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FINAL
SITE INSPECTION REPORT
INTERNATIONAL METALLURGICAL SERVICES
NEWARK, NEW JERSEY

CERCLIS ID No.: NJD982273559

Volume 2 of 2

May 28, 1993

Work Order No.: 04200-016-081-0002

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Prepared by:

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232087

REFERENCE NO. 25

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Liquid

ANALYSIS PERFORMED:

Wastewater Treatment Disposal Parameters

(Sample: AL)

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 11/9/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was analyzed for Wastewater Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Method 420.1, Phenolics, Total Recoverable, Spectrophotometric, Manual 4-AAP with Distillation.

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: antimony, arsenic, barium, cadmium, total chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method. Samples were prepared and analyzed for hexavalent chromium according to Method 7196. Mercury was prepared and analyzed by Method 7470, Manual Cold Vapor Techniques.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Viscosity

Organic liquids were analyzed using a Brookfield viscometer according to ASTM D2983, Volume 5.03, 1983.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples are performed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables are prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8270, GC/MS Methods for Semi-Volatile Organics.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Flash Point (Pensky-Martens)

Flash points were performed according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1010, Pensky-Martens Closed-cup Method.

Solids

Percent solids for the samples are determined according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Methods 160.1, 160.2 and/or 160.3.

Total Ammonia

Samples were prepared and analyzed according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Method 350.2.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

pH

Samples were analyzed according to Method 9040; USEPA SW-846, 2nd edition, July 1982.

Total Cyanides, Water and Wastewater

Water and wastewater samples were analyzed for Total Cyanide content by USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

Acidity

The acidity of the liquid samples were determined by USEPA 600/4-79-020 (Revised March 1983); Method 310.1, Acidity/Alkalinity (Titrimetric, pH 4.5).

Pesticides and PCBs - Water and Wastewater

The pesticides and polychlorinated biphenyl content of the liquid samples (except oil samples) was determined by USEPA 600/4-82-057, July 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater; Method 608, Organochlorine Pesticides and PCBs.

3. ANALYTICAL RESULTS

The following tables detail the analytical results for sample #5763E-AL.

PROJECT 5763E

TABLE 1 - WASTEWATER TREATMENT DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Parameter	Result
Color	Yellow
Density	1.43 g/cm^3
Flash Point, PM, CC	> 95°C
Amenable Cyanide	< 0.2 mg/L
Total Cyanide	< 0.2 mg/L
Total Sulfide	< 10 mg/L
Total Phenols	< 0.5 mg/L
pH Test	< 1.0 pH units
Total Suspended Solids	28,200 mg/L
Total Dissolved Solids	807,000 mg/L
Total Solids	835,000 mg/L
Viscosity, Brookfield	14.0 cpu
Total Acidity	18,000 mg/L $CaCO_3$
Total Ammonia, N	< 10 mg/L

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 1,000 mg/L ppm (parts-per-million)
Limit of Detection = 100 mg/L ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	500

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compounds	Concentration (mg/L)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/L = ppm (parts-per-million)

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)	Compound	Concentration (mg/L)
Aenaphthene	BDL	3,3'-Dichlorobenzidine	BDL
Acenaphthylene	BDL	Diethylphthalate	BDL
Anthracene	BDL	Dimethylphthalate	BDL
Benzidine	BDL	2,4-Dinitrotoluene	BDL
Benzo(a)anthracene	BDL	2,6-dinitrotoluene	BDL
Benzo(b)fluoranthene	BDL	Dioctylphthalate	BDL
Benzo(k)fluoranthene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(a)pyrene	BDL	Fluoranthene	BDL
Benzo(g,h,i)perylene	BDL	Fluorene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachlorobutadiene	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachloroethane	BDL
Bis(2-chloroisopropyl)ether	BDL	Hexachlorocyclopentadiene	BDL
4-Bromophenyl phenyl ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
Butyl benzyl phthalate	BDL	Isophorone	BDL
2-Chloronaphthalene	BDL	Naphthalene	BDL
4-Chlorophenyl phenyl ether	BDL	Nitrobenzene	BDL
Chrysene	BDL	N-Nitrosodi-n-propylamine	BDL
Dibenzo(a,h)anthracene	BDL	N-Nitrosodiphenylamine	BDL
Di-n-butylphthalate	BDL	Phenanthrene	BDL
1,3-Dichlorobenzene	BDL	Pyrene	BDL
1,4-Dichlorobenzene	BDL	1,2,4-Trichlorobenzene	BDL
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/L ppm (parts-per-million)
BDL = Below Detection Limit

