia [machine-readable data files] / prepared by the Bureau of the Census. –Washington: The Bureau [producer and distributor], 1992.

Appendix F
GA EPD Site Assessment Analytical Data, 2002

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

July 19, 2002

Paul Cheney
E and E Pensacola Office
220 West Garden St., Suite 404
Pensacola, FL 32501

RE: Pelham Phosphate Site
CostPoint ID: **001226.GD04...**

Work Order No.: **0207002**

Dear Paul Cheney,

Ecology and Environment, Inc. received 22 samples on Saturday, June 29, 2002 for the analyses presented in the following report.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is $1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,

Barbara Krajewski
Project Manager

CC:
Enclosures as note

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____

PROJECT No: 001226.GDOY

SITE NAME: Former Pelham Phosphate

LOCATION: (Include State) Pelham, GA

CLIENT: GDNR

PROJECT MANAGER: Paul Cheney

OFFICE No: (850) 435-8925

FIELD TEAM LEADER: Chris Sattle

PHONE No:

SAMPLERS: (PRINT) Paul Cheney, Davy Crawley, Chris Sattle

CONTAINER TYPE AND PRESERVATIVE: 8oz Glass; 1-liter Poly HNO3; 1-liter Poly Ice

REQUESTED ANALYSIS: Metals (As, Ba, Cd, Cr, Pb, Ag-EPA 6010) Sulfate Cu, Zn; Metals (As, Ba, Cd, Cr, Cu, Pb, Ag, Zn); Sulfate

TURNAROUND TIME: 24-HOUR ☐ 48-HOUR ☐ 1-WEEK ☐ STANDARD ☒ RUSH _____ days OTHER _____

(FOR LAB USE ONLY) Lab Job No: Report type: Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	Metals (As, Ba, Cd, Cr, Pb, Ag-EPA 6010) Sulfate Cu, Zn	Metals (As, Ba, Cd, Cr, Cu, Pb, Ag, Zn)	Sulfate					OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
6/24	1500	PEL-SS01-0.0-1.0	SS		0	1	1										
6/24	1505	PEL-SS02-0.0-1.0	SS		0	1	1										
6/24	1510	PEL-SS03-0.0-1.0	SS		0	1	1										
6/24	1520	PEL-SS04-0.0-1.0	SS		0	1	1										
6/24	1525	PEL-SS05-0.0-1.0	SS		0	1	1										
6/24	1544	PEL-SED02	SD		0	1	1										
6/24	1544	PEL-SW02	SW		0	2		1	1								
6/25		PEL-EE-MW-1-25-27	SB		0	1	1										
6/25		PEL-EE-MW-2-15-17	SB		0	1	1										
6/25		PEL-EE-MW-3-25-27	SB		0	1	1										

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
Chris Sattle	6-28-02 1550			FED EX	6-28-02
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:	
		[signature]	6/29/02 1005	8231 7482 2493	

Temperature Blank Info. Enclosed: Yes No

(FOR LAB USE ONLY) Date: _____ Time: _____ Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

088

Ecology and Environment, Inc.
Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

July 19, 2002

Paul Cheney
E and E Pensacola Office
220 West Garden St., Suite 404
Pensacola, FL 32501

RE: Pelham Phosphate Site
CostPoint ID: **001226.GD04...**

Work Order No.: **0207002**

Dear Paul Cheney,

Ecology and Environment, Inc. received 22 samples on Saturday, June 29, 2002 for the analyses presented in the following report.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is $1.00 per sample container per month, to accrue until the client authorizes sample destruction.

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Sincerely,

Barbara Krajewski
Project Manager

CC:
Enclosures as note

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____

PROJECT No: 001226.GDOY
SITE NAME: Former Pelham Phosphate
LOCATION: (Include State) Pelham, GA
CLIENT: GDNR
PROJECT MANAGER: Paul Cheney
OFFICE No: (850) 435-8925
FIELD TEAM LEADER: Chris Suttle
PHONE No:
SAMPLERS: (PRINT) Paul Cheney, Davy Crawley, Chris Suttle

CONTAINER TYPE AND PRESERVATIVE: 8oz Glass; 1-liter Poly HNO_3; 1-liter Poly Ice

REQUESTED ANALYSIS

TURNAROUND TIME: 24-HOUR ☐ 48-HOUR ☐ 1-WEEK ☐ STANDARD ☒ RUSH _____ days OTHER _____

(FOR LAB USE ONLY) Lab Job No: Report type: Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	metals (As, Ba, Cd, Cr, Pb, Ag-EPA 6410) Sulfate Cu, Zn	metals (As, Ba, Cd, Cr, Cu, Pb, Ag Zn)	Sulfate					OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
6/24	1500	PEL-SS01-0.0-1.0	SS		0	1	1										
6/24	1505	PEL-SS02-0.0-1.0	SS		0	1	1										
6/24	1510	PEL-SS03-0.0-1.0	SS		0	1	1										
6/24	1520	PEL-SS04-0.0-1.0	SS		0	1	1										
6/24	1525	PEL-SS05-0.0-1.0	SS		0	1	1										
6/24	1544	PEL-SED02	SD		0	1	1										
6/24	1544	PEL-SW02	SW		0	2		1	1								
6/25		PEL-EE-MW-1-25-27	SB		0	1	1										
6/25		PEL-EE-MW-2-15-17	SB		0	1	1										
6/25		PEL-EE-MW-3-25-27	SB		0	1	1										

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
Chris Suttle	6-28-02 1550			FED EX	6-28-02
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:	
		[signature]	6/29/02 1005	8231 7482 2493	

Temperature Blank Info. Enclosed: Yes No

(FOR LAB USE ONLY) Date: _____ Time: _____ Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

0881:

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685 8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____

PROJECT No: 001221.GD01

SITE NAME: Former Pelham Phospate

LOCATION: (Include State) Pelham, GA

CLIENT: GDNR

PROJECT MANAGER: Paul Cheney

OFFICE No: (850) 435-8925

FIELD TEAM LEADER: Chris Suttle

PHONE No: (850) 574-1400

SAMPLERS: (PRINT) Paul Cheney, Chris Suttle, David Crawley

CONTAINER TYPE AND PRESERVATIVE: 8 oz glass; 1-liter poly HNO3; 1-liter poly

REQUESTED ANALYSIS: Metals + Sulfate; Metals; Sulfate

TURNAROUND TIME: 24-HOUR ☐ 48-HOUR ☐ 1-WEEK ☐ STANDARD ☒ RUSH _____ days OTHER _____

(FOR LAB USE ONLY)
Lab Job No:
Report type:
Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	Metals + Sulfate	Metals	Sulfate					OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
6/25		PEL-EE-MW-3-25-27-Dup5B			0	1	1										
6/28		PEL-EE-MW-5-GW-Dup			0	2		1	1								

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
[signature]	6-28-02 1550			FED EX	6-28-02
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:	
		[signature]	6/29/02 1005	8231 7482 2493	

Temperature Blank Info.
Enclosed: Yes No

(FOR LAB USE ONLY)
Date: _____ Time: _____
Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

0881...

CHAIN OF CUSTODY RECORD

ASC Analytical Services Center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0832
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____
Page: 2 of 3

PROJECT No: 001226.6004
SITE NAME: Former Pelham Phosphate
LOCATION (Include State): Pelham, GA
CLIENT: GDNR
PROJECT MANAGER: Paul Cheney
OFFICE No: (850) 435-8925
FIELD TEAM LEADER: Chris Suttle
PHONE No: (850) 574-1400
SAMPLERS: (PRINT) Paul Cheney, David Crawley, Chris Suttle

CONTAINER TYPE AND PRESERVATIVE: 8 oz glass; 1-liter poly ANO3; 1-liter poly

REQUESTED ANALYSIS

TURNAROUND TIME: 24-HOUR ☐ RUSH; 48-HOUR ☐; 1-WEEK ☐; STANDARD ☒; RUSH _____ days; OTHER _____

(FOR LAB USE ONLY) Lab Job No: Report type: Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	Metals (As, Ba, Cd, Cr, Cu, Pb, Ag, Mn) Sulfate	Metals	Sulfate					OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
6/25	1605	PEL-EE-MW-4-25-27	SB		0	1	1										
6/25		PEL-SED01	SD		0	1	1										
6/26	1145	PEL-EE-MW-5-20-22	SB		0	1	1										
6/26	1000	PEL-EE-MW-6-~~15-17~~ 5-7	SB		0	1	1										
6/27	1335	PEL-EE-MW-1-GW	GW		0	2		1	1								
6/27	1415	PEL-EE-MW-2-GW	GW		0	2		1	1								
6/27	1530	PEL-EE-MW-3-GW	GW		0	2		1	1								
6/27	1620	PEL-EE-MW-4-GW	GW		0	2		1	1								
6/28	0915	PEL-EE-MW-5-GW	GW		0	2		1	1								
6/28	1045	PEL-EE-MW-6-GW	GW		0	2		1	1								

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:	Temperature Blank Info.
[signature]	6-28-02 1550			FED EX	6-28-02	Enclosed: Yes No
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:		(FOR LAB USE ONLY) Date: _____ Time: _____ Temperature: _____ °C
		[signature]	6/29/02 ~~1050~~ 1005	8231 7482 2493		

Distribution: White - Lab original Yellow - Field team leader

0061287

Ecology and Environment, Inc. Analytical Services Center

Cooler Receipt Form

PACKAGE RECEIPT #: 10199 NUMBER OF COOLERS: 2 DATE RECEIVED: 6/29/02

E & E PROJECT #: _____ PROJECT OR SITE NAME: E+E Tall

A. Preliminary Examination Phase

CIRCLE ONE

1. Did coolers come with airbill or packing slip? _____ YES NO NA

   Enter carrier here and print airbill # below: *(Circle One)* FedEx Airborne Client Other

   Ship as high hazard or dangerous goods YES NO NA

2. Did cooler(s) have custody seals? _____ YES NO NA
3. Were custody seals unbroken and intact on receipt? _____ YES NO* NA
4. Were custody seals dated and signed? _____ YES NO NA
5. Sign here to acknowledge receipt of cooler (s): [signature]

   Date cooler(s) opened: 6/29/02 C-O-C numbers: _____

   Cooler(s) opened by (print): J Henderson Signature: [signature]

6. Were the C-O-C forms received? _____ YES NO* NA
7. Was the project identifiable from the C-O-C form? _____ YES NO* NA

   If YES, enter the project number and name in the heading above.

Please record Temperature Blank Vial or Cooler Temperature for Each Cooler, Range (2 - 6C)* NJDEP must be ≤4C

AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C	AIRBILL #	TEMP. °C
923174822493	3.5				
794002377542	3.0				

Thermometer # 129 Correction Factor 0 * If No or Temperature Outside of Acceptable Range, prepare a PM Notification form.

B. Unpacking Phase

8. Was enough packing material used in cooler(s)? _____ YES NO NA

   Type of material: ☐ Vermiculite ☒ Bubble Wrap ☐ Other

9. If required, was enough ice used? _____ YES NO NA

   If YES, type of ice used: ☒ Wet ☐ Dry ☐ Blue ☐ Other

10. Was a temperature blank vial included inside cooler(s)? _____ YES NO NA

    If YES, indicate temperature blank vial temperature in table above. If NO, indicate cooler temperature in table above.

11. Were all containers sealed in separate plastic bags? _____ YES NO NA
12. Did all containers arrive unbroken and in good condition? _____ YES NO* NA
13. Samples stored in W Cooler before Login Phase? YES NO

    If yes, Signature In: [signature] Date/Time: 6/29/02 1500

    Signature Out: [signature] Date/Time: 7/1/02 800

C. Login Phase

Samples Logged in By (print): J Henderson Signature: [signature] Date: 7/1/02

14. Were all container labels complete (e.g. date, time preserved)? _____ YES NO* NA
15. Were all C-O-C forms filled out properly in ink and signed? _____ YES NO* NA
16. Did the C-O-C form agree with containers received? _____ YES NO* NA
17. Were the correct containers used for the tests requested? _____ YES NO* NA
18. Were the correct preservatives listed on the sample labels? _____ YES NO* NA
19. Was a sufficient sample volume sent for the tests requested? _____ YES NO* NA
20. Were all volatile samples received without head space? _____ YES NO* NA

*Prepare a PM Notification form.

CLIENT:	E and E Pensacola Office
Project:	Pelham Phosphate Site
Lab Order:	0207002
Date Received:	6/29/2002

Work Order Sample Summary

Lab Sample I	Client Sample ID	Alt. Client Id	Collection Date
0207002-11ARER	PEL-SED01		6/25/2002 12:00:00 PM
0207002-12A	PEL-EE-MW-5-20-22		6/26/2002 11:45:00 AM
0207002-12ARE	PEL-EE-MW-5-20-22		6/26/2002 11:45:00 AM
0207002-12ARER	PEL-EE-MW-5-20-22		6/26/2002 11:45:00 AM
0207002-13A	PEL-EE-MW-6-5-7		6/26/2002 10:00:00 AM
0207002-13ARE	PEL-EE-MW-6-5-7		6/26/2002 10:00:00 AM
0207002-13ARER	PEL-EE-MW-6-5-7		6/26/2002 10:00:00 AM
0207002-14A	PEL-EE-MW-3-25-27-DUP		6/25/2002 1:50:00 PM
0207002-14ARE	PEL-EE-MW-3-25-27-DUP		6/25/2002 1:50:00 PM
0207002-14ARER	PEL-EE-MW-3-25-27-DUP		6/25/2002 1:50:00 PM
0207002-15A	PEL-SW02		6/24/2002 3:44:00 PM
0207002-15B	PEL-SW02		6/24/2002 3:44:00 PM
0207002-16A	PEL-EE-MW-1-GW		6/27/2002 1:35:00 PM
0207002-16B	PEL-EE-MW-1-GW		6/27/2002 1:35:00 PM
0207002-17A	PEL-EE-MW-2-GW		6/27/2002 2:15:00 PM
0207002-17B	PEL-EE-MW-2-GW		6/27/2002 2:15:00 PM
0207002-18A	PEL-EE-MW-3-GW		6/27/2002 3:30:00 PM
0207002-18B	PEL-EE-MW-3-GW		6/27/2002 3:30:00 PM
0207002-19A	PEL-EE-MW-4-GW		6/27/2002 4:20:00 PM
0207002-19B	PEL-EE-MW-4-GW		6/27/2002 4:20:00 PM
0207002-20A	PEL-EE-MW-5-GW		6/28/2002 9:15:00 AM
0207002-20B	PEL-EE-MW-5-GW		6/28/2002 9:15:00 AM
0207002-21A	PEL-EE-MW-6-GW		6/28/2002 10:45:00 AM
0207002-21B	PEL-EE-MW-6-GW		6/28/2002 10:45:00 AM
0207002-22A	PEL-EE-MW-5-GW-DUP		6/28/2002 9:15:00 AM
0207002-22B	PEL-EE-MW-5-GW-DUP		6/28/2002 9:15:00 AM

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207002
Client: E and E Pensacola Office
Project: Pelham Phosphate Site

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207002-06A	PEL-SED02	6/24/2002 3:44:00 PM	6/29/2002 10:05:00 AM	Soil	Percent Moisture			7/1/2002
					Sulfate by Modified Method 375.4 (Turbidimetric)			7/10/2002
0207002-06AR					Metals, TAL by ICP Method 6010B		7/9/2002	7/12/2002
0207002-07A	PEL-EE-MW-1-25-27	6/25/2002 9:00:00 AM			Metals, TAL by ICP Method 6010B		7/2/2002	7/6/2002
					Percent Moisture			7/1/2002
					Sulfate by Modified Method 375.4 (Turbidimetric)			7/10/2002
0207002-07AR					Metals, TAL by ICP Method 6010B		7/9/2002	7/12/2002
0207002-08A	PEL-EE-MW-2-15-17	6/25/2002 11:30:00 AM			Metals, TAL by ICP Method 6010B		7/2/2002	7/6/2002
					Percent Moisture			7/1/2002
					Sulfate by Modified Method 375.4 (Turbidimetric)			7/10/2002
0207002-08AR					Metals, TAL by ICP Method 6010B		7/9/2002	7/12/2002
0207002-09A	PEL-EE-MW-3-25-27	6/25/2002 1:50:00 PM			Metals, TAL by ICP Method 6010B		7/2/2002	7/6/2002
					Percent Moisture			7/1/2002
					Sulfate by Modified Method 375.4 (Turbidimetric)			7/10/2002
0207002-09AR					Metals, TAL by ICP Method 6010B		7/9/2002	7/12/2002
0207002-10A	PEL-EE-MW-4-25-27	6/25/2002 4:05:00 PM			Metals, TAL by ICP Method 6010B		7/2/2002	7/6/2002
					Percent Moisture			7/1/2002
					Sulfate by Modified Method 375.4 (Turbidimetric)			7/10/2002
0207002-10AR					Metals, TAL by ICP Method 6010B		7/9/2002	7/12/2002
0207002-11A	PEL-SED01	6/25/2002 12:00:00 PM			Metals, TAL by ICP Method 6010B		7/2/2002	7/6/2002
					Percent Moisture			7/1/2002

LIMS Version #: 3.1.4.3 - 7/2/2002 2:00:00 AM

*Reflects Date of TCLP Extraction Completion. For Re-extracted samples (*RE) reflects the TCLP Extraction from the original sample unless the date differs from the original sample's TCLP extraction date which indicates TCLP extraction was also re-done.

Ecology and Environment, Inc.

Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

Lab Order: 0207002
Client: E and E Pensacola Office
Project: Pelham Phosphate Site

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Received Date	Matrix	Test Name	TCLP Date*	Prep Date	Analysis Date
0207002-19A	PEL-EE-MW-4-GW	6/27/2002 4:20:00 PM	6/29/2002 10:05:00 AM	Water	Metals, TAL by ICP Method 6010B		7/2/2002	7/13/2002
0207002-19B					Sulfate by Method 375.4 (Turbidimetric)			7/9/2002
0207002-20A	PEL-EE-MW-5-GW	6/28/2002 9:15:00 AM			Metals, TAL by ICP Method 6010B		7/2/2002	7/12/2002
0207002-20B					Sulfate by Method 375.4 (Turbidimetric)			7/9/2002
0207002-21A	PEL-EE-MW-6-GW	6/28/2002 10:45:00 AM			Metals, TAL by ICP Method 6010B		7/2/2002	7/12/2002
0207002-21B					Sulfate by Method 375.4 (Turbidimetric)			7/9/2002
0207002-22A	PEL-EE-MW-5-GW-DUP	6/28/2002 9:15:00 AM			Metals, TAL by ICP Method 6010B		7/2/2002	7/12/2002
0207002-22B					Sulfate by Method 375.4 (Turbidimetric)			7/9/2002

*Reflects Date of TCLP Extraction Completion. For Re-extracted samples (*RE) reflects the TCLP Extraction from the original sample unless the date differs from the original sample's TCLP extraction date which indicates TCLP extraction was also re-done.

METALS

Ecology and Environment, Inc.

Analytical Services Center
493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-02AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SS02-0.0-1.0
Alt. Client ID:
Collection Date: 6/24/2002 3:05:00 PM % Moist: 10.40
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		27.4	mg/Kg-dry	25	7/15/2002 4:19:46 PM	OPTIMA3300_0207158	CMO
Barium	ND		54.7	mg/Kg-dry	25			
Cadmium	ND		13.7	mg/Kg-dry	25			
Chromium	30.3		27.4	mg/Kg-dry	25			
Copper	ND		54.7	mg/Kg-dry	25			
Lead	185		13.7	mg/Kg-dry	25			
Silver	ND		27.4	mg/Kg-dry	25			
Zinc	1200	B	27.4	mg/Kg-dry	25			

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

Analytical Services Center
493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-04AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SS04-0.0-1.0
Alt. Client ID:
Collection Date: 6/24/2002 3:20:00 PM % Moist: 6.17
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	12.6		4.59	mg/Kg-dry	5	7/12/2002 4:31:05 PM	OPTIMA3300_020712B	CMO
Barium	80.1		9.19	mg/Kg-dry	5			
Cadmium	ND		2.30	mg/Kg-dry	5			
Chromium	34.6		4.59	mg/Kg-dry	5			
Copper	59.7		9.19	mg/Kg-dry	5			
Lead	257		2.30	mg/Kg-dry	5			
Silver	ND		4.59	mg/Kg-dry	5			
Zinc	221	B	9.19	mg/Kg-dry	5			

efinitions:

ND - Not Detected at the Reporting Limit
- Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
N - Single Column Analysis
D - Diluted due to matrix or extended target compounds
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

Analytical Services Center
193 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-06AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SED02
Alt. Client ID:
Collection Date: 6/24/2002 3:44:00 PM % Moist: 16.80
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	2.51		1.02	mg/Kg-dry	1	7/12/2002 4:42:27 PM	OPTIMA3300_020712B	CMO
Barium	12.9		2.04	mg/Kg-dry	1			
Cadmium	ND		0.509	mg/Kg-dry	1			
Chromium	11.4		1.02	mg/Kg-dry	1			
Copper	2.57		2.04	mg/Kg-dry	1			
Lead	22.5		0.509	mg/Kg-dry	1			
Silver	ND		1.02	mg/Kg-dry	1			
Zinc	6.58	B	2.04	mg/Kg-dry	1			

efinitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-08AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-2-15-17
Alt. Client ID:
Collection Date: 6/25/2002 11:30:00 A % Moist: 18.40
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		5.37	mg/Kg-dry	5	7/12/2002 4:52:46 PM	OPTIMA3300_020712B	CMO
Barium	17.1		10.7	mg/Kg-dry	5			
Cadmium	ND		2.69	mg/Kg-dry	5			
Chromium	ND		5.37	mg/Kg-dry	5			
Copper	ND		10.7	mg/Kg-dry	5			
Lead	ND		2.69	mg/Kg-dry	5			
Silver	ND		5.37	mg/Kg-dry	5			
Zinc	14.5	B	10.7	mg/Kg-dry	5			

Definitions:

ND - Not Detected at the Reporting Limit
[illegible] Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

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:493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-10AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-4-25-27
Alt. Client ID:
Collection Date: 6/25/2002 4:05:00 PM % Moist: 17.90
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		1.15	mg/Kg-dry	1	7/12/2002 5:16:31 PM	OPTIMA3300_020712B	CMO
Barium	2.41		2.30	mg/Kg-dry	1			
Cadmium	ND		0.575	mg/Kg-dry	1			
Chromium	ND		1.15	mg/Kg-dry	1			
Copper	ND		2.30	mg/Kg-dry	1			
Lead	ND		0.575	mg/Kg-dry	1			
Silver	ND		1.15	mg/Kg-dry	1			
Zinc	ND		2.30	mg/Kg-dry	1			

efinitions:

ND - Not Detected at the Reporting Limit
- Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

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Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-12AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-5-20-22
Alt. Client ID:
Collection Date: 6/26/2002 11:45:00 A % Moist: 35.00
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		36.3	mg/Kg-dry	25	7/15/2002 4:37:20 PM	OPTIMA3300_020715B	CMO
Barium	122		72.6	mg/Kg-dry	25			
Cadmium	ND		18.1	mg/Kg-dry	25			
Chromium	ND		36.3	mg/Kg-dry	25			
Copper	167		72.6	mg/Kg-dry	25			
Lead	173		18.1	mg/Kg-dry	25			
Silver	ND		36.3	mg/Kg-dry	25			
Zinc	972	B	36.3	mg/Kg-dry	25			

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or exceeded target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-14AR Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-3-25-27-DUP
Alt. Client ID:
Collection Date: 6/25/2002 1:50:00 PM % Moist: 17.70
Test Code: 1_6010B_TAL_S

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3050B

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		5.52	mg/Kg-dry	5	7/12/2002 5:39:10 PM	OPTIMA3300_020712B	CMO
Barium	ND		11.0	mg/Kg-dry	5			
Cadmium	ND		2.76	mg/Kg-dry	5			
Chromium	ND		5.52	mg/Kg-dry	5			
Copper	ND		11.0	mg/Kg-dry	5			
Lead	ND		2.76	mg/Kg-dry	5			
Silver	ND		5.52	mg/Kg-dry	5			
Zinc	ND		11.0	mg/Kg-dry	5			

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Sample Matrix Spike

Metals, TAL by ICP Method 6010B Test Code: *1_6010B_TAL_S* Units: *mg/Kg-dry*

Sample ID: **0207002-14ARES** Client Sample ID: **PEL-EE-MW-3-25-27-DUP** DF: 5 DL_No: 1

Run Batch ID: **OPTIMA3300_020712B** SeqNo: **566473** Analysis Date **7/12/02 5:45:21 PM** Prep Batch ID: **200201890** Prep Date: **7/9/02**

	Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A	Arsenic	56.78	5.520	55.23	0	103	75	125			
A	Barium	63.46	11.00	55.23	8.062	100	75	125			
A	Cadmium	58.33	2.760	55.23	0	106	75	125			
A	Chromium	64.42	5.520	55.23	2.161	113	75	125			
A	Copper	58.37	11.00	55.23	0	106	75	125			
A	Lead	60.41	2.760	55.23	0	109	75	125			
A	Zinc	67.58	11.00	55.23	6.248	111	75	125			

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P -Post Spike Recovery outside limits; RL -Reporting Limit; J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable); 1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Laboratory Control Spike

Metals, TAL by ICP Method 6010B Test Code: *1_6010B_TAL_S* Units: mg/Kg

Sample ID: LCS-200201890 Client Sample ID: DF: 1 DL_No: 1

Run Batch ID: OPTIMA3300_020712B SeqNo: 566456 Analysis Date 7/12/02 4:09:01 PM Prep Batch ID: 200201890 Prep Date: 7/9/02

	Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A	Arsenic	96.78	1.000	100.0	0	97	80	120			
A	Barium	102.8	2.000	100.0	0	103	80	120			
A	Cadmium	99.37	0.5000	100.0	0	99	80	120			
A	Chromium	101.3	1.000	100.0	0	101	80	120			
A	Copper	97.43	2.000	100.0	0	97	80	120			
A	Lead	102.4	0.5000	100.0	0	102	80	120			
A	Silver	4.781	1.000	5.000	0	96	80	120			
A	Zinc	99.51	2.000	100.0	0	100	80	120			

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P -Post Spike Recovery outside limits; RL -Reporting Limit; J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable); 1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-16A Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-EE-MW-1-GW
Alt. Client ID:
Collection Date: 6/27/2002 1:35:00 PM % Moist:
Test Code: 1_6010B_TAL_W

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3010A

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		125	µg/L	5	7/12/2002 7:20:44 PM	OPTIMA3300_020712A	CMO
Barium	187		100	µg/L	5			
Cadmium	ND		25.0	µg/L	5			
Chromium	ND		50.0	µg/L	5			
Copper	ND		100	µg/L	5			
Lead	ND		25.0	µg/L	5			
Silver	ND		50.0	µg/L	5			
Zinc	73.3	B	50.0	µg/L	5			

Definitions:

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B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M - Matrix Spike recovery outside limits
A - Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Client Sample ID: PEL-EE-MW-3-GW
Alt. Client ID:
Collection Date: 6/27/2002 3:30:00 PM % Moist:
Lab ID: 0207002-18A Sample Type: SAMP Matrix: Water Test Code: 1_6010B_TAL_W

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3010A

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		2500	µg/L	100	7/13/2002 7:56:59 AM	OPTIMA3300_020713A	SDP
Barium	ND		2000	µg/L	100			
Cadmium	ND		500	µg/L	100			
Chromium	ND		1000	µg/L	100			
Copper	ND		2000	µg/L	100			
Lead	ND		500	µg/L	100			
Silver	ND		1000	µg/L	100			
Zinc	2650	B	1000	µg/L	100			

Definitions:

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J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
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R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
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Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-20A Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-EE-MW-5-GW
Alt. Client ID:
Collection Date: 6/28/2002 9:15:00 AM % Moist:
Test Code: 1_6010B_TAL_W

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3010A

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		500	µg/L	20	7/12/2002 7:55:06 PM	OPTIMA3300_020712A	CMO
Barium	ND		400	µg/L	20			
Cadmium	ND		100	µg/L	20			
Chromium	ND		200	µg/L	20			
Copper	ND		400	µg/L	20			
Lead	ND		100	µg/L	20			
Silver	ND		200	µg/L	20			
Zinc	1050	B	200	µg/L	20			

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
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H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Client Sample ID: PEL-EE-MW-5-GW-DUP
Alt. Client ID:
Collection Date: 6/28/2002 9:15:00 AM % Moist:
Lab ID: 0207002-22A Sample Type: SAMP Matrix: Water Test Code: 1_6010B_TAL_W

ICP METALS ANALYSIS BY METHOD 6010B Method: SW6010B Prep Method: SW3010A

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Arsenic	ND		500	µg/L	20	7/12/2002 8:06:37 PM	OPTIMA3300_020712A	CMO
Barium	ND		400	µg/L	20			
Cadmium	ND		100	µg/L	20			
Chromium	ND		200	µg/L	20			
Copper	ND		400	µg/L	20			
Lead	ND		100	µg/L	20			
Silver	ND		200	µg/L	20			
Zinc	1030	B	200	µg/L	20			

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Laboratory Control Spike

Metals, TAL by ICP Method 6010B Test Code: *1_6010B_TAL_W* Units: µg/L

Sample ID: **LCS-200201838** Client Sample ID: DF: 1 DL_No: 1

Run Batch ID: OPTIMA3300_020712A SeqNo: 565805 Analysis Date 7/12/02 7:10:12 PM Prep Batch ID: 200201838 Prep Date: 7/2/02

	Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A	Aluminum	1142	200.0	1000	0	114	80	120			
A	Antimony	998.9	10.00	1000	0	100	80	120			
A	Arsenic	1135	25.00	1000	0	113	80	120			
A	Barium	1119	20.00	1000	0	112	80	120			
A	Beryllium	1091	5.000	1000	0	109	80	120			
A	Cadmium	1094	5.000	1000	0	109	80	120			
A	Calcium	11160	1500	10000	0	112	80	120			
A	Chromium	1101	10.00	1000	0	110	80	120			
A	Cobalt	1148	20.00	1000	0	115	80	120			
A	Copper	1082	20.00	1000	0	108	80	120			
A	Iron	1086	200.0	1000	0	109	80	120			
A	Lead	1124	5.000	1000	0	112	80	120			
A	Magnesium	11100	1500	10000	0	111	80	120			
A	Manganese	1096	10.00	1000	0	110	80	120			
A	Nickel	1101	20.00	1000	0	110	80	120			
A	Potassium	10740	1500	10000	0	107	80	120			
A	Selenium	1038	20.00	1000	0	104	80	120			
A	Silver	48.66	10.00	50.00	0	97	80	120			
A	Sodium	10690	1500	10000	0	107	80	120			
A	Thallium	1097	20.00	1000	0	110	80	120			
A	Vanadium	1071	20.00	1000	0	107	80	120			
A	Zinc	1090	10.00	1000	0	109	80	120			

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P -Post Spike Recovery outside limits; RL -Reporting Limit; J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable); 1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-01A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SS01-0.0-1.0
Alt. Client ID:
Collection Date: 6/24/02 3:00:00 PM % Moist: 12.40
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		570	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	LMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M - Matrix Spike recovery outside limits
A - Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-03A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SS03-0.0-1.0
Alt. Client ID:
Collection Date: 6/24/02 3:10:00 PM % Moist:5.91
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		530	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	LMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-05A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SS05-0.0-1.0
Alt. Client ID:
Collection Date: 6/24/02 3:25:00 PM % Moist:4.30
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	2600		520	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	UMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

Ecology and Environment, Inc.

Analytical Services Center
4493 Walden Avenue
Lancaster, New York 14086-

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site

Client Sample ID: PEL-EE-MW-1-25-27
Alt. Client ID:
Collection Date: 6/25/02 9:00:00 AM % Moist:20.20

Lab ID: 0207002-07A Sample Type: SAMP Matrix: Soil Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		630	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	LMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-09A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-3-25-27
Alt. Client ID:
Collection Date: 6/25/02 1:50:00 PM % Moist: 16.80
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		600	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	UMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Lancaster, New York 14086-

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-11A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-SED01
Alt. Client ID:
Collection Date: 6/25/02 12:00:00 PM % Moist:22.40
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		640	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	LMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-13A Sample Type: SAMP Matrix: Soil

Client Sample ID: PEL-EE-MW-6-5-7
Alt. Client ID:
Collection Date: 6/26/02 10:00:00 AM % Moist:26.60
Test Code: 1_375.4M_SO4_S

SULFATE BY MODIFIED METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	ND		680	mg/Kg-dry	10	7/10/02	DTR15C_SULFATE_02071	LMW

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Method Blank

Sulfate by Modified Method 375.4 (Turbidimetric) Test Code: 1_375.4M_SO4_S Units; mg/Kg

Sample ID: MB-020710140 Client Sample ID: DF: 1 DL_No: 1

Run Batch ID: DTR15C_SULFATE_020710A SeqNo: 568170 Analysis Date: 7/10/02 Prep Batch ID: 020710140R Prep Date: 7/10/02

	Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
A	Sulfate	ND	50.00								

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P - Post Spike Recovery outside limits; RL - Reporting Limit
J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable)
1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

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Lancaster, New York 14086-

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Sample Matrix Spike

Sulfate by Modified Method 375.4 (Turbidimetric) Test Code: *1_375.4M_SO4_S* Units: mg/Kg-dry

Sample ID: **0207002-14A** Client Sample ID: **PEL-EE-MW-3-25-27-DUP** DF: 10 DL_No: 1

Run Batch ID: DTR15C_SULFATE_020710A SeqNo: 568188 Analysis Date: 7/10/02 Prep Batch ID: 020710140R Prep Date: 7/10/02

Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A Sulfate	242.2	610.0	133.7	0	181	75	125			JMD

Definitions: ND - Not Detected at the Reporting Limit * - LCS Recovery outside limits M - Matrix Spike Recovery outside limits P -Post Spike Recovery outside limits RL -Reporting Limit
J - Analyte detected below reporting limits B - Analyte detected in the associated Method Blank E - Result exceeds Highest Calibration Standard R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable)
1 - Represents RSD Limit for Quad Analysis NC - Not Calculated for values < RL D - Diluted due to matrix or extended target compounds

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-15B Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-SW02
Alt. Client ID:
Collection Date: 6/24/02 3:44:00 PM % Moist:
Test Code: 1_375.4_SO4_W

SULFATE BY METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	1900		500	mg/L	100	7/9/02	DTR15C_SULFATE_02070	JAL

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-17B Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-EE-MW-2-GW
Alt. Client ID:
Collection Date: 6/27/02 2:15:00 PM % Moist:
Test Code: 1_375.4_SO4_W

SULFATE BY METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	8.2		5.0	mg/L	1	7/9/02	DTR15C_SULFATE_02070	JAL

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-19B Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-EE-MW-4-GW
Alt. Client ID:
Collection Date: 6/27/02 4:20:00 PM % Moist:
Test Code: 1_375.4_SO4_W

SULFATE BY METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	310		100	mg/L	20	7/9/02	DTR15C_SULFATE_02070	JAL

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: E and E Pensacola Office
Lab Order: 0207002
Project: Pelham Phosphate Site
Lab ID: 0207002-21B Sample Type: SAMP Matrix: Water

Client Sample ID: PEL-EE-MW-6-GW
Alt. Client ID:
Collection Date: 6/28/02 10:45:00 AM % Moist:
Test Code: 1_375.4_SO4_W

SULFATE BY METHOD 375.4 (TURBIDIMETRIC) Method: EPA375.4 Prep Method:

Analyte	Result	Q	Limit	Units	DF	Date Analyzed	Run Batch ID	Analyst
Sulfate	1800		500	mg/L	100	7/9/02	DTR15C_SULFATE_02070	JAL

Definitions:

ND - Not Detected at the Reporting Limit
J - Analyte detected below Reporting limits
B - Analyte detected in the associated Method Blank
H - Value exceeds Maximum Contaminant Level
* - Recovery outside limits
R - RPD outside recovery limits
E - Value above quantitation range
Surr - Denotes Surrogate Compound
M -Matrix Spike recovery outside limits
A -Result by Method of Std. Addition
D - Diluted due to matrix or extended target compounds
N - Single Column Analysis
Q - Qualifier
X - See Case Narrative

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Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Method Blank

Sulfate by Method 375.4 (Turbidimetric) Test Code: *1_375.4_SO4_W* Units: mg/L

Sample ID: **MB-020709111** Client Sample ID: DF: 1 DL_No: 1

Run Batch ID: DTR15C_SULFATE_020709A SeqNo: 566712 Analysis Date: 7/9/02 Prep Batch ID: 020709111R Prep Date: 7/9/02

Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A Sulfate	ND	5.000								

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P - Post Spike Recovery outside limits; RL - Reporting Limit
J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable)
1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

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4493 Walden Avenue
Lancaster, New York 14086-

Laboratory Results

NYS ELAP ID#: 10486
Phone: (716) 685-8080

CLIENT: E and E Pensacola Office
Work Order: 0207002
Project: Pelham Phosphate Site

QC SUMMARY REPORT
Sample Matrix Spike

Sulfate by Method 375.4 (Turbidimetric) Test Code: *1_375.4_SO4_W* Units: mg/L

Sample ID: 0207002-16BS Client Sample ID: PEL-EE-MW-1-GW DF: 1 DL_No: 1

Run Batch ID: DTR15C_SULFATE_020709A SeqNo: 566717 Analysis Date: 7/9/02 Prep Batch ID: 020709111R Prep Date: 7/9/02

Analyte	Result	RL	Spike Value	Orig Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit [1]	Qual
A Sulfate	16.00	5.000	10.00	4.499	115	75	125			

Definitions: ND - Not Detected at the Reporting Limit; * - LCS Recovery outside limits; M - Matrix Spike Recovery outside limits; P -Post Spike Recovery outside limits; RL -Reporting Limit; J - Analyte detected below reporting limits; B - Analyte detected in the associated Method Blank; E - Result exceeds Highest Calibration Standard; R - RPD outside recovery limits (for Samp/Duplicates < 5X RL Difference <2X RL is Acceptable); 1 - Represents RSD Limit for Quad Analysis; NC - Not Calculated for values < RL; D - Diluted due to matrix or extended target compounds

Bouwer-Rice (1976) Solution for a Slug Test

Bouwer and Rice (1976) developed an empirical relationship describing the water-level response in an unconfined aquifer due to the instantaneous injection or withdrawal of water from a well:

$$\ln(s_0) - \ln(s_t) = \frac{2KLt}{r_{ce}^2 \ln(r_e / r_{we})}$$

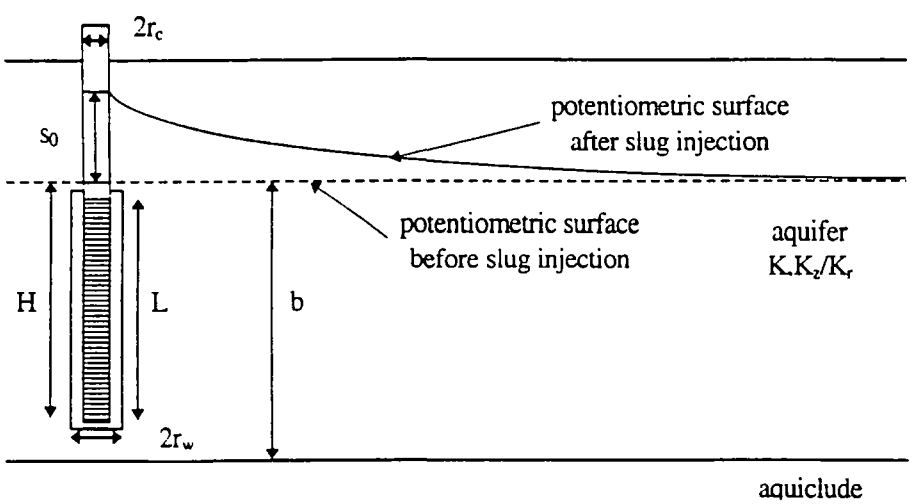
$$r_{ce} = \sqrt{r_c^2 + n(r_w^2 - r_c^2)}$$

$$r_{we} = r_w \sqrt{\frac{K_z}{K_r}}$$

Bouwer and Rice (1976) recommend computing an equivalent casing radius to correct for the porosity of the gravel pack when the height of the static water column in the well is less than the screen length. AQTESOLV for Windows automatically computes the equivalent casing radius using the value of porosity (n) specified in the data set (see Aquifer Data); a porosity equal to zero (0.0) results in no correction to the casing radius.

Zlotnik (1994) advises the use of an equivalent wellbore radius if the aquifer is anisotropic in a vertical plane. AQTESOLV automatically computes the equivalent wellbore radius using the value of anisotropy ratio (Kz/Kr)specified in the data set (See Aquifer Data). An anisotropy ratio equal to unity (1.0) results in no correction to the well radius.

Refer to the List of Symbols for a description of the parameters and variables contained in the equations.



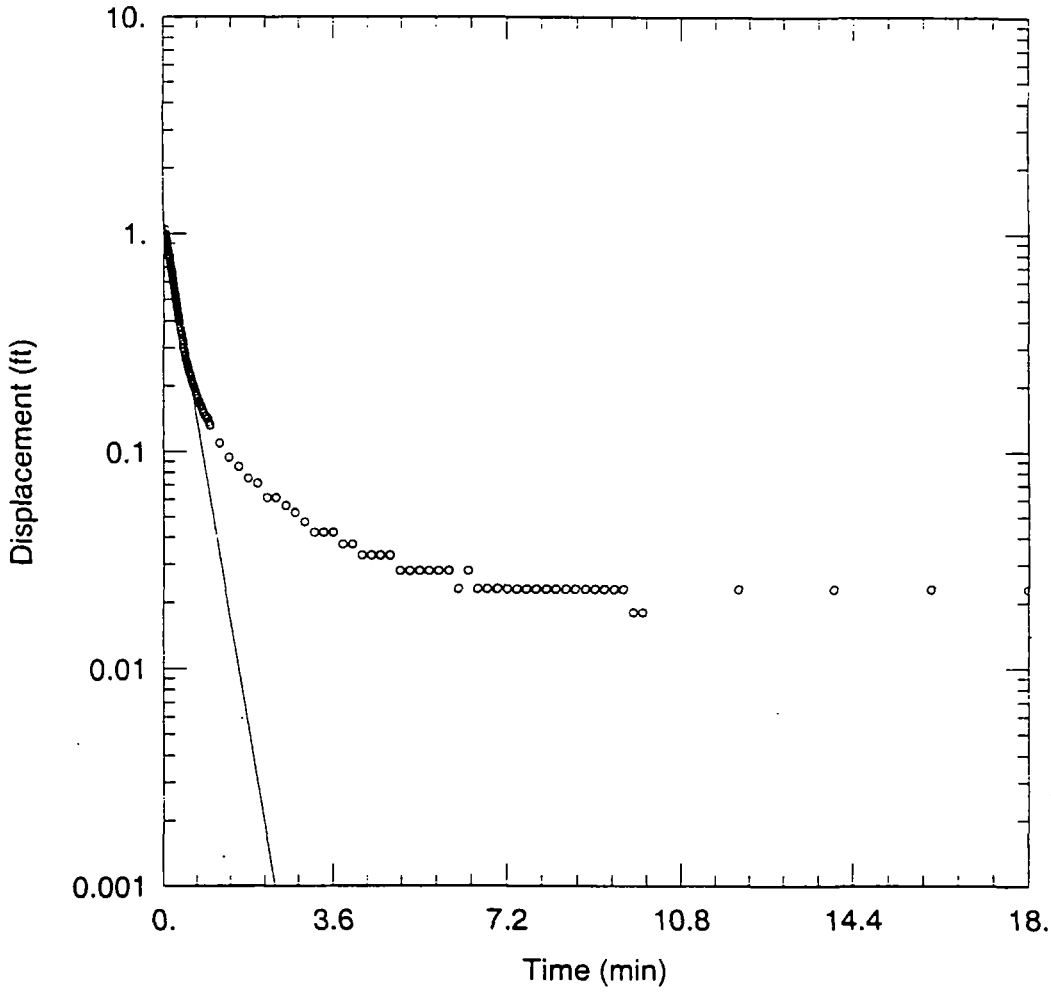
Related Topics:

Assumptions

Data Requirements

References

Tutorial



PEL-EE-MW1

Data Set: C:\AQTESOLV\AQTESO~1\PELMW1.AQT
Date: 08/09/02 Time: 10:42:08

PROJECT INFORMATION

Company: Ecology & Environment, Inc.
Client: GEPD
Project: 1226.GD04
Test Location: Pelham, Georgia
Test Well: PEL-EE-MW1
Test Date: 7-31-02

AQUIFER DATA

Saturated Thickness: 30. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1. ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 10. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01226 ft/min 17.7 ft/day
y0 = 1.127 ft

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.11	0.829	0.31	0.426	3.6	0.042
0.1133	0.824	0.3133	0.421	3.8	0.037
0.1166	0.796	0.3166	0.421	4.	0.037
0.12	0.791	0.32	0.417	4.2	0.033
0.1233	0.786	0.3233	0.412	4.4	0.033
0.1266	0.782	0.3266	0.407	4.6	0.033
0.13	0.767	0.33	0.402	4.8	0.033
0.1333	0.772	0.3333	0.398	5.	0.028
0.1366	0.744	0.35	0.379	5.2	0.028
0.14	0.739	0.3666	0.36	5.4	0.028
0.1433	0.725	0.3833	0.346	5.6	0.028
0.1466	0.725	0.4	0.327	5.8	0.028
0.15	0.715	0.4166	0.312	6.	0.028
0.1533	0.711	0.4333	0.298	6.2	0.023
0.1566	0.701	0.45	0.289	6.4	0.028
0.16	0.696	0.4666	0.279	6.6	0.023
0.1633	0.687	0.4833	0.265	6.8	0.023
0.1666	0.682	0.5	0.256	7.	0.023
0.17	0.673	0.5166	0.251	7.2	0.023
0.1733	0.668	0.5333	0.241	7.4	0.023
0.1766	0.658	0.55	0.232	7.6	0.023
0.18	0.677	0.5666	0.227	7.8	0.023
0.1833	0.639	0.5833	0.222	8.	0.023
0.1866	0.663	0.6	0.213	8.2	0.023
0.19	0.635	0.6166	0.208	8.4	0.023
0.1933	0.625	0.6333	0.203	8.6	0.023
0.1966	0.611	0.65	0.199	8.8	0.023
0.2	0.602	0.6666	0.194	9.	0.023
0.2033	0.616	0.6833	0.189	9.2	0.023
0.2066	0.597	0.7	0.184	9.4	0.023
0.21	0.592	0.7166	0.18	9.6	0.023
0.2133	0.587	0.7333	0.175	9.8	0.018
0.2166	0.578	0.75	0.17	10.	0.018
0.22	0.573	0.7666	0.17	12.	0.023
0.2233	0.568	0.7833	0.165	14.	0.023
0.2266	0.559	0.8	0.161	16.	0.023
0.23	0.554	0.8166	0.161	18.	0.023
0.2333	0.549	0.8333	0.156	20.	0.023
0.2366	0.54	0.85	0.151	22.	0.023
0.24	0.535	0.8666	0.151	24.	0.023

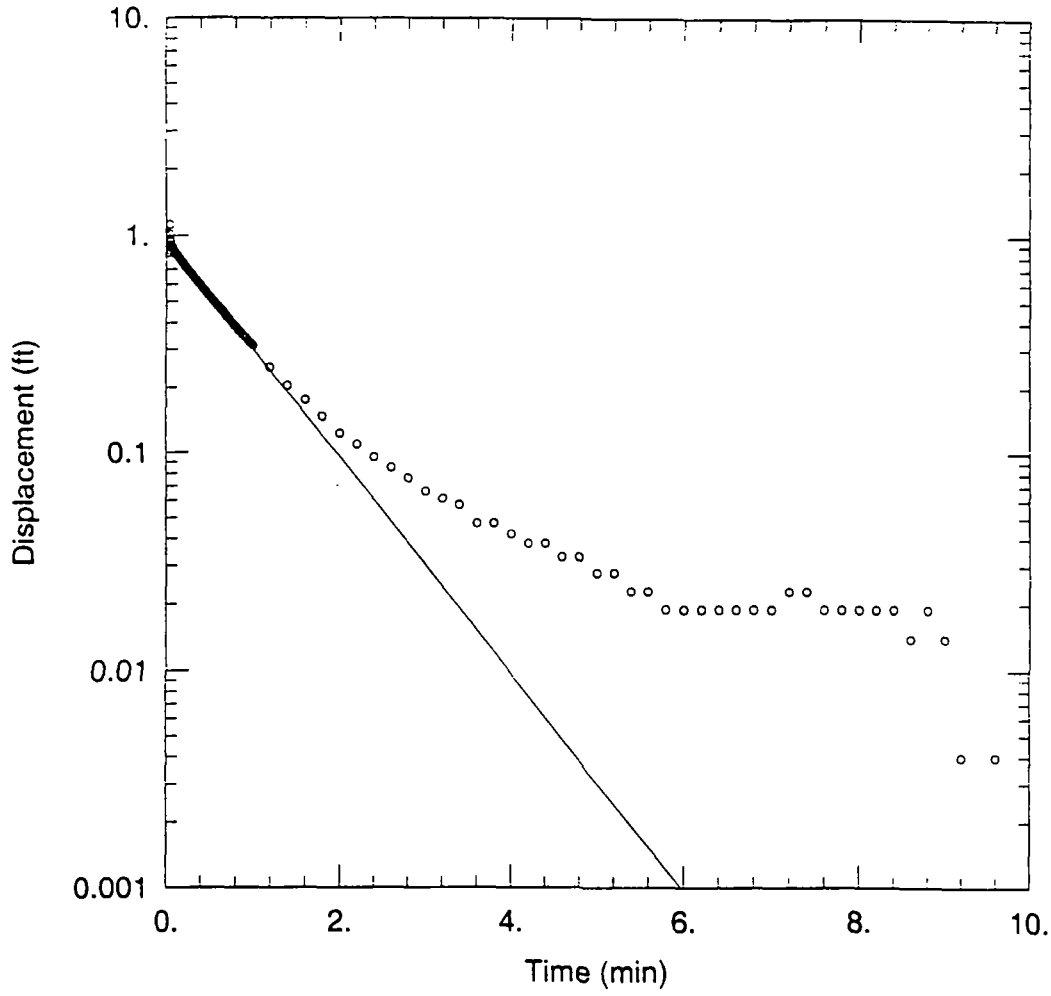
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

_stimated Parameters

Parameter	Estimate



PEL-EE-MW2

Data Set: C:\AQTESOLV\AQTESO~1\PELMW2.AQT
Date: 08/09/02 Time: 10:36:53

PROJECT INFORMATION

Company: Ecology & Environment, Inc.
Client: GEPD
Project: 1226.GD04
Test Location: Pelham, Georgia
Test Well: PEL-EE-MW2
Test Date: 7-31-02

AQUIFER DATA

Saturated Thickness: 30. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1. ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 15. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005202 ft/min 7.5 ft/day
y0 = 0.9489 ft

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.11	0.836	0.3	0.665	2.4	0.095
0.1133	0.832	0.3033	0.66	2.6	0.085
0.1166	0.827	0.3066	0.66	2.8	0.076
0.12	0.822	0.31	0.656	3.	0.066
0.1233	0.817	0.3133	0.656	3.2	0.061
0.1266	0.817	0.3166	0.656	3.4	0.057
0.13	0.812	0.32	0.651	3.6	0.047
0.1333	0.808	0.3233	0.646	3.8	0.047
0.1366	0.803	0.3266	0.646	4.	0.042
0.14	0.803	0.33	0.641	4.2	0.038
0.1433	0.798	0.3333	0.641	4.4	0.038
0.1466	0.793	0.35	0.627	4.6	0.033
0.15	0.789	0.3666	0.618	4.8	0.033
0.1533	0.789	0.3833	0.603	5.	0.028
0.1566	0.784	0.4	0.594	5.2	0.028
0.16	0.779	0.4166	0.58	5.4	0.023
0.1633	0.779	0.4333	0.57	5.6	0.023
0.1666	0.774	0.45	0.561	5.8	0.019
0.17	0.77	0.4666	0.551	6.	0.019
0.1733	0.77	0.4833	0.537	6.2	0.019
0.1766	0.765	0.5	0.527	6.4	0.019
0.18	0.76	0.5166	0.518	6.6	0.019
0.1833	0.76	0.5333	0.508	6.8	0.019
0.1866	0.755	0.55	0.499	7.	0.019
0.19	0.751	0.5666	0.489	7.2	0.023
0.1933	0.751	0.5833	0.48	7.4	0.023
0.1966	0.746	0.6	0.475	7.6	0.019
0.2	0.746	0.6166	0.465	7.8	0.019
0.2033	0.741	0.6333	0.456	8.	0.019
0.2066	0.736	0.65	0.451	8.2	0.019
0.21	0.736	0.6666	0.442	8.4	0.019
0.2133	0.732	0.6833	0.432	8.6	0.014
0.2166	0.732	0.7	0.427	8.8	0.019
0.22	0.727	0.7166	0.418	9.	0.014
0.2233	0.722	0.7333	0.413	9.2	0.004
0.2266	0.722	0.75	0.404	9.6	0.004
0.23	0.717	0.7666	0.399		

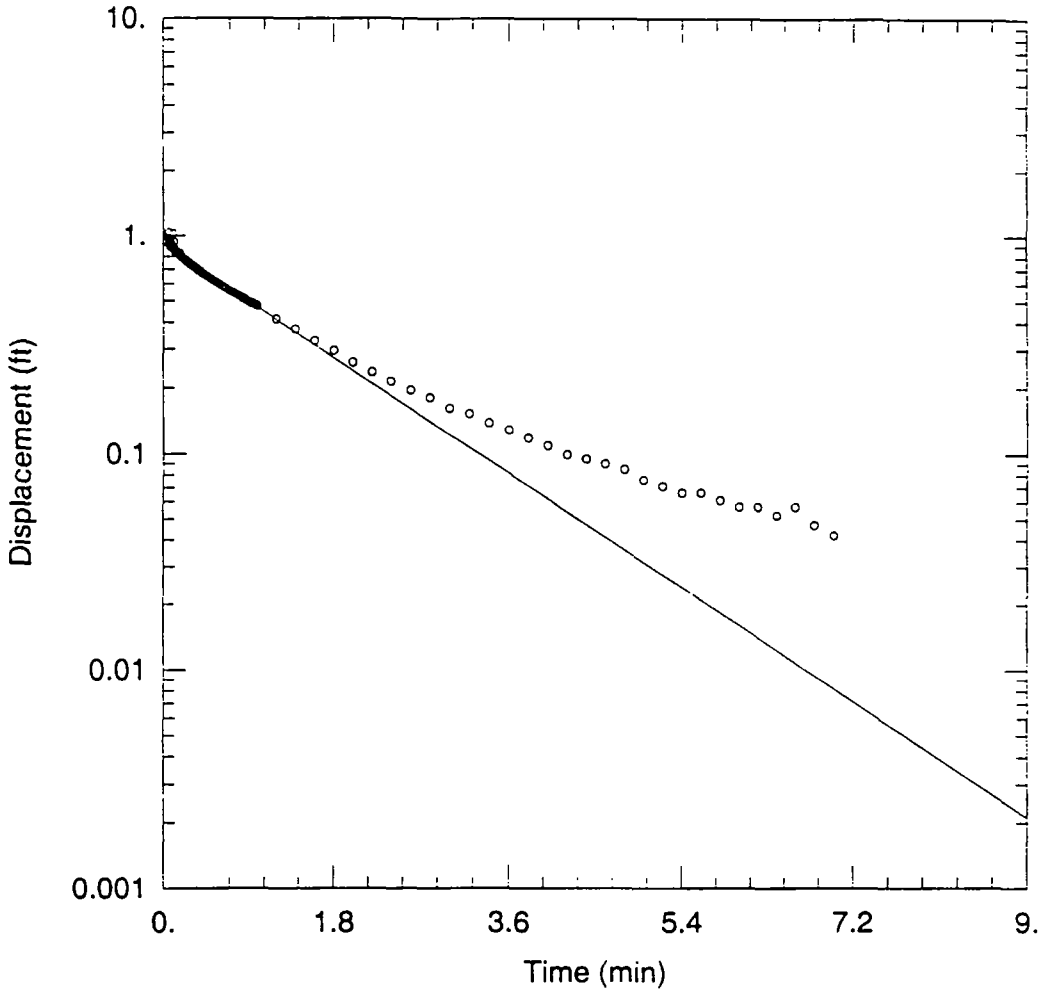
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.005202	ft/min
y0	0.9489	ft



PEL-EE-MW3

Data Set: C:\AQTESOLV\AQTESO~1\PELMW3.AQT
Date: 08/09/02 Time: 10:29:38

PROJECT INFORMATION

Company: Ecology & Environment, Inc.
Client: GEPD
Project: 1226.GD04
Test Location: Pelham, Georgia
Test Well: PEL-EE-MW3
Test Date: 7-31-02

AQUIFER DATA

Saturated Thickness: 30. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1. ft
Water Column Height: 16. ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.003101 ft/min 4.5 ft/day
Solution Method: Bouwer-Rice
y0 = 0.9245 ft

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.1266	0.856	0.2966	0.737	1.	0.475
0.13	0.856	0.3	0.737	1.2	0.414
0.1333	0.856	0.3033	0.732	1.4	0.371
0.1366	0.851	0.3066	0.732	1.6	0.328
0.14	0.846	0.31	0.732	1.8	0.295
0.1433	0.842	0.3133	0.728	2.	0.261
0.1466	0.842	0.3166	0.728	2.2	0.237
0.15	0.837	0.32	0.728	2.4	0.214
0.1533	0.832	0.3233	0.723	2.6	0.195
0.1566	0.832	0.3266	0.723	2.8	0.18
0.16	0.827	0.33	0.718	3.	0.161
0.1633	0.823	0.3333	0.723	3.2	0.152
0.1666	0.823	0.35	0.708	3.4	0.138
0.17	0.818	0.3666	0.704	3.6	0.128
0.1733	0.818	0.3833	0.689	3.8	0.118
0.1766	0.813	0.4	0.685	4.	0.109
0.18	0.813	0.4166	0.675	4.2	0.099
0.1833	0.808	0.4333	0.666	4.4	0.095
0.1866	0.827	0.45	0.661	4.6	0.09
0.19	0.804	0.4666	0.651	4.8	0.085
0.1933	0.799	0.4833	0.647	5.	0.076
0.1966	0.799	0.5	0.637	5.2	0.071
0.2	0.794	0.5166	0.632	5.4	0.066
0.2033	0.794	0.5333	0.623	5.6	0.066
0.2066	0.789	0.55	0.618	5.8	0.061
0.21	0.789	0.5666	0.613	6.	0.057
0.2133	0.785	0.5833	0.604	6.2	0.057
0.2166	0.785	0.6	0.599	6.4	0.052
0.22	0.78	0.6166	0.594	6.6	0.057
0.2233	0.78	0.6333	0.585	6.8	0.047
0.2266	0.78	0.65	0.58	7.	0.042

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

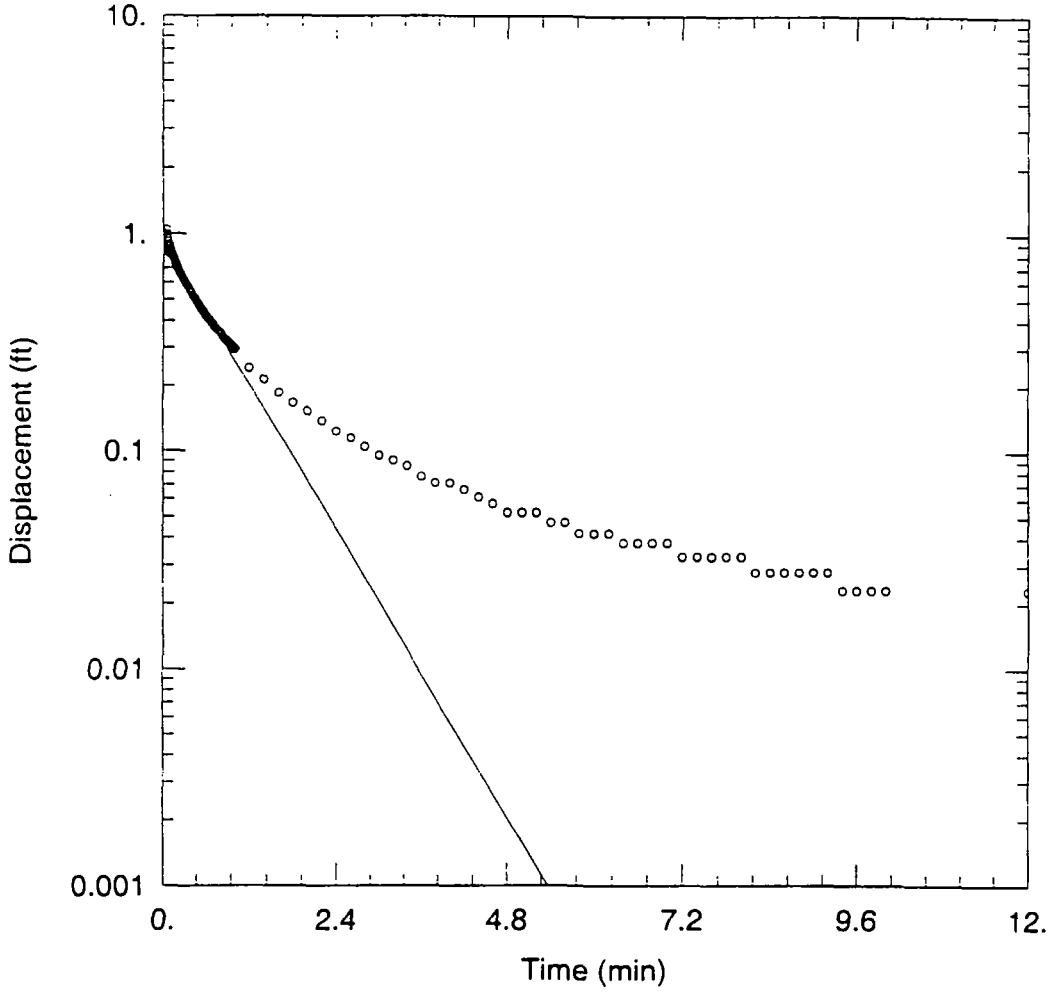
Estimated Parameters

Parameter	Estimate	
K	0.003101	ft/min
y0	0.9245	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.003101	6.398E-05	ft/min



PEL-EE-MW5

Data Set: C:\AQTESOLV\AQTESO~1\PELMW5.AQT
Date: 08/09/02 Time: 10:37:38

PROJECT INFORMATION

Company: Ecology & Environment, Inc.
Client: GEPD
Project: 1226.GD04
Test Location: Pelham, Georgia
Test Well: PEL-EE-MW5
Test Date: 7-31-02

AQUIFER DATA

Saturated Thickness: 30. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1. ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 16. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.005853 ft/min 8.4 ft/day
y0 = 0.9314 ft

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.1133	0.822	0.3066	0.608	3.	0.095
0.1166	0.817	0.31	0.603	3.2	0.09
0.12	0.813	0.3133	0.603	3.4	0.085
0.1233	0.803	0.3166	0.599	3.6	0.076
0.1266	0.798	0.32	0.594	3.8	0.071
0.13	0.794	0.3233	0.594	4.	0.071
0.1333	0.789	0.3266	0.589	4.2	0.066
0.1366	0.784	0.33	0.589	4.4	0.061
0.14	0.784	0.3333	0.584	4.6	0.057
0.1433	0.779	0.35	0.575	4.8	0.052
0.1466	0.77	0.3666	0.561	5.	0.052
0.15	0.77	0.3833	0.546	5.2	0.052
0.1533	0.765	0.4	0.537	5.4	0.047
0.1566	0.76	0.4166	0.523	5.6	0.047
0.16	0.755	0.4333	0.513	5.8	0.042
0.1633	0.751	0.45	0.504	6.	0.042
0.1666	0.746	0.4666	0.494	6.2	0.042
0.17	0.741	0.4833	0.485	6.4	0.038
0.1733	0.737	0.5	0.475	6.6	0.038
0.1766	0.737	0.5166	0.465	6.8	0.038
0.18	0.722	0.5333	0.456	7.	0.038
0.1833	0.727	0.55	0.446	7.2	0.033
0.1866	0.717	0.5666	0.442	7.4	0.033
0.19	0.717	0.5833	0.432	7.6	0.033
0.1933	0.713	0.6	0.423	7.8	0.033
0.1966	0.708	0.6166	0.418	8.	0.033
0.2	0.703	0.6333	0.408	8.2	0.028
0.2033	0.713	0.65	0.404	8.4	0.028
0.2066	0.698	0.6666	0.399	8.6	0.028
0.21	0.698	0.6833	0.389	8.8	0.028
0.2133	0.694	0.7	0.385	9.	0.028
0.2166	0.689	0.7166	0.375	9.2	0.028
0.22	0.684	0.7333	0.37	9.4	0.023
0.2233	0.679	0.75	0.366	9.6	0.023
0.2266	0.679	0.7666	0.361	9.8	0.023
0.23	0.675	0.7833	0.356	10.	0.023
0.2333	0.67	0.8	0.351	12.	0.023
0.2366	0.67	0.8166	0.347		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

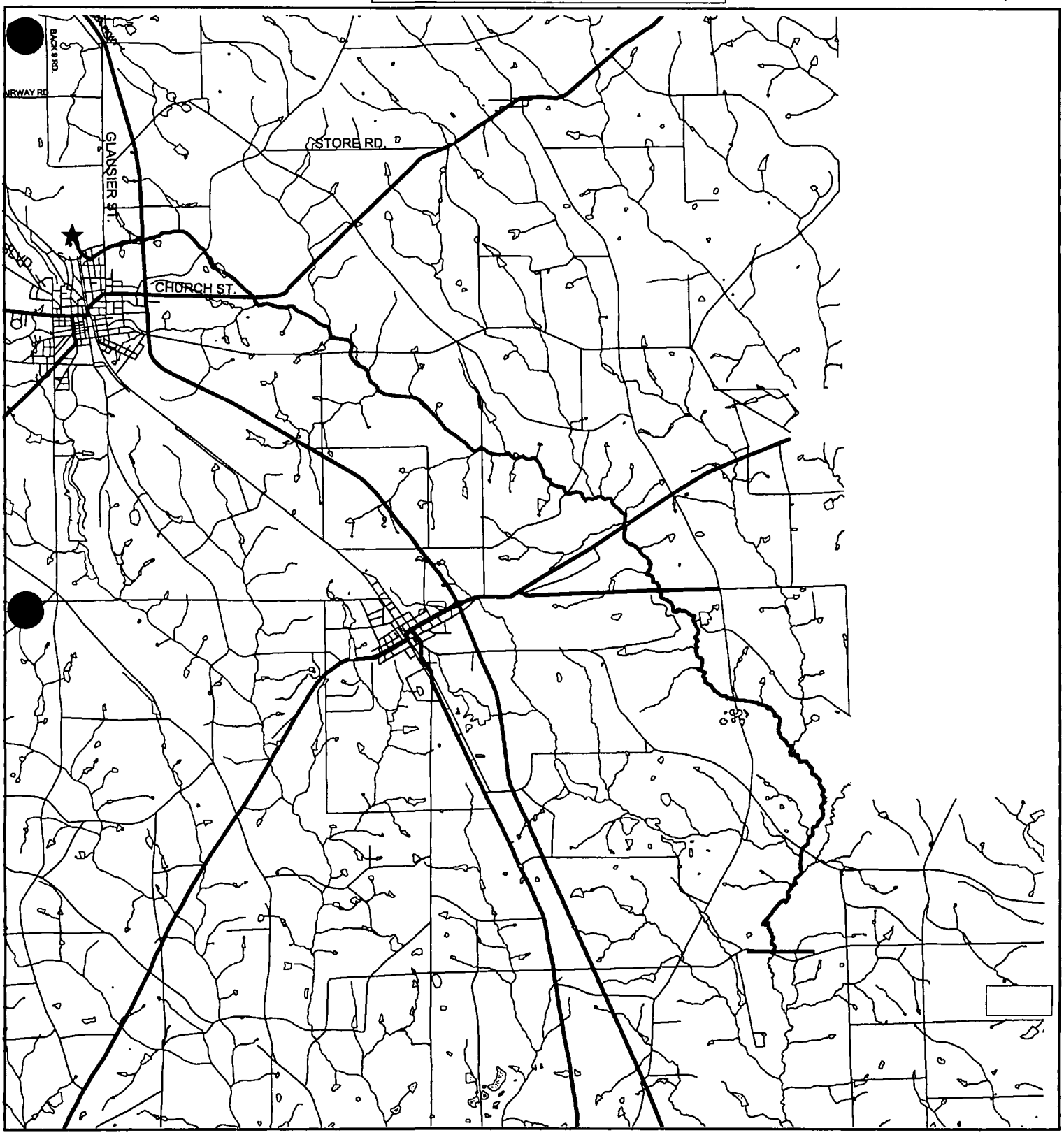
VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.005853	ft/min
y0	0.9314	ft

Appendix G
15 Mile Surface Water Downstream Pathway

Stoller Chemical
15 - Mile Downstream Pathway Map
Pelham, Mitchell County



Roads
State and US Highways
Interstate Highways
Rivers/Streams
Lake/Pond
Swamp/Marsh

0.5 0 0.5 1 Miles

31 08' 27" 82 09' 18"

Sources: Roads, Rivers, Wetlands from Georgia DOT (1993);
Surface Water Pathway U.S. Geological Survey Digital Raster Graphics (DRG)

Appendix H
U.S.G.S. 7.5 Minute Topographic Map

U.S. EPA REGION IV

SDMS

Unscannable Material Target Sheet

DocID: 10067994 Site ID: GAD003300092

Site Name: Stoller Chemical/Pelham Phosphate Comp.

Nature of Material:

Map:	✓	Computer Disks:	
Photos:		CD-ROM:	
Blueprints:		Oversized Report:	
Slides:		Log Book:	

Other (describe):

Amount of material: #3 - Appendix H, I, J

Please contact the appropriate Records Center to view the material.

Appendix I
National Wetlands Inventory

Appendix J
City of Pelham Public Supply Well Information

City of Pelham
Po Box 268
Pelham, Georgia 31779

City Of Pelham

July 22, 2002

RECEIVED
JUL 25 2002
HAZ. SITES RESPONSE PROG.

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Sites Response Program
Attn: Antonia Beavers
2 Martin Luther King Drive, S E
Suite 1426 East
Atlanta, Georgia 30334

Dear Antonia Beavers:

Enclosed you will find a system map, only one I could find to let out of the office on short notice. Also an informal sketch of column pipe and casing.

If this map is not sufficient, please let me know. The RDC in Camilla, can make copies of the needed office maps, but this will take a little longer.

Sincerely,

Teddie Huey

Teddie Huey
GWS Supt.

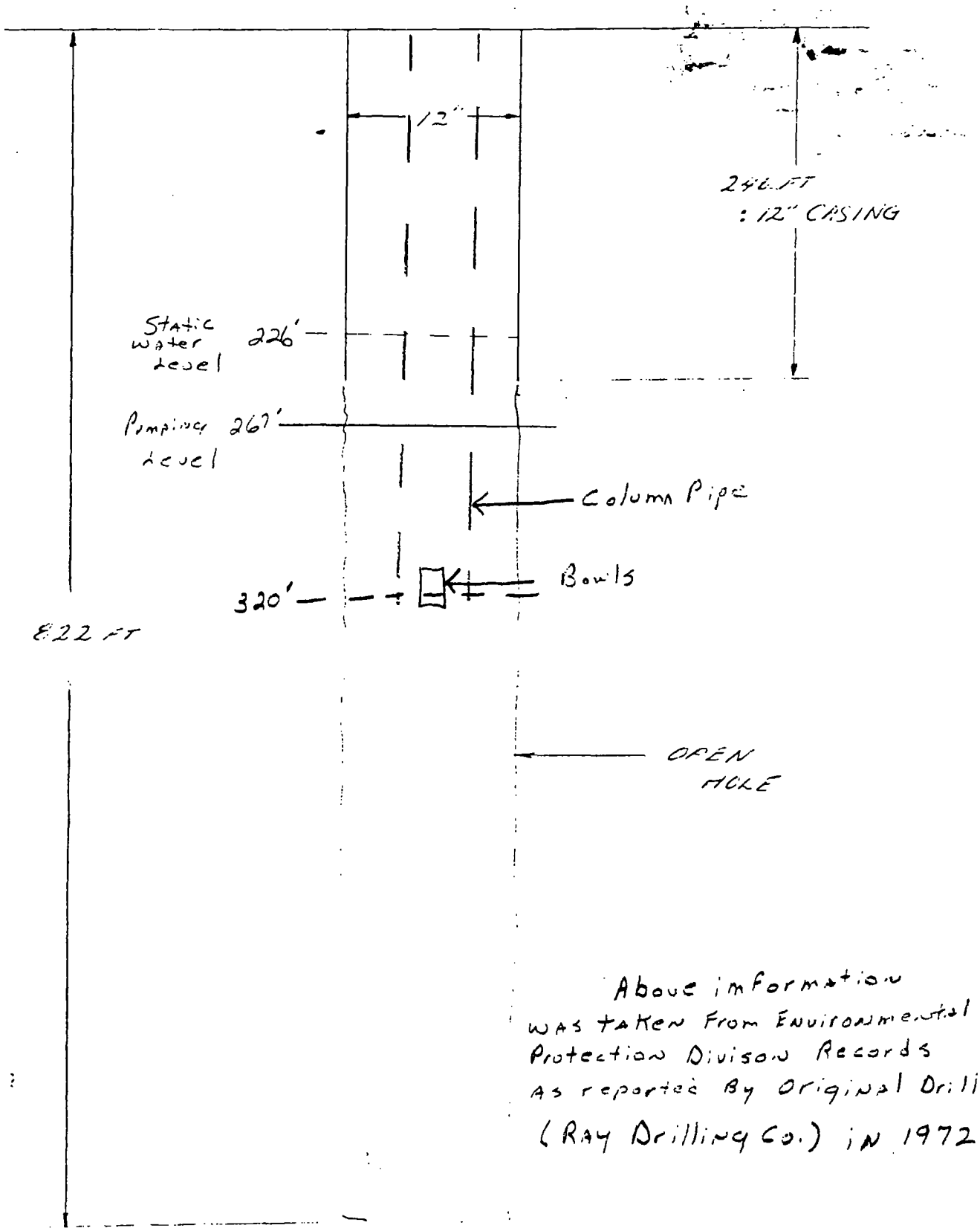
Fax—294-6018

BY ____ DATE ____ SUBJECT CITY OF PELHAM SHEET NO 1 OF 1

CHKD BY ____ DATE ____ DRILLED 1972 BY RAY DRILLING CO JOB NO ____

WELL CONSTRUCTION DATA FURNISHED BY

~~USGS~~ EPD ALBANY GA



Above information was taken from Environmental Protection Divison Records as reported By Original Driller (Ray Drilling Co.) in 1972

West Railroad well has 8" casing 300' + 6" column pipe 320'

PERMANENT

GEORGIA WELLHEAD PROTECTION PLAN

for

CITY OF PELHAM

MITCHELL COUNTY

Permit # 2050003

Expiration Date: June 27, 1997

Please file in
Mitchell County
WSPD 2050003
City of Pelham
permanent file

Field Survey By:	*Margaret W. Chambers*	*Date:*	*08/17/95*
Prepared By:	*Margaret W. Chambers*	*Date:*	*08/28/95*
Checked By:		*Date:*	
Approved By:	Susan L. Grunwald	*Date:*	9/1/95
Distribution:	*2 GGS Files; 1 WRMB; 1 Local Government*		

SYSTEM INFORMATION

Water System:	City of Pelham
County:	Mitchell
System ID. No.:	2050003
Expiration Date:	06/27/97
Number of Wells:	3
System Type:	municipal
Population:	4300
Class:	2
Region:	3
Province:	Coastal Plain
Aquifer Type:	Confined Coastal Plain
Significant Recharge Area:	none
*Pollution Susceptibility:**	average susceptibility
Supplier:	City of Pelham
Contact:	Teddy Huey
Title:	Water Superintendent
Address:	P.O. Box 362 Pelham, Ga. 31779
Phone No.:	912-294-6018
Fax No:	912-294-6028
WHPA Delineated:	08/17/95
PPSI Conducted:	08/17/95

Alternate Water Source: In the event of an emergency, the City of Pelham would be served by either of their other two wells, or bring in tankers of water to supply to the community until an alternate water source could be found.

*Hydrologic Atlas 18, Most Significant Ground-Water Recharge Areas of Georgia, Georgia Department of Natural Resources, Atlanta, 1989.

*Hydrologic Atlas 20, Ground-Water Pollution Susceptibility Map of Georgia, Georgia Department of Natural Resources, Atlanta, 1992.