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TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)	Detection Limit (mg/L)
4-Choro-3-Mthylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

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TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/L ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compounds	Concentration (mg/L)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/L = ppm (parts-per-million)

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (ug/L)	Detection Limit (ug/L)
Aldrin	BDL	0.1
BHC-alpha	BDL	0.1
BHC-beta	BDL	0.1
BHC-gamma	BDL	0.1
BHC-delta	BDL	0.1
Chlordane	BDL	1.0
4,4'-DDD	BDL	0.1
4,4'-DDE	BDL	0.1
4,4'-DDT	BDL	0.1
Dieldrin	BDL	0.1
Endosulfan-alpha	BDL	0.1
Endosulfan-beta	BDL	0.1
Endosulfan sulfate	BDL	0.1
Endrin	BDL	0.1
Endrin aldehyde	BDL	0.1
Heptachlor	BDL	0.1
Heptachlor expoxide	BDL	0.1
Toxaphene	BDL	1.0
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	10.0
Aroclor 1221	BDL	10.0
Aroclor 1232	BDL	10.0
Aroclor 1242	BDL	10.0
Aroclor 1248	BDL	10.0
Aroclor 1254	BDL	10.0
Aroclor 1260	BDL	10.0

ug/L = ppb (parts-per-billion)
BDL = Below Detection Limit

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TABLE 10 - TOTAL METALS FOR WASTEWATER DISPOSAL

SAMPLE IDENTIFIER: Acid Liquid
ETC SAMPLE NUMBER: 5763E-AL

Compound	Concentration (mg/L)	Detection Limit (mg/L)
Antimony	BDL	1.0
Arsenic	BDL	1.0
Barium	BDL	1.0
Beryllium	BDL	1.0
Cadmium	BDL	1.0
Chromium, total	2.1	1.0
Chromium, hexavalent	BDL	1.0
Copper	5.5	1.0
Iron	2,400	1.0
Lead	BDL	1.0
Manganese	6.8	1.0
Mercury	BDL	0.2
Nickel	2.1	1.0
Selenium	BDL	1.0
Silver	BDL	1.0
Thallium	BDL	1.0
Zinc	1.8	1.0

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

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QC SUMMARY

A. Total Phenols Analysis - % Recovery:

Method Spike	83.2
Calibration Spike	95.8

Total Sulfide Analysis - % Recovery:

Method spike	83.5

Total Cyanide Analysis - % Recovery:

Method Spike	90.6
Calibration Spike	93.4
Matrix Spike 6003S-140	100

Ammonia Analysis - % Recovery:

Method Spike	120

Hexavalent Chromium Analysis - % Recovery:

Method Spike	95.0

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: see attached
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol	p-Ter-pheny d14
Blank	97.1	66.9	111	96.0	106	105
Method Spike	104	76.4	107	99.0	113	101
5763E-AL	84.2	59.8	110	98.0	98.4	105

Semi-volatile Organics Analysis

Spike Blanks, % Recoveries:

Compound	Method Spike
1,4-Dichlorobenzene	87.3
2-Chlorophenol	106
Phenol	68.8
N-Nitroso-di-n-propylamine	91.3
1,2,4-Trichlorobenzene	93.4
4-Chloro-3-Methylphenol	98.9
Acenaphthene	91.8
2,4-Dinitrotoluene	87.6
Lindane	60.8
Di-n-butylphthalate	74.2
4-Nitrophenol	72.6
Phentachlorophenol	86.6
Pyrene	90.5
4,4'-DDT	37.2

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QC SUMMARY (CONTINUED)

D. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Method Spike
a-BHC	69.5
b-BHC	38.2*
Lindane	77.8
d-BHC	29.0*
Heptachlor	89.0
DDE	85.7
DDT	86.8
DDD	79.8
Endosulfan I	80.7
Aroclor 1248	69.9

*Out of control
**Not used in spiking solution

E. RCRA Pesticides/Herbicides

RCRA Pesticides - % Recoveries:

Compound	Recovery Data
Toxaphene	73.3
Lindane	78.2
Endrin	23.0*
Methoxychlor	18.3*

*Out of Control

PROJECT 5763E

QC SUMMARY (CONTINUED)

E. Metals - % Recovery:

Compound	Method Spike	5763E-FOS Mtx. Spk.	5763E-FOS Mtx. Spk. Dup.
Amtimony	96	*	*
Arsenic	97	80	77
Beryllium	100	96	94
Cadmium	100	100	100
Chromium	100	*	*
Lead	102	*	*
Nickel	98	86	86
Selenium	90	88	88
Silver	100	*	*
Thallium	95	49	51
Zinc	110	*	*

*Diluted out due to sample concentration

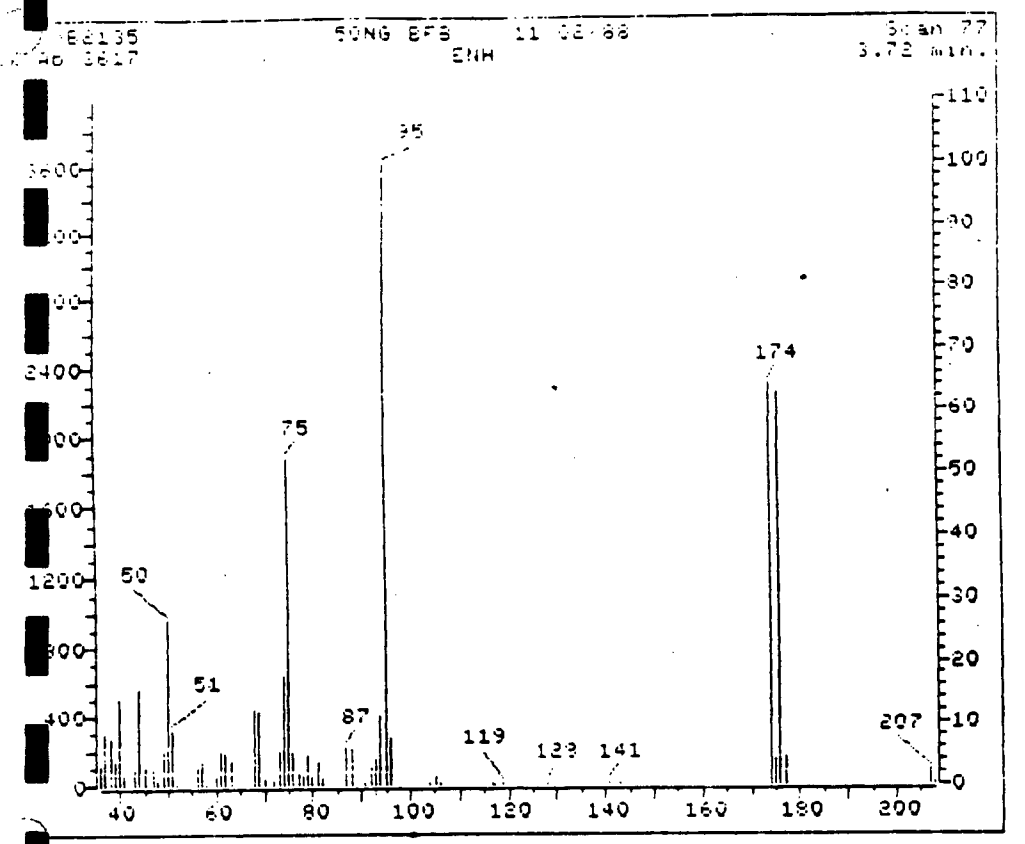

TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
15-40% of mass 95	26.46	26.46	Ok
30-60% of mass 95	52.17	52.17	Ok
Base peak, 100% relative abundance	100.00	100.00	Ok
5-9% of mass 95	7.47	7.47	Ok
Less than 1% of mass 95	0.00	0.00	Ok
Greater than 50% of mass 95	63.99	63.99	Ok
5-9% of mass 174	3.98	6.22	Ok
95-101% of mass 174	62.37	97.47	Ok
5-9% of mass 176	4.45	7.13	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 16:04 Processor: LR
Run No: >82135 QC Batch: _____
Spectrum No: _____