Part 1: DELINEATING THE WELLHEAD PROTECTION AREA

see attached map

Well #1

Location description:	Well #1 is located on Hurst St. off of W. Railroad St.
Longitude:	84° 09' 12.5"W 84.15347
Latitude:	31° 07' 49.0"N 31.13028
Quadrangle:	Camilla
Aquifer Type:	Confined Coastal Plain
Delineation Method:	Arbitrary fixed radius
Pumping Rate:	450 gpm (approx.)
Cement Pad:	present
Well House:	present
Fence:	not present
Locked Gate:	not present
Control Zone:	15 foot radius
Inner-Management Zone:	100 foot radius

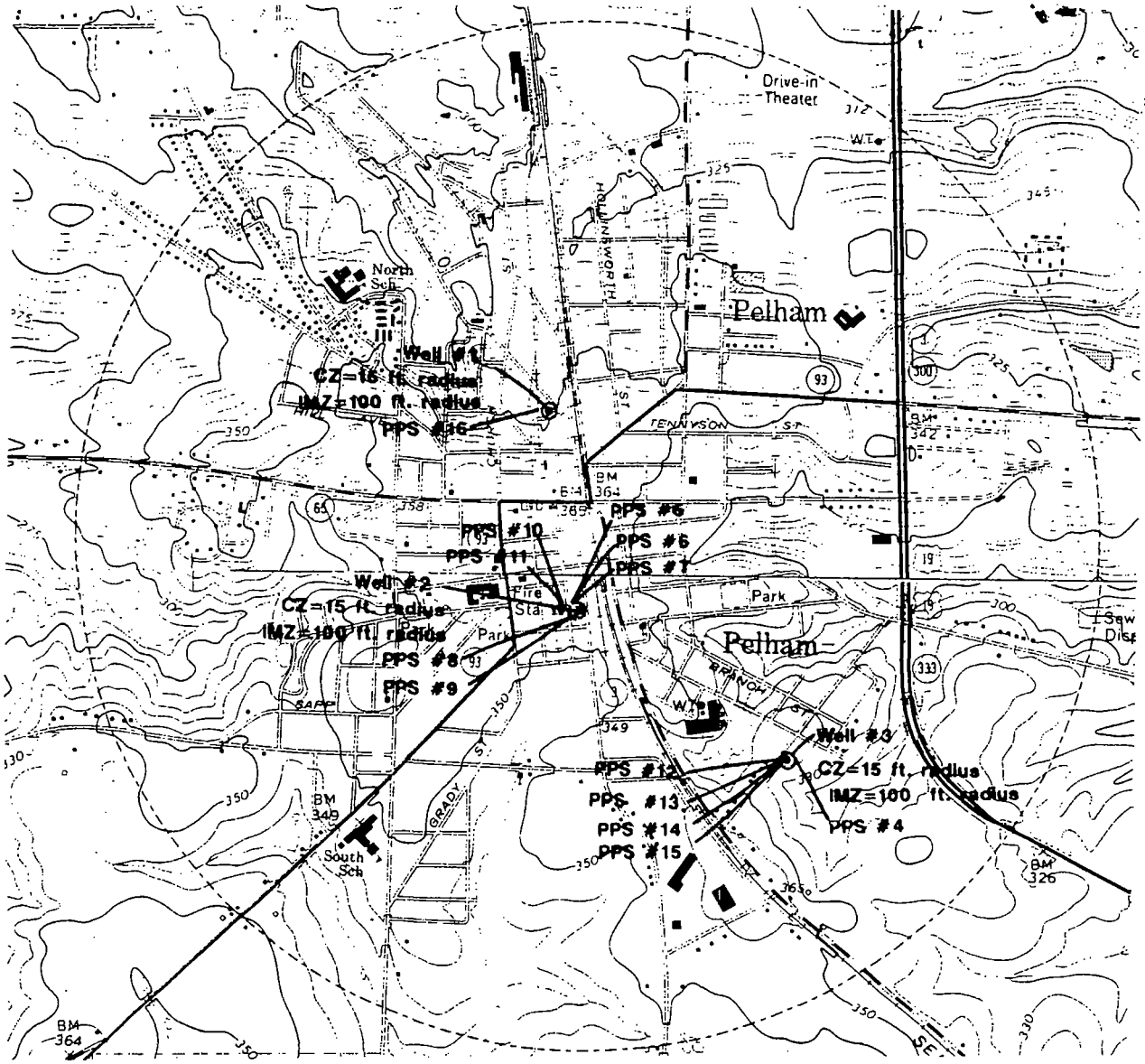
Well #2

Location description:	Well #2 is located at the city water tower off W. Railroad St.
Longitude:	84° 09' 07.9"W 84.15219
Latitude:	31° 07' 27.4"N 31.12428
Quadrangle:	Pelham
Aquifer Type:	Confined Coastal Plain
Delineation Method:	Arbitrary fixed radius
Pumping Rate:	750 gpm
Cement Pad:	present
Well House:	present
Fence:	present
Locked Gate:	present
Control Zone:	15 foot radius
Inner-Management Zone:	100 foot radius

Well #3

Location description:	Well #3 is located on Cotton St. at the site of the city maintenance garage.
Longitude:	84° 08' 40.6"W 84.14461
Latitude:	31° 07' 09.0"N 31.11917
Quadrangle:	Pelham
Aquifer Type:	Confined Coastal Plain
Delineation Method:	Arbitrary fixed radius
Pumping Rate:	1200 gpm
Cement Pad:	present
Well House:	present
Fence:	present
Locked Gate:	present
Control Zone:	15 foot radius
Inner-Management Zone:	100 foot radius

CITY OF PELHAM
WELLS #1-#3
WELLHEAD PROTECTION AREA



	Well #1	Well #2	Well #3
Quad:	Camilla	Pelham	Pelham
Long:	84° 09' 12.5"W	84° 09' 07.9"W	84° 08' 40.6"W
Lat:	31° 07' 49.0"N	31° 07' 27.4"N	31° 07' 09.0"N
C Z:	15 foot radius	15 foot radius	15 foot radius
IM Z:	100 foot radius	100 foot radius	100 foot radius

Note: Potential Pollution Sources 1-3 are not shown on the map; they are considered to be general potential pollution sources.

well #3

Georgia Department of Public Health
Water Supply Service
47 Trinity Avenue, S. W.
Atlanta, Georgia 30334

RECEIVED
DEC 11 1972
WATER SUPPLY SERVICE

DO NOT WRITE	
CLASS II	
CLASS III	
INDIVIDUAL	

WELL DATA SHEET
For
PUBLIC OR COMMUNITY WATER SUPPLY SYSTEMS OR INDIVIDUAL WATER SUPPLY

INSTRUCTIONS:

Name of Water System: City Pelham Ga Location Cotton Ave County Mitchell County

Type: Municipal ✓ ; Subdivision _____ No of Lots _____ ; Mobile Homes _____ or Trailer Parks _____

No of Lots _____ ; Industrial _____ ; Commercial _____ ; Individual _____ ; Other _____

Owner City Pelham
Address Pelham Ga
Date Drilling Started June 12 - 72

Driller W.R. Ray Ray Drilling Co
Address Route #B Box 70A Arlington Ga
Date Completed Oct 1 - 72

WELL DESCRIPTION

TYPE DRILLING (Check)

Rotary Rotary & Cable Tool
Percussion _____
Bored _____
Total depth of Well 822 Ft.
Depth to water (SWL) 230' Ft

HOLE DIAMETER:

From 0 Ft. To 822' Ft., ~~12~~ 18 in.
From _____ Ft. To _____ Ft., _____ in.
From _____ Ft. To _____ Ft., _____ in.
From _____ Ft. To _____ Ft., _____ in.
From _____ Ft. To _____ Ft., _____ in.

CASING RECORD:

Type Material Steel
Size 18" in., From 0 Ft. To 144.4' Ft.
Size 12" in., From 0 Ft. To 240'8" Ft.
Size _____ in., From _____ Ft. To _____ Ft.
Size _____ in., From _____ Ft. To _____ Ft.
Size _____ in., From _____ Ft. To _____ Ft

WELL SCREEN:

Type Material _____
Size _____ in., From _____ Ft. To _____ Ft
Size _____ in., From _____ Ft. To _____ Ft
Size _____ in., From _____ Ft. To _____ Ft.
Size _____ in., From _____ Ft. To _____ Ft.
Size _____ in., From _____ Ft. To _____ Ft.

GROUTING

Type Grout Cement
Applied by pressure Yes Other _____
From 0 Ft. To 240'8" Ft.
From _____ Ft. To _____ Ft.
From _____ Ft. To _____ Ft.

TEST PUMP DATA:

Pumped Pumped Bailed _____
Estimated _____
Date Tested 10 - 17 - 72
Pump rated _____ GPM _____ HP
Yield 856 GPM GPM after 24 hrs. of stabilization
Water Level before Test 230' Ft.
Drawdown 72 Ft.
Specify Capacity _____ GPM per ft.

Well developed and Disinfected:

Yes Yes _____ No

PERMANENT PUMP DATA (If Available)

Pump Type _____
Outlet Size _____
Powered by _____
Horse power _____
Rate _____ GPM
Pumping Level _____
Pump Disinfected _____ Yes _____ No

FOR WELL LOG, USE REVERSE SIDE

EH 4.8-9

CHARLIE RAY
W. R. RAY

PUMPS AND WELLS
PHONE 725-4442

RAY DRILLING COMPANY

ROUTE 2
ARLINGTON, GEORGIA 31713

RECEIVED
DEC 11 1972
WATER SUPPLY
SERVICE

FORMATIONS
WATER WELL NO. 8
PELHAM, GEORGIA

1- 10	Red Sandy Clay
10- 40	Stiff Red Clay
40-102	White Clay
102-117	White Clay- trace of rock
117-144	White Clay
144-185	Chalky Clay with rock
185-195	Grey Clay
195-220	Lime Rock
220-234	Chalky lime
234-270	Lime Rock
270-410	Hard and soft lime streaks
410-426	Chalky Lime
426-442	Hard Lime
442-472	Hard and soft lime- ~~tinge~~ streaks
472-480	Hard white lime
480-512	Medium soft lime
512-522	Hard white lime
522-644	Medium soft lime
644-702	Medium soft lime- traces of clay
702-740	Chalky clay- traces of rock
740-765	Medium hard lime- traces of clay
765-782	Chalky ~~xxxxx~~ clay- traces rock
782-822	Clay and rock

Georgia Department of Natural Resources

2 Martin Luther King, Jr. Drive, Suite 1462, Atlanta, Georgia 30334
Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
404/657-8600

February 21, 2002

TRIP REPORT

Site Name & Location: Pelham Phosphate Company
Pelham, Georgia (Mitchell County)

Trip By: David Brownlee, Environmental Engineer
Jane Hendricks, Unit Coordinator

Date of Trip: February 6, 2002

Persons Contacted: Paul Cheney, Ecology & Environment
Bruce Wilson, Ecology & Environment

Reference: PAF Inspection

Comments:

On February 6, 2002, Jane Hendricks and I conducted a PAF inspection at the former Pelham Phosphate Company facility in Pelham, Georgia. At the site, we met the EPD contractors from Ecology & Environment that are assigned to do the groundwater investigation. The purpose of the trip was to survey the current status of the site and to identify potential sampling points.

After arriving at the site, we found access through an open gated area and began hiking around the site. After failing to find the access road, presumably overgrown now with kudzu, we approached the capped area of the site. The capped area had an outer berm area to control surface water run-off. Some terraced silt fencing material was also evident. From the capped area, we moved to a drainage area outside the bermed area. This area had flowing run-off that appeared discolored (whitish). We identified this drainage area as a potential location for future sampling.

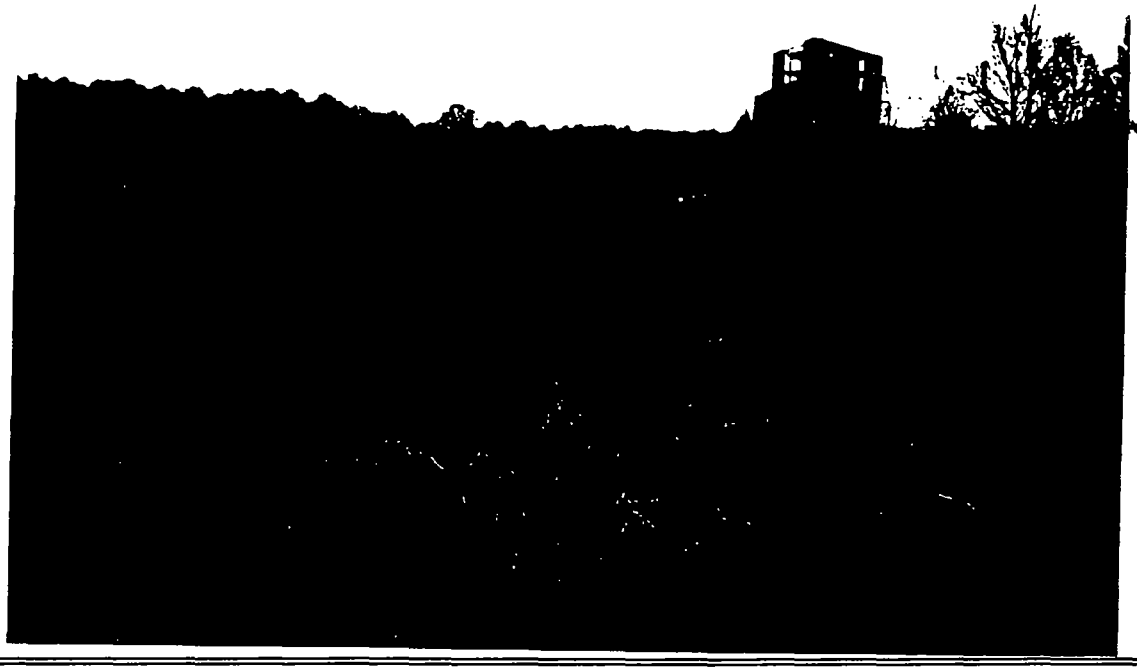
From the drainage area, we moved to where some of the former operations and storage areas were located. Along the way, we observed several patches of what appeared to be raw sulfur and some monitoring wells. In the former operations area, there were several old storage containers with Pelham Phosphate's logo and many more dismantled plastic container vessels that were used by USEPA during their remediation efforts. Inside one of the buildings, several drums were seen that appear to be left over from USEPA's operations. We then proceeded to make our way back to the open gated area to leave the site.

Recommendation:

Have the contractor proceed with developing a Site Assessment Workplan (SAW) that includes surface water and sediment sampling in addition to investigating groundwater. Disposal of the drummed material inside the building should be added to the SAW as well. A separate PAF for the periodic maintenance of the capped area should be considered.

REVIEWED BY: DATE: 3-7-02

S:\RDRIVE\DAVIDB\MISC\TRIPS\Pelham Phosphate February 6, 2002 PAF Inspection



County: Mitchell Picture 1 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: David Brownlee (DAB) Program: Hazardous Site Response Program (HSRP)

Explanation: View of site and capped area from along the former access road now overgrown with kudzu.

County: Mitchell Picture 2 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Close-up of interior of building (shown on right in photo above).

County: Mitchell Picture 3 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: View of some intact and dismantled storage containers as seen from thecapped area.

County: Mitchell Picture 4 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Close-up of a former storage container bearing the company's name.

County: Mitchell Picture 5 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Close-up of some dismantled plastic storage containers used by EPA.

County: Mitchell Picture 6 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: View of the site from the far side of the facility property near the borrow pit property.

County: Mitchell Picture 7 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: View of the berm area separating run-off from the capped area from the rest of the site.

County: Mitchell Picture 8 of 12 Site Name: Pelham Phosphate Company

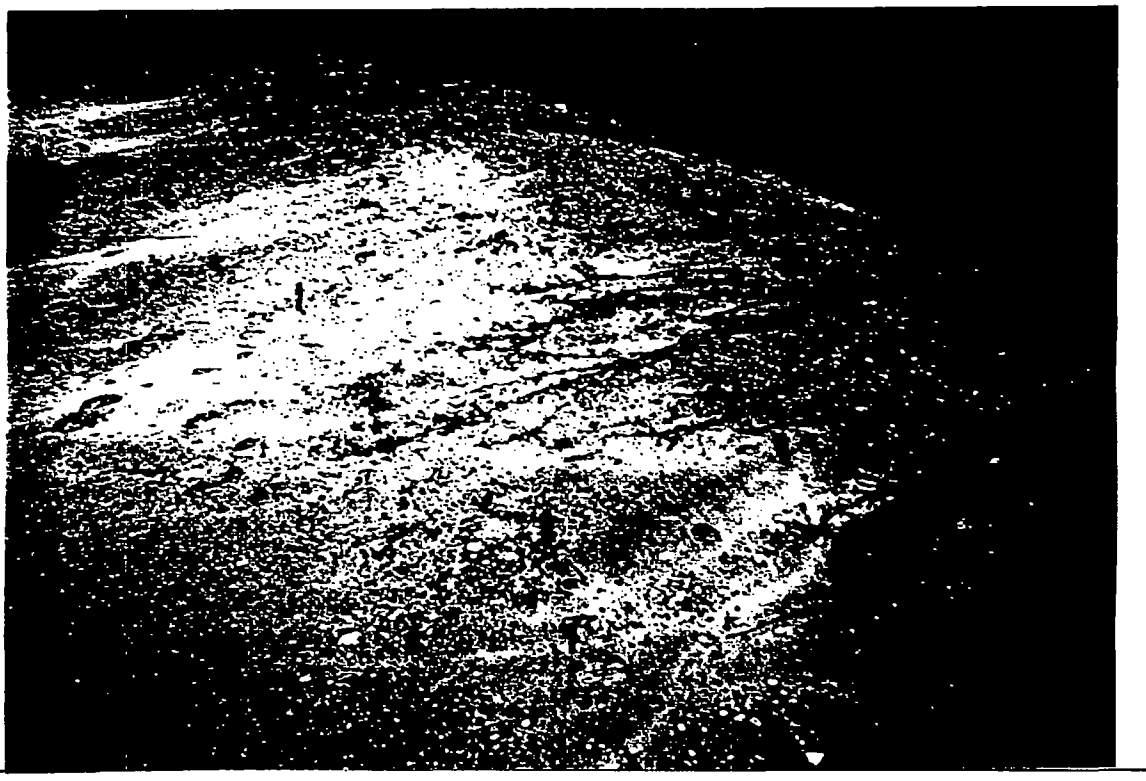
Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Another view of the berm area with terraced silt fencing visible on the right.

County: Mitchell Picture 9 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

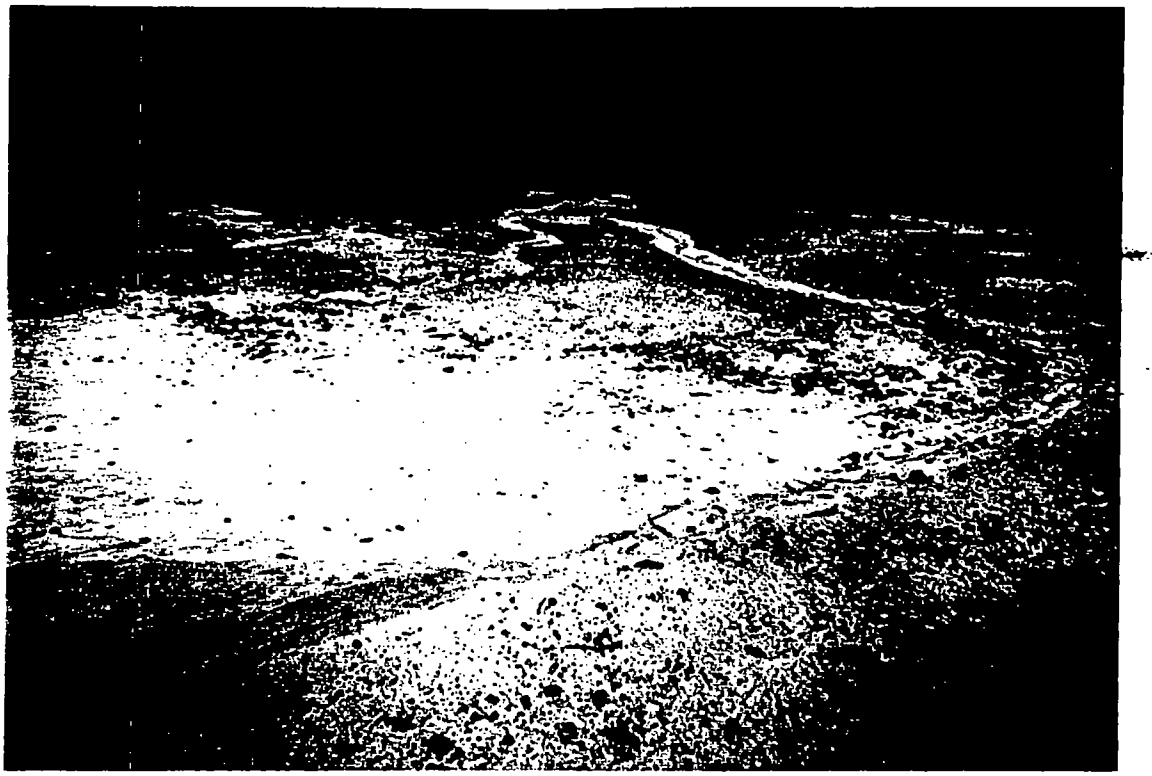
Explanation: View of an open drainage area with the capped area just right of the picture.



County: Mitchell Picture 10 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Close-up of some exposed sulfur like material in the drainage area.



County: Mitchell Picture 11 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Closer view of the drainage area with some visible water in the far background.

County: Mitchell Picture 12 of 12 Site Name: Pelham Phosphate Company

Date: 2/06/02 Photographer: DAB Program: HSRP

Explanation: Close-up of stormwater run-off from the site in the drainage area.

Georgia Department of Natural Resources

2 Martin Luther King, Jr. Drive, SE, Suite 1462 East, Atlanta, Georgia 30334
Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
Hazardous Waste Management Branch
404/657-8600

July 15, 2002

Trip Report

Site Name and Location:	Stoller Chemical / Pelham Phosphate Company West Railroad Street Pelham, Mitchell County, Georgia
Trip By:	Antonia S. Beavers, Environmental Engineer-HWMB David Brownlee, Environmental Engineer-HWMB
Accompanied By:	Paul Cheney, Ecology and Environment, Inc. David Crawley, Ecology and Environment, Inc.
Date of Trip:	June 24, 2002
Officials Contacted:	None
Reason for Trip:	Site Reassessment Inspection
Reference:	EPA ID: GAD003300092

Comments:

On June 24, 2002, David Brownlee and I conducted an inspection at the Stoller Chemical / Pelham Phosphate Company Site. We arrived at the site at approximately 1:15 PM and met with EPD's contractor, Ecology and Environment, Inc. The purpose of the inspection was to collect non-sampling data to evaluate potential pathways determined by the Expanded Site Investigation conducted in October of 1994. David Brownlee and EPD's contractors were onsite to determine sample locations as proposed in the site assessment work plan.

We entered the site by walking along the railroad tracks on the eastern boundary. It was determined that a monitoring well (background well) would be installed near the southeast corner of the site near the site entrance on West Railroad Street. We then traveled to the former process area of the site and noted a building in poor structural condition. It contains rusted equipment, parts, and etc. The building is located to the east of the capped landfill area. The landfill is sloped and covered in vegetation. A monitoring well will be installed north of the building and east of the landfill.

The next area of the site inspected was in the area of an on-site storage shed. The shed is in poor structural condition as the roof is caving in some places. The shed contains several drums with various labels, broken bottles, and fertilizer product. A monitoring well will be installed west of the shed and north of the landfill area. South of the storage shed is a tank farm that included storage vessels with the Pelham Phosphate logo and some dismantled plastic containers left by USEPA following removal actions conducted at the site.

We then traveled along the landfill area to the drainage area. The landfill has a bermed area to control surface water runoff that is directed to a drainage area that connects with the adjacent intermittent creek. It was determined that wells would be installed both west of the landfill area and

in a wooded area across from the drainage area. The drainage ditch was dry with the exception of one small area with standing water. There will be a surface water sample collected at that point if surface water is present when samples are collected. Two sediment samples will be collected at the point of off-site surface water discharge in the drainage area southwest of the landfill. Surface water samples will be collected at those points if available. We then walked around the property boundary to check for evidence of the intermittent creek. Site conditions were dry and there was no visual or auditory evidence of the creek.

There was evidence of a recent fire at the site. Silt fencing along the landfill was burned and there were also burned trees, brush, and grass evident at the time of the inspection.

Well Survey:

David and I conducted a survey for private wells in the vicinity of the site. I spoke with Ms. Sheila Mobley (536 Love Street) and Mr. Horace Coleman (451 Church Street) who both use city water and were not aware of anyone near them that used a private well. We then traveled more than 4-milessouth of the site to 1391 Dixie Highway (William and Judy Daltrie) in the city of Meigs, Georgia where a private well was in use.

Recommendation/Follow-Up Required:

Prepare site reassessment report.

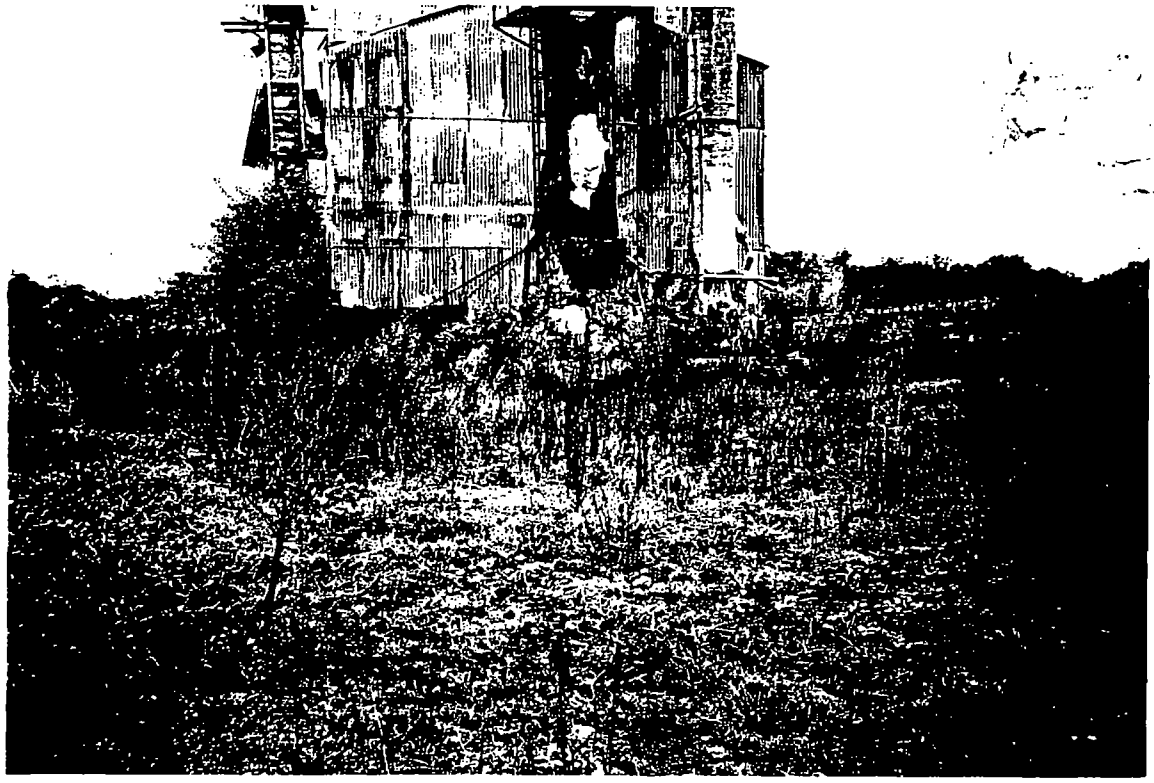
Attachments: Site Sketch

Photographs: 6

Reviewed By: Alex Cleary
Alexandra Y. Cleary, Unit Coordinator

HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ___1_____ of ___6_____



Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	Far view of former process (chealate) building. The building is in poor structural condition.

HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ___2_____ of ____6____

Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	Close view of former process building. Equipment and other debris
	from former manufacturing operations are visible.

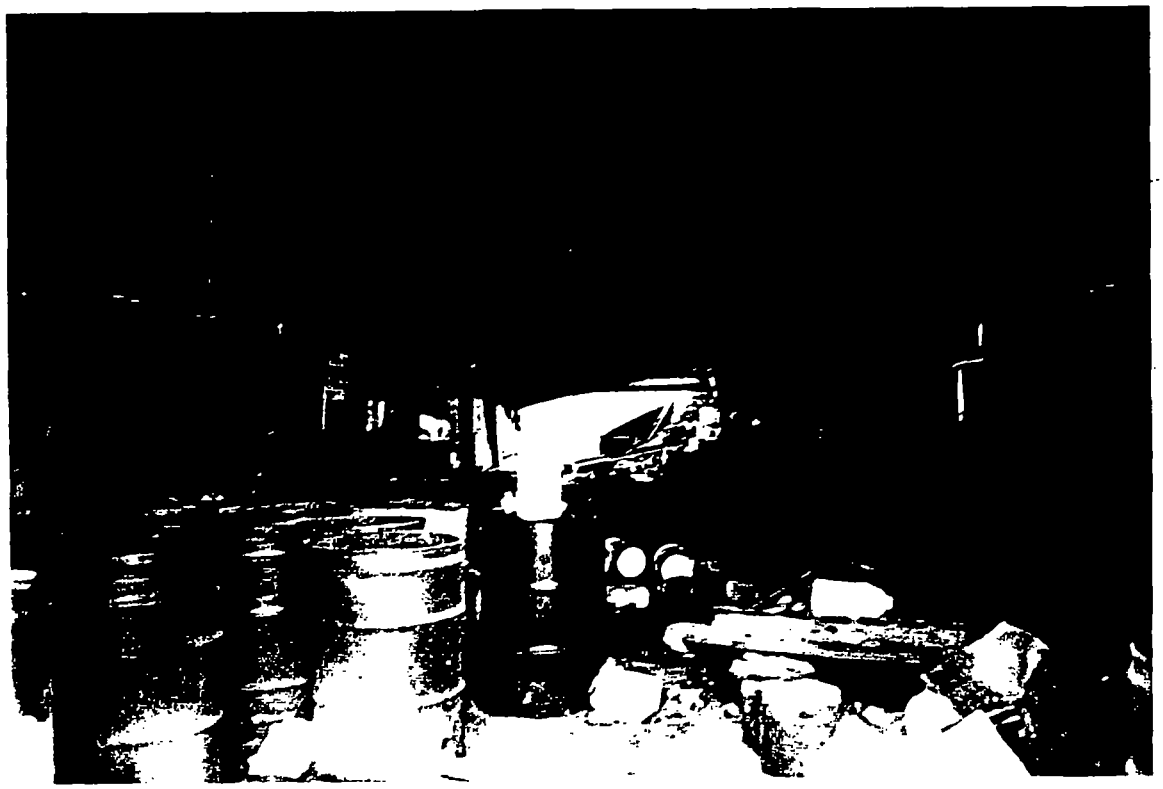
HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ____3____ of ____6____

Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	Far view of storage warehouse and scrap yard located in the northeast
	corner of the former process area, which is west of the railroad tracks
	and north of the landfill area.

HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ___4_____ of ___6_____



Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	Close view of storage warehouse located in the northeast quadrant of
	the former process area, west of the railroad. The contents of the
	warehouse include drums and buckets of material. The roof of the
	warehouse is collapsing at one end.

HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ____5____ of ____6____

Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	Close view of contents of storage warehouse located in the west of the
	railroad tracks and north of the metal scrap yard and landfill area.
	Fertilizer product, bottles, and drums of material are present.

HAZARDOUS SITES RESPONSE PROGRAM

Photograph No. ___6_____ of ___6_____

Site Name:	Stoller Chemical/ Pelham Phosphate Company
	GAD003300092
Address:	West Railroad Street
	Pelham, Georgia
County:	Mitchell
Date:	June 24, 2002
Photographer:	Antonia Beavers
Type of Inspection:	Site Reassessment Report
Description:	View of drainage area west of the landfill. The drainage area was dry
	at the time of the inspection with the exception of the collection of
	surface water observed.

Georgia Department of Natural Resources

2 Martin Luther King, Jr. Drive, SE, Suite 1462 East, Atlanta, Georgia 30334
Lonice C. Barrett, Commissioner
Environmental Protection Division
Harold F. Reheis, Director
Hazardous Waste Management Branch
404/657-8600

July 31, 2002

Trip Report

Site Name and Location:	Stoller Chemical / Pelham Phosphate Company West Railroad Street Pelham, Mitchell County, Georgia
Trip By:	Antonia S. Beavers, Environmental Engineer-HWMB ASB
Accompanied By:	Jacki Scarbary, Environmental Specialist-HWMB JS
Date of Trip:	July 16, 2002
Officials Contacted:	Teddie Huey, Pelham Gas, Water, and Sewer
Reason for Trip:	Well Survey
Reference:	EPA ID: GAD003300092

Comments:

Jacki Scarbary and I arrived a Pelham City Hall at approximately noon to page Teddie Huey of the Pelham Gas, Water, and Sewer Department. Mr. Huey was in a meeting, so we proceeded with the well survey.

We started the well survey along Kelly Aly located immediately west of the site, whose residents use city water for domestic purposes. The survey continued along Love Street. There were no drinking water wells located on Love Street within the city limits, as these residents use city water for drinking water purposes. Just beyond the sign denoting the city limits, a well was visible in a yard at 1878 Landfill Road (mailbox address Route 3, Box 1878). Acid Branch creek was visible in the backyard at this residence and the creek bed was dry. No one answered the door at the residence at the time of the survey. I spoke with Frank Jones, who lives on Love Street, approximately 2 miles past Bumblebee Road. He uses a drinking water well at his residence and estimates the depth of the well at approximately 200 feet.

We then searched for wells along the streets in the area northwest of the site. Most residents interviewed were connected to and used city water. A drinking water well was located at 3881 New Hope Road at the Residence of Jack and Laura Jones (229-294-3855). I spoke with Ms. Laura Jones who confirmed the well is used for drinking water and estimated the depth of the well at 200 feet. I spoke with Ms. Anita Wilson at 4264 First Street (229-294-9961) who has a well in her yard that is not in use. Her residence uses city water.

The well survey was concluded at 1:30 PM. It noted that the nearest school in proximity to the site is the Pelham City School on West Railroad Street. We then returned to City Hall to contact Mr. Huey who was paged and agreed to meet me at City Hall. He'd conducted a well survey northwest of the site and provided me with a list (attached) of wells and their current usage on New Hope Road, First

Street, and Second Street. The status of the usage of the wells was not complete as some residents were not home when the survey was conducted. I used Mr. Huey's information and followed up with the residents via telephone. The information has been compiled in Table 1 below. When asked the depth of the wells, most residents indicated their wells were 200 to 300 feet deep, and some residents did not know the depths of their wells.

Mr Huey explained that residents within the city limits are connected to and use municipal water provided by the City of Pelham's three (3) public supply wells. He said the city's water lines run just beyond the intersection of First Street and Cemetery Road in the northwest direction. He said he would search his records and try to provide me with a map detailing the extent of the city's water lines. When asked the depth of the public supply wells, Mr. Huey explained that the wells are approximately 700 to 800 feet deep with the column pipes at about 320 feet. He agreed to search his records for a well diagram and forward it to me. He said the wells are inspected and sampled in accordance with the state's Drinking Water Program guidelines.

TABLE 1

Owner	Location	Well at Location	Well Usage	Municipal Water
Jack Jones	3881 New Hope Road	Yes.	Drinking Water	No
Robert Reddick	3895 New Hope Road	Yes.	Not Functional	Yes
Eddie Cobb	4326 2nd Street	Yes.	Outside Use	Yes
Octavia Jones	4410 2nd Street	Yes	Yes	No
Not occupied	4430 2nd Street	Yes	Unknown	No
Lavernia Banks	4308 1st Street	No	N/A	Yes
Geneva Brown	4279 1st Street	Yes	Not Used	Yes
Curt Foy	1st Street	Yes	Outside Use	Yes

Recommendation/Follow-Up Required:

Prepare site reassessment report.

Attachments: Well survey results.

Photographs: None

Reviewed By: Alex Cleary
Alexandra Y. Cleary, Unit Coordinator

Mr. Jones next to Redick
3881 New Hope Rd. well
No City Water

next Door to Mr. Jones
Mr. Redick New Hope Rd.
Had wet tore up.
Now has City Water

4326 2nd Street
on City Water
Uses well for outside water

Corner of Shingle & 2nd ST.
Rose Almond Lot.
No Trailer moved — Had City Water Hooked up.

4410 2ST ST.
well - Is Hook to City Water

4430 2ST ST.
well - is not Hooked to City Water

4308 1ST. ST.
Well — meter is not Hooked up.
Uses well

4279 1ST. ST.
Well in Back yard - on City water

Curt Foy - 1ST ST.
Well outside water use
on City Water

second Trailer on Left going
North west on 1ST ST.

Appendix L
References

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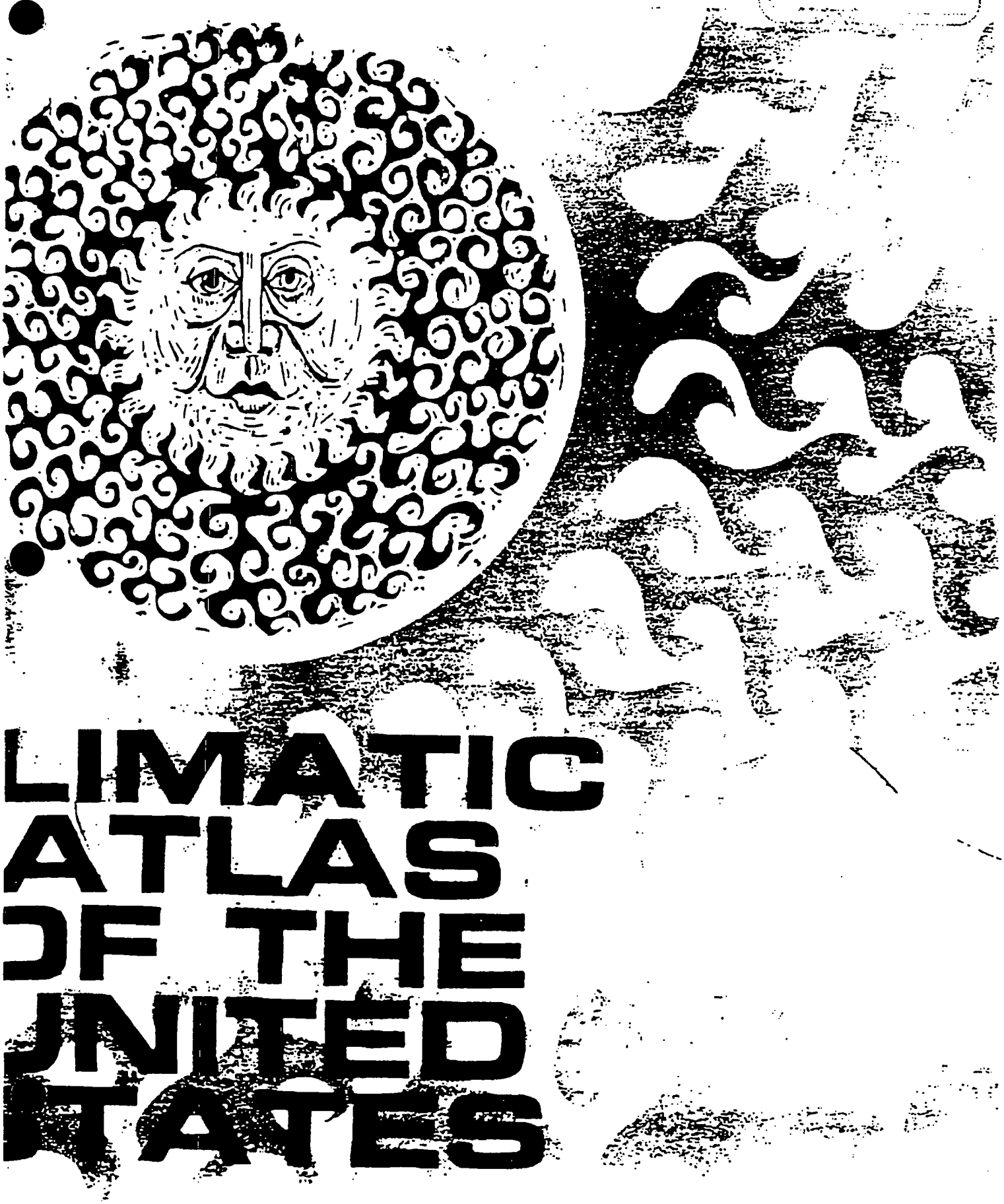
Reference 3



U.S. DEPARTMENT OF COMMI
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMII
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

JUNE 1968

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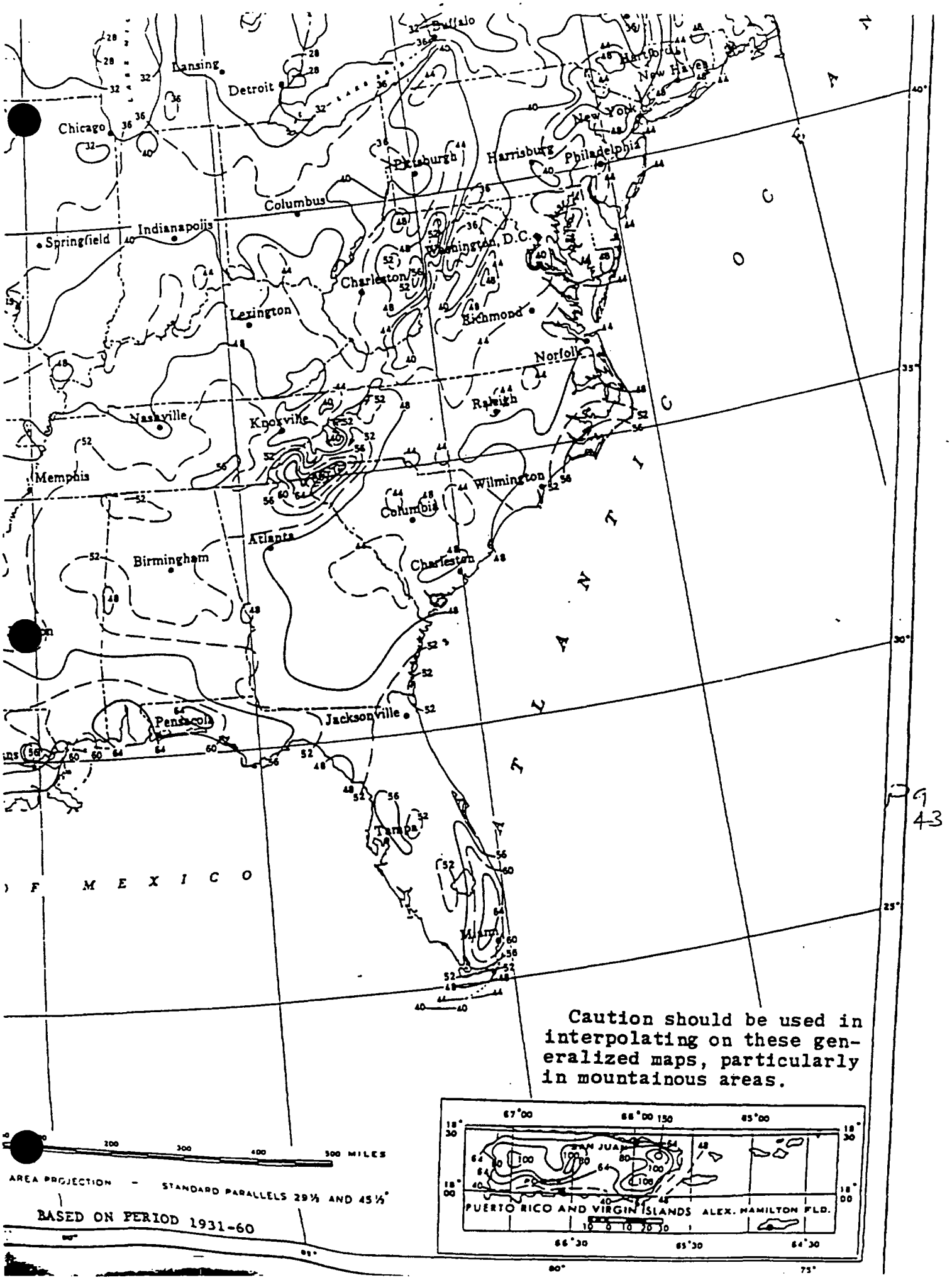
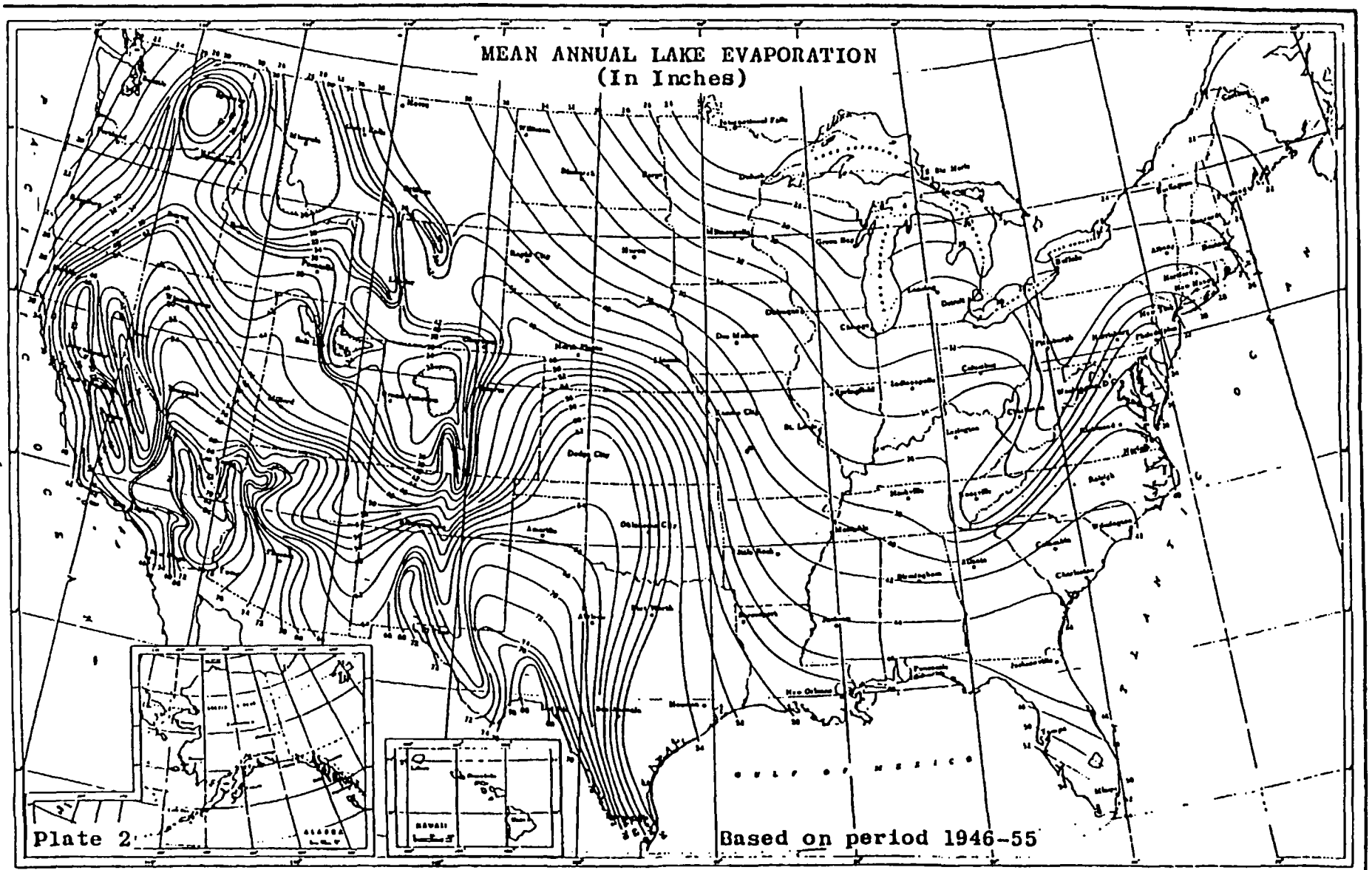
NATIONAL OCEANIC AND ATMOSPHERIC ADM
1983

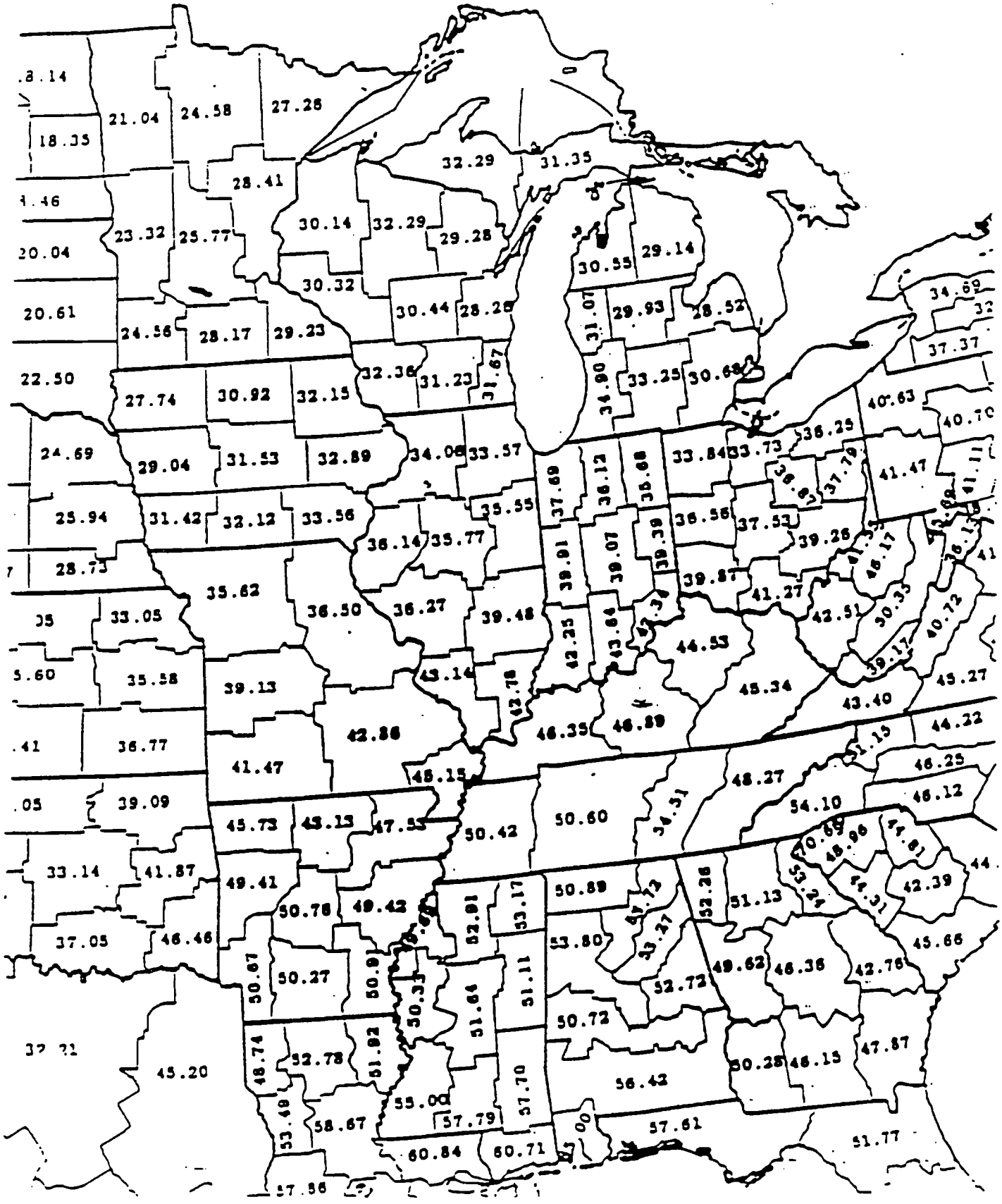

Lansing
Detroit
Buffalo
Chicago
Springfield
Indianapolis
Columbus
Pittsburgh
Harrisburg
Philadelphia
New York
New Haven
Hartford
Washington, D.C.
Charleston
Lexington
Richmond
Norfolk
Raleigh
Nashville
Knoxville
Memphis
Wilmington
Columbia
Atlanta
Birmingham
Charleston
Pensacola
Jacksonville
Tampa
Miami
F M E X I C O
A T L A N T I C O C E A N
Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.
200 300 400 500 MILES
AREA PROJECTION - STANDARD PARALLELS 29½ AND 45½°
BASED ON PERIOD 1931-60
SAN JUAN
PUERTO RICO AND VIRGIN ISLANDS
ALEX. HAMILTON FLD.

Pg 43

.AKE EVAPORATION



ON (inches) BY STATE CLIMATIC DIVISIONS



DEPARTMENT OF COMMERCE
[illegible] H. Hodges, Secretary

WEATHER BUREAU
F. W. Reichelderfer, Chief

#89168

Reference 4

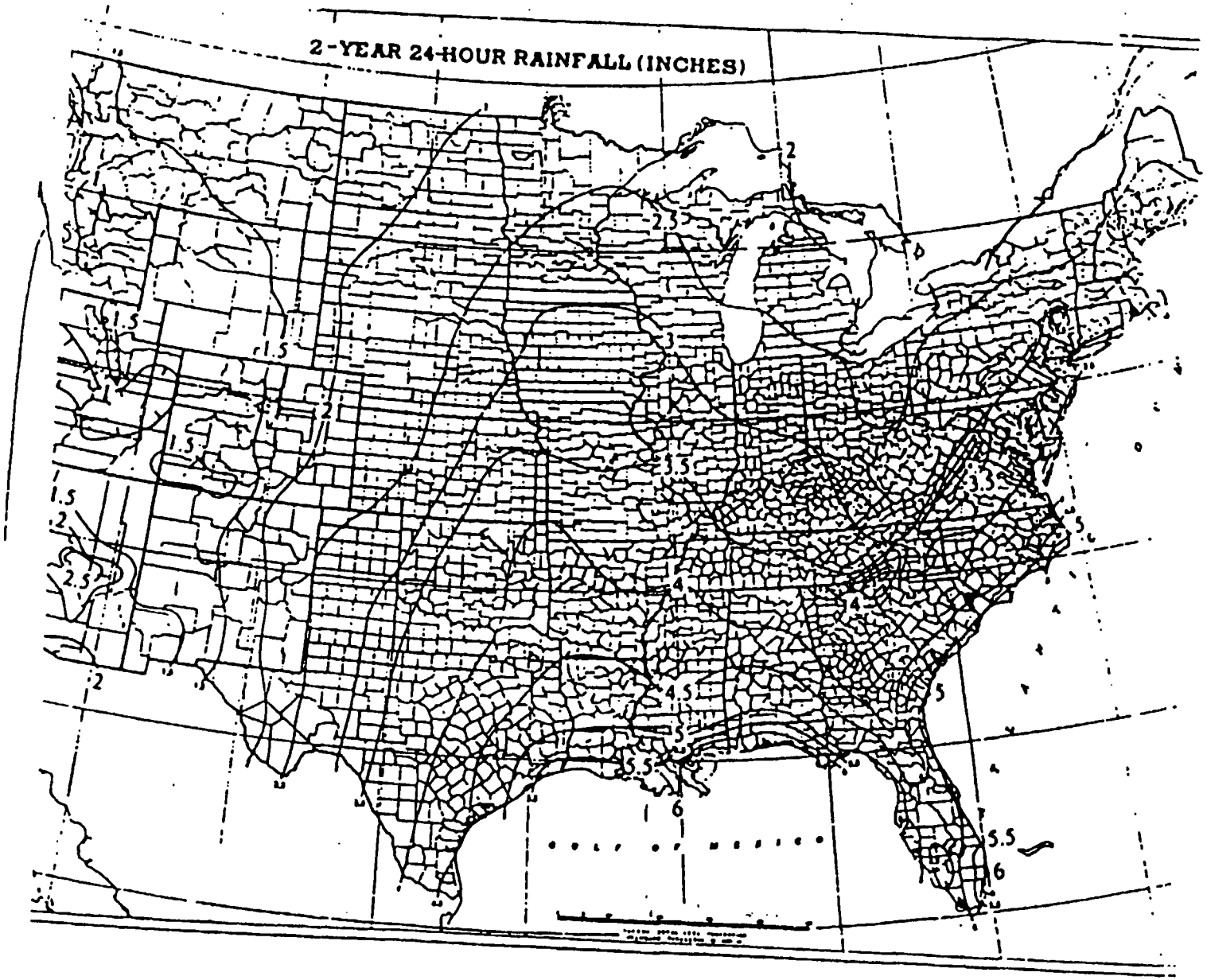
TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PROPERTY OF EPA
FIT IV


2-YEAR 24-HOUR RAINFALL (INCHES)
2
2.5
3
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4
4.5
5
5.5
6

IC 24

Reference 11

89119

Cric Morley

GEORGIA

STATE DIVISION OF CONSERVATION

DEPARTMENT OF MINES, MINING AND GEOLOGY
GARLAND PEYTON, Director

THE GEOLOGICAL SURVEY
Information Circular 24

GEOLOGY AND GROUND-WATER RESOURCES OF MITCHELL COUNTY, GEORGIA

by

VAUX OWEN, Jr.
United States Geological Survey

Prepared cooperatively by the U. S. Geological Survey

ATLANTA
1963

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Geology And Ground-Water Resources Of Mitchell County, Georgia

Vaux Owen, Jr.

ABSTRACT

Mitchell County is underlain by 5,000 to 7,000 feet of sedimentary rocks ranging in age from Early Cretaceous or older to Recent; some of the lower sedimentary beds are possible Paleozoic or Triassic in age. Water is obtained from wells that tap rocks of the middle Eocene, upper Eocene, Oligocene, and Miocene Series from depths ranging from 80 to 750 feet. The middle Eocene includes the Tallahatta and Lisbon Formations of the Claiborne Group. The upper Eocene includes the Ocala Limestone of the Jackson Group. The Oligocene includes the Suwannee Limestone of the Vicksburg Group, and the Miocene includes the Tampa Limestone and the Hawthorn Formation. No water is obtained from formations below the Tallahatta because of the availability of water at shallower depth. Potable water may be available, however, from rocks as deep as the Upper Cretaceous series.

The Tallahatta Formation consists of massive sand commonly containing a coquina limestone near the top, and the Lisbon Formation consists of dense, sandy limestone. The Ocala Limestone ranges from pure, bioclastic limestone to crystalline, dolomitic limestone. The Suwannee Limestone consists of pure, bioclastic limestone. The Tampa Limestone consists of sandy limestone, sandy marl, sand and fuller's earth, and the Hawthorn Formation consists of clayey sand and sandy clay.

The area may be divided into three geologic and ground-water regions--the Dougherty Plain, the Solution Escarpment, and the Tifton Upland. The main structure in the Dougherty Plain and Solution Escarpment is a regional homocline, which dips southeastward at a rate ranging from about 22 feet per mile on top of the rocks of the Upper Cretaceous Series to about 10 feet per mile on top of the Ocala Limestone. The main structure in the Tifton Upland is a northeast-trending syncline, the northwest flank of which crosses the southeast corner of Mitchell County.

Small supplies of water for domestic purposes may be obtained in the Dougherty Plain from drilled wells 80 to 460 feet deep that tap the Ocala Limestone or the Tallahatta Formation. Large supplies of water for municipal, industrial, and irrigation purposes may be obtained in the Dougherty Plain from drilled wells 200 to 540 feet deep that tap the Ocala Limestone or the Tallahatta Formation. Yields of at least 1,000 gpm (gallons per minute) can be expected from properly constructed wells 200 to 300 feet deep that tap the Ocala Limestone throughout most of the Dougherty Plain. Ground-water conditions in the Solution Escarpment are similar to those in the Dougherty Plain except that wells are generally from 100 to 200 feet deeper.

Small supplies of water in the Tifton Upland are obtained from drilled wells 300 to 500 feet deep that tap the Ocala, Suwannee, or Tampa Limestones. Large supplies of water in the Tifton Upland are obtained, along its northwestern boundary, from drilled wells 500 to 750 feet deep. Some of these wells obtain water only from the Ocala Limestone, but most of them obtain water from the Ocala and Suwannee Limestones and the Tallahatta Formation. Yields of as much as 1,000 gpm may be obtained from properly constructed wells in the Ocala Limestone or Tallahatta Formation near the northwestern border of the Tifton Upland, but such yeilds probably would be difficult to obtain in other parts of the Tifton Upland where the aquifers are more deeply buried and less productive.

Ground water in Mitchell County is of good chemical quality and is suitable for most purposes without treatment. The water ranges from moderately hard to hard and does not contain excessive amounts of undesirable dissolved constituents.

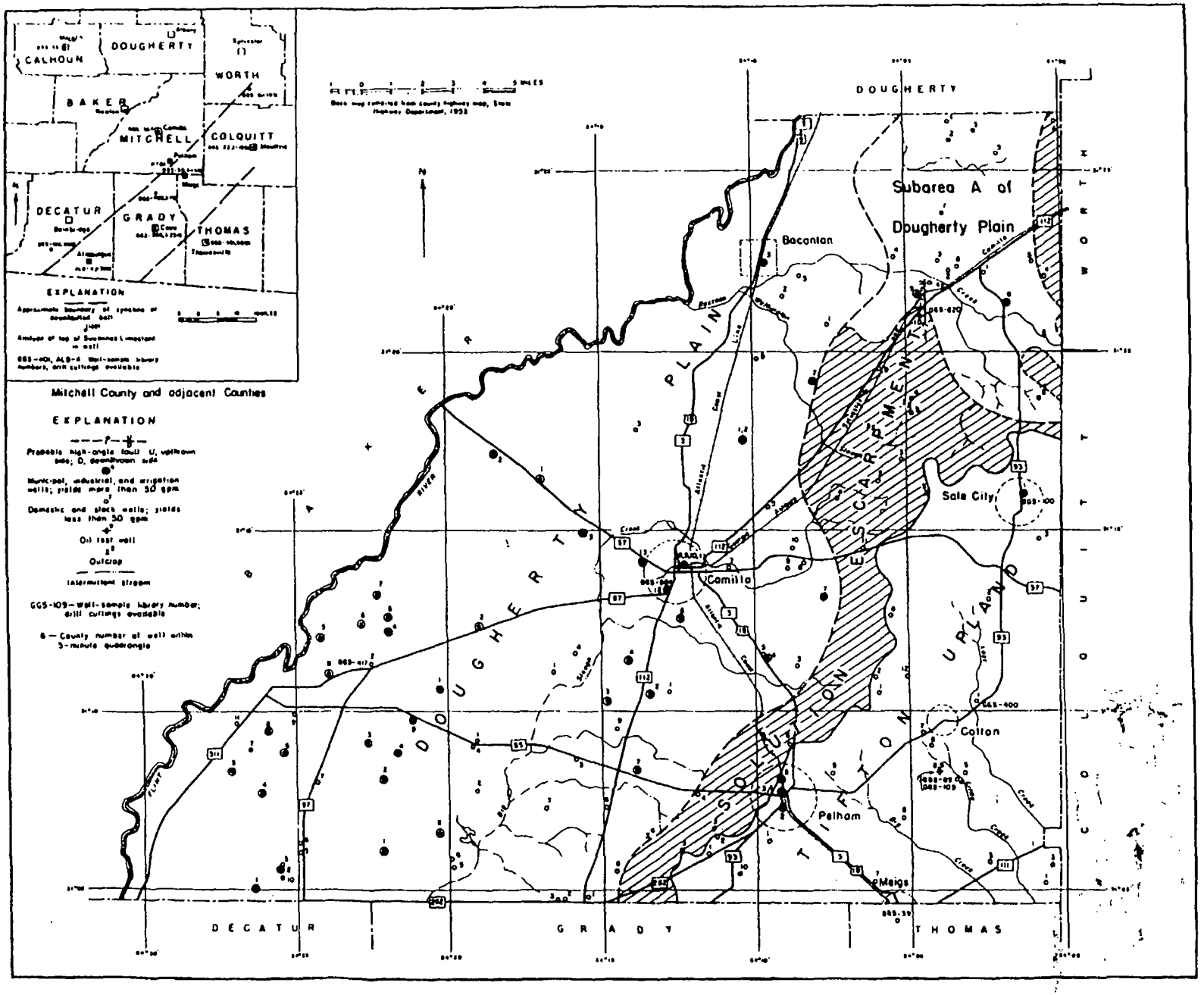


Figure 2.—Map showing well locations and physiographic features, Mitchell County, Ga.

almost to Baconton in Mitchell County and indicates that remnants of other marine terraces could be found in Mitchell County if detailed topographic maps were available.

Sub-area A is that part of the Dougherty Plain which lies in the northeast corner of figure 2--which, on a detailed topographic map, would correspond roughly to the 200-foot contour of altitude--and east of the Solution Escarpment. Solution features are similar to those in the main part of the Dougherty Plain, although streams are more numerous. Relief is much greater than that in the main part of the Dougherty Plain, with altitudes ranging from 200 feet to 380 feet. The area is predominantly hilly but wide flat areas occur along streams. The valleys of Raccoon Creek and tributaries are more than a mile wide in places and ascend in a very gentle gradient from the level of the Dougherty Plain to altitudes of about 280 feet at the base of the Solution Escarpment.

Solution Escarpment

The Solution Escarpment in Mitchell County is a northwest to west-facing escarpment bounded along its base by the Dougherty Plain and along its crest by the Tifton Upland. It has greater relief and is more finely dissected than either the Dougherty Plain or the Tifton Upland. Sinks are present but differ from those of the Dougherty Plain in that they are less numerous, are deeper and more active, and are generally much smaller in diameter. Some of the sinks are as much as 60 feet in depth but few, if any, exceed 200 feet in width. Surface drainage is much better developed than that in the Dougherty Plain but somewhat less so than that in the Tifton Upland.

The crest of the Solution Escarpment is a well-defined line which follows the watershed between the drainage basins of the Flint and Ochlockonee Rivers and forms a sharp boundary with the Tifton Upland, the topography of the two regions strongly contrasting. As shown in figure 2, the crest runs generally northeastward across Mitchell County from near the center of the south county line to a point on the east county line about 1 mile northeast of Sale City. Maximum altitudes along the crest range from about 400 feet in the northern part of the county to about 300 feet in the southern part.

The base of the Solution Escarpment is approximately as shown in figure 2 but cannot be determined precisely without adequate topographic maps. Altitudes along the base are mostly about 200 feet along the border of the main part of the Dougherty Plain but range from 200 to 290 feet along the border of Sub-area A. From the crest of the Solution Escarpment to the base, the land surface slopes an average of about 125 feet in a distance usually not exceeding 1 1/2 miles. In a small area northwest of Sale City, however, the distance from crest to base is as much as 5 miles.

Tifton Upland

The Tifton Upland in Mitchell County is a rolling upland which gradually descends in altitude southeastward from the crest of the Solution Escarpment. The topography contrasts strikingly with that of the Dougherty Plain and Solution Escarpment. Surface streams are numerous, and a southeastward-flowing dendritic drainage pattern is strongly developed. Sinks or other solution features are absent except along the crest of the Solution Escarpment, where several oval-shaped depressions as much as half a mile in width and less than 5 feet deep occur. They occur at stream heads, have narrow outlets, and are generally swampy areas supporting a growth of cypress trees. It is possible that they are very shallow sinks which are no longer active, or they may be bogs developed at the heads of the streams.

Altitudes in the Tifton Upland range from a maximum of about 400 feet along the northwestern border to somewhat less than 250 feet in the southeastern part. Relief between stream valleys and adjacent ridges is generally no more than 60 feet. Most of the streams flow between low banks in flat, swampy valleys as much as half a mile in width. The interstream ridges are of more or less uniform height and have rounded crests.

Climate

Mitchell County has a warm, humid climate, although it is subject to occasional periods of 1 or 2 days duration of rather cold weather in the winter. Droughts of several weeks duration are not uncommon in the summer. Figure 4 shows the average monthly precipitation and temperature at Camilla. Data are from the U. S. Weather Bureau.

Mitchell County has an average annual temperature of about 68.3°F and an average annual precipitation of about 51.78 inches. January is the coldest month and has an average temperature of 52.2°F. July is the warmest month and has an average temperature of 82.3°F. July is generally the wettest month, having an average precipitation of 5.67 inches, and October is driest, having an average precipitation of 1.93 inches.

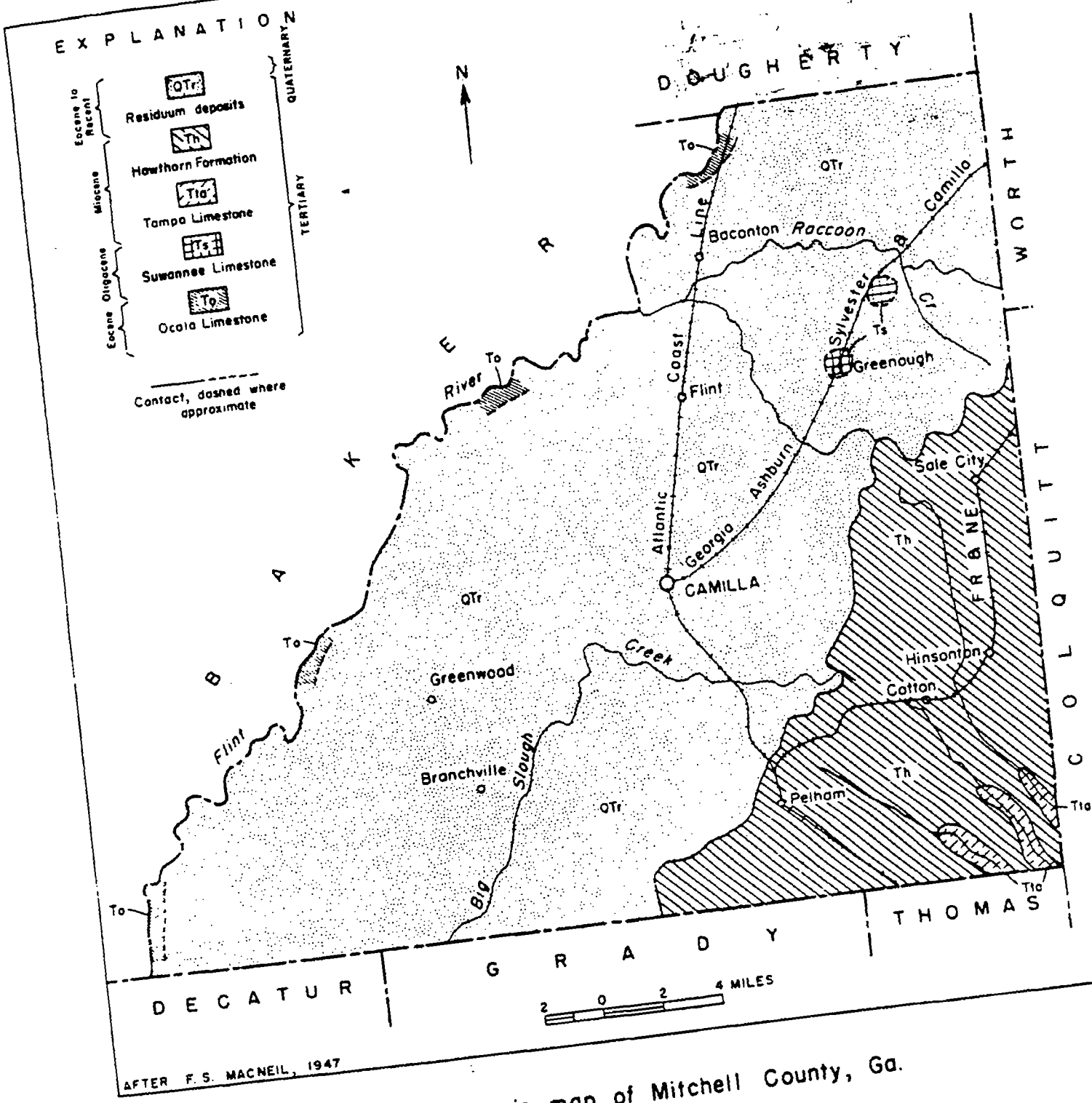


Figure 5.—Geologic map of Mitchell County, Ga.

Table 1.--Geologic formations in Mitchell County, Ga.

System	Series	Geologic unit			Lithology and water-bearing properties	Thickness (feet)
Quaternary and Tertiary	Upper Eocene to Recent	Residuum			Varicolored clayey sand and sandy clay containing chert nodules and boulders. Includes weathered and disarranged beds of Jackson, Oligocene, and Miocene age and probably Pleistocene terrace sand. Confined mostly to Dougherty Plain. Poor aquifer; yields 1 to 5 gpm to dug wells.	0-70
Tertiary	Miocene	Hawthorn Formation			Varicolored current-bedded ferruginous sand and sandy clay, nonfossiliferous. Confined mostly to Tifton Upland. Poor aquifer; yields 1 to 5 gpm to dug wells.	0-100
		Tampa Limestone			Gray massive-bedded sand, sandy marl, sandy limestone, and fuller's earth. Sparsely fossiliferous. Confined mostly to Tifton Upland. Fair to poor aquifer; yields small quantity of water to wells.	0-450
	Oligocene	Vicksburg	Group	Suwannee Limestone	Pinkish white pure fossiliferous limestone. Confined mostly to Tifton Upland and Solution Escarpment. Fair aquifer; yields small quantity of water to wells.	0-100
	Upper Eocene	Jackson	Group	Ocala Limestone	Pinkish white pure bioclastic limestone to brown crystalline dolomitic limestone. Excellent aquifer in Dougherty Plain; yields 1,000 to 2,500 gpm to wells. Good aquifer in Tifton Upland; yields 500 gpm to wells locally.	200-30[illegible]
	Middle Eocene	Claiborne Group		Lisbon Formation	Brownish-gray dense glauconitic fossiliferous sandy limestone containing sandstone and marl beds. Fair to poor aquifer.	70-10[illegible]
				Tallahatta Formation	Mostly gray massive clean phosphatic sand containing shell fragments, fish teeth, and thin marl beds. Upper 50 to 100 feet commonly consists of sandy coquina limestone. Lower 20 to 30 feet consists of dense cherty limestone. Excellent aquifer in Dougherty Plain; yields more than 1,000 gpm to wells. Good to fair aquifer in Tifton Upland; yields 1,000 gpm to wells locally.	275-39[illegible]
	Lower Eocene	Wilcox Group		Tuscahoma Formation	Mostly gray glauconitic silt. Upper 30 to 40 feet contains thin beds of sandy glauconitic limestone. Lower 30 to 40 feet consists of fine- to coarse-grained glauconitic sand. Not utilized as aquifer, probably would yield only small quantity of water to wells.	125-19[illegible]
	Paleocene	Midway Group		Undifferentiated Midway deposits	Grey silty calcareous sand and thin beds of foraminiferal limestone. Not utilized as aquifer; probably would yield only small quantity of water to wells.	60-15[illegible]
				Clayton Formation	White bioclastic limestone. Not utilized as aquifer but yields 200 gpm to wells in counties to north.	140-25[illegible]
Cretaceous	Upper Cretaceous	Undifferentiated (Includes Providence, Ripley, Cusseta, Blufftown, and Ripley Formations.			Dark-gray fossiliferous glauconitic sandy marl containing thin beds of sand, clay, and limestone. Water-bearing properties not known. Upper beds probably would yield at least 200 gpm of potable water to wells.	1,400 (appro[illegible]
		Tuscaloosa Formation			Coarse arkosic sand and gravel and lenses and stringers of clay. Water-bearing properties not known; water possibly saline.	600 (apprc[illegible]
	Lower Cretaceous	Undifferentiated			Lithology and water-bearing properties not known; water possibly saline	2,500 (apprcx[illegible]

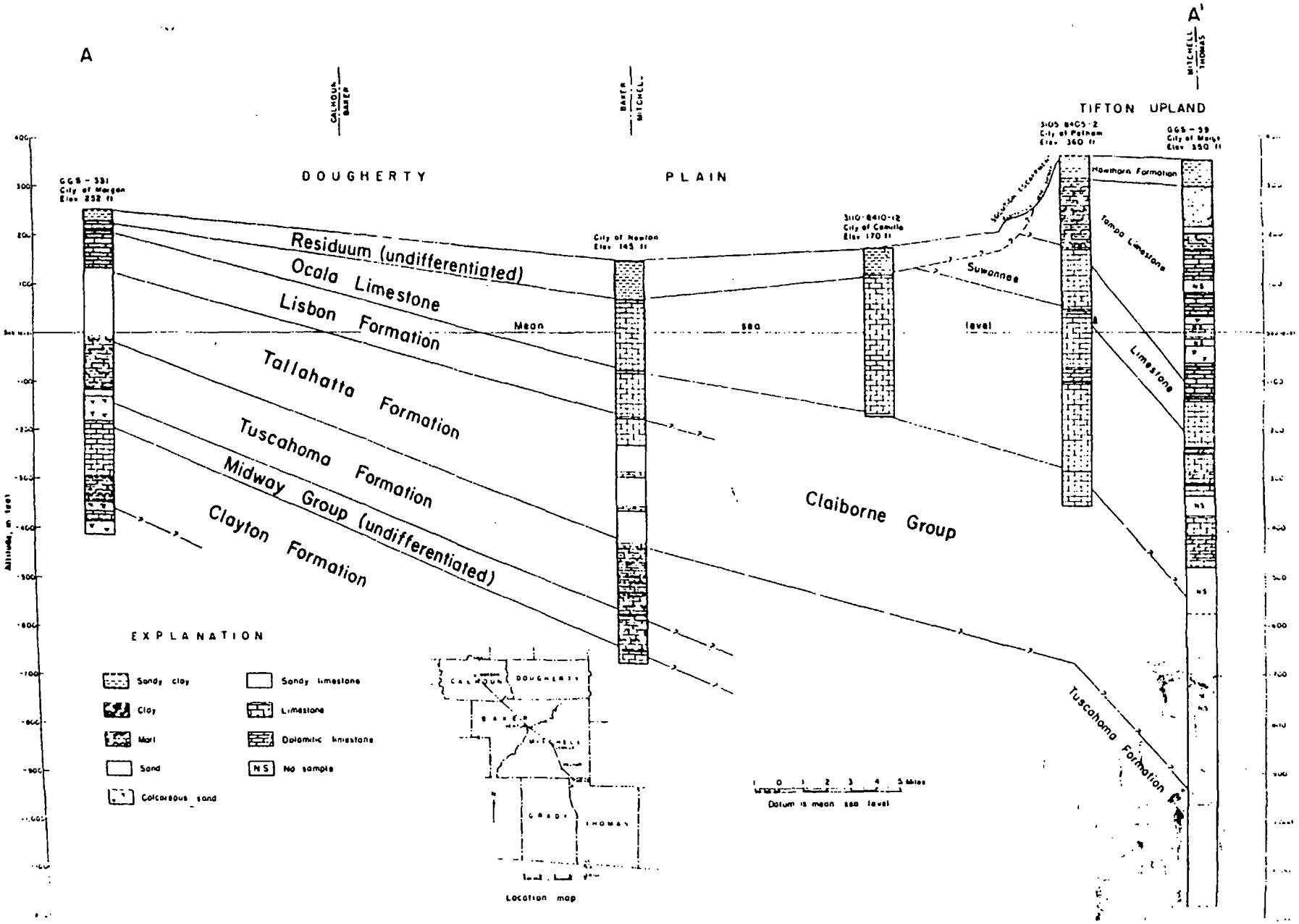


Figure 6.—Geologic section from Morgan to Meigs, Ga.

Tifton Upland

The sequence of formations underlying the Dougherty Plain, with the exception of the undifferentiated residuum, also underlies the Tifton Upland. Owing to the higher altitude of the Tifton Upland and the downwarped structure beneath it, the Ocala Limestone in that area is overlain by a considerable thickness of Oligocene and Miocene deposits. Because the formations below the Ocala are deeply buried, few data are available concerning their lithologic and water-bearing properties.

The Ocala Limestone is about 300 feet thick in the Tifton Upland. The altitude of the top is about 80 feet above sea level along the crest of the Solution Escarpment and at least 250 feet below sea level near the southeast corner of the county. Because of the steep rate of dip to the southeast, most wells constructed in the Ocala in the Tifton Upland are limited to a northeast-trending strip 1 or 2 miles wide, just southeast of the crest of the Solution Escarpment.

The Ocala Limestone of the Tifton Upland, in contrast to the Ocala of the Dougherty Plain, has been extensively recrystallized and dolomitized. These processes have destroyed, at least locally, much of the original porosity and permeability of the formation and have reduced its value as an aquifer.

The Suwannee Limestone is about 100 feet thick throughout the Tifton Upland. The altitude of the top ranges from about 180 feet above sea level along the crest of the Solution Escarpment to at least 150 feet below sea level near the southeast corner of the county. Wells constructed in the Suwannee are common throughout the Tifton Upland except for an area of a few square miles near the southeast corner of the county.

The Suwannee Limestone of the Tifton Upland is similar lithologically to the Ocala Limestone of the Dougherty Plain. It ranges in texture from aphanitic to bioclastic and is not extensively recrystallized or dolomitized. It does not, however, yield large quantities of water to wells, and the reason for this is not clear. The Suwannee crops out in scattered deep sinks along the base of the Solution Escarpment, and some water enters the formation through the sinks. The amount of recharge from the sinks probably is small, however, because throughout most of the Solution Escarpment the Suwannee is covered by thick clay, and most rainfall runs off in streams to the Dougherty Plain. Throughout the Tifton Upland, the Suwannee is overlain by thick and relatively impervious Miocene deposits, and probably only a small amount of rainfall seeps downward into the formation. In extreme southeastern Mitchell County, where the zone of saturation extends upward above the top of the Suwannee, some recharge should occur from the underlying Ocala Limestone, but the amount of such recharge does not appear to be great. This may be due to low permeability in the Suwannee, the Ocala, or both in this area.

The Tampa Limestone ranges in thickness from about 150 feet along the crest of the Solution Escarpment to about 450 feet near the southeast corner of the county. Wells constructed in the Tampa are limited to an area probably not exceeding 15 square miles in the extreme southeast corner of the county. The Tampa is a poor aquifer. The marl beds are relatively dense and impervious and the limestone and calcareous sand beds only slightly less so.

The Hawthorn Formation ranges in thickness from about 40 feet along the crest of the Solution Escarpment to about 100 feet at higher altitudes in the southeast corner of the country. No drilled wells are constructed in the Hawthorn. It is a poor aquifer because of its thinness, clayey character, and dissection by streams. A few shallow dug wells obtain small quantities of water from the Hawthorn, but these are being replaced by deeper drilled wells in other formations. No large springs were found in the Tifton Upland of Mitchell County, although small contact gravity springs occur along the tops of impermeable beds in the Hawthorn Formation and along the top of the Tampa Limestone.