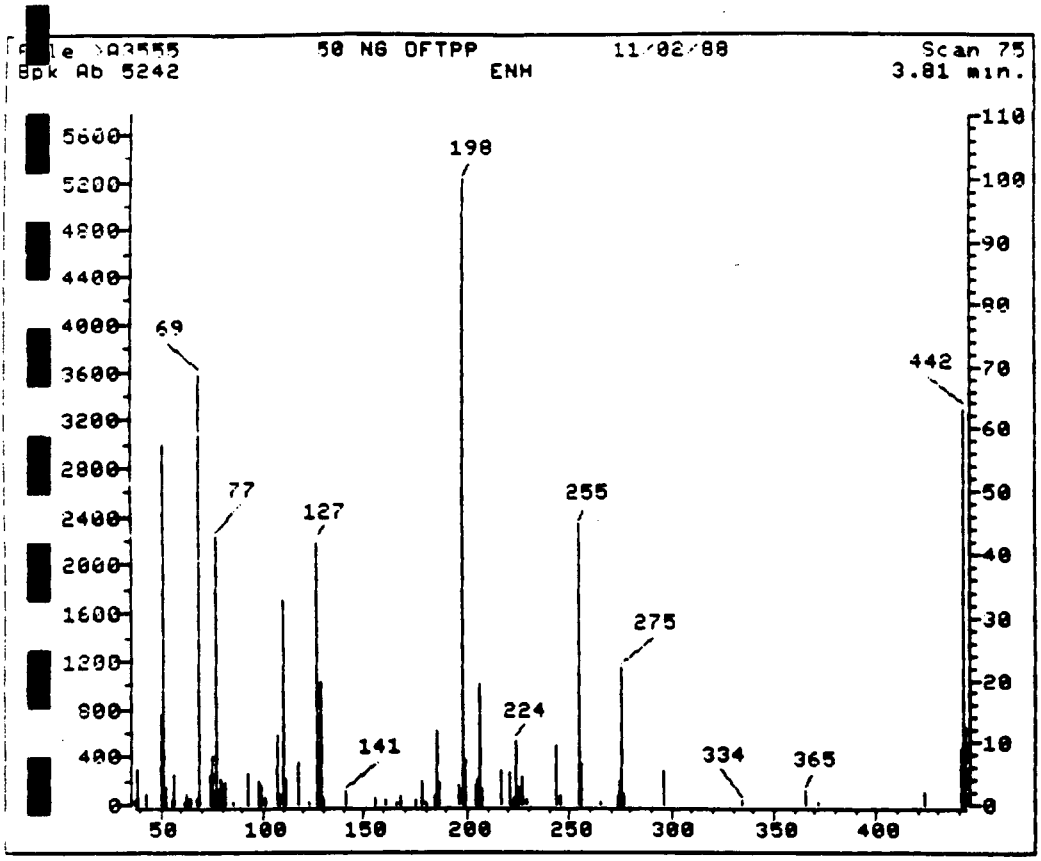

TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	57.12	57.12	Ok
68	Less than 2% of mass 69	1.01	1.48	Ok
69	(reference only)	68.32	68.32	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
197	40-60% of mass 198	41.78	41.78	Ok
1[illegible]7	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.06	7.06	Ok
275	10-30% of mass 198	21.81	21.81	Ok
365	Greater than 1% of mass 198	2.32	2.32	Ok
441	0-100% of mass 443	9.15	74.20	Ok
442	Greater than 40% of mass 198	63.18	63.18	Ok
443	17-23% of mass 442	12.33	19.52	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 12:26 Processor: LR
Run No: >A3555 QC Batch: _____
Spectrum No: _____

Form 0019
Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS-IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Wastewater Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Drums~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7897958071	Larry Lanek	10/27/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 26

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Solid

ANALYSIS PERFORMED:

Incineration Disposal Parameters

(Sample: FOS) all solids composited

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 11/9/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was analyzed for Incineration Disposal parameters.