WELLS

Most water supplies in the Tifton Upland are obtained from drilled wells. However, some domestic supplies are still obtained from dug wells, and most irrigation supplies are obtained from streams and farm ponds. Drilled wells are constructed in the Tampa, Suwannee, and Ocala Limestones, and the Tallahatta Formation.

Large-Capacity Wells

Very few large-capacity wells are found in the Tifton Upland, a fact due partly to the availability of surface water and partly to relatively poor ground-water conditions, as compared with the Dougherty Plain. Aquifers of the Tifton Upland are deeper than those of the Dougherty Plain and, apparently, are less pro-

ductive. Also, water levels in the Tifton Upland are as deep as 250 feet below the land surface, which means that wells require pumps of much larger size and power than are needed in the Dougherty Plain.

Well 3105-8405-2 (table 3), the newest city well in Pelham, is an example of a large-capacity well in the Tifton Upland. This 12-inch well is cased to 190 feet and has open hole extending to 720 feet. Driller's log information indicates that the casing extends into the top of the Suwannee Limestone, and open hole extends through most of the Suwannee, all of the Ocala, and about 70 feet into the top of the Claiborne Group. The bottom of the well is probably in the upper part of the Tallahatta Formation. The well has a reported yield of 1,000 gpm and a reported static water level of 240 feet below the land surface. The chemical quality of water from this well indicates that most of the water is produced from the Tallahatta Formation because of the similarity in chemical quality of water from this well to water from well 3115-8405-8, which is constructed in the Tallahatta Formation (fig. 9).

Well 3105-8405-3, another city well at Pelham, is of similar construction. It is 728 feet deep and a 10-inch casing extends to 153 feet. This well was drilled in 1907 and had a reported yield of 500 gpm at that time. The principal water-bearing bed penetrated by the well was reported by Stephenson and Veatch (p. 344) to be a shell formation from 700 to 728 feet; other water-bearing beds were reported at 370 to 371 feet, 450 to 455 feet, and 640 to 650 feet. The shell formation probably is a coquina bed, which is widespread in the upper part of the Tallahatta Formation in southwestern Georgia. Also, the chemical quality of water from this well is similar to that from the new Pelham well and to that from well 3115-8405-8 which is constructed in the Tallahatta Formation (fig. 9).

A third city of Pelham well, 3105-8405-4, drilled in 1931, appears to obtain most of its water from the Ocala Limestone. It is a 12-inch well, 577 feet deep, and has a reported yield of 475 gpm.

The city wells in Pelham are all within half a mile of the crest of the Solution Escarpment, which is the northwestern border of the Tifton Upland and at the highest part of the county. As shown in the structural contour map (fig. 7), the wells are on the edge of the northeast-trending syncline that crosses southeastern Mitchell County. Ground-water conditions similar to those in Pelham probably prevail in a narrow strip of the Tifton Upland all along the northwest edge of the syncline, where geological and structural conditions are similar. Down the flank of the syncline in extreme southeastern Mitchell County, however, it appears that it may be difficult to obtain yields of 500 gpm from wells. No large-capacity wells were found in extreme southeastern Mitchell County, but a city well at Meigs (GGS 59), about 5 miles southeast of Pelham and half a mile south of Mitchell County, had a reported yield of only 400 gpm although it was drilled to a depth of 1,560 feet.

The Meigs well was drilled in 1938 and has eight 5-foot screens and one 100-foot screen, all screens being 6 inches in diameter. On the basis of drill cuttings and the drillers log, four of the 5-foot screens are in the Tampa Limestone and four are in the Suwannee Limestone. The 100-foot screen is in the lower part of the Tallahatta Formation and the upper part of the Tuscahoma Formation. The well was drilled to a depth of 1,560 feet, but it is not known if it is still open to that depth. If so, the open-hole interval is yielding water from the lower part of the Tuscahoma Formation and the upper part of the Midway Group.

The city well at Meigs appears to obtain no water from the Ocala Limestone. Furthermore, yields from the Ocala are variable within short distances in the Pelham area. Recrystallization and dolomitization probably have decreased the porosity and permeability of the Ocala in the Tifton Upland area and these processes may be related to the strongly developed synclinal structure in the area.

Small-Capacity Wells

Small domestic wells throughout the Tifton Upland are generally 3 to 6 inches in diameter, range in depth from 300 to 500 feet, and are equipped with submersible or turbine pumps. Nearly all are constructed in the Suwannee or Ocala Limestones, and casing is seated in the Suwannee. A few wells in the extreme southeast corner of the county are constructed in the Tampa Limestone. Examples of domestic wells are shown in table 3.

Several dug wells constructed in the Hawthorn Formation are still in use in the Tifton Upland, but most are old and are gradually being replaced by drilled wells. The dug wells range in depth from 20 to 50 feet and generally furnish sufficient water for domestic use. They are not as satisfactory as drilled wells, as they are more subject to pollution and sometimes go dry because of their shallow depth.

Water Levels

The depth to water in wells ranges from about 135 to 250 feet below the land surface, depending mostly on land-surface altitude. Average depth to water in wells is about 200 feet. Because of deep water levels, wells in the Tifton Upland must be equipped with more powerful pumps than those in the Dougherty Plain. For example, an electric turbine pump of 45 hp is required to raise water at the rate of 500 gpm for a pumping level of 200 feet, whereas only 13 hp is required to raise water at the same rate from a pumping level of 60 feet.

The water level in dug wells in the Hawthorn Formation is commonly 10 to 20 feet below land surface.

Pumpage

The total annual consumption of ground water in Mitchell County by various consumers is indicated in table 4. The figures in table 4, especially those given for irrigation use, are maximum estimates. Although a total of 475,800,000 gallons of ground water per year would be used for irrigation in a dry year, the total used in a wet year probably would be less than 50,000,000 gallons.

QUALITY OF WATER

The suitability of water for various uses is partly dependent upon its chemical quality. Certain dissolved constituents, if present in large amounts, may render water unsuitable for certain uses. Various methods of treating water to remove undesirable constituents are employed, however.

Table 5 shows chemical analyses of water from eight wells in Mitchell County. Some of the constituents from each of the water samples shown in table 5 are plotted graphically in figure 9 and expressed in equivalents per million. Equivalents per million is the figure obtained when the number of parts per million of a given ion is divided by the combining weight of the ion. One sample is from the Tallahatta Formation, two are from the combined Ocala Limestone and Tallahatta Formation, three are from the Ocala Limestone, and one each is from the Suwannee and Tampa Limestones.

On the basis of graphic patterns, the waters may be divided into three groups. The waters from the Ocala are very similar to one another. The water from the mixed Tallahatta and Ocala are similar to the water from the Tallahatta. The waters from the Suwannee and Tampa are similar to one another to a lesser degree.

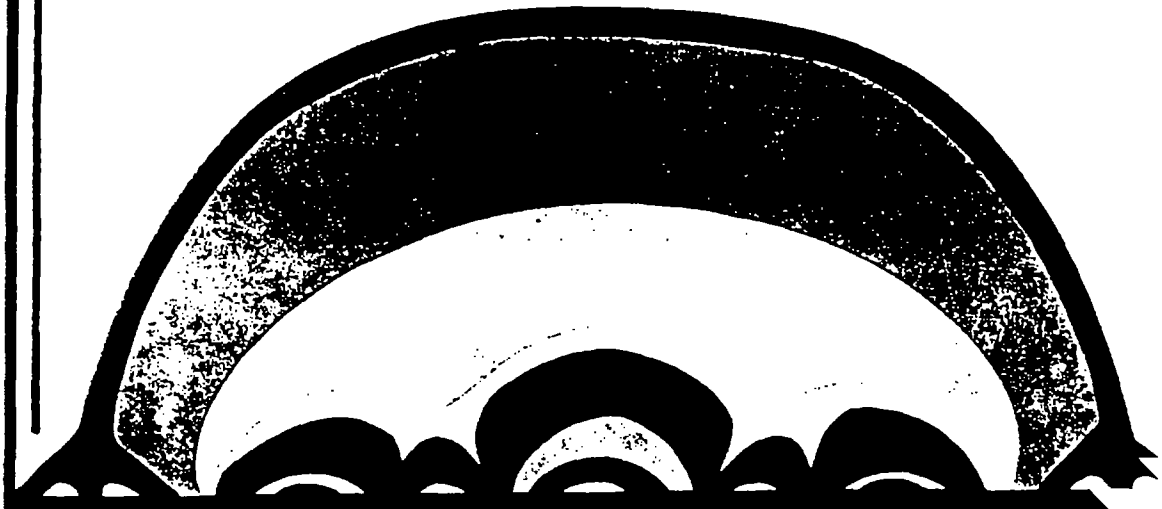
Compared with the water from the Ocala, the mixed water from the Tallahatta and Ocala has higher hardness and specific conductance, more dissolved solids, and more silica, magnesium, sodium, potassium, bicarbonate, and sulfate. The water from the Suwannee and Tampa is intermediate, in some respects, between water from the Ocala and mixed Tallahatta and Ocala waters. They are intermediate in specific conductance, dissolved solids, bicarbonate, and sulfate content. The water from the Tampa is higher in sodium and lower in hardness than any of the other waters.

The city wells at Pelham have casing seated near the top of the Suwannee Limestone with open hole extending through the Suwannee and Ocala and into the top of the Claiborne Group. Both wells probably bottom in the Tallahatta Formation of the Claiborne Group. Water from these wells closely resembles the water from the well in the Tallahatta Formation which strongly suggests that most of the water in the Pelham wells is produced from the Tallahatta Formation. It is also in keeping with the apparent fact that the Ocala Limestone and the Suwannee Limestone in at least parts of the Tifton Upland of Mitchell County do not yield large quantities of water to wells. There have been no significant changes in quality of water at Camilla or Pelham in recent years. In Camilla, well 3110-8410-8 was sampled in 1943, and well 3110-8410-12 was sampled in 1960. In Pelham, well 3105-8405-3 was sampled in 1938, and well 3105-8405-2 was sampled in 1960.

Reference 12

89120

GROUNDWATER



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4.7 Permaf

oil, and water in multiphase flow systems makes the use of a fluid-free conductance parameter attractive. When measured in m^2 or cm^2, k is very small, so petroleum engineers have defined the *darcy* as a unit of permeability. If Eq. (2.28) is substituted in Eq. (2.3), Darcy's law becomes

$$v = \frac{-k\rho g}{\mu}\frac{dh}{dl} \tag{2.29}$$

Referring to this equation, 1 darcy is defined as the permeability that will lead to a specific discharge of 1 cm/s for a fluid with a viscosity of 1 cp under a hydraulic gradient that makes the term $\rho g\, dh/dl$ equal to 1 atm/cm. One darcy is approximately equal to 10^{-8} cm^2.

In the water well industry, the unit gal/day/ft^2 is widely used for hydraulic conductivity. Its relevance is clearest when Darcy's law is couched in terms of Eq. (2.4):

$$Q = -K\frac{dh}{dl}A$$

The early definitions provided by the U.S. Geological Survey with regard to this unit differentiate between a laboratory coefficient and a field coefficient. However, a recent updating of these definitions (Lohman, 1972) has discarded this formal differentiation. It is sufficient to note that differences in the temperature of measurement between the field environment and the laboratory environment can influence hydraulic conductivity values through the viscosity term in Eq. (2.28). The effect is usually small, so correction factors are seldom introduced. It still makes good sense to report whether hydraulic conductivity measurements have been carried out in the laboratory or in the field, because the methods of measurement are very different and the interpretations placed on the values may be dependent on the type of measurement. However, this information is of practical rather than conceptual importance.

Table 2.2 indicates the range of values of hydraulic conductivity and permeability in five different systems of units for a wide range of geological materials. The table is based in part on the data summarized in Davis' (1969) review. The primary conclusion that can be drawn from the data is that hydraulic conductivity varies over a very wide range. There are very few physical parameters that take on values over 13 orders of magnitude. In practical terms, this property implies that an order-of-magnitude knowledge of hydraulic conductivity can be very useful. Conversely, the third decimal place in a reported conductivity value probably has little significance.

Table 2.3 provides a set of conversion factors for the various common units of k and K. As an example of its use, note that a k value in cm^2 can be converted to one in ft^2 by multiplying by 1.08×10^{-3}. For the reverse conversion from ft^2 to cm^2, multiply by 9.29×10^2.

Karst limestone
Permeable basalt

cm^2
ft^2
darcy
m s
ft s
U.S. gal day ft²

*To obtain

d-free conductance
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Table 2.2 Range of Values of Hydraulic Conductivity and Permeability

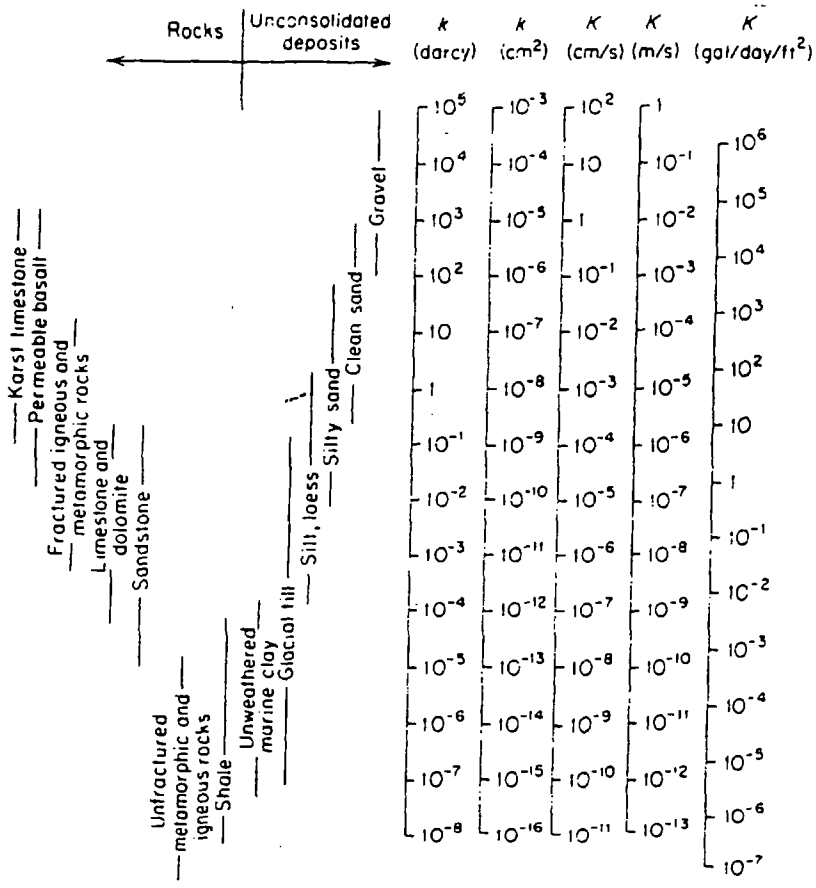

Table 2.3 Conversion Factors for Permeability and Hydraulic Conductivity Units

	Permeability, k*			Hydraulic conductivity, K		
	cm²	ft²	darcy	m/s	ft/s	U.S. gal/day/ft²
cm²	1	1.08×10^{-3}	1.01×10^{8}	9.80×10^{2}	3.22×10^{3}	1.85×10^{9}
ft²	9.29×10^{2}	1	9.42×10^{10}	9.11×10^{5}	2.99×10^{6}	1.71×10^{12}
darcy	9.87×10^{-9}	1.06×10^{-11}	1	9.66×10^{-6}	3.17×10^{-5}	1.82×10^{1}
m/s	1.02×10^{-3}	1.10×10^{-6}	1.04×10^{5}	1	3.28	2.12×10^{5}
ft/s	3.11×10^{-4}	3.35×10^{-7}	3.15×10^{4}	3.05×10^{-1}	1	6.46×10^{5}
U.S. gal/day/ft²	5.42×10^{-10}	5.83×10^{-13}	5.49×10^{-2}	4.72×10^{-7}	1.55×10^{-6}	1

*To obtain k in ft², multiply k in cm² by 1.08×10^{-3}.

United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
University of Georgia,
College of Agriculture,
Agricultural
Experiment Stations

Soil Survey of Baker and Mitchell Counties, Georgia

SDMS DOC ID10000371

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Issued May 1986

Soil Survey of Baker and Mitchell Counties, Georgia

By Howard T. Stoner, Soil Conservation Service

Fieldwork by Howard T. Stoner, Winfield S. Carson, and Royce Middleton

United States Department of Agriculture, Soil Conservation Service,
in cooperation with the University of Georgia, College of Agriculture,
Agricultural Experiment Stations

Baker and Mitchell Counties are in southwest Georgia. They cover an area of 864.6 square miles, or 553,344 acres. Baker County has 227,264 acres, and Mitchell County has 326,080 acres. Newton is the county seat of Baker County, and Camilla is the county seat of Mitchell County. In 1980, Baker County had a population of 3,808 and Mitchell County a population of 21,114. About 46 percent of the population lives in the rural area.

Baker and Mitchell Counties are in the Southern Coastal Plain Major Land Resource Area. They are separated by the Flint River. Major tributaries of the Flint River in Baker County are the Cooleewahee, Chickawhatchee, and Ichawaynochaway Creeks. Major tributaries of the Flint River in Mitchell County are Big Slough, Wethington Slough, and Raccoon Creek. The headwaters of the Little Ocklockonee River drain the eastern part of Mitchell County, and Big Creek, Little Creek, and Lost Creek are the main tributaries.

Baker and Mitchell Counties are mainly agricultural and have nearly 425,000 acres of important farmland. Industry is gaining in importance, especially in Mitchell County. Forest products, fertilizer, meat packing, garments, and farm equipment are a few of the important industries. The area has many ground transportation routes to local and out-of-state markets.

In general, the soils that are well suited to cultivated crops are also well suited to urban development. Their excellence as farmland should not be overlooked in planning.

In Baker and Mitchell Counties, the soils on uplands are best suited to both farm and nonfarm uses. These soils are well drained, on ridgetops and hillsides, and make up about three-fourths of the survey area. Most of these soils are used for farming, truck crops, or woodland.

Some of the soils are moderately suited or poorly suited to farming and to nonfarm uses. These include the moderately well drained to poorly drained, seasonally wet soils on flood plains, in upland depressions, and on low-lying areas of uplands. Other soils that are poorly suited to farming include the well drained soils on uplands that have a sandy surface layer and a thick, sandy subsurface layer, low fertility, and low available water capacity.

Most of the soils in the survey area are moderately suited or well suited to the production of trees. Some of the soils on uplands are used for commercial woodland, and the soils in upland depressions and near flood plains and stream terraces are mainly wooded.

A soil survey of Mitchell County was published in 1920(*6*). The present survey updates the first survey and provides additional information. No previous soil survey has been published for Baker County.

General Nature of the Survey Area

This section gives general information concerning Baker and Mitchell Counties. It discusses climate, settlement, natural resources, and farming.

Climate

Prepared by the National Climatic Center, Asheville, N.C.

The survey area has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a

rare cold wave that moderates in one or two days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thunderstorms, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Camilla, Georgia in the period 1951 to 1979. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 52 degrees F, and the average daily minimum temperature is 40 degrees. The lowest temperature on record, which occurred at Camilla on December 13, 1962, is 7 degrees. In summer the average temperature is 81 degrees, and the average daily maximum temperature is 93 degrees. The highest recorded temperature, which occurred on May 27, 1953, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 51.66 inches. Of this, 9 inches, or 55 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 24 inches. The heaviest 1-day rainfall during the period of record was 5.92 inches at Camilla on February 8, 1974. Thunderstorms occur on about 67 days each year, and most occur in summer.

Snowfall is rare. In 95 percent of the winters, there is no measurable snowfall. In 5 percent, the snowfall, usually of short duration, is more than 1 inch. The heaviest 1-day snowfall on record was more than 3 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 70 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the north. Average windspeed is highest, 8 miles per hour, in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. These storms are short and cause variable and spotty damage. Every few years, in summer or autumn, a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

Settlement

Baker County was established by an act of the General Assembly of Georgia on December 12, 1825. It was separated from Early County and named for Colonel John Baker of the Revolutionary War. At the time Baker County was organized, it included Dougherty and Mitchell Counties and a part of Miller County. Newton, the county seat, was named for Sergeant John Newton of the Revolutionary War.

Mitchell County was established by an act of the General Assembly of Georgia on December 21, 1857. It was separated from Baker County and named for General David B. Mitchell, twice Governor of Georgia. Camilla, the county seat, was named for Governor Mitchell's daughter.

Water Resources

The Flint River, and Cooleewahee, Chickawhatchee, and Ichawaynochaway Creeks provide water to Baker County. In addition, numerous natural ponds that contain water for only part of the year are throughout the county.

The Flint River and Big Slough, Wethington Slough, Raccoon Creek, Big Creek, Little Creek, and Lost Creek provide water to Mitchell County. There are many farm ponds in the eastern part of Mitchell County that are used for watering livestock and for irrigation and recreation.

Wells drilled into the Ocala Limestone aquifer produce abundant water. These wells range from 150 to 230 feet in depth. They provide water for irrigation and for industrial and urban uses.

Farming

Agricultural development in Baker and Mitchell Counties was slow before 1890. Lumber and naval stores brought prosperity to the early settlers. After the land was cleared, cotton was the main cash crop and corn the chief feed crop. Native grasses provided forage for livestock. The areas producing crops were fenced.

Early in the 1900's, cotton was grown on about half of the cultivated land. Corn, cowpeas, velvet beans, sweet potatoes, sugarcane, and such vegetable crops as beans, peas, tomatoes, and Irish potatoes were also grown. Oats, rye, and wheat were the chief forage crops. Cantaloupes, pecans, peaches, pears, plums, figs, and watermelon were important fruit crops. Many carloads of cantaloupes and watermelons were shipped to northern markets.

Improved varieties, seed selection, and improved cultivation methods were important factors in early agricultural development. Cotton grew and produced best on the well drained upland soils. The 1910 U.S. census of Agriculture indicates that large amounts of commercial fertilizer were used to increase crop yields.

Hog production was the most important livestock enterprise. Cattle, sheep, and goats also were important. Most farm families had a milk cow to supply milk and butter.

yellow, and light gray. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. The content of plinthite is 5 to 12 percent by volume below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Included with this soil in mapping are small areas of Esto, Orangeburg, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer.

This Carnegie soil is only moderately suited to farming because of rapid runoff and a gullied landscape. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban uses. However, moderately slow permeability in the subsoil limits its use for septic tank absorption fields. Commonly, this limitation can be overcome by practices such as increasing the size of the absorption fields. This soil is only moderately suited to most recreation uses because the subsoil has moderately slow permeability.

This soil is in capability subclass IIIe. The woodland ordination symbol is 2o.

CaC2—Carnegie sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are short and irregular and commonly have rills, galled spots, and an occasional gully. Areas range from 5 to 15 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 5 inches thick. The subsoil is dominantly sandy clay that extends to a depth of 62 inches or more. The upper part is strong brown, the middle part is strong brown and has red and yellowish brown mottles, and the lower part is mottled yellowish brown, red, very pale brown, strong brown, brownish yellow, and light gray. Nodules of ironstone are in the surface layer and throughout the upper and middle parts of the subsoil. The content of plinthite is 5 to 12 percent by volume below a depth of about 20 inches.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Runoff is rapid. Tilth is good, and the root zone is deep.

Included with this soil in mapping are small areas of Esto, Orangeburg, and Tifton soils. Also included are eroded soils that have a sandy clay loam surface layer.

This Carnegie soil is poorly suited to row crops because of rapid runoff and the short, irregular, somewhat gullied slopes. However, it is moderately suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep erosion to a minimum is recommended.

This soil is well suited to most urban uses. However, moderately slow permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by special practices such as increasing the size of the absorption fields. This soil is only moderately suited to most recreation uses because the subsoil has moderately slow permeability.

This soil is in capability subclass IVe. The woodland ordination symbol is 2o.

CnA—Clarendon loamy sand, 0 to 2 percent slopes. This moderately well drained, nearly level soil is on lower lying uplands. Areas range from 5 to 30 acres in size.

Typically, the surface layer is very dark grayish brown loamy sand 8 inches thick. The subsurface layer to a depth of 17 inches is light yellowish brown loamy sand. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is brownish yellow in the upper few inches. Below that, it is brownish yellow or yellowish brown and has light gray, strong brown, and red mottles. A significant amount of plinthite is below a depth of 35 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are in the upper part of the soil.

This soil is low in natural fertility and organic matter. Reaction ranges from very strongly acid to medium acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep except during winter and early spring when the water table is at a depth of 1.5 to 2.5 feet.

Included with this soil in mapping are small areas of Bonneau and Tifton soils.

This Clarendon soil is well suited to farming. However, wetness restricts this use and drainage is needed in most places.

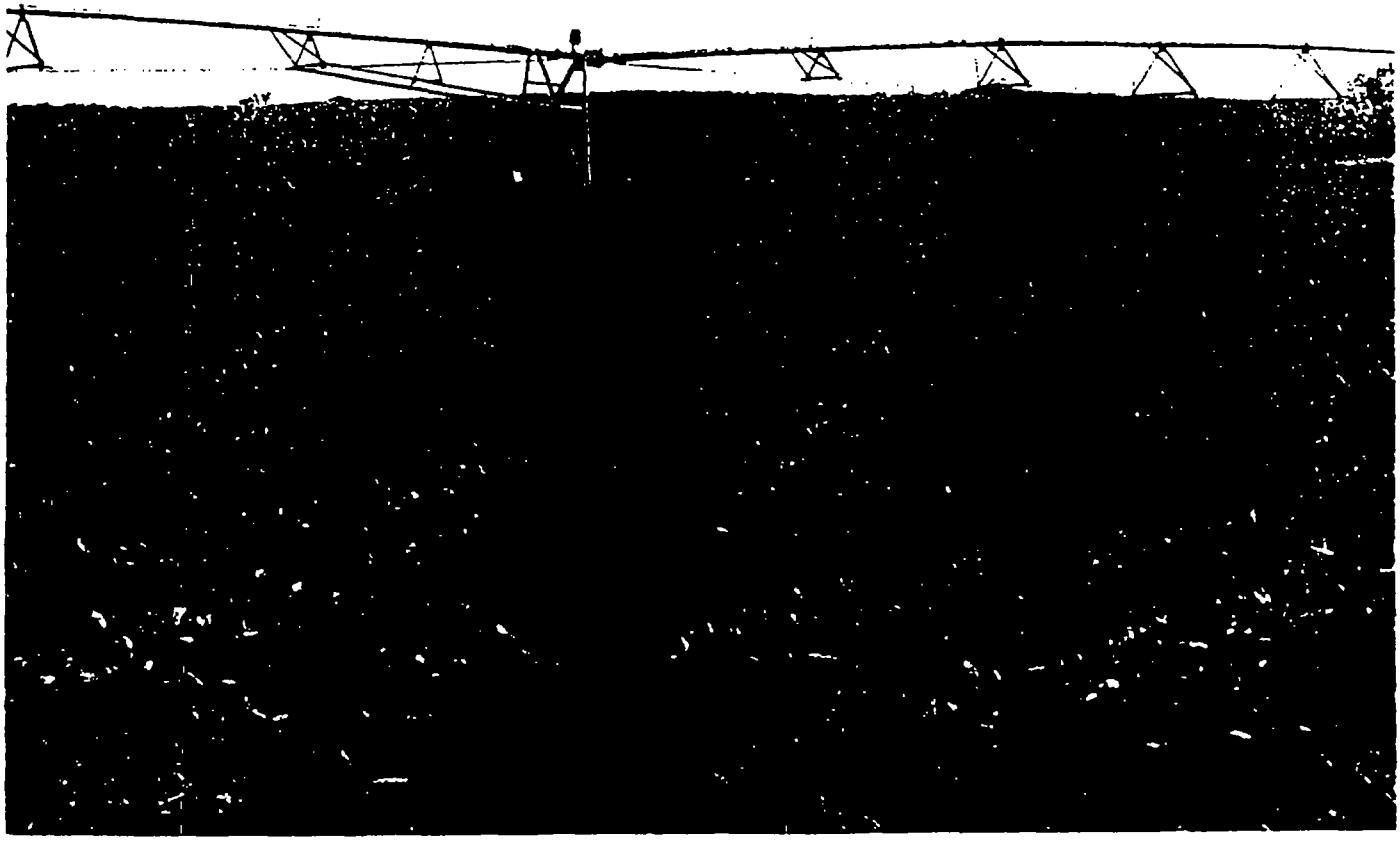


Figure 2.—Peanuts and corn under irrigation on Orangeburg loamy sand, 2 to 5 percent slopes. This soil is prime farmland and is well suited to the commonly grown cultivated crops.

concretions of ironstone and a slowly permeable layer in the subsoil.

This Orangeburg soil is well suited to farming. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, the use of cover crops, including grasses and legumes, and terracing and contouring help reduce runoff and control erosion.

This soil is well suited to slash pine and loblolly pine. Although it has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses.

This soil is in capability subclass IIIe. The woodland ordination symbol is 2o.

Op—Osier-Pelham complex. This complex consists of poorly drained, nearly level soils mainly on flood plains. It is occasionally flooded for brief periods from winter to mid-spring. The areas of Osier soil and Pelham soil are so intermingled that they could not be mapped separately at the scale selected. Slope is 0 to 2 percent. Areas range from 50 to 200 acres in size.

Osier sand makes up about 50 percent of each mapped area. Typically, the surface layer is 15 inches thick. The upper part is very dark gray sand, and the

lower part is dark gray loamy sand. The underlying layers to a depth of 72 inches are mainly gray or grayish sand.

This Osier soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is rapid, and available water capacity is low. The root zone is deep except from late fall to early spring, when the water table commonly is at the surface or within a depth of 1 foot.

Pelham loamy sand makes up about 35 percent of each mapped area. Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. The upper part is very dark gray, and the lower part is mainly gray. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

This Pelham soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is very low. The root zone is deep except from midwinter to midspring, when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

Included with these soils in mapping are a few areas of Bonneau, Duplin, and Grady soils.

The soils in this complex are moderately suited to loblolly pine and slash pine. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

The soils in this complex are poorly suited to farming and recreation uses because of wetness and the hazard of flooding. These limitations, which also severely restrict urban uses can be overcome only by extensive flood control and drainage.

The soils in this complex are in capability subclass Vw. The woodland ordination symbol for the Osier soil is 3w, and for the Pelham soil is 2w.

Pe—Pelham loamy sand. This poorly drained, nearly level soil is on smooth areas, in depressions, and near drainageways. Pelham soils are occasionally flooded for brief periods from winter to midspring. Slope is 0 to 2 percent. Areas range from 10 to 100 acres in size.

Typically, the surface layer is black loamy sand 4 inches thick. The subsurface layer is loamy sand and extends to a depth of 22 inches. The upper part is very dark gray, and the lower part is mainly gray. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more. It is light gray throughout and has brownish and reddish mottles.

This soil is low in natural fertility and organic matter. Reaction ranges from medium acid to very strongly acid throughout. Permeability is moderate, and available water capacity is low. The root zone is deep except from midwinter to midspring, when the water table commonly is at a depth of 0.5 foot to 1.5 feet.

Included with this soil in mapping are a few small areas of Bonneau, Osier, and Grady soils.

This Pelham soil is well suited to slash pine and loblolly pine. Seasonal wetness limits the use of conventional equipment and increases seedling mortality. The equipment limitation commonly can be overcome by using modified equipment or by performing operations during the drier seasons. Drainage, bedding, reducing the number of competing plants, and using suitable species commonly increases the survival rate of the seedlings.

This Pelham soil is poorly suited to farming and recreation uses because of wetness and the hazard of flooding. These limitations, which also severely restrict urban uses, can be overcome only by extensive flood control and drainage.

This soil is in capability subclass Vw. The woodland ordination symbol is 2w.

ReA—Red Bay loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 100 acres in size.

Typically, the surface layer is dark reddish brown loamy sand 10 inches thick. The subsoil is dominantly dark red sandy clay loam and extends to a depth of 72 inches or more.

This soil is medium in natural fertility and low in organic matter. Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few intermingled areas of Greenville, Lucy, and Orangeburg soils.

This Red Bay soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Conservation tillage and the use of cover crops, including grasses and legumes, help to conserve moisture and maintain organic matter content.

This soil is well suited to loblolly pine, slash pine, and longleaf pine. It has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

ReB—Red Bay loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops

on uplands. Slopes are smooth and convex. Areas range from 10 to 50 acres.

Typically, the surface layer is dark reddish brown loamy sand 10 inches thick. The subsoil is dominantly dark red sandy clay loam and extends to a depth of 72 inches or more.

This soil is medium in natural fertility and low in organic matter. Reaction ranges from medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Greenville, Lucy, and Orangeburg soils.

This Red Bay soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Conservation tillage, terracing, contouring, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine, slash pine, and longleaf pine. Although this soil has no significant limitations for woodland uses, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to urban and recreation uses.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

SuA—Suffolk loamy fine sand, 0 to 2 percent slopes. This well drained, nearly level soil is on terraces of the larger streams. Areas range from 3 to 35 acres in size.

Typically, the surface layer is dark grayish brown loamy fine sand 2 inches thick. The subsurface layer is light olive brown loamy fine sand and extends to a depth of 14 inches. The subsoil is yellowish brown and extends to a depth of 46 inches. It is sandy loam in the upper part, sandy clay loam in the middle part, and sandy loam in the lower part. The underlying material is mainly brownish yellow loamy sand.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. It can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Bigbee, Hornsville, Maxton, and Wahee soils. Also included are a few small areas of very gently sloping soils. Some low-lying areas subject to seasonal flooding are included in mapping.

This Suffolk soil is well suited to farming. During dry seasons, it responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained b returning crop residue to the soil. Conservation tillage and the use of cover crops, including grasses and legumes, help conserve moisture and maintain organic matter content.

This soil is well suited to loblolly pine and slash pine. has no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses.

This soil is in capability class I. The woodland ordination symbol is 2o.

TfA—Tifton loamy sand, 0 to 2 percent slopes. Th well drained, nearly level soil is on broad ridgetops on uplands. Areas range from 10 to 200 acres in size.

Typically, the surface layer is dark grayish brown loamy sand about 10 inches thick. The subsoil is dominantly sandy clay loam that extends to a depth of 62 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is strong brown an has yellowish mottles. Plinthite is below a depth of abou 36 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughou except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained (fig. 3). Conservation tillage and the use of cover crops, including grasses and legumes, help maintain the organic matter content and conserve moisture.

This soil is well suited to most urban and recreation uses. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption field: Commonly, this limitation can be overcome by practices such as increasing the size of the absorption field.

This soil is in capability class I. The woodland ordination symbol is 2o.

TfB—Tifton loamy sand, 2 to 5 percent slopes. Th well drained, very gently sloping soil is on ridgetops and hillsides on uplands. Slopes commonly are smooth and convex. Areas range from 10 to 150 acres in size.

Typically, the surface layer is dark grayish brown loamy sand 10 inches thick. The subsoil is dominantly

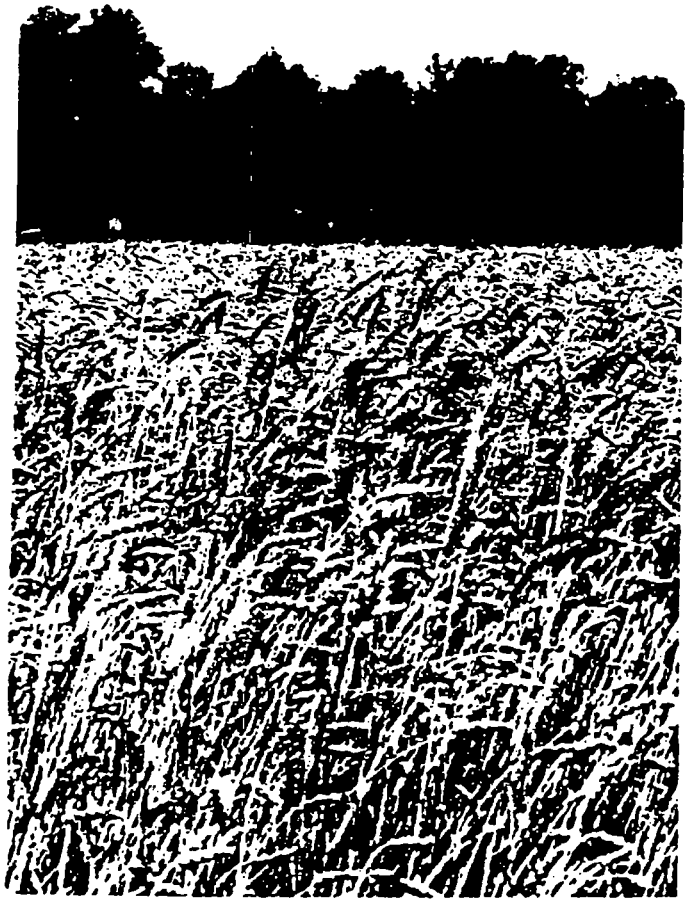


Figure 3.—Wheat on Tifton loamy sand, 0 to 2 percent slopes. This soil is prime farmland and is well suited to this common small grain crop.

sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, the middle part is yellowish brown and has reddish and brownish mottles, and the lower part is brownish yellow and has strong brown mottles. Plinthite is below a depth of about 30 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. This soil can be worked throughout a wide range of moisture content. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. During dry seasons, this soil responds favorably to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Terracing, contour farming, conservation tillage, and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for woodland use, performing operations on the contour to keep soil erosion to a minimum is recommended.

This soil is well suited to most urban and recreation uses. However, moderate permeability in the subsoil limits the use of this soil for septic tank absorption fields. Commonly, this limitation can be overcome by practices such as increasing the size of the absorption field.

This soil is in capability subclass IIe. The woodland ordination symbol is 2o.

TsC2—Tifton sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. In most places, slopes are irregular and convex and commonly contain rills or galled spots, shallow gullies, and an occasional deep gully. Areas range from 10 to 20 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The subsoil is dominantly sandy clay loam and extends to a depth of 60 inches or more. The upper part is yellowish brown, and the lower part is yellowish brown and has reddish mottles. Plinthite is below a depth of about 28 inches and makes up 5 to 10 percent of the lower part of the subsoil. Nodules of ironstone are on the surface and throughout the soil.

This soil is low in natural fertility and organic matter. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil has good tilth. The root zone is deep and easily penetrated by plant roots.

Included with this soil in mapping are small areas of Carnegie, Norfolk, and Orangeburg soils.

This Tifton soil is well suited to farming. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Conservation tillage and the use of cover crops, including grasses and legumes, help reduce runoff and control erosion.

This soil is well suited to loblolly pine and slash pine. Although this soil has no significant limitations for

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many very fine roots; medium acid; abrupt smooth boundary.

B1—10 to 14 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.

B21t—14 to 27 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few very fine roots; thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—27 to 48 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B23t—48 to 72 inches; yellowish brown (10YR 5/8) sandy clay loam; common fine faint strong brown mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 72 inches or more. This soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. In places, nodules of ironstone make up to 3 percent of the soil.

The A horizon is 7 to 18 inches thick. The Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 2 or 3. The A2 horizon, if present, has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 4.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4, 6, or 8.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 or 8. Brownish, reddish, and grayish mottles are in the lower part of the Bt horizon in some pedons.

Orangeburg Series

The Orangeburg series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 15 percent.

Orangeburg soils are geographically associated with Esto, Faceville, Lucy, Norfolk, and Red Bay soils. Esto and Faceville soils are in a clayey family; additionally, Esto soils have a subsoil that is firm and has brownish and reddish mottles. Lucy soils are arenic. Norfolk soils have a dominantly yellowish brown subsoil. Red Bay soils have a dark red subsoil.

Typical pedon of Orangeburg loamy sand, 2 to 5 percent slopes, 8.7 miles west of Camilla on Georgia Highway 37; 1.2 miles south on Old River Road; 500 feet west of road; in Mitchell County.

Ap—0 to 8 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

A2—8 to 13 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B1—13 to 16 inches; yellowish red (5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; many fine roots; few fine pores; strongly acid; clear smooth boundary.

B21t—16 to 30 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of most peds; many fine and very fine pores; strongly acid; gradual wavy boundary.

B22t—30 to 62 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of most peds; few fine pores; strongly acid; gradual smooth boundary.

B23t—62 to 72 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few patchy clay bridges on some ped faces; strongly acid.

Solum thickness ranges from 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas. In places few or common nodules of ironstone are throughout the soil.

The A horizon is 6 to 13 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4; or hue of 7.5YR, value of 4 or 5, and chroma of 2 or 4.

The B1 horizon has hue of 5YR and 10YR, value of 4 or 5, and chroma of 4 or 6; or hue of 7.5YR, value of 4 or 5, and chroma of 6 or 8.

The Bt horizon has hue of 5YR and 2.5YR, value of 4 or 5, and chroma of 6 or 8. In some pedons, the B22t horizon has few or common brown and red mottles. The Bt horizon is sandy clay loam or sandy loam.

Osier Series

The Osier series consists of poorly drained, rapidly permeable soils that formed in sandy alluvial sediment on flood plains. The water table is at the surface or within a depth of 1 foot from late fall to early spring. Slope is 0 to 2 percent.

Osier soils are geographically associated with Pelham soils. Pelham soils are in a loamy family.

Typical pedon of Osier sand, in an area of Osier-Pelham complex, 0.3 mile southwest of Lester on Georgia Highway 112; 0.3 mile east on field road; 75 feet north of road; in Mitchell County.

A11—0 to 5 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine

have an A horizon less than 20 inches thick. Pelham soils are poorly drained and are on lower landscapes.

Typical pedon of Bonneau loamy sand, 0 to 2 percent slopes, 3.4 miles south of Camilla on Georgia Highway 112; 3.7 miles southwest on Branchville Road; 0.3 mile east on county road; 60 feet north of road; in Mitchell County.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

A21—9 to 23 inches; very pale brown (10YR 7/4) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

A22—23 to 34 inches; very pale brown (10YR 7/3) loamy sand; few fine distinct yellowish brown mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual smooth boundary.

B1—34 to 42 inches; light yellowish brown (10YR 6/4) sandy loam; few fine distinct yellowish brown mottles; weak medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

B21t—42 to 48 inches; brownish yellow (10YR 6/6) sandy clay loam; few medium distinct light gray (10YR 7/2) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—48 to 64 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable, patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

Solum thickness is 64 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 38 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4. The A2 horizon has hue of 10YR, value of 4 to 7, and chroma of 2 to 4; or hue of 2.5Y, value of 4 to 7, and chroma of 2 or 4.

The B1 horizon has hue of 10YR, value of 6, and chroma of 4 or 6; or hue of 2.5Y, value of 6, and chroma of 4 or 6. It has few or common brownish or grayish mottles.

The B21t horizon has hue of 2.5Y or 10YR, value of 6, and chroma of 4 or 6. Mottles are gray, yellowish brown, or strong brown in most pedons. The B22t horizon has the same matrix colors as the B21t horizon. Mottles are light gray and yellowish brown in most pedons.

Carnegie Series

The Carnegie series consists of well drained soils that have moderately slow permeability. These soils formed dominantly in clayey marine sediment on uplands. Slope is 3 to 8 percent.

Carnegie soils are geographically closely associated with Esto, Orangeburg, and Tifton soils. Esto and Orangeburg soils do not contain plinthite; additionally, Orangeburg soils are in a fine-loamy family and have a redder subsoil. Tifton soils are in a fine-loamy family and contain 5 percent or more plinthite below a depth of 30 to 50 inches.

Typical pedon of Carnegie sandy loam, 5 to 8 percent slopes, eroded, 2.6 miles northeast of U.S. Highway 19 on Georgia Highway 93; 0.8 mile northeast on county road; 35 feet southwest of road; in Mitchell County.

Apcn—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; many nodules of ironstone; strongly acid; abrupt wavy boundary.

B21cn—5 to 18 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots in upper part; patchy clay films on faces of peds; common nodules of ironstone; very strongly acid; gradual wavy boundary.

B22t—18 to 28 inches; strong brown (7.5YR 5/6) sandy clay; common medium distinct red (2.5YR 4/8) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; thin patchy clay films on faces of peds; few nodules of ironstone; about 10 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B23t—28 to 40 inches; mottled strong brown (7.5YR 5/6), red (2.5YR 4/6), and very pale brown (10YR 7/3) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; about 8 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B24t—40 to 62 inches; coarsely mottled, strong brown (7.5YR 5/6), red (2.5YR 4/6), very pale brown (10YR 7/3), light gray (10YR 7/2), and brownish yellow (10YR 6/6) sandy clay; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; 5 percent plinthite; very strongly acid.

Solum thickness is 62 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Depth to horizons that have 5 to 12 percent plinthite is 16 to 26 inches.

The A horizon is 4 to 8 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Nodules of ironstone make up 5 to 15 percent of the volume.

roots; thin strata of dark gray sand; very strongly acid; abrupt wavy boundary.

A12—5 to 15 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common fine roots; few thin strata of gray loamy sand; strongly acid; clear wavy boundary.

C1g—15 to 24 inches; grayish brown (10YR 5/2) sand; single grained; loose; few partly decayed roots; strongly acid; gradual wavy boundary.

C2g—24 to 34 inches; gray (10YR 6/1) sand; single grained; loose; strongly acid; gradual wavy boundary.

C3g—34 to 46 inches; gray (10YR 6/1) sand; few medium distinct brownish yellow (10YR 6/6) mottles; single grained; very friable; strongly acid; clear wavy boundary.

C4g—46 to 72 inches; light brownish gray (10YR 6/2) coarse sand; few medium distinct brownish yellow (10YR 6/8) mottles; single grained; very friable; strongly acid.

Thickness of the sandy alluvium is 72 inches or more. The soil is very strongly acid or strongly acid throughout. In most horizons, thin strata ranging in texture from sand to sandy loam are below a depth of 40 inches.

The A horizon is 3 to 15 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The Cg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is coarse sand or sand. It has few or common grayish, yellowish, and brownish mottles.

Pelham Series

The Pelham series consists of poorly drained, moderately permeable soils that formed in sandy and loamy marine sediment. These soils are on smooth areas, in depressions, and near drainageways. The water table commonly is at a depth of 0.5 foot to 1.5 feet from midwinter to midspring. Slope is 0 to 2 percent.

Pelham soils are geographically associated with Bonneau, Grady, and Osier soils. Bonneau soils are moderately well drained. Grady soils have an A horizon less than 20 inches thick and a clayey subsoil. Osier soils are sandy throughout.

Typical pedon of Pelham loamy sand, 2.2 miles east of Baker County line on Georgia Highway 37; 5.5 miles northwest on county paved road; 1,584 feet north of Bethel Church and county road; in Mitchell County.

A1—0 to 4 inches; black (10YR 2/1) loamy sand; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; abrupt smooth boundary.

A21—4 to 15 inches; very dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common fine and medium roots, very strongly acid; clear wavy boundary.

A22—15 to 22 inches; gray (10YR 6/1) loamy sand; few medium distinct brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

B1g—22 to 30 inches; light gray (10YR 7/1) sandy loam; weak medium subangular blocky structure; very strongly acid; gradual wavy boundary.

B21tg—30 to 62 inches; light gray (10YR 7/1) sandy clay loam; few coarse prominent yellowish brown (10YR 5/8) and dark red (2.5YR 3/6) mottles; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—62 to 72 inches; light gray (10YR 7/1) sandy clay loam; many coarse distinct yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) mottles; coarse medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

Solum thickness is 72 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A1 horizon is 3 to 10 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2 horizon is 17 to 26 inches thick. It has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 4 to 7, and chroma of 2. Few or common brownish or yellowish mottles are in some pedons.

The B1g horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. Some pedons contain few or common yellowish or brownish mottles.

The Btg horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2. It has few to many brownish, yellowish, and reddish mottles. This horizon is sandy clay loam or sandy loam.

Red Bay Series

The Red Bay series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 5 percent.

Red Bay soils are geographically associated with Greenville, Lucy, and Orangeburg soils. Greenville soils are in a clayey family. Lucy soils have a dominantly red subsoil and are arenic. Orangeburg soils have a dominantly red subsoil.

Typical pedon of Red Bay loamy sand, 2 to 5 percent slopes, 4.3 miles northwest of Patmos on paved road; 1,056 feet east of road; in Baker County.

Ap—0 to 10 inches; dark reddish brown (5YR 3/3) loamy sand; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt smooth boundary.

continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—17 to 55 inches; mottled light gray (10YR 7/1), yellowish red (5YR 5/6), and red (2.5YR 5/8) clay; strong medium subangular blocky structure; very firm; very plastic; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—55 to 71 inches; light gray (5Y 7/1) clay; common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; very firm; very plastic; continuous clay films on faces of peds; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The Ap horizon has hue of 10YR, value of 4, and chroma of 2 or 3. The A1 horizon, if present, has hue of 10YR, value of 4, and chroma of 1 or 2. There are a few nodules of ironstone in some pedons.

The upper part of the Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6; it has few or common gray, red, or brown mottles. The lower part of the Bt horizon has hue of 10YR or 5Y, value of 4 to 7, and chroma of 1 or 2; it has few to many red and brown mottles. In some pedons, the lower part of the Bt horizon is mottled red, brown, and gray and has no dominant matrix color. The Bt horizon is clay or silty clay.

Tifton Series

The Tifton series consists of well drained, moderately permeable soils that formed dominantly in loamy marine sediment on uplands. Slope is 0 to 8 percent.

Tifton soils are geographically associated with Carnegie, Norfolk, and Orangeburg soils. Carnegie soils are in a clayey family and contain 5 percent or more plinthite between depths of 18 and 22 inches. Norfolk and Orangeburg soils are made up of less than 5 percent pebbles and plinthite; in addition, Orangeburg soils have a dominantly red subsoil.

Typical pedon of Tifton loamy sand, 0 to 2 percent slopes; 2.2 miles west on Georgia Highway 262 from the intersection with Georgia Highway 93; 1,584 feet south of highway; in Mitchell County.

Apcn—0 to 10 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many nodules of ironstone, very strongly acid; abrupt wavy boundary.

B1cn—10 to 13 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; many nodules of ironstone; very strongly acid; clear wavy boundary.

B21tcn—13 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common nodules of ironstone; sand grains coated or bridged with clay; very strongly acid; gradual wavy boundary.

B22tcn—36 to 47 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine prominent red mottles and common medium faint strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few nodules of ironstone; about 5 percent nodular plinthite; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—47 to 62 inches; strong brown (7.5YR 5/8) sandy clay loam; few fine faint brownish yellow and common medium prominent red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few nodules of ironstone; 10 percent platy and nodular plinthite; very strongly acid.

Solum thickness is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 6 to 10 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3; hue of 2.5Y, value of 3 to 5, and chroma of 2; or hue of 2.5Y, value of 4 or 5, and chroma of 4. The volume of nodules of ironstone ranges from 5 to 15 percent. The Ap horizon is loamy sand or sandy loam.

The B1 horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6. It is 5 to 15 percent, by volume, nodules of ironstone.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8. The B22t and B23t horizons have few or common red, yellow, and brown mottles. The B22t horizon and B23t horizons contain from 5 to 15 percent plinthite.

Troup Series

The Troup series consists of well drained soils that have a moderately permeable subsoil. These soils formed in sandy and loamy marine sediment on uplands. Slope is 0 to 8 percent.

Troup soils are geographically associated with Lucy, Norfolk, Orangeburg, and Wagram soils. Lucy and Wagram soils are arenic. Orangeburg and Norfolk soils have an A horizon less than 20 inches thick.

Typical pedon of Troup sand, 0 to 5 percent slopes, on Georgia Highway 91; 1.0 mile north of the intersection of Georgia Highways 91 and 200; 3.9 miles northwest on Clear Lake Road; 528 feet west of road; in Baker County.

A1—0 to 4 inches; dark brown (10YR 4/3) sand; weak fine granular structure; loose; many fine and medium roots; strongly acid; clear smooth boundary.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
GoA---------- Goldsboro	0-8	5-15	1.40-1.60	2.0-6.0	0.08-0.12	4.5-6.0	Low----------	0.20	5	.5-2
	8-50	18-30	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
	50-64	20-45	1.30-1.40	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
Gr---------- Grady	0-5	15-30	---	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.24	5	---
	5-12	20-35	---	0.2-0.6	0.10-0.15	3.6-5.5	Low----------	0.10		
	12-72	45-65	---	0.06-0.2	0.12-0.16	3.6-5.5	Moderate-----	0.10		
GsA, GsB---------- Greenville	0-9	5-20	---	0.6-6.0	0.07-0.14	4.5-5.5	Low----------	0.24	5	.5-1
	9-72	35-55	---	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.17		
HvA---------- Hornsville	0-6	6-15	1.44-1.68	6.0-20	0.08-0.12	4.5-6.0	Low----------	0.20	5	1-4
	6-43	35-60	1.58-1.63	0.2-0.6	0.12-0.16	4.5-5.5	Low----------	0.28		
	43-62	12-35	1.62-1.69	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.32		
KeC---------- Kershaw	0-80	---	---	>20	0.02-0.05	4.5-6.0	Very low-----	0.10	5	---
LkB---------- Lakeland	0-82	2-8	1.35-1.55	>20	0.05-0.08	4.5-6.0	Low----------	0.10	5	>1
LmB, LmC---------- Lucy	0-29	1-12	---	6.0-20	0.06-0.10	5.1-5.5	Low----------	0.15	5	.5-1
	29-35	10-30	---	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24		
	35-72	20-35	---	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28		
MaA---------- Maxton	0-7	0-8	1.60-1.75	2.0-6.0	0.06-0.10	4.5-6.0	Low----------	0.15	4	.5-2
	7-28	18-35	1.40-1.60	0.6-2.0	0.13-0.18	4.5-5.5	Low----------	0.24		
	28-72	0-10	1.60-1.75	6.0-20	0.03-0.06	4.5-5.5	Low----------	0.10		
Mm:*										
Meggett----------	0-8	15-25	---	0.6-2.0	0.15-0.20	4.5-6.5	Low----------	0.28	5	2-8
	8-62	40-60	---	0.06-0.2	0.13-0.18	5.1-8.4	High----------	0.32		
Muckalee----------	0-5	10-25	---	0.6-2.0	0.09-0.15	5.1-6.5	Low----------	0.20	5	---
	5-65	5-20	---	0.6-2.0	0.08-0.12	5.6-7.3	Low----------	0.20		
NoA, NoB---------- Norfolk	0-10	2-8	1.55-1.75	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.20	5	.5-2
	10-48	18-35	1.35-1.45	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	48-72	20-40	1.30-1.40	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
OeA, OeB, OeC---- Orangeburg	0-13	4-10	---	2.0-6.0	0.06-0.09	4.5-6.0	Low----------	0.10	5	.5-1
	13-16	7-18	---	2.0-6.0	0.09-0.12	4.5-6.0	Low----------	0.20		
	16-72	18-35	---	0.6-2.0	0.11-0.14	4.5-5.5	Low----------	0.24		
Op:*										
Osier----------	0-15	5-10	---	6.0-20	0.03-0.10	4.5-6.0	Low----------	0.10	5	---
	15-72	2-5	---	>20	0.02-0.05	4.5-6.0	Low----------	0.05		
Pelham----------	0-22	5-10	---	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1-2
	22-72	15-30	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
Pe---------- Pelham	0-22	5-10	---	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1-2
	22-72	15-30	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24		
ReA, ReB---------- Red Bay	0-10	4-12	---	>6.0	0.06-0.11	4.5-6.0	Low----------	0.10	5	<2
	10-16	10-25	---	0.6-6.0	0.10-0.14	4.5-5.5	Low----------	0.15		
	16-72	18-25	---	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.17		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm³	In/hr	In/in	pH				Pct
[illegible]---------- Norfolk	0-14	4-10	1.40-1.50	2.0-20	0.06-0.10	3.6-5.5	Low----------	0.28	4	.5-1
	14-46	10-33	1.40-1.50	0.6-2.0	0.12-0.20	3.6-5.5	Low----------	0.28		
	46-72	4-10	1.40-1.50	2.0-20	0.04-0.10	3.6-6.0	Low----------	0.17		
[illegible], [illegible]---------- Tifton	0-10	3-8	---	6.0-20	0.03-0.08	4.5-5.5	Low----------	0.10	4	<1
	10-13	13-22	---	6.0-20	0.08-0.12	4.5-5.5	Low----------	0.24		
	13-36	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24		
	36-62	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low----------	0.17		
[illegible]---------- Tifton	0-6	10-20	---	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.17	4	1-2
	6-28	20-35	---	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24		
	28-60	25-40	---	0.2-0.6	0.10-0.13	4.5-5.5	Low----------	0.17		
[illegible], [illegible]---------- Troup	0-53	1-10	---	6.0-20	0.03-0.10	4.5-5.5	Very low-----	0.15	5	<1
	53-82	15-35	---	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20		
[illegible], [illegible]---------- Warram	0-28	2-10	1.60-1.75	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.15	5	.5-2
	28-82	10-35	1.35-1.60	0.6-2.0	0.12-0.16	4.5-6.0	Low----------	0.20		
[illegible]---------- Wahee	0-10	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	.5-5
	10-50	35-55	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate-----	0.28		
	50-65	---	---	0.2-0.6	0.12-0.20	3.6-5.5	Moderate-----	0.28		

* See description of the map unit for composition and behavior characteristics of the map unit.

BLACK & VEATCH Waste Science, Inc.

Reference 8

TELEPHONE MEMORANDUM

USEPA -- Region IV
Pelham Phosphate
Clarification of Reference Information

BVWS Project 52014.310
BVWS File
August 30, 1994
11:00 a.m.

To: Rob Lawyer
Company: Weston Environmental
Phone No.: 352-4147

Recorded by: Erik Lombard

I called Rob to see if he could clarify some vague information in the References. What he told me is outlined below:

- Waste Piles (drums, etc., mentioned in a Reference).

  - 4 Piles
  - Dimensions are 8'H x 10'W x 20'L
  - Still at sight

  The piles are "raw material" that the company used in its manufacturing process. The "main building" and its bays (see map) are also full of the same material. The material was sampled, and the results are in the file material.

- Transformers (mentioned in Reference as "under a shed")

  The transformers were actually under a roof with four poles supporting it. There were eight large units and ten smaller ones. The soil and the transformer oil was sampled for PCBs and the results are included in the file material. Additionally, the transformers that were on the "transformer stand" shown on the map have been staged in this same area.

Rob and I also talked about the ongoing remedial action at the site. He said that approximately 5 feet of soil have been removed between the ponds and the Chelate Building. Initially, they sampled at surface, 2 feet and 3 feet; there action level was 450 ppm, and they followed all excavations with confirmation samples. The excavated soil is being stockpiled on the north end of the property, and currently there are approximately 20,000 cubic yards of soil.

Rob described the location of the seven onsite monitoring wells that were sampled and I marked them on the map. He said the wells were from approximately 20 to 40 feet deep.

ms

#89132

BLACK & VEATCH Waste Science, Inc.

Reference 16

TELEPHONE MEMORANDUM

USEPA -- Region IV
Pelham Phosphate
Flood Plain Information

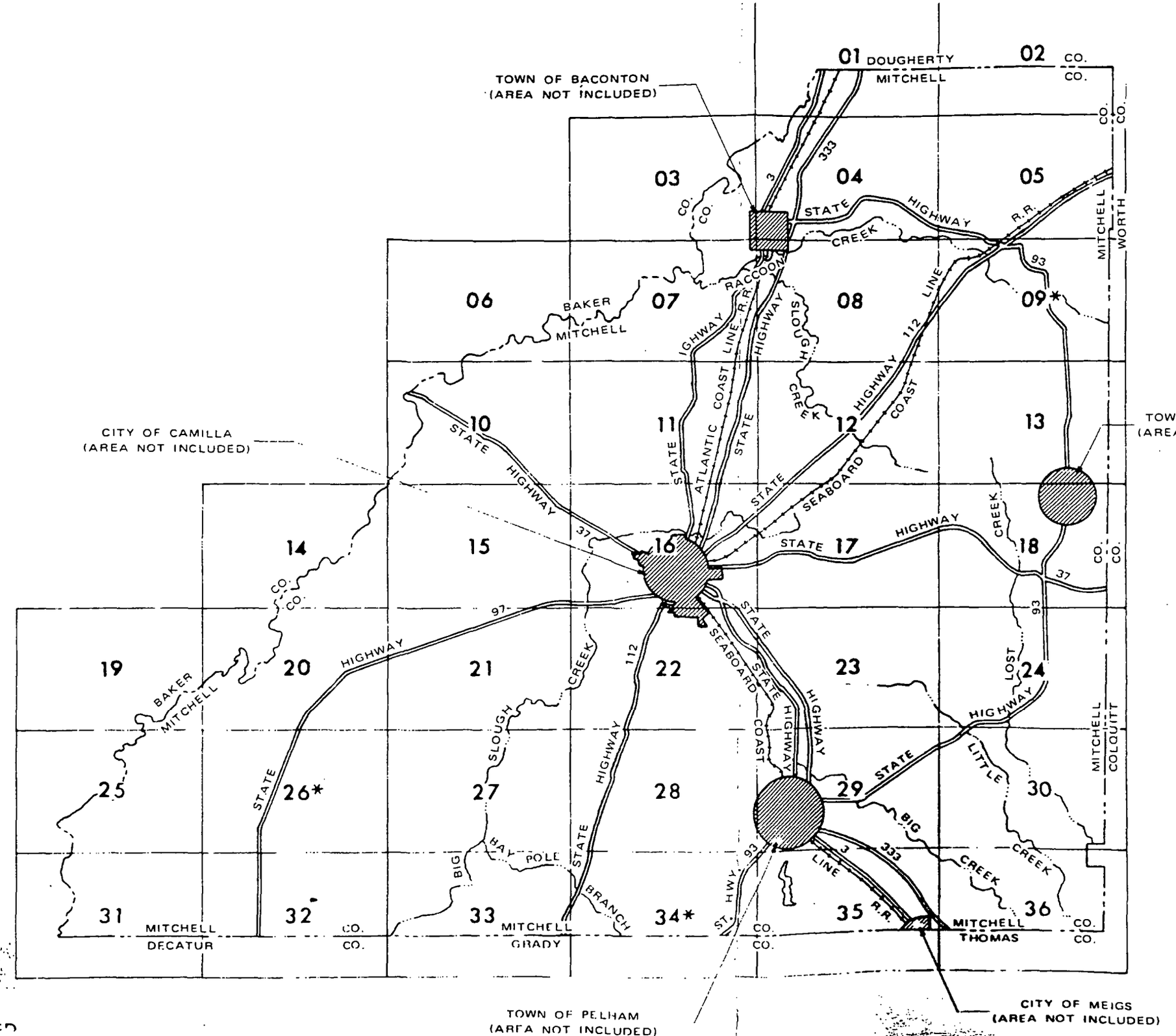
BVWS Project 52014.310
BVWS File
August 15, 1994
10:00 a.m.

To: Linda Bufford
Company: Mitchell County Soil Conservation Office
Phone No.: 912-336-2050

Recorded by: Erik Lombard

I asked Linda about flood plains in the Pelham Phosphate site area. She checked the FEMA maps and reported that the entire site area was outside the 500-year flood plain.

ms



01 DOUGHERTY CO.
MITCHELL CO.
02
TOWN OF BACONTON
(AREA NOT INCLUDED)
03
04
05
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09*
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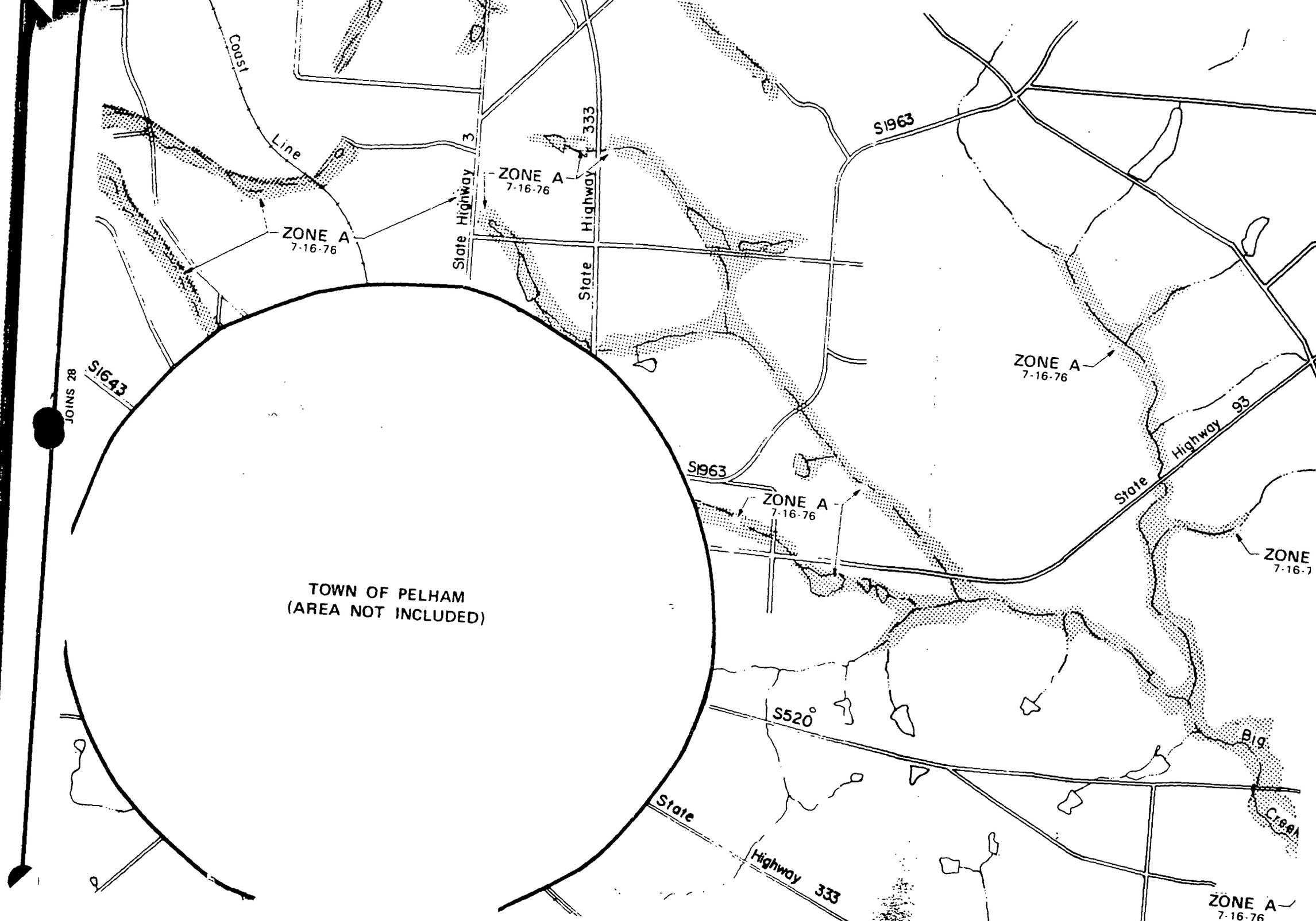
CITY OF CAMILLA
(AREA NOT INCLUDED)
TOWN OF PELHAM
(AREA NOT INCLUDED)
CITY OF MEIGS
(AREA NOT INCLUDED)
MITCHELL CO.
WORTH CO.
MITCHELL CO.
COLQUITT CO.
MITCHELL CO.
THOMAS CO.
MITCHELL CO.
GRADY CO.
MITCHELL CO.
DECATUR CO.
BAKER CO.
MITCHELL CO.
STATE HIGHWAY 3
333
STATE HIGHWAY 93
RACCOON CREEK
BAKER CO.
MITCHELL CO.
STATE HIGHWAY 37
STATE HIGHWAY 97
STATE HIGHWAY 112
ATLANTIC COAST LINE R.R.
SLOUGH CREEK
SEABOARD COAST LINE R.R.
LOST CREEK
LITTLE CREEK
BIG CREEK
BIG BAY POLE BRANCH
ST. HWY. 93


Coast
Line
State Highway 3
State Highway 333
S1963
ZONE A
7-16-76
ZONE A
7-16-76
ZONE A
7-16-76
ZONE A
7-16-76
ZONE A
7-16-76
ZONE A
7-16-76
S1643
JOINS 28
S1963
State Highway 93
TOWN OF PELHAM
(AREA NOT INCLUDED)
S520°
State Highway 333
Big
Creek

SITE INSPECTION WORKSHEETS

CERCLIS IDENTIFICATION NUMBER
GAD003300092

SITE LOCATION			
SITE NAME: LEGAL, COMMON, OR DESCRIPTIVE NAME OF SITE Stoller Chemical / Pelham Phosphate Company			
STREET ADDRESS, ROUTE, OR SPECIFIC LOCATION IDENTIFIER West Railroad Street			
CITY Pelham	**STATE** Georgia	**ZIP CODE** 31779	**TELEPHONE** N/A

OWNER/OPERATOR IDENTIFICATION					
OWNER Mr. Jerry Stoller			**OPERATOR** Inactive Facility		
OWNER ADDRESS 8582 Caty Freeway, Suite 200			**OPERATOR ADDRESS**		
CITY Houston			**CITY**		
STATE Texas	**ZIP CODE** 77024	**TELEPHONE**	**STATE**	**ZIP CODE**	**TELEPHONE**

SITE EVALUATION		
AGENCY/ORGANIZATION Georgia Environmental Protection Division		
INVESTIGATOR Antonia Beavers	**CONTACT** Andy Taft	
ADDRESS 2 Martin Luther King, Jr. Drive, SE Suite 1462 East	TELEPHONE 404/656-2833	
CITY **Atlanta**	STATE Georgia	ZIP CODE 30334

GENERAL INFORMATION

Site description and Operational History: Provide a brief description of the site and its operational history. State the site name, owner, operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note whether these activities are documented or alleged. Identify all source types and prior spills, floods, or fires. Summarize highlights of the PA and other investigations. Cite references.

The Stoller Chemical/ Pelham Phosphate Company is located at West Railroad Street within the city limits of Pelham, Georgia (Mitchell County), approximately one half mile west of U.S. Highway 19. Previous reports have also referenced the site address as 106 Mitchell Street. The geographical coordinates of the site are 31° 08' 29" N latitude and 84° 09' 18" W longitude as depicted on the United States Geological Survey (USGS) Camilla, Georgia 7.5 minute Topographic Quadrangle Map. (Ref. 1)

The Stoller Chemical/ Pelham Phosphate Company site is the location of a former manufacturer of phosphate-based fertilizers and agricultural chemicals. The site is located on approximately two hundred fifty acres, twenty-six (26) of which were used in former facility operations. Site operations were conducted from 1911 until March 19, 1992 when the site was abandoned through bankruptcy proceedings (Ref.13, Ref.6). The facility was a super-phosphate plant that manufactured phosphate-based fertilizers and agricultural chemicals for the local agricultural industry. The primary activity of the facility was to process raw products such as ammonia, phosphate rock, and potash into NPK fertilizers (Ref.39). Other processes converted emission control dusts from the secondary production of steel and other mineral feedstock materials into a trace element product that was blended with the NPK fertilizer (Ref. 39). The emission control dust is listed hazardous waste, K061, for its content of lead, cadmium, and chromium and was stored at the facility to maintain an inventory during periods of peak production (Ref. 12). A RCRA Part A application was submitted for the facility in August 1980. A revised RCRA Part A application and Part B applications were submitted in July 1983. The site had two (2) hazardous waste management units used to store K061 dust (an outside waste pile and an inside waste pile) that received closure certifications from Georgia EPD in October 1986 and November 1987 respectively (Ref each Letter). Superphosphate was also produced at the plant by reacting sulfuric acid with phosphate ore, which produced hydrofluorosilic acid (HSF) that was sold for use in wastewater fluoridation. A venturi scrubber system was used to treat waste steam from the process, and wastewater was collected in two surface impoundments and later recycled back to the scrubber system (Ref.12, Ref.22).

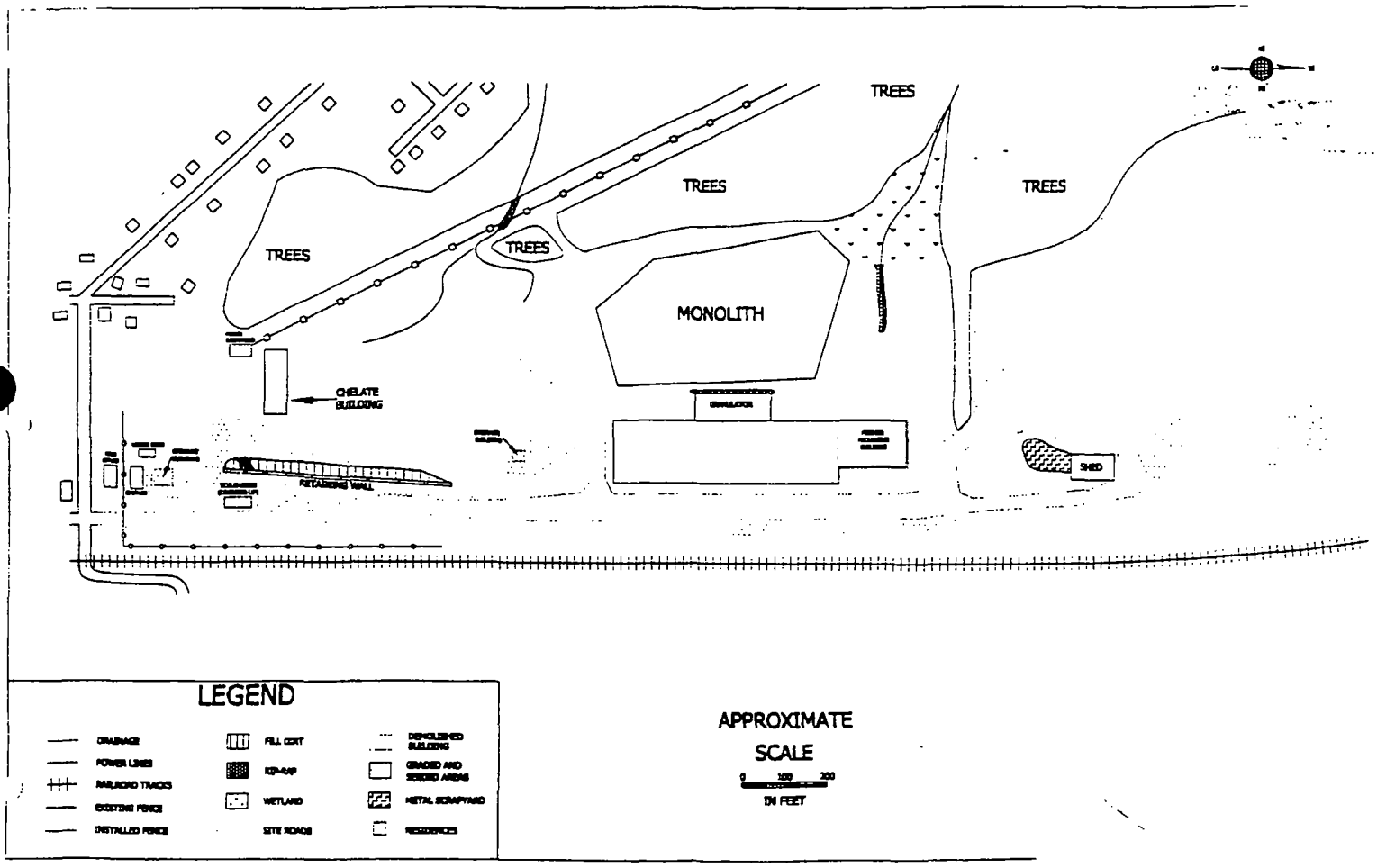
When the site was abandoned in 1992, large quantities of hazardous materials were left unsecured, and some were being actively released to the environment. Notable sources documented onsite at that time include two (2) 250,000-gallon surface impoundments, 17-acres of soil contaminated with heavy metals, four (4) waste piles of raw processing materials, 25 transformers and capacitors, and various tanks, vats, drums, and containers of waste (Ref.10). EPA Region IV conducted an emergency response action followed by two (2) removal actions from July 1992 until December 1998 to mitigate threats to human health and the environment. An Expanded Site Inspection (ESI) was conducted at the site in 1994 that concluded further action was warranted at the site due to elevated levels of inorganics detected in the sediment along Acid Branch, which flows within twenty (20) feet of some residents (Ref.26).

Beginning in 1992, an extensive soil sampling survey was conducted to determine the extent of soil contamination. Soils were analyzed and found to be contaminated with heavy metals, predominantly lead. Arsenic, cadmium, chromium, and lead were detected in the stockpiles of raw material used in plant operations (Ref.26). PCBs were detected in composite samples collected from the oil inside the transformers. Many of the drums and other containers found onsite were sampled and the contents were characterized by hazardous characterization (HAZCAT) analysis and were not analyzed for specific constituents. Both surface impoundments were sampled during the ESI and the following were detected in elevated levels: antimony, arsenic, barium, copper, lead, mercury, potassium, zinc, carbon disulfide, methyl ethyl ketone, gamma-chlordane, alpha-chlordane, fluoranthene, pyrene, and bis(2-ethylhexyl)phthalate.(Ref.26, Ref.10)

The inactive facility currently consists of a number of buildings in various states of disrepair including a portion of the former chealate building, a granulator, weigh station, main office and storage warehouse. The storage warehouse, located in the northwest area of the site, is the location of product and material deemed non-hazardous waste following HAZCAT analysis of all onsite containerized wastes conducted in February of 1993 (Ref.10), while the former chealate building serves as storage for heavy Ref.11). Seventeen acres of on-site contaminated soils and sludge from two (2) former surface impoundments have been stabilized/ solidified and consolidated into a four-acre landfill with a clay cap at the site. There is also a metal scrap yard onsite that contains large pieces of scrap metal and several silos and storage tanks that were decommissioned during removal actions that were completed in November 1998. Three retention cells containing debris such as wood and metal scraps from building demolitions, rocks, solidified storage tank contents, crushed tanks, and sulfurous material are also located at the site near the landfill area (Ref.11).

Site Sketch:

- Please see attached figure.



Source Description: Include description of containment per pathway for ground water (see HRS Table 3-2), surface water (see HRS Table 4-2), and air (see HRS Tables 6-3 and 6-9).

From July 1992 through December 1998, removal actions were conducted at the Stoller Chemical/ Pelham Phosphate Company site to mitigate threats to human health and the environment. The removal actions included on-site treatment and/ or offsite disposal of hazardous materials that were documented at the site. The site was evaluated under the OSWER directive, ***The Revised Hazard Ranking System: Evaluating Sites After Waste Removals,*** Publication 93451.1-03FS, October 1991. The purpose was to determine if any sources met the criteria for a qualifying removal conducted prior to the applicable cutoff date of March 8, 1994. For purposes of this SRA and to be environmentally conservative, the migration pathways eligible for evaluation under the HRS, will be scored based on the initial quantities of wastes onsite prior to the onset of the removal actions. The soil pathway will be evaluated based on current site conditions with the conservative assumption that contaminated sediments may remain along Acid Branch Creek within 20 feet of nearby residences.

Multiple Sources were documented onsite during the site investigation, emergency response action, and subsequent removal actions. Site sources included the following:

- Two (2) unlined 250,000-gallon surface impoundments used to collect wastewater from site manufacturing operations. The dimensions of the impoundments were 250'x150' and 200'x100'and they covered a total of 57,500 square feet.
- Seventeen (17) acres of soil contaminated with heavy metals from former site operations, predominantly lead (21, 000 mg/kg).
- Four (4) unlined waste piles with of raw processing materials with dimensions of 8'h x10'w x20'l.
- Twenty-five (25) transformers and capacitors containing an unknown volume of PCB laden oil
- 110 drums of caustic soda, formaldehyde, and other contents characterized using hazard characterization (HAZCAT) analysis.
- 4 cylinders of anhydrous ammonia containing approximately 75 gallons of ammonia.
- 7 tanks and vats of sulfuric acid with a capacity of 18,000 gallons
- 1,200 5-gallon pails of waste characterized using HAZCAT analysis

Sources for the Soil Pathway

- 4-acre clay landfill capped with 3 feet of clay material.
- Sediment samples collected along Acid Branch Creek during 1994 ESI. Samples collected up ¾ miles (3960 ft) from the site. Assume creek widens 20 feet along sample location path. Area of contamination is approximately 79,200 square feet.
- Metal contaminated soil (estimated area of contamination 375,000 square feet) located outside the landfill area identified during GA EPD site assessment activities conducted in June 2002.