2. ANALYTICAL METHODOLOGY

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984). Mercury was prepared and analyzed by Method 7470, Manual Cold Vapor Techniques.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Ash Content

The ash content of the samples was determined by either ASTM E830-81, Test Method for Ash in the Analysis Samples of Refuse-Derived Fuel (RDF-3), Section II, Vol. 11.04, or by ASTM D482-80 Test Method for Ash from Petroleum Products, Section 5, Vol. 05.01.

PROJECT 5763E

SUMMARY REPORT OF ANAYTICAL SERVICES

Sulfur Content

The sulfur content of the samples was determined by either ASTM E775-81, Test Methods for Total Sulfur in the Anaysis Sample of Refuse-Derived Fuel, Section II, Vol. 11.04, or by ASTM D129-64 (1978), Test Method for Sulfur in Petroleum Products (General Bomb Method), Section 5, Vol. 05.01.

Pesticides and PCB Content

Samples were prepared by Method 3510, 3540, or 3550 as appropriate; and analyzed according to Method 8080 of USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982.

Chlorine Content

The samples were analyzed for percent chlorine according to American Society for Testing and Materials, Section 5, Method D808-81, Chlorine in New and Used Petroleum Products (Bomb Method.

Viscosity

The viscosity of the samples were determined using a Brookfield viscometer according to ASTM D2983, Volume 5.03, 1983.

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples are performed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables are prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8270, GC/MS Methods for Semi-Volatile Organics.

Paint Filter Test

Percent free liquids was determined by Method 9095, SW-846.

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SUMMARY REPORT OF ANALYTICAL SERVICES

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

3. ANALYTICAL RESULTS

The following tables detail the analytical results for sample #5763E-FOS.

PROJECT 5763E

TABLE 1 - INCINERATION DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Parameter	Result
Color	Brown
Number of Phases	1
Percent by volume of phases	100
Physical state of phases	Solid
Density	0.83 g/cm^3
Flash Point, SF, CC	72°C
Viscosity, Brookefield	N/A
BTU Content	3,200 BTU/lb
Ash Content	62.0% by weight
Chlorine Content	< 0.1% by weight
Sulfur Content	0.77% by weight
Total Solids	81.9% by weight
Percent Free Liquids	None observed
Total Cyanide	2.41 mg/Kg

N/A = Test not applicable

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	500

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

CAS #	Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Aenaphthene	BDL	3,3'-Dichlorobenzidine	BDL
Acenaphthylene	BDL	Diethylphthalate	BDL
Anthracene	BDL	Dimethylphthalate	BDL
Benzidine	BDL	2,4-Dinitrotoluene	BDL
Benzo(a)anthracene	BDL	2,6-dinitrotoluene	BDL
Benzo(b)fluoranthene	BDL	Dioctylphthalate	BDL
Benzo(k)fluoranthene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(a)pyrene	BDL	Fluoranthene	BDL
Benzo(g,h,i)perylene	BDL	Fluorene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachlorobutadiene	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachloroethane	BDL
Bis(2-chloroisopropyl)ether	BDL	Hexachlorocyclopentadiene	BDL
4-Bromophenyl phenyl ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
Butyl benzyl phthalate	BDL	Isophorone	BDL
2-Chloronaphthalene	BDL	Naphthalene	BDL
4-Chlorophenyl phenyl ether	BDL	Nitrobenzene	BDL
Chrysene	BDL	N-Nitrosodi-n-propylamine	BDL
Dibenzo(a,h)anthracene	BDL	N-Nitrosodiphenylamine	BDL
Di-n-butylphthalate	BDL	Phenanthrene	BDL
1,3-Dichlorobenzene	BDL	Pyrene	BDL
1,4-Dichlorobenzene	BDL	1,2,4-Trichlorobenzene	BDL
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