Hazardous Waste Quantity (HWQ) Calculation: SI Tables 1 and 2 (See HRS Tables 2-5, 2-6, and 5-2.

See the attached Hazardous Waste Quantity Calculations for the Migration pathways and for the Soil Exposure pathway.

Attach additional pages, if necessary

HWQ= 100 migration
1 soil exposure

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION FOR MULTIPLE SOURCES

FOR THE SOIL PATHWAY

SOURCE NO.	SOURCE NAME	TIER	AREA OR VOLUME	WQ DIVISOR	WQ VALUE
1S	Contaminated Soil	Area	375,000 ft^2	34,000	11
2S	Contaminated Sediment Along Acid Branch Creek	Area	79,200 ft^2	34,000	2

HWQ = 1

Σ of WQs = 13

SOURCE NO.	SOURCE NAME	TIER	AREA OR VOLUME	WQ DIVISOR	WQ VALUE
1	Contaminated Soil	Area	17 Acres	0.78 Acres	22
2	Twenty-five (25) transformers or capacitors containing PCB laden cooling oil	Volume	Incomplete	Not Applicable	10
3	One hundred ten (110) 55-gallon drums of formaldehyde, caustic soda and other waste	Volume	Not Applicable	10 Drums	11
4	Twelve thousand (1,200) 5-gallon pails of wastes	Volume	6,000 Gal.	500 Gallons	12
5	Two (2) 250,000 gallon surface impoundments with corrosive waste (> pH 2)	Area	57,500 ft^2	13 ft^2	4,423
6	Four (4) waste piles of raw processing material	Area	800 ft^2 combined area	13	62
7	Four (4) cylinders of anhydrous ammonia	Volume	75 gallons	500	1
8	Seven (7) tanks or open vats of sulfuric acid	Volume	18,000 Gal.	500 Gallons	36
9	Fifty-nine tanks of various wastes	Volume	Incomplete	Not Applicable	10

HWQ = 100 **Σ of WQs = 4,587**

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION FOR MULTIPLE SOURCES FOR MIGRATION PATHWAYS

TABLE 1 (CONTINUED)

Single Source Sites (assigned HWQ scores)		Multiple Source Sites		
(Column 5) HWQ = 10,000	(Column 6) HWQ = 1,000,000	(Column 7) Divisors for Assigning Source WQ Values	(Column 2) Source Type	(Column 1) TIER
>10,000 to 1 million lbs	> 1 million lbs	lbs ÷ 1	N/A	**A** Hazardous Constituent Quantity
>50 million to 5 billion lbs	> 5 billion lbs	lbs ÷ 5,000	N/A	**B** Hazardous Wastestream Quantity
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Landfill	**C** Volume
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Surface Impoundment	
>100,000 to 10 million drums	> 10 million drums	drums ÷ 10	Drums	
>5 million to 500 million gallons	> 500 million gallons	gallons ÷ 500	Tanks and non-drum containers	
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Contaminated Soil	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Pile	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Other	
>34 million to 3.4 billion ft^2 >780 to 78,000 acres	> 3.4 billion ft^2 >78,000 acres	ft^2 ÷ 3,400 acres ÷ 0.078	Landfill	**D** Area
>130,000 to 13 million ft^2 >2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Surface Impoundment	
> 340 million to 34 billion ft^2 > 7,800 to 780,000 acres	> 34 billion ft^2 > 780,000 acres	ft^2 ÷ 34,000 acres ÷ 0.78	Contaminated Soil	
> 130,000 to 13 million ft^2 > 2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Pile	
>2.7 million to 270 million ft^2 >62 to 6,200 acres	> 270 million ft^2 > 6,200 acres	ft^2 ÷ 270 acres ÷ 0.0062	Land Treatment	

SI TABLE 1: HAZARDOUS WASTE QUANTITY (HWQ) SCORES FOR SINGLE SOURCE SITES AND FORMULAS FOR MULTIPLE SOURCE SITES

		Single Source Sites (assigned HWQ scores)	
(Column 1) TIER	(Column 2) Source Type	(Column 3) HWQ = 10	(Column 4) HWQ = 100
A Hazardous Constituent Quantity	N/A	HWQ = 1 if Hazardous Constituent Quantity data are complete HWQ = 10 if Hazardous Constituent Quantity data are not complete	>100 to 10,000 lbs
B Hazardous Wastestream Quantity	N/A	≤ 500,000 lbs	>500,000 to 50 million lbs
C Volume	Landfill	≤ 6.75 million ft^3 ≤ 250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Surface impoundment	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Drums	≤1,000 drums	>1,000 to 100,000 drums
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons
	Contaminated soil	≤6.75 million ft^3 ≤250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Pile	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Other	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
D Area	Landfill	≤340,000 ft^2 ≤7.8 acres	>340,000 to 34 million ft^2 >7.8 to 780 acres
	Surface impoundment	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Contaminated soil	≤3.4 million ft^2 ≤78 acres	> 3.4 million to 340 million ft^2 > 78 to 7,800 acres
	Pile	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Land treatment	≤27,000 ft^2 ≤0.62 acres	>27,000 to 2.7 million ft^2 >0.62 to 62 acres

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION

For each migration pathway, evaluate HWQ associated with sources that are available (i.e., incompletely contained) to migrate to that pathway. (Note: If *Actual Contamination Targets* exist for ground water, surface water, or air migration pathways, assign the calculated HWQ score or 100, whichever is greater, as the HWQ score for that pathway.) For each source, evaluate HWQ for one or more of the four tiers (SI Table 1; HRS Table 2-5) for which data exist: constituent quantity, wastestream quantity, source volume, and source area. Select the tier that gives the highest value as the source HWQ. Select the source volume HWQ rather than source area HWQ if data for both tiers are available.

Column 1 of SI Table 1 indicates the quantity tier. Column 2 lists source types for the four tiers. Columns 3, 4, 5, and 6 provide ranges of waste amount for sites with only one source, corresponding to HWQ scores at the tops of the columns. Column 7 provides formulas to obtain source waste quantity values at sites with multiple sources.

1. Identify each source type.
2. Examine all waste quantity data available for each source. Record constituent quantity and waste stream mass or volume. Record dimensions of each source.
3. Convert source measurements to appropriate units for each tier to be evaluated.
4. For each source, use the formulas in the last column of SI Table 1 to determine the waste quantity value for each tier that can be evaluated. Use the waste quantity value obtained from the highest tier as the quantity value for the source.
5. Sum the values assigned to each source to determine the total site waste quantity.
6. Assign HWQ score from SI Table 2 (HRS Table 2-6).

Note these exceptions to evaluate soil exposure pathway HWQ (see HRS Table 5-2):

- The divisor for the area (square feet) of a landfill is 34,000.
- The divisor for the area (square feet) of a pile is 34.
- Wet surface impoundments and tanks and non-drum containers are the only sources for which volume measurements are evaluated for the soil exposure pathway.

SI TABLE 2: HWQ SCORES FOR SITES

Site WQ Total	HWQ Score
0	0
1[a] to 100	1[b]
> 100 to 10,000	100
> 10,000 to 1 million	10,000
> 1 million	1,000,000

[a] If the WQ total is between 0 a

[b] If the hazardous constituent q sign the score of 10.

SI TABLE 3: WASTE CHARACTERIZATION WORKSHEET

Site Name: Stoller Chemical/ Pelham Phosphate Company **References:** SCDM

Sources:

1. contaminated soil
2. surface impoundments
3. 110 55-gallon drums
4. 1,500 5-gallons pails of waste
5. 25 transformers
6. 4 waste piles of raw material
7. 4 cylinders of anhydrous ammonia
8. 7 tanks or open vats of sulfuric acid
9. 59 tanks of waste

SOURCE	HAZARDOUS SUBSTANCE	TOXICITY	GROUND WATER PATHWAY		SURFACE WATER PATHWAY										
					OVERLAND/FLOOD MIGRATION							GROUND WATER TO SURFACE WATER			
			GW Mobility (HRS Table 3-8)	Tox/ Mobility Value (HRS Table 3-9)	Per (HRS Tables 4-10 and 4-11)	Tox/ Per Value (HRS Table 4-12)	Bioac Pot. (HRS Table 4-15)	Tox/ pers/ Bioac Value (HRS Table 4-16)	Ecotox (HRS Table 4-19)	Ecotox/Pers (HRS Table 4-20)	Ecotox/Pers/ Bioac Value (HRS Table 4-21)	Tox/ Mob/ Pers Value (HRS Table 4-26)	Tox/ Mob/ Pers/ Bioac Value (HRS Table 4-28)	Ecotox/ Mob/ Pers Value (HRS Table 4-29)	Ecotox/ Mob/ Per/ Bioac Value (HRS Table 4-30)
2	Antimony	10,000	0.01	100											
2, 6	Arsenic	10,000	0.01	100											
2	Barium	10,000	.01	100											
6	Cadmium	10,000	0.002	20											
2, 6	Chromium	10,000	0.01	100											
2	Copper	N/a	0.01	N/a											
1, 2, 6	Lead	10,000	0.00002	0.2											
2	Mercury	10,000	0.01	100											
2	Potassium	N/A													
2	Zinc	10,000	2.00e-05	0.001											
2	Alpha chlordane	10	2.00e-05	2.00e-04											
2	Bis(2-ethylhexlyl)phathalate	100	2.00e-07	2.00e-05											
2	Carbon disulfide	10	1	10											
2	fluoranthene	100	2.00e-05	0.002											
2	Gamma-chlordane	10	2.00e-05	2.00e-04											
2	Methyl ethyl ketone	10	1	10											
2	pyrene	100	2.00e-05	0.002											

5	PCBs	10,000	2.00e-07	0.002											

SI TABLE 4: GROUNDWATER OBSERVED RELEASE SUBSTANCES BY AQUIFER

Sample ID	Hazardous Substance	Background Concentration	Toxicity/ Mobility	References
MW-5	Barium	0.19	100	SCDM
MW-5	Boron	ND	100	SCDM
MW-3	Cadmium	ND	20	SCDM
MW-4	Cyanide	ND	100	SCDM
MW-3	Magnesium	0.17	Not listed -SCDM	N/A
MW-4	Mercury	ND	100	SCDM
MW-6	Strontium	0.132	100	SCDM
MW-6	Thallium	ND	0.01	SCDM
PEL-EE-MW6-GW	Sulfate	ND	Not listed-SCDM	N/A
PEL-EE-MW3-GW	Zinc	0.073	0.001	SCDM
		Highest toxicity mobility	100	

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use within 4 Miles of the Site:
Describe generalized stratigraphy, aquifers, municipal and private wells

The Stoller Chemical/ Pelham Phosphate Company site lies within the Tifton Upland District of the Coastal Plain Physiographic Province. The site lies on the border between the Tifton Upland and Dougherty Plain Physiographic Districts, which are separated by the Pelham Solution Escarpment. The Dougherty Plain is at the base of the escarpment, while the Tifton Upland is located at the crest of the escarpment yielding a characterization as a rolling upland with numerous southeastward flowing streams. (Ref.17)

Mitchell County is underlain by 5,000 to 7,000 feet of sedimentary rock, ranging in age from Early Cretaceous or older to Recent. The Stoller Chemical/ Pelham Phosphate Company site is underlain by the Hawthorn Formation, which is comprised of the following formations in descending order: the Miocene Tampa Limestone, the Oligocene Suwanee Limestone, the Upper Eocene Ocala Limestone, the Middle Eocene Claiborne Group (composed of the Lisbon and Talahatta Formations), and the Lower Eocene Wilcox Group (or the Tuscahoma Formation) (Ref.17).

The Ocala Limestone aquifer (The Ocala) is the primary aquifer used in Mitchell County. While the Ocala ranges from 200 to 300 feet regionally, it lies approximately 310 beneath Pelham. It is considered to be a good aquifer, although its value as an aquifer is reduced beneath the Tifton Upland, in contrast to the Doughery plain due to extensive recrystallization and dolomitization that has occurred. The Ocala yields up to 475 gallons per minute (gpm) in Mitchell County. The formations that overlie the Ocala are the Hawthorne Formation, Tampa Limestone, and Suwanee Limestone. The Hawthorne Formation is composed of sand and sandy clay is a poor aquifer yielding 1 to 5 gpm of water. The formation ranges from zero to approximately 100 feet in thickness in Mitchell County and is believed to be 50 feet thick beneath the site. The potentiometric surface of the Hawthorne formation is roughly 10 to 20 feet below ground surface. The Tampa Limestone is approximately 140 feet thick below the City of Pelham. It is considered to be a poor aquifer due to the presence of dense, impermeable marl beds, within only slightly less impermeable sediment and rock. The Suwanee Limestone consists of pinkish white pure fossiliferous limestone ranging in thickness from 0 to 100 feet in Mitchell County. The unit yields small quantities of water to wells (Ref.1, Ref,17, Ref.27) .

Most people within 4-miles of the site obtain water from public supply wells that serve approximately 1332 residential connections (Ref.16). The three public supply wells for the City of Pelham are located within the city limits, and the nearest City of Pelham well is 0.75 miles south of the site as depicted in Figure 5. The city wells are installed in the Ocala Aquifer, which is approximately 300 feet below ground surface (bgs) and are drilled as deep as 700 to 800 feet deep. (Ref.14, Ref.15, Ref.32) There are approximately 1500 people who obtain drinking water from private wells within a 4-mile radius of the site per the 1990 Census data (Ref.36). The nearest private well was located at approximately 0.6 miles from the site. Depths of private wells are typically 200 to 300 feet bgs. There are no known private wells that are completed in the shallow Hawthorne Formation unit (Ref.28, Ref.15)

For purposes of this SRA and to be environmentally conservative, the groundwater pathway will be evaluated for the shallow Hawthorn Formation (10 feet bls) and the deeper Ocala aquifer (300 feet bls). Based on groundwater data collected at the site, an observed release has occurred to the Hawthorne Formation, however there were no samples collected from wells completed in the Ocala Limestone aquifer (Ref.26, Ref.27).

Show Calculations of Ground Water Drinking Water Populations for each Aquifer:
Provide apportionment calculations for blended supply systems.
County average number of persons per household: 3.02 Reference (Ref.36)

See attached Table.

GROUNDWATER USE WITHIN 4 MILES OF THE SITE

Drinking Water Populations

----------Distance from the site (miles)----------

Ground Water Usage	0-0.25	0.25-0.50	0.50-1.0	1.0-2.0	2.0-3.0	3.0-4.0	Total
Total Population	67	182	551	1437	1597	1371	5206
Population on Private Wells	14	40	129	366	464	486	1500
Population on Public Wells	53	142	422	1071	1133	885	3706

Source-1990 Census Data

GROUND WATER PATHWAY WORKSHEET

**Evaluation of the shallow Hawthorn Formation. Conservatively assumes the entire population of private wells users have wells completed in the aquifer.

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.	**550**		26 , 27
2. POTENTIAL TO RELEASE: Depth to aquifer: __ feet. If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.			1, 27
LR =	**550**		

TARGETS			
Are any wells part of a blended system? Yes___No If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any target drinking water well for the aquifer has been exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5). Level I: _____ people x 10 = Level II: _____ people x 1 = _____ **Total =**	**0**		
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water wells for the aquifer or overlying aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.	****30.6**		36
5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets for the aquifer or overlying aquifer. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking water wells exist within 4 miles, assign 0.	**20**		36, 28
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.	**0**		Assume no WPH for shallow aquifer
7. RESOURCES: Assign a score of 5 if one or more ground water resources applies; assign 0 if none applies. - Irrigation (5 acre minimum) of commercial food crops or commercial forage crops - Watering of commercial livestock - Ingredient in commercial food preparation - Supply for commercial aquaculture - Supply for a major or designated water recreation area, excluding drinking water use	**5**		Default
Sum of Targets T =	**55.6**		

Private wells

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile	14	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	17	36
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	40	18	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122	33	"
> $\frac{1}{2}$ to 1 mile	129	9	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385	52	"
> 1 to 2 miles	366	5	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842	94	"
> 2 to 3 miles	464	3	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219	68	"
>3 to 4 miles	486	2	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596	42	"

Nearest Well = [ ]

Sum = 306

306 x 0.1 = 30.6

Private Wells + Public Wells

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile	67	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	53	36
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	182	18	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122	102	"
> $\frac{1}{2}$ to 1 mile	551	9	1	5	17	52	167	523	1,669	5,224	16,684	52,239	166,835	522,385	167	"
> 1 to 2 miles	1437	5	0.7	3	10	30	94	294	939	2,939	9,385	29,384	93,845	293,842	294	"
> 2 to 3 miles	1597	3	0.5	2	7	21	68	212	678	2,122	6,778	21,222	67,777	212,219	212	"
>3 to 4 miles	1371	2	0.3	1	4	13	42	131	417	1,306	4,171	13,060	41,709	130,596	131	"

Nearest Well = 20

Sum = 959

959 x 0.1 = 95.9

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does Not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; **If no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.**	**100**		
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	**100**		
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7)	**10,000**		

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to < 1E + 05	10
1E + 05 to < 1E + 06	18
1E + 06 to < 1E + 07	32
1E + 07 to < 1E + 08	56
1E + 08 or greater	100

product = 0.00e+00

Score =

WC = 10

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100

GROUND WATER PATHWAY SCORE: (LR X T X WC)/82,500

3.71

(Maximum of 100)

(550 x 55.6x 10)/82,500 = 3.71

GROUND WATER PATHWAY WORKSHEET

Evaluation of Ocala Aquifer
**All known public supply and private wells are completed in this aquifer.

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.			
2. POTENTIAL TO RELEASE: *Depth to aquifer: 200 feet.* If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.	340		23,14,15 32
LR =	**340**		

TARGETS			
Are any wells part of a blended system? Yes___No If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any target drinking water well for the aquifer has been exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5). Level I: _____ people x 10 = Level II: _____ people x 1 = _____ **Total =**	**0**		
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water wells for the aquifer or overlying aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.	****95.9**		36
5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets for the aquifer or overlying aquifer. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking water wells exist within 4 miles, assign 0.	**20**		36, 28
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.	**5**		32
7. RESOURCES: Assign a score of 5 if one or more ground water resources applies; assign 0 if none applies. - Irrigation (5 acre minimum) of commercial food crops or commercial forage crops - Watering of commercial livestock - Ingredient in commercial food preparation - Supply for commercial aquaculture - Supply for a major or designated water recreation area, excluding drinking water use	**5**		Default
Sum of Targets T =	**125.9**		

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does Not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; **If no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.**	**100**		
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	**100**		
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7)	**10,000**		

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to < 1E + 05	10
1E + 05 to < 1E + 06	18
1E + 06 to < 1E + 07	32
1E + 07 to < 1E + 08	56
1E + 08 or greater	100

product = 0.00e+00

Score =

WC = 10

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100

GROUND WATER PATHWAY SCORE: (LR X T X WC)/82,500

5.33

(Maximum of 100)

(340 x 125.9 x 10)/82,500 = 5.33

Summary of Groundwater Pathway Scores:

Shallow Aquifer (Hawthorn Formation)
(550 x 55.6x 10)/82,500 = 3.71

Deep Aquifer (Ocala Aquifer)
(340 x 125.9 x 10)/82500 = 5.33

Score Selected = 5.33

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

LIKELIHOOD OF RELEASE-OVERLAND/FLOOD MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.	0		
2. POTENTIAL TO RELEASE: Distance to surface water: 42, 240 (feet) If sampling data do not support a release to surface water in the watershed, use the table below to assign a score from the table below based on distance to surface water and flood frequency.			1, 24

Distance to surface water <2500 feet	500
Distance to surface water >2500 feet, and:	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

Optionally, evaluate surface water potential to release according to HRS Section 4.1.2.1.2

LR = 100

LIKELIHOOD OF RELEASE GROUNDWATER TO SURFACE WATER MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7. NOTE: Evaluate ground water to surface water migration only for a surface water body that meets all of the following conditions: 1) A portion of the surface water is within 1 mile of site sources having a containment factor greater than 0. 2) No aquifer discontinuity is established between the source and the above portion of the surface water body. 3) The top of the uppermost aquifer is at or above the bottom of the surface water. Elevation of top of uppermost aquifer Elevation of bottom of surface water body	0		

LR = 0

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	Score	Data Type	Refs
Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5.			
Intake Name / Water Body Type / Flow / People Served			
	0		
Are any intakes part of a blended system? Yes____ No If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8). Level I: _____ People x 10 = ____ Level II: _____ People x 1 = ____ **Total =**			
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.	0		
5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.	0		
6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking water use	0		
SUM OF TARGETS T=	**0.0**		

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT TARGETS	Score	Data Type	Refs
Record the water body type and flow for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.			
Fishery Name _____ Water Body _____ Flow ____ cfs Species _____ Production _____ lbs/yr Species _____ Production _____ lbs/yr Fishery Name _____ Water Body _____ Flow ____ cfs Species _____ Production _____ lbs/yr Species _____ Production _____ lbs/yr Fishery Name _____ Water Body _____ Flow ____ cfs Species _____ Production _____ lbs/yr Species _____ Production _____ lbs/yr			
FOOD CHAIN INDIVIDUAL 7. ACTUAL CONTAMINATION FISHERIES: If analytical evidence indicates that a fishery has been exposed to a hazardous substance with a bioaccumulation factor greater that or equal to 500 (SI Table 10), assign a score of 50 if there is a Level I fishery. Assign 45 if there is a Level II fishery, but no Level I fishery. 8. POTENTIAL CONTAMINATION FISHERIES: If there is a release of a substance with a bioaccumulation factor greater than or equal to 500 to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 20. If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the lowest flow at all fisheries within the target distance limit:			

Lowest Flow	FCI Value
<10 cfs	20
10 to 100 cfs	2
>100 cfs, coastal tidal waters, oceans, or Great Lakes	0
3-mile mixing zone in quiet flowing river	10

FCI Value =

SUM OF TARGETS T= 0

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

ENVIRONMENTAL THREAT TARGETS	Score	Data Type	Refs
Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page.			

Environment Name	Water Body Type	Flow
_____	_____	_____ cfs
_____	_____	_____ cfs
_____	_____	_____ cfs
_____	_____	_____ cfs

9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14).

Environment Name	Environment Type and Value (SI Tables 13 & 14)	Multiplier (10 for Level I, 1 for Level II)	Product
			Sum =

Score: 0

10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Score: 0

Flow	Dilution Weight (SI Table 12)	Environment Type and Value (SI Tables 13 & 14)	Pot. Cont.	Product
cfs	X	X	0.1 =	
cfs	X	X	0.1 =	
cfs	X	X	0.1 =	
cfs	X	X	0.1 =	
				Sum =

T = 0

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS

	Score
11. If an Actual Contamination Target (drinking water, human food chain, or environmental threat) exists for the watershed, assign the calculated hazardous waste quantity score, or a score of 100, whichever is greater.	0
12. Assign the highest value from SI Table 7 (observed release) or SI Table 3 (no observed release) for the hazardous substance waste characterization factors below. Multiply each by the surface water characteristics score for each threat.	

	Substance Value	HWQ	Product	WC Score (from Table)
Drinking Water Threat Toxicity/Persistence			0	(100 Max)
Food Chain Threat Toxicity/Persistence Bioaccumulation			0	(1000 Max)
Environmental Threat Ecotoxicity/Persistence/Ecobioaccumulation			0	(1000 Max)

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to < 1,000	3
1,000 to < 10,000	6
10,000 to < 1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 to <1E + 09	100
1E + 09 to <1E + 10	180
1E + 10 to <1E + 11	320
1E + 11 to <1E + 12	560
1E + 12 or greater	1000

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score (LR x T x WC)/82,500
Drinking Water	0	0	0	0.00 (100 Max)
Human Food Chain	0	0	0	0.00 (100 Max)
Environmental	0	0	0	0.00 (60 Max)
			SURFACE WATER PATHWAY SCORE (Drinking Water Threat + Human Food Chain Threat + Environmental Threat)	**0.00** (100 max)

SOIL EXPOSURE PATHWAY WORKSHEET
RESIDENT POPULATION THREAT

LIKELIHOOD OF EXPOSURE (Sediments along Acid Branch Creek)	Score	Data Type	Refs
1. OBSERVED CONTAMINATION: If evidence indicates presence of observed contamination (depth of 2 feet or less), assign a score of 550; otherwise, assign a 0. Note that a likelihood of exposure score of 0 results in a soil exposure pathway score of 0.			
LE =	**550**		

TARGETS (Per SI Table 15, 6 residences with Level 1 contamination and 5 residences with Level II contamination. 3.02 persons/household according to 1990 Census data.)

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on the property and within 200 feet of areas of observed contamination (HRS section 5.1.3). Level I: 18 people x 10 = 180 Level II: 15 people x 1 = 15 **Sum =**	195		26, 36
3. RESIDENT INDIVIDUAL: Assign a score of 50 if any Level I resident population exists. Assign a score of 45 if there are Level II targets but no Level I targets. If no resident population exists (i.e., no Level I or Level II targets), assign 0 (HRS Section 5.1.3).	**50**		26,36
4. WORKERS: Assign a score from the table below for the total number of workers at the site and nearby facilities and within 200 ft. Of areas of observed contamination associated with the site.	0		11
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value for each terrestrial sensitive environment (SI Table 16) in an area of observed contamination.			
6. RESOURCES: Assign a score of 5 if any one or more of the following resources is present on an area of observed contamination at the site: assign 0 if none applies. - Commercial agriculture, - Commercial silviculture, - Commercial livestock production or commercial livestock grazing	5		default
Total of Targets T=	**305**		

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value
Acid Branch Creek (conservative assumption)	50
Sum =	50

50 — 34

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 350 Love Street Level I ____ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-06								
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: Unknown Address Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-07	Arsenic	18J	0.43	4186.05	23.46	76.72	10,000	SCDM
	Iron	520	N/A	N/A	N/A	N/A	1	SCDM
	Mercury	0.24	N/A	N/A				
			Highest Percent	4186.05	Sum of Percents	4186.05	Sum of Percents	76.72

Residence ID: 350-1 Love Street Level I ____ Level II ✓ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-08	Barium	69	N/A	N/A	5479.98	1.26	10,000	
	Lead	260	N/A	N/A	N/A	N/A	10,000	
	Mercury	0.27	N/A	N/A			10,000	
			Highest Percent	1.26	Sum of Percents	N/A	Sum of Percents	1.26

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 348 Love Street Level I ____ Level II ✓ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-09	Lead	450	N/A	N/A	N/A	N/A	10,000	SCDM
	Mercury	0.25	N/A	N/A	23.46	1.07	10,000	"
			Highest Percent	1.07	Sum of Percents	N/A	Sum of Percents	1.07

Residence ID: 346 Love Street Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-10	Arsenic	18J	0.43	4186.05	23.46	76.73	10,0000	SCDM
	Barium	100	N/A	N/A	5474.98	1.83	10,000	"
	Lead	650	N/A	N/A	N/A	N/A	10,000	"
	Mercury	0.36	N/A	N/A	23.46	1.53	10,000	"
	Zinc	180						
			Highest Percent	4186.05	Sum of Percents	4186.05	Sum of Percents	78.56

Residence ID: 336 Love Street Level I ____ Level II ✓ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-11	Lead	130	N/A	N/A	N/A	N/A	10,000	SCDM
			Highest Percent	N/A	Sum of Percents	N/A	Sum of Percents	N/A

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 334 Love Street Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-12								
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: 332 Love Street Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-13								
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: 328 Love Street Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-14								
			Highest Percent		Sum of Percents		Sum of Percents	

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 654 Love Street Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-15	Arsenic	37 J	0.43	8604.65	23.46	157.72	10,000	SCDM
	Lead	150	N/A	N/A	N/A	N/A	10,000	"
			Highest Percent	8604.65	Sum of Percents	8604.65	Sum of Percents	157.72

Residence ID: 646 Love Street Level I ____ Level II ✓ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-16	Lead	170	N/A	N/A	N/A	N/A	10,000	SCDM
			Highest Percent	N/A	Sum of Percents	N/A	Sum of Percents	N/A

Residence ID: 620 Love Street Level I ____ Level II ✓ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-17	Lead	190	N/A	N/A	N/A	N/A	10,000	SCDM
			Highest Percent	N/A	Sum of Percents	N/A	Sum of Percents	N/A

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 630 Love Street Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-18	Arsenic	24J	0.43	5581.39	23.46	102.30	10,000	SCDM
	Lead	410	N/A	N/A	N/A	N/A	10,000	"
			Highest Percent	5581.39	Sum of Percents	5581.39	Sum of Percents	102.30

Residence ID: 582 Love Street Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-19	Arsenic	20J	0.43	4651.16	23.46	85.25	10,000	SCDM
	Lead	170	N/A	N/A	N/A	N/A	10,000	"
			Highest Percent	4651.16	Sum of Percents	4651.16	Sum of Percents	85.26

Residence ID: 582 Love Street Level I ✓ Level II ____ Population ____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-20	Arsenic	27J	0.43	6279.07	23.46	115.09	10,000	
	Lead	190J	N/A	N/A	N/A	N/A	10,000	
			Highest Percent	6279.07	Sum of Percents	6279.07	Sum of Percents	115.09

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: 5164 Love Street Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
PP-SS-21								
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: _____ Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: _____ Level I _____ Level II _____ Population _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

SOIL EXPOSURE PATHWAY WORKSHEET
NEARBY POPULATION THREAT

LIKELIHOOD OF EXPOSURE	Score	Data Type	Ref.
7. Attractiveness/Accessibility (from SI Table 17 or HRS Table 5-6) Value 75 Area of Contamination (from SI Table 18 or HRS Table 5-7) Value 80 Likelihood of Exposure (from SI Table 19 or HRS Table 5-8)			11, 28, 31
LE =	**375**		

TARGETS	Score	Data Type	Ref.
8. Assign a score of 0 if Level I or Level II resident individual has been evaluated or if no individuals live within 1/4 mile travel distance of an area of observed contamination. Assign a score of 1 if nearby population is within 1/4 mile travel distance and no Level I or Level II resident population has been evaluated.	0		26
9. Determine the population within 1 mile travel distance that is not exposed to a hazardous substance from the site (i.e., properties that are not determined to be Level I or Level II); record the population for each distance category in SI Table 20 (HRS Table 5-10). Sum the population values and multiply by 0.1.	0.6		36
T =	**0.6**		

SI TABLE 17 (HRS TABLE 5-6): ATTRACTIVENESS/ACCESSIBILITY VALUES

Area of Observed Contamination	Assigned Value
Designated recreational area	100
Regularly used for public recreation (for example, vacant lots in urban area)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements–for example, gravel road) with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement) with some public recreation use	25
Accessible with no public recreation use	10
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

SI TABLE 18 (HRS TABLE 5-7): AREA OF CONTAMINATION FACTOR VALUES

Total area of the areas of observed contamination (square feet)	Assigned Value
≤ to 5,000	5
> 5,000 to 125,000	20
> 125,000 to 250,000	40
> 250,000 to 375,000	60
> 375,000 to 500,000	80
> 500,000	100

SI TABLE 19 (HRS TABLE 5-8): NEARBY POPULATION LIKELIHOOD OF EXPOSURE FACTOR VALUES

AREA OF CONTAMINATION FACTOR VALUE	ATTRACTIVENESS/ACCESSIBILITY FACTOR VALUE						
	100	75	50	25	10	5	0
100	500	500	375	250	125	50	0
80	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
40	250	125	50	25	5	5	0
20	125	50	25	5	5	5	0
5	50	25	5	5	5	5	0

SI TABLE 20 (HRS TABLE 5-10): DISTANCE-WEIGHTED POPULATION VALUES FOR NEARBY POPULATION THREAT

Travel Distance Category (miles)	Pop.	Number of people within the travel distance category												Pop. Value
		0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,001	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	
Greater than 0 to $\frac{1}{4}$	67	0	0.1	0.4	1.0	4	13	41	130	408	1,303	4,081	13,034	1
Greater than $\frac{1}{4}$ to $\frac{1}{2}$	182	0	0.05	0.2	0.7	2	7	20	65	204	652	2,041	6,517	2
Greater than $\frac{1}{2}$ to 1	551	0	0.02	0.1	0.3	1	3	10	33	102	326	1,020	3,258	3
													Sum =	6

Reference(s) 1990 census, 36

6 × 0.1 = 0.6

SOIL EXPOSURE PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS

10. Assign the hazardous waste quantity score calculated for soil exposure.	1
11. Assign the highest toxicity value from SI Table 15 or 3.	10,000
12. Multiply the toxicity and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	10

Product	WC Score
0	0
>0 to <10	1
10 to <10	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to < 1E + 05	10
1E + 05 to < 1E + 06	18
1E + 06 to < 1E + 07	32
1E + 07 to < 1E + 08	56
1E + 08 or greater	100

Product = 0.00e+00

WC =

RESIDENT POPULATION THREAT SCORE: (Likelihood of Exposure, Question 1; Targets = Sum of Questions 2, 3, 4, 5, 6) $\frac{LE \times T \times WC}{82{,}500}$ **550 x 305 x 10 / 82,500**	**20.33**
NEARBY POPULATION THREAT SCORE: (Likelihood of Exposure, Question 7; Targets = Sum of Questions 8,9) $\frac{LE \times T \times WC}{82{,}500}$ **375 x 0.6 x 10 / 82,500 =**	**0.027**
SOIL EXPOSURE PATHWAY SCORE: **Resident Population Threat + Nearby Population Threat**	**20.35** (100 Max)

AIR PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to air, assign a score of 550. Record observed release substances on SI Table 21.			
2. POTENTIAL TO RELEASE: If sampling data do not support a release to air, assign a score of 500. Optionally, evaluate air migration gaseous and particulate potential to release (HRS Section 6.1.2.).			
LR =	**0**		

TARGETS

3. ACTUAL CONTAMINATION POPULATION: Determine the number of people within the target distance limit subject to exposure from a release of a hazardous substance to the air. a) Level I: _____ people x 10 = b) Level II: _____ people x 1 = _____ **Total =**			
4. POTENTIAL TARGET POPULATION: Determine the number of people within the target distance limit not subject to exposure from a release of a hazardous substance to the air, and assign the total population score from SI Table 22. Sum the values and multiply the sum by 0.1.			
5. NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level I targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Population exists, assign the Nearest Individual score from SI Table 22.			
6. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (SI Table 13) and wetland acreage values (SI Table 23) for environments subject to exposure from the release of a hazardous substance to the air.			
Sensitive Environment Type / **Value**			
Wetland Acreage / **Value**			
7. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Use SI Table 24 to evaluate sensitive environments not subject to exposure from a release.			
8. RESOURCES: Assign a score of 5 if one or more air resources apply within ½ mile of a source; assign a 0 if none applies. - Commercial agriculture, - Commercial silviculture, - Major or designated recreation area.	**0**		
T =			

AIR PATHWAY (concluded)

9. If any Actual Contamination Targets exist for the air pathway, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if there are no Actual Contamination Targets for the air pathway, assign the calculated HWQ score for sources available to air migration.	
10. Assign the highest air toxicity/mobility value from SI Table 21 &23.	
11. Multiply the air pathway toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	

Product	WC Score
0	0
>0 to <10	1
10 to <10	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to < 1E + 05	10
1E + 05 to < 1E + 06	18
1E + 06 to < 1E + 07	32
1E + 07 to < 1E + 08	56
1E + 08 or greater	100

Product = 0.00e+00

WC =

AIR PATHWAY SCORE:

$$\frac{LE \times T \times WC}{82{,}500}$$

0.0 (100 max)

SITE SCORE CALCULATION	S	S^2
GROUND WATER PATHWAY SCORE (S_{GW})	5.33	28.41
SURFACE WATER PATHWAY SCORE (S_{SW})	0.0	0.0
SOIL EXPOSURE (S_S)	20.35	414.12
AIR PATHWAY SCORE (S_A)	0.0	0.0
SITE SCORE $= \sqrt{\frac{S_{GW}^2+S_{SW}^2+S_S^2+S_A^2}{4}}$ =	10.52	

COMMENTS

The Stoller Chemical/ Pelham Phosphate Company site has undergone removal actions under the direction of EPA, and the established cutoff date to consider a qualifying removal action has been established as March 8, 1994. Because the majority of the hazardous material was treated on-site or disposed after that established date, the sources present at the site during the Site Inspection conducted in July 1992 and subsequent emergency response actions were considered for the migration pathways as a conservative measure. Soils contaminated with heavy metals, sludge from the two pretreatment surface impoundments, and the K061 waste stored at the facility were treated and encapsulated in a landfill with a three-foot clay cover. For that reason, the landfill was not considered a source for the soil pathway. As a conservative measure, sediment samples collected along Acid Branch Creek during the ESI conducted in 1994, were evaluated under the soil pathway. Additionally, soils located outside of the landfill area were sampled during site assessment activities conducted by GA EPD contractors in June 2002. Those sample results meet the state's industrial risk reduction standards.

Overland flow has been directed around the landfill to the adjacent creek on the western side of the site. Pursuant to Section 4 of the HRS, because the adjacent creek runs intermittedly for greater than two-miles, the site is outside the 500-year flood plain and receives a net precipitation of approximately 45 inches per year, the surface water pathway was not evaluated for this site. As there are no workers onsite and contaminated soils have been treated and consolidated into a landfill, the air pathway was not evaluated as part of this SRA.

Groundwater samples collected in 1993 and in 2002 indicate a release of inorganics to the shallow water table. There were no groundwater samples collected in the deeper Ocala aquifer for the purposes of this SRA.

V.7

001226.GD04.01_T1437

Site Assessment Activities Report for the Pelham Phosphate Company Site (a.k.a. Stoller Chemical Company) Pelham, Georgia

Contract Number: 462-741-0000000013

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HAZ. SITES RESPONSE PROG.

November 2002

Prepared for:

Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Sites Response Program
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List of Acronyms and Abbreviations

µg/L	micrograms per liter
a.k.a.	also known as
Ag	silver
As	arsenic
ASC	Analytical Services Center
Ba	barium
BGS	below ground surface
BTOC	below top of casing
Cd	cadmium
Cr	chromium
Cu	copper
DOT	(United States) Department of Transportation
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
EPD	(Georgia Department of Natural Resources -) Environmental Protection Division
GAC	Georgia Administrative Code
HSA	hollow-stem auger
I	hydraulic gradient
IDW	investigation-derived waste
K	hydraulic conductivity
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
n_e	effective porosity
NTU	Nephelometric turbidity unit
PAF	Project Assignment Form

List of Acronyms and Abbreviations, continued

Pb	lead
PQL	Practical Quantitation Limit
SAAR	Site Assessment Activities Report
SO_4	sulfate
SSV	Soil Screening Value
V	velocity
Zn	zinc

1 Introduction

This Site Assessment Activities Report (SAAR) has been prepared by Ecology and Environment, Inc. (E & E) for the Georgia Department of Natural Resources - Environmental Protection Division (EPD). This SAAR has been prepared in accordance with the Project Assignment Form (PAF) issued on January 10, 2002, for the former Pelham Phosphate Company (also known as [a.k.a.] Stoller Chemical Company) site located in the City of Pelham, Mitchell County, Georgia, under Contract Number 462-741-0000000013. This report summarizes the field activities conducted during the soil and groundwater assessment activities completed during June 2002.

The purpose of the assessment was to determine the presence or absence of groundwater contamination at the site resulting from past chemical company operations and/or the presence of an on-site landfill for metals-contaminated soils, and to determine if residual contamination of surface soil, sediment, or surface water was present in the former process area. During the course of the investigation, six subsurface and five surface soil, two sediment, one surface water, and six groundwater samples were collected and submitted to E & E's Analytical Services Center (ASC) for analysis of metals (arsenic [As], barium [Ba], cadmium [Cd], total chromium [Cr], copper [Cu], lead [Pb], silver [Ag], and zinc [Zn] by United States Environmental Protection Agency [EPA] Method 6010B) and sulfate (SO_4 by EPA Method 375.4). Sampling methodologies and analytical results for samples collected during the field investigation are summarized in the following sections of this report. Complete analytical laboratory data packages are included as Appendix A.

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2 Environmental Setting

The City of Pelham is located in the Tifton Uplands province of the coastal lowlands. The Tifton Uplands province is characterized by gently rolling hills, numerous streams, and minor karst topography (Hicks, Gill, and Longsworth 1995). The Pelham Phosphate Company site is underlain by undifferentiated overburden of Miocene Age that consists of alternating beds of sand, silty to clayey sand, and clay. The undifferentiated Miocene overburden is underlain by tertiary sediments consisting of (in descending order) the Suwannee Limestone, Ocala Limestone, and Lisbon Formation. All wells completed as part of this investigation were screened in the first water-bearing zone of the undifferentiated overburden.

The former Pelham Phosphate Company site is located in a multi-use industrial and residential area in Pelham, Georgia. The site is bounded by residential areas to the south, an intermittent stream and additional residential areas to the west, undeveloped land to the north, and the Georgia Northern Railroad to the east (see Figure 2-1). During the early 1990s, the EPA conducted an emergency action at the site and constructed an on-site landfill for site soils contaminated with metals from chemical company operations. Since completion of the EPA emergency action, the site has been unused and has become overgrown with weeds, shrubs, and small trees. Although the site is partially fenced, access is essentially uncontrolled along the railroad that borders the site to the east, as well as an open gate located at the southwest corner of the facility.

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3 Site Characterization

All fieldwork conducted as part of this investigation was performed in accordance with the *Second Revised Site Assessment Workplan for the Stoller Chemical Company Site, Pelham, Mitchell County, Georgia* (E & E April 2002), and E & E's Site-Specific Health and Safety Plan. The fieldwork included surface and subsurface soil sampling, surface water and sediment sampling, groundwater monitoring well installation, development, and sampling. All sampling locations are shown on Figure 2-1.

Other tasks completed as part of this fieldwork included investigation-derived waste (IDW) management, slug tests at selected wells, and surveying of sample locations, monitoring wells, and significant site features. A copy of the field notes is provided in Appendix B.

Investigation methodology and analytical results for the former Pelham Phosphate Company site investigation are summarized in sections 3.1 through 3.6. Analytical results for each media are presented separately. The complete laboratory data package is included as Appendix A. Although a human health and ecological risk assessment was beyond the scope of work for this project, for comparison purposes, analytical results for each media were screened against the EPD Risk Reduction Standards for Type 3 Sites [Georgia Administrative Code (GAC) 391-3-19-08] as discussed with EPD. Since risk reduction standards have not been established for surface

water and sediment, the following screening criteria were included for comparison of surface water and sediment analytical results:

> Surface water results were compared to the State of Georgia Surface Water Standards, GAC 391-3-6. The sediment results were compared to EPA Region 4 Ecological Soil Screening Values (SSVs, August 1999). The SSV values are based on Practical Quantitation Limits (PQLs) or statistical interpretation of effects databases from various literature sources, whichever is higher. The effects values are generally based on observations of direct toxicity.

3.1 Surface Water and Sediment Sampling

Methods. The work plan originally called for the collection and analysis of five surface water and five co-located sediment samples. Surface water sample locations were selected based on areas of standing water observed during the February site visit; however, most of the areas of standing water were dry during completion of the fieldwork in June 2002. As a result, only one co-located surface water/sediment sample was collected. In addition, a sediment sample was collected from an area that collects surface runoff from the landfill.

The surface water sample was collected by submerging the sample container approximately 6 inches below the surface of the water. The container cap was then removed to allow the container to fill with water, the cap was replaced, and the sample was removed from the water. The sample was then labeled, a custody sealed was applied, and the sample was placed on ice for shipment to the ASC for analysis.

Sediment samples were collected by first removing any surface debris. A clean stainless steel spoon was then used to loosen the sediment to a depth of 6 inches. The sediment was placed in an 8-ounce glass sample container, a label and custody seal was applied, and the sample was placed on ice for shipment to the E & E's ASC for analysis. Surface water and sediment locations are shown on Figure 2-1.

In addition, two sediment samples were collected, however, only sediment sample PEL-SED02 was collected from an area that contained standing water. Sediment sample PEL-SED01 was collected from a low area that collects surface water runoff and sediment from the landfill cap. The single surface water and both sediment samples were analyzed for metals (As, Ba, Cd, Cu, Cr, Pb, Ag, and Zn by EPA Method 6010B) and SO_4 (EPA Method 375.4).

Results. Surface water sample analytical results are summarized in Table 3-1 and sediment sample analytical results are summarized in Table 3-2. Ba, Pb, and Zn were detected in the surface water sample. The surface water sample PEL-SW02 exhibited a Pb concentration of 17.5 micrograms per liter (µg/L), exceeding the surface water standard for chronic exposure of 1.2 µg/L. PEL-SW02

also exhibited a concentration of Zn at 139 µg/L that exceeded both the acute (65 µg/L) and chronic (also 65 µg/L) exposure standards. Ba was detected at a concentration of 51.5 µg/L in PEL-SW02, however, no exposure standards have been established for Ba. Sulfate was also detected at a concentration of 1,900 mg/L in PEL-SW02. No risk reduction standards or state surface water standards have been established for sulfate in surface water.

As, Ba, Cr, Cu, Pb, Zn and SO_4 were each detected in one or both of the sediment samples. None of the metals detected exceeded their respective risk reduction standard for soils or the sediment screening values. No risk reduction standard or sediment screening value for sulfate has been established.

3.2 Surface Soil Sampling

Methods. Five surface soil samples were collected from areas within the boundaries (based on the review of the 1993 aerial photograph) of the former process area (see Figure 2-1). Surface soil samples were collected from the 0- to 6-inch surface interval by first removing any surface plant material or debris. A clean stainless steel trowel was then used to loosen the soil to a depth of 6 inches. The soil was placed in an 8-ounce glass sample container, labeled, and placed on ice for shipment to the E & E's ASC for analysis of metals (As, Ba, Cd, Cu, Cr, Pb, Ag, and Zn) and SO_4.

Results. Analytical results for the surface soil samples are summarized in Table 3-3. It should be noted that the EPD has not established a risk reduction standard for SO_4 and no human health or ecological standards were identified, therefore, no comparison criteria was included for sulfate. As, Ba, Cr, Cu, Pb, Zn, and SO_4 were detected in at least one surface soil sample; however, none of the analytes detected exceeded the risk reduction standards.

3.3 Subsurface Soil

Methods. A total of six subsurface soil samples were collected during installation of the groundwater monitoring wells (see Figure 2-1). A 2-foot split spoon sampler was used to collect soil cores at 5-foot centers from land surface to the first water bearing zone. The soils were then screened for organic vapors using a total organic vapor analyzer (TVA-1000). After field screening, one soil sample was selected for laboratory analysis from each monitoring well boring. The subsurface soil samples were collected directly from the split spoon sampler and placed in an 8-ounce glass jar, a label and custody seal was applied, and the sample was placed on ice for shipment to the ASC for analysis.

Results. Analytical results for the subsurface soil samples are summarized in Table 3-4. Ba, Cr, Cu, Pb, and Zn were detected in one or more subsurface soil samples. None of the detected concentrations exceeded the risk reduction standards for Type 3 Sites. In addition to the metals noted above, SO_4 was detected in sample PEL-EE-MW5-20-22 at a concentration of 8,400 milligrams per kilogram (mg/kg). As noted earlier, a risk reduction standard for SO_4 has not been established. SO_4 was not detected in the remaining subsurface soil samples.

3.4 Groundwater Monitoring Well Installation

Six shallow groundwater monitoring wells (MW1 through MW6) were installed during the field investigation (see Figure 2-1). Monitoring wells were installed using hollow-stem auger (HSA) drilling methods. Two- foot split spoon samples were collected at intervals of 5 feet for lithologic characterization and field screening using an organic vapor analyzer. In addition, a single soil sample was collected from each monitoring well borehole for laboratory analysis.

PEL-EE-MW1 was located near the entrance gate, away from the main processing and storage areas, and thus is designated as the background well. PEL-EE-MW3, PEL-EE-MW5 and PEL-EE-MW6 were installed as monitoring points for potential runoff from the EPA-generated landfill. PEL-EE-MW3 was also installed, along with PEL-EE-MW2, as a monitoring point for potential contamination associated with the former processing area. PEL-EE-MW4 was installed to monitor potential contamination associated with the product storage building in the northeast portion of the property.

E & E field personnel observed three existing monitoring wells in the vicinity of the product storage building in the northeast portion of the property. Detailed well construction information of these wells is unknown, however, E & E personnel measured the total depth of these wells to range from approximately 24 feet below ground surface (BGS) to 34 feet BGS. Measured depth to water in these wells ranged from 15 feet below top of casing (BTOC) to 22 feet BTOC. The current condition of these wells seems poor. No concrete well pads are set around the upper stick-up casing and one well is overrun by branches of nearby saplings. The bottoms of the wells were filled with sediment. E & E made no attempt to sample or purge these wells.

Screened intervals for the monitoring wells installed during this investigation were placed so that a section of the screen intersected the water table to ensure that the wells produced from the upper-most water-bearing unit. Monitoring well construction details are summarized in Table 3-5. Well construction records and lithologic logs recorded during well installation are included in Appendix C.

Monitoring wells installed as part of this investigation were completed with aboveground surface completions consisting of a locking steel well protector set in a 2-foot by 2-foot concrete pad. At least 24 hours after installation all monitoring wells were developed. Well development consisted of surging and pumping the well using a submersible pump until the pH, conductivity, temperature, and turbidity stabilized. Well development logs and field parameters were recorded and are presented in Table 3-6. Soil cuttings generated during well installation activities were stored on-site in 55-gallon drums for subsequent removal.

3.5 Groundwater Monitoring Well Sampling

Methods. During the June 2002 fieldwork, groundwater samples were collected from the six newly installed monitoring wells at least 24 hours after the wells had been developed. Before the wells were sampled, all wells were purged of a minimum of three well volumes using low-flow purging techniques. To ensure that a representative sample was collected, field parameters (temperature, pH, conductivity, and turbidity) were allowed to stabilize and turbidity was reduced to less than 10 Nephelometric turbidity units (NTUs). Monitoring well field parameter data is presented in Table 3-7. All groundwater purging and sampling equipment was decontaminated prior to use and between sampling locations.

After purging, groundwater samples were submitted to E & E's ASC for analysis of metals (As, Ba, Cd, Cu, Cr, Pb, Ag, and Zn by EPA Method 6010B) and SO_4 (EPA Method 375.4). Duplicate sample PEL-EE-MW5-GW-DUP was collected in association with the sampling event for the same analysis by E & E's ASC. Each sample was immediately labeled, custody sealed, and placed on ice for shipment to E & E's ASC. Waste decontamination liquids and purge waters were stored on-site in 55-gallon drums for subsequent removal.

Results. Groundwater sampling analytical results are summarized in Table 3-8. Ba, total Cr, Pb, Zn, and SO_4 were detected in one or more groundwater samples, however, with the exception of Zn in samples PEL-EE-MW3-GW (2,650 μg/L) and PEL-EE-MW4-GW (3,920 μg/L), the concentrations detected were below the applicable risk reduction standards. No other metals were detected in the groundwater samples. SO_4 was detected in all the monitoring well samples with the exception of PEL-EE-MW1-GW. Detected concentrations of SO_4 ranged from 8.2 µg/L in monitoring well PEL-EE-MW2-GW to 1,800 µg/L in monitoring well PEL-EE-MW6-GW.

3.6 Hydrologic Assessment

3.6.1 Water Levels and Groundwater Flow

Table 3-9 presents the water level elevations from water levels collected on the morning of June 28, 2002. Figure 3-1 illustrates the groundwater elevations for the shallow/surficial aquifer and indicates that groundwater in this zone flows to the northwest. The overall horizontal gradient is 0.0161. Depths to water ranged from 4.70 to 22.57 feet BTOC.

3.6.2 Slug Tests

Methods. Slug tests were conducted at wells PEL-EE-MW1, PEL-EE-MW2, PEL-EE-MW3, and PEL-EE-MW5 to determine the hydraulic conductivity of the aquifer in the areas adjacent to these wells. The procedure for slug testing involves measuring the static water level in the well, submerging a pressure transducer and a stainless steel slug of known volume in the well, and allowing the water level to return to static equilibrium. After the water has returned to its static level, the slug is rapidly withdrawn, creating an instantaneous change in the water level. A Hermit 1000c Data Logger/ Transducer Model PXD-260 is used to record the continuous water level changes over time until equilibrium was observed. Slug test data from each well were analyzed using the Bouwer and Rice method for unconfined or confined aquifers (Bouwer and Rice 1976; Bouwer 1989) or other appropriate slug test data analysis method depending on the site-specific hydrologic conditions encountered. The groundwater flow velocity (V) is then calculated using the K value determined for each well, an assumed effective porosity (n_e), and the calculated average hydraulic gradient (I).

Results. Slug test data is presented in Appendix D. Based on the slug tests conducted at these wells, the hydraulic conductivity (K) of the shallow aquifer ranges from a minimum of 4.5 feet per day at well PEL-EE-MW3 to a maximum of 17.7 feet per day at well PEL-EE-MW1. Calculated hydraulic conductivities are presented below. Using the K values determined for each well, the average horizontal gradient (I = 0.0161) and an assumed effective porosity (n_e: 0.30), groundwater flow velocities (V) can be calculated using the following equation:

$$V = \frac{KI}{n_e}$$

Well	Flow Zone	K (ft/day)	I	n_e	V(ft/day)
PEL-EE-MW1	Shallow	17.7	0.0161	0.30	0.95
PEL-EE-MW2	Shallow	7.5	0.0161	0.30	0.40
PEL-EE-MW3	Shallow	4.5	0.0161	0.30	0.24
PEL-EE-MW5	Shallow	8.4	0.0161	0.30	0.45

3.7 Investigation-Derived Waste Management

Drill cuttings, development water, and purge water were containerized in 55-gallon, United States Department of Transportation (DOT)-approved steel drums. IDW drums were labeled with the name, type of contents (e.g., soil cuttings, purge/development water), generation date, and origin of the contents (well number). A total of 13 drums (seven soil cuttings, six purge/development water) were generated during the investigation. The IDW drums were moved to a paved area near the former truck scales pending receipt of analytical results to determine if the waste is considered hazardous. Based on the analytical results, none of the IDW generated during the field investigation is considered hazardous. Final disposal costs for the IDW are $1,775.00. A copy of the approval letter for these costs is included as Appendix E.

3.8 Site Survey

Sample locations were surveyed by a Georgia-licensed Professional Surveyor. At the request of the EPD, survey locations were referenced to an arbitrary on-site datum and were not referenced to the state plane coordinate system. Monitoring wells were surveyed for both horizontal and vertical control. Surface soil, sediment, and surface water sample locations were surveyed for horizontal control only. Sample locations are shown on Figure 2-1. The survey map and a copy of the surveyor's field notes are presented in Appendix F.

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4 Product Storage Area Inventory

Originally, information provided to E & E indicated that a concrete block building located south of the former process area (see Figure 2-1) had been used by the EPA to store IDW from previous investigations conducted during the early 1990s. However, an inspection of the building revealed that the building was a storage area for finished products (e.g., pesticides, herbicides, fertilizers) produced by the Stoller Chemical or Pelham Phosphate companies. The products (both solid and liquid) are stored either on pallets or directly on the building floor. Many of the containers have leaked, leaving a thick layer of residue on the building floor. In addition, portions of the roof have collapsed, allowing rainwater to enter the building. Due to the nature of the material stored, as well as the unstable roof condition, a complete inventory of the building contents was beyond the original scope of work for this project. E & E personnel did conduct a limited inventory of the building and recorded each type of product, its ingredients (if the label was legible), and the approximate number of containers. No attempt was made to move or sample any of the containers. A list of the products and their estimated quantity is included as Table 4-1. The preliminary inventory, as well as photographs of the building and its contents, was submitted to Fenn-Vac (the IDW disposal company)

for an approximate determination of removal costs. Based on this information, a cost of $245,000 for removal/stabilization of the storage building and removal, transportation, and disposal the abandoned product inventory was estimated.

It should be noted that the cost estimate does not constitute a formal bid. A formal cost estimate will require a site visit by subcontractors. E & E can arrange and conduct a site visit with representatives from at least three remedial construction/disposal contractors if approved by the EPD. Upon completion of the site visit, a formal cost estimate can be prepared and submitted.

5 References

Bouwer, H., 1989, The Bouwer and Rice Slug Test-An Update, *Groundwater*, Vol. 27, Mo. 3, pp. 304-309.

Bouwer, H., and R. C. Rice, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells, Water *Resources Research*, 12 (1976): 423-28.

Hicks, D. W., and H. E. Gill, 1995, Hydrogeology, Chemical Quality, and Availability of Ground Water in the Upper Floridian Aquifer, Albany Area, Georgia, United States Geological Survey, Water-Resources Investigation Report 87-4145, 1995.

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6 Certification Page

I hereby certify that all fieldwork and report preparation activities for the former Pelham Phosphate Company site assessment have been completed in accordance with all standard and appropriate geologic practices.

Name: Bruce Wilson

License No.: 1089

State: Georgia

Bruce R. Wilson, P.G.

11/21/02
Date

Tables

TABLE 3-1
SURFACE WATER SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE COMPANY SITE
PELHAM , GEORGIA
JUNE 2002

Sample Identification	Georgia Surface Water Standards[a] (Acute - Freshwater)	Georgia Surface Water Standards[a] (Chronic - Freshwater)	PEL-SW02
Analyte/Concentration (µg/L unless otherwise noted)			
Arsenic	340	150	ND
Barium	NE	NE	51.5
Cadmium	2	1.3	ND
Chromium (Total)	320[b]	42[b]	ND
Copper	7.0[c]	5.0[c]	ND
Lead	30[c]	1.2[c]	**17.5**
Silver	NE	NE	ND
Zinc	65	65	**139**
Sulfate (mg/L)	NE	NE	1,900

Note:

[a]Georgia Administrative Code 391-3-6.

[b]Value listed is for Chromium III (hexavalent).

[c]The value listed assumes a total hardness of 50 mg/L calcium carbonate.

Bold indicates value exceeds either the acute, chronic, or both surface water standards.

Key:

µg/L = Micrograms per liter.

mg/L = Milligrams per liter.

ND = Analyte not detected.

NE = No established value.

TABLE 3-2
SEDIMENT SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE SITE
PELHAM, GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type III Sites[a]	SSV[b]	PEL-SED01	PEL-SED02
Analyte/Concentration (mg/kg)				
Arsenic	41	7.24	ND	2.51
Barium	1,000	NE	25	12.9
Cadmium	39	1	ND	ND
Chromium (Total)	1,200	52.3	8.62	11.4
Copper	1,500	18.7	ND	2.57
Lead	400	30.2	19.8	22.5
Silver	10	2	ND	ND
Zinc	2,800	124	22.0 B	6.58 B
Sulfate	NE	NE	ND	1,700

Notes:

[a] Georgia Department of Natural Resources Risk Reduction Standards, Georgia Administrative Code (GAC) 391-3-19-.07(8)

[b] United States Environmental Protectioni Agency Region 4 Sediment Screening Values (August 1999). These values are based on Practical Quantitation Limits (PQLs) or statistical interpretation of effects data bases from various literature sources, whichever is higher. The effects values are generally based on observations of direct toxicity.

Key:

B = Analyte detected in the associated method blank.
GDNR = Georgia Department of Natural Resources.
mg/kg = Milligrams per kilogram.
ND = Analyte not detected.
NE = No established value.
SSV = United States Environmental Protection Agency Region 4 Sediment Screening Value.

TABLE 3-3
SURFACE SOIL SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE COMPANY SITE
PELHAM, GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type III Sites[a]	PEL-SS01-0-1	PEL-SS02-0-1	PEL-SS03-0-1	PEL-SS04-0-1	PEL-SS05-0-1
Analyte/Concentration (mg/kg)						
Arsenic	41	ND	ND	6.24	12.6	ND
Barium	1,000	ND	ND	80.9	80.1	55.5
Cadmium	39	ND	ND	ND	ND	ND
Chromium (Total)	1,200	11.6	30.3	23.5	34.6	ND
Copper	1,500	ND	ND	31.2	59.7	ND
Lead	400	ND	185	162	257	42
Silver	10	ND	ND	ND	ND	ND
Zinc	2,800	10.7	1,200	541	221	77.8
Sulfate	NE	ND	ND	ND	1,100	2,600

Notes:

[a]Georgia Department of Natural Resources Risk Reduction Standards, Georgia Administrative Code (GAC) 391-3-19-.07(8)
Bold indicates reported value exceeds Risk Reduction Standards.

Key:

mg/kg = Milligrams per kilogram.

ND = Analyte not detected.

NE = No established value.

TABLE 3-4
SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS
PELHAM PHOSPHATE COMPANY SITE
PELHAM GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type III Sites[a]	PEL-EE-MW1-25-27	PEL-EE-MW2-15-17	PEL-EE-MW3-25-27	PEL-EE-MW3-25-27-DUP	PEL-EE-MW4-25-27	PEL-EE-MW5-20-22	PEL-EE-MW6 5-7
Analyte/Concentration (mg/kg)								
Arsenic	41	ND	ND	ND	ND	ND	ND	ND
Barium	1,000	ND	17.1	ND	ND	2.41	122	252
Cadmium	39	ND	ND	ND	ND	ND	ND	ND
Chromium (Total)	1,200	6.50	ND	ND	ND	ND	ND	ND
Copper	1,500	ND	ND	ND	ND	ND	167	ND
Lead	400	3.00	ND	ND	ND	ND	173	ND
Silver	10	ND	ND	ND	ND	ND	ND	ND
Zinc	2,800	6.71	14.5	ND	ND	ND	972	48.7
Sulfate	NE	ND	ND	ND	ND	ND	8,400	ND

Notes:

[a]Georgia Department of Natural Resources Risk Reduction Standards, Georgia Administrative Code (GAC) 391-3-19-.07(8).

Bold indicates eported value exceeds Risk Reduction Standards.

Key:

mg/kg = Milligrams per kilogram.

ND = Analyte not detected.

NE = No established value.

TABLE 3-5
MONITORING WELL CONSTRUCTION DATA
PELHAM PHOSPHATE SITE
PELHAM, GEORGIA

Well Designation	Well Diameter (inches)	Well Depth (feet BTOC)	Height of Stick-up (feet AGS)	Screen Data: Interval (feet BGS)	Screen Data: Length (feet)	Screen Data: Slot Size (inches)	Annulus Data: Sand Pack Interval (feet BGS)	Annulus Data: Bentonite Seal Interval (feet BGS)	Annulus Data: Grout Interval (feet BGS)	Completion Date
PEL-EE-MW1	2	27.83	3.26	27.83	10	0.010	15.8 - 27.8	13.8 - 15.8	0 - 13.8	06/25/02
PEL-EE-MW2	2	17.32	2.78	7.32 - 17.32	10	0.010	5.3 - 17.3	3.3 - 5.3	0 - 3.3	06/25/02
PEL-EE-MW3	2	29.65	3.72	29.65	10	0.010	17.7 - 29.7	15.7 - 17.7	0 - 15.7	06/25/02
PEL-EE-MW4	2	29.50	3.86	29.50	10	0.010	17.5 - 29.5	15.5 - 17.5	0 - 15.5	06/25/02
PEL-EE-MW5	2	23.18	2.72	23.18	10	0.010	11.2 - 23.2	9.2 - 11.2	0 - 9.2	06/26/02
PEL-EE-MW6	2	15.32	2.98	5.32 - 15.32	10	0.010	3.3 - 15.3	1.3 - 3.3	0 - 1.3	06/26/02

Notes: Wells EE-MW1 through EE-MW6 were installed by Prosonic Inc. / E & E.

Key:
BGS = Below ground surface.
BTOC = Below top of casing.

TABLE 3-6
WELL DEVELOPMENT GROUNDWATER FIELD PARAMETER DATA
PELHAM PHOSPHATE COMPANY SITE
PELHAM GEORGIA
JUNE 2002

Well Number	Development Date	Well Depth (Feet BTOC)	Time	Purge Volume (gallons)	Temperature (°C)	pH (SUs)	Conductivity (µhmos/cm)	Turbidity (NTUs)
PEL-EE-MW1	6/26/02	27.83	0935	10	22.1	5.31	544	150
			1040	20	21.6	5.12	532	78
			1100	30	21.7	5.02	532	48
			1120	40	22.0	4.99	531	30
			1125	45	22.0	5.01	532	10
PEL-EE-MW2	6/26/02	17.32	1435	10	23.5	4.84	65	>1000
			1445	20	23.1	4.85	66	85
			1455	30	23.0	4.74	66	9.4
			1505	40	22.9	4.73	66	6.1
PEL-EE-MW3	6/26/02	29.65	1510	10	23.4	3.96	3,840	>1000
			1520	20	23.5	3.53	3,950	56
			1530	30	23.3	3.41	5,120	13
			1550	40	23.3	3.39	5,180	4.68
PEL-EE-MW4	6/26/02	29.5	1540	10	22.6	4.53	1,050	>1000
			1600	20	23.0	4.05	1,180	289
			1620	30	22.1	4.02	1,170	33
			1630	40	22.1	3.97	1,170	8.2
PEL-EE-MW5	6/27/02	23.18	0845	10	20.7	5.03	1,910	120
			0855	20	20.8	5.02	1,940	120
			0903	30	20.9	5.00	1,980	50
			0910	40	19.7	5.00	1,980	17
PEL-EE-MW6	6/27/02	15.32	1730	1	23.4	6.52	4,680	>1000
			1740	1.5	23.7	6.58	4,680	38

Key:
BTOC = Below top of casing.
µhmos/cm = Micromhos per centimeter.
NTU = Nephelometric Turbidity Units.
°C = Degrees Celsius.
SUs = Standard units.

TABLE 3-7
GROUNDWATER SAMPLING FIELD PARAMETER DATA
PELHAM PHOSPHATE SITE
PELHAM , GEORGIA
JUNE 2002

Well Designation	pH (standard units)	Specific Conductance (µmhos/ml)	Temperature (°C)	Turbidity (NTUs)
PEL-EE-MW1	4.88	532	23.6	2.5
PEL-EE-MW2	4.77	66	25.3	2.0
PEL-EE-MW3	3.41	5,450	23.4	2.3
PEL-EE-MW4	3.92	1,140	23.1	1.4
PEL-EE-MW5	4.50	1,980	21.2	0.7
PEL-EE-MW6	6.38	4,680	22.3	4.8

Key:
µmhos/ml = microhmos per milliliter.
°C = degrees celcius
NTUs = Nephlometric turbidity units.

TABLE 3-8
GROUNDWATER SAMPLING ANALYTICAL RESULTS
PELHAM PHOSPHATE COMPANY SITE
PELHAM, GEORGIA
JUNE 2002

Sample Identification	GDNR Risk Reduction Standards, Type 1 Sites	PEL-EE-MW1-GW	PEL-EE-MW2-GW	PEL-EE-MW3-GW	PEL-EE-MW4-GW	PEL-EE-MW5-GW	PEL-EE-MW5-GW-DUP	PEL-EE-MW6-GW
Analyte/Concentration(μg/L)								
Arsenic	50	ND	ND	ND	ND	ND	ND	ND
Barium	200	187.0	73.3	ND	ND	ND	ND	53.4
Cadmium	5	ND	ND	ND	ND	ND	ND	ND
Chromium (Total)	100	ND	12.0	ND	ND	ND	ND	ND
Copper	1,300	ND	ND	ND	ND	ND	ND	ND
Lead	15	ND	6.9	ND	ND	ND	ND	ND
Silver	100	ND	ND	ND	ND	ND	ND	ND
Zinc	2,000	73.3	53.9	**2650.0**	**3920.0**	1,050	1,030	83.4
Sulfate (mg/L)	250[b]	ND	8.2	660	310	860	710	1,800

Note:

[a]Georgia Administrative Code (GAC) 391-3-19-.07(6) for Type III sites, groundwater criteria are the same as Type I Sites.

[b]Georgia Drinking Water Standard Secondary Maximum Contaminant Level.

Bold indicates reported value exceeds the Risk Reduction Standard.

Key:

μg/L = Micrograms per liter.
mg = Milligrams per liter.
ND = Analyte not detected.
NE = No established value.
NTUs = Nephlometric Turbidity Units.

TABLE 3-9
WATER LEVEL ELEVATIONS
PELHAM PHOSPHATE COMPANY SITE
PELHAM GEORGIA
JUNE 28, 2002

Well Designation	Well Diameter (inches)	Well Depth (feet BGS)	Top of Casing Elevation[a]	Height of Stick-up (feet AGS)	Depth to Water (feet BTOC)	Water Level Elevation[a]
PEL-EE-MW1	2	27.83	110.40	3.26	21.26	89.14
PEL-EE-MW2	2	17.32	89.92	2.78	4.70	85.22
PEL-EE-MW3	2	29.65	87.35	3.72	13.47	73.88
PEL-EE-MW4	2	29.50	88.42	3.86	22.57	65.85
PEL-EE-MW5	2	23.18	76.98	2.72	9.65	67.33
PEL-EE-MW6	2	15.32	71.82	2.98	6.02	65.80

Note:

[a] Elevations referenced to Arc Surveying Inc.'s Professional Land Survey with an arbitrary on-site datum of 103.77

Key:
AGS = Above ground surface
BGS = Below ground surface
BTOC = Below top of casing

TABLE 4-1
PRELIMINARY INVENTORY OF PRODUCT STORAGE BUILDING
PELHAM PHOSPHATE COMPANY SITE
PELHAM, GEORGIA
JUNE 2002

Product Name (Matrix)	Container Type and Condition	Approximate Number of Containers	Listed Contents (If legible)
Muriatic Acid	55-gallon Steel Drum, rusted.	1	Hydrochloric Acid
Unknown	55-gallon Steel Drum, rusted, several leaking.	30	Unknown
Sodium Hydroxide Solution	55-gallon, plastic.	4	Sodium Hydroxide Solution
Flowable Sulfur Plus Boron	2.5-gallon, plastic. Product has separated and some containers have leaked.	1200 (plus)	40 % sulfur, 9.5 % boron, derived from sulfur and boric acid.
Flowable Sulfur Plus Boron	5-gallon, plastic. Product has separated and some containers have leaked.	300 (plus)	40 % sulfur, 9.5 % boron, derived from sulfur and boric acid.
Magnesium	5-gallon, plastic.	80 (plus)	Not legible
This Super Starter	5-gallon, plastic.	150 (plus)	Manganese, copper, zinc and other unreadable ingredients
SETT	5-gallon, plastic.	50 (plus)	8 % calcium, 1 % boron
Flowable Boron	5-gallon, plastic.	50 (plus)	Not legible
Che-La	5-gallon, plastic.	20 (plus)	7 % manganese, 5 % sulfur
This Peanut Mix	5-gallon, plastic.	20 (plus)	2 % zinc, 2 % manganese, 1.5 % magnesium
Fertilizer	40 lb. Bag, approximately half are lying directly on floor and are wet.	150 (plus)	No description
Micromate	40 lb. Bag, approximately half are lying directly on floor and are wet.	300 (plus)	No description
Unknown	40-gallon plastic drums (numbered sequentially starting with 2105). Drums are approximately one-half to three-quarters full of an unidentified liquid.	4	No description
Unknown	55-gallon steel drums. Drums are full of an unidentified liquid.	3	No description
Flowable Sulfur	5-gallon, plastic.	300 (plus)	No description
Calcium-Boron Fertilizer Supplement	5-gallon, plastic.	100 (plus)	No description
Fung-Aid	5-gallon, plastic.	150 (plus)	No description
N-Zinc	5-gallon, plastic.	350 (plus)	Nitrogen-zinc fertilizer supplement.
TOP-COP	2.5-gallon, plastic.	250 (plus)	Sulfur, Tribasic Copper Sulfate

Note: the majority of the products/containers described above are stacked on wooden pallets, however, there are numerous containers scattered on the floor. Some of the pallets have fallen over and numerous containers are open/broken and leaking .

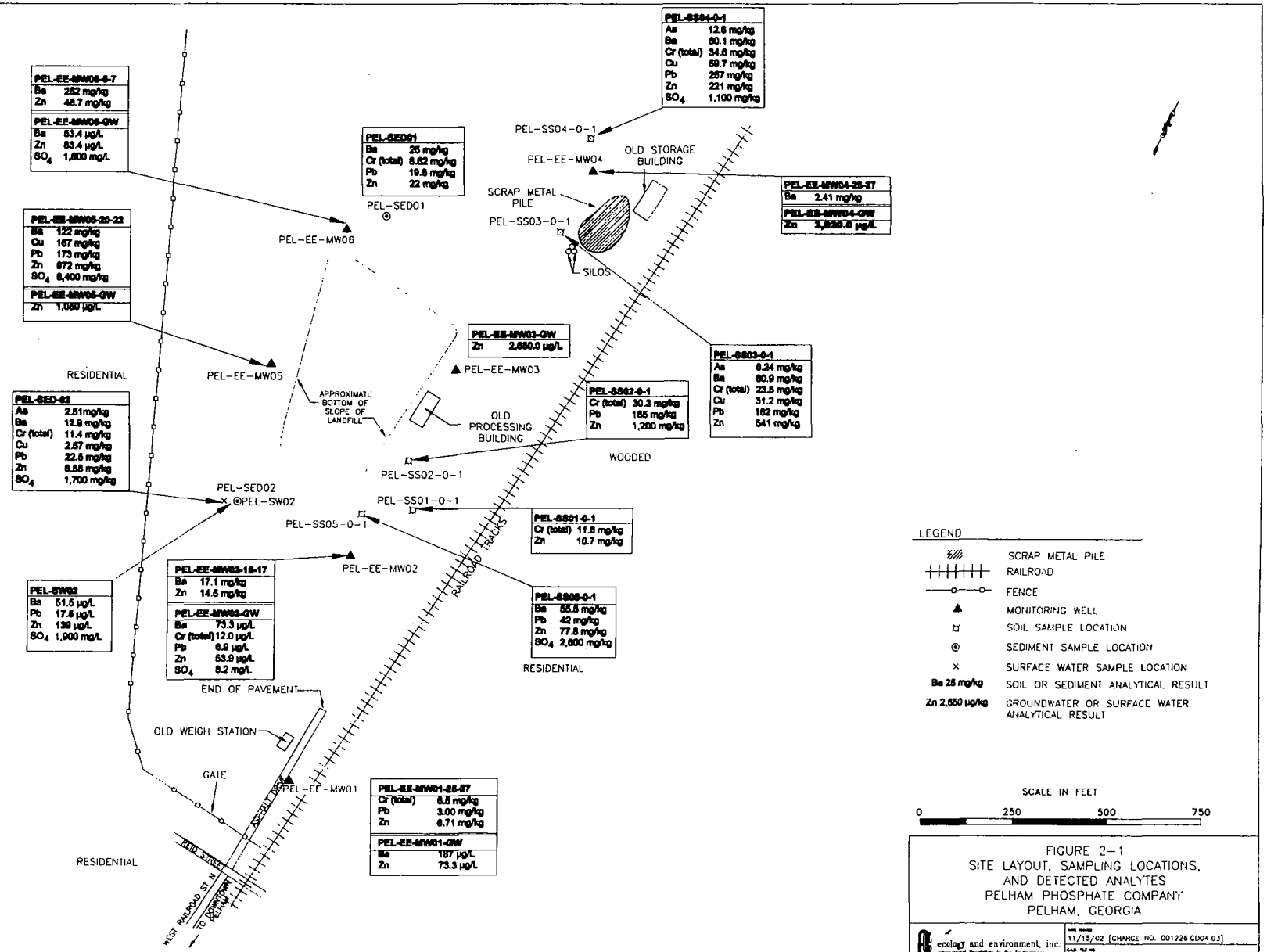

FIGURE 2-1
SITE LAYOUT, SAMPLING LOCATIONS, AND DETECTED ANALYTES
PELHAM PHOSPHATE COMPANY
PELHAM, GEORGIA

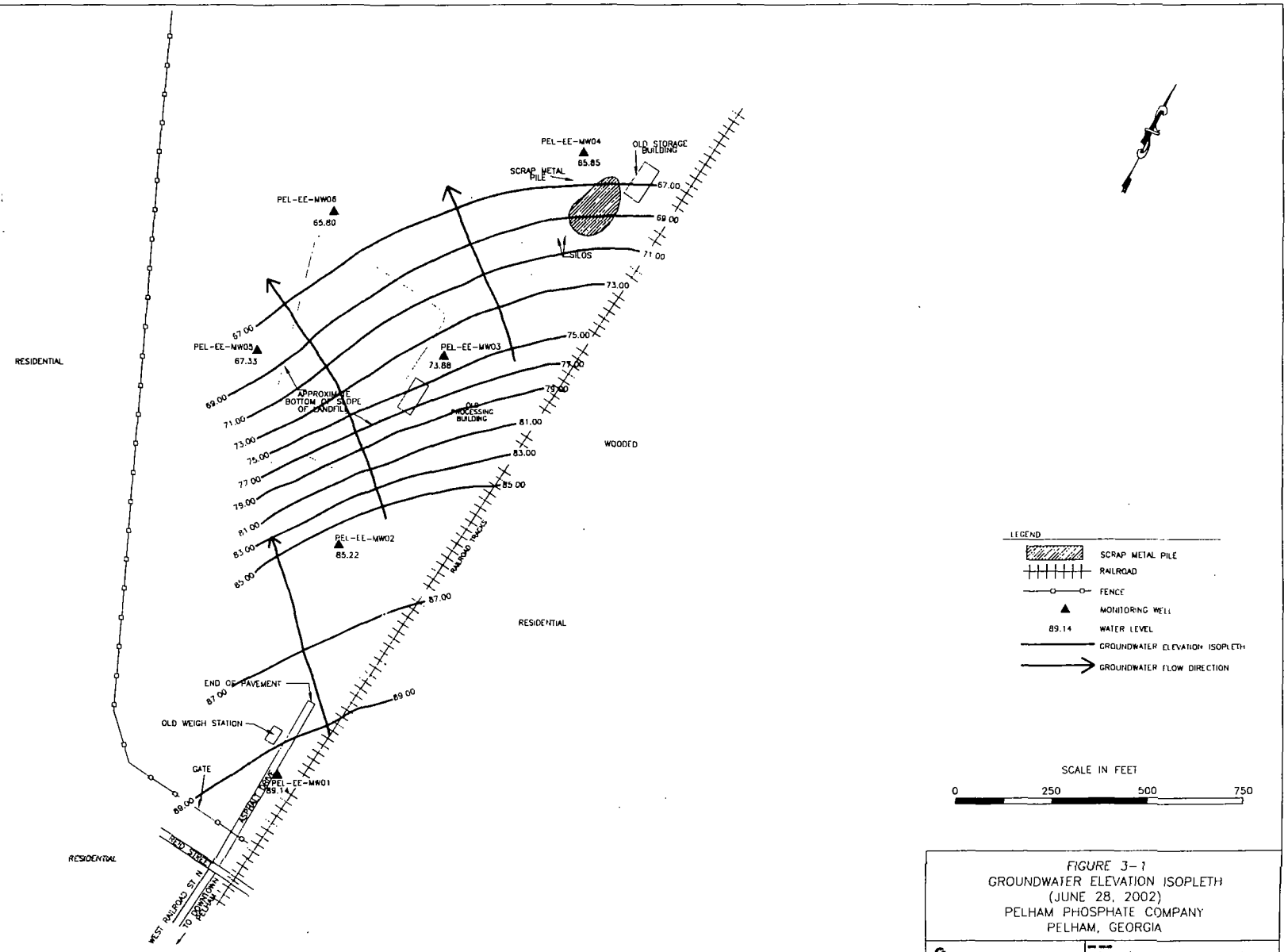

FIGURE 3-1
GROUNDWATER ELEVATION ISOPLETH
(JUNE 28, 2002)
PELHAM PHOSPHATE COMPANY
PELHAM, GEORGIA

ecology and environment, inc
International Specialists in the Environment

11/11/02 [CHARGE NO 001226 GD04 02]

TALCAD\PELHAM\GD04S002B DWG