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TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

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TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

CAS #	Compounds	Concentration (mg/Kg)
	Oxirane,2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)]bis-	6,790
	Unknown	515

Limit of Detection = 100 mg/Kg ppm (parts-per-million
BDL = Below Detection Limit

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TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.04
BHC-alpha	BDL	0.04
BHC-beta	BDL	0.04
BHC-gamma	BDL	0.04
BHC-delta	BDL	0.04
Chlordane	BDL	0.4
4,4'-DDD	BDL	0.04
4,4'-DDE	BDL	0.04
4,4'-DDT	BDL	0.04
Dieldrin	BDL	0.04
Endosulfan-alpha	BDL	0.04
Endosulfan-beta	BDL	0.04
Endosulfan sulfate	BDL	0.04
Endrin	BDL	0.04
Endrin aldehyde	BDL	0.04
Heptachlor	BDL	0.04
Heptachlor expoxide	BDL	0.04
Toxaphene	BDL	0.4
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	0.3
Aroclor 1221	BDL	0.3
Aroclor 1232	BDL	0.3
Aroclor 1242	BDL	0.3
Aroclor 1248	BDL	0.3
Aroclor 1254	BDL	0.3
Aroclor 1260	BDL	0.3

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - TOTAL METALS FOR INCINERATION DISPOSAL

SAMPLE IDENTIFIER: Flammable Organic Solid
ETC SAMPLE NUMBER: 5763E-FOS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Antimony	62.3	1.0
Arsenic	BDL	1.0
Barium	4,700	1.0
Beryllium	BDL	1.0
Cadmium	15.5	1.0
Chromium	70.0	1.0
Copper	378	1.0
Iron	6,900	1.0
Lead	448	1.0
Manganese	196	1.0
Mercury	0.84	0.2
Nickel	49.3	1.0
Selenium	BDL	1.0
Silver	54.8	1.0
Thallium	BDL	1.0
Zinc	450	1.0

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total BTU Analysis - % Recovery:

Method Spike 99.4

Sulfur Content Analysis - % Recovery:

Method spike 102

Total Cyanide Analysis - % Recovery:

Method Spike 93.3
Calibration Spike 98.0

Chlorine Content Analysis - % Recovery:

Method Spike 97.4

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: see attached
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol
Blank	80.1	87.7	91.0	92.1	143
5763E-FOS	90.6	33.3*	93.1	95.0	130
5763E-AS	38.1*	45.7*	92.0	97.8	120
5763E-OXS	88.8	91.5	98.2	98.8	144
5763E-PS	66.4	70.3	98.5	100	139
5763E-BNS	90.2	92.4	85.0	96.8	147

*Low recoveries due to matrix effects

Semi-volatile Organics Analysis

Spike Blanks, % Recoveries:

Compound	Method Spike
1,4-Dichlorobenzene	97.3
2-Chlorophenol	102
Phenol	103
N-Nitroso-di-n-propylamine	102
1,2,4-Trichlorobenzene	104
4-Chloro-3-Methylphenol	103
Acenaphthene	99.1
2,4-Dinitrotoluene	104
Lindane	99.4
Di-n-butylphthalate	99.0
4-Nitrophenol	106
Phentachlorophenol	109
Pyrene	105
4,4'-DDT	102

PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
a-BHC	68.3	**	**
b-BHC	39.3*	**	**
Lindane	74.8	**	**
d-BHC	29.3*	**	**
Heptachlor	83.0	**	**
DDE	85.8	**	**
DDT	107	**	**
DDD	78.8	**	**
Endosulfan I	80.0	**	**
Aroclor 1248	84.8	89.6	95.6

*Out of control
**Not used in spiking solution

E. Metals - % Recovery:

Compound	Method Spike	5763E-FOS Mtx. Spk.	5763E-FOS Mtx. Spk. Dup.
Antimony	96	*	*
Arsenic	97	*	*
Beryllium	100	96	94
Cadmium	100	100	100
Chromium	100	*	*
Lead	102	*	*
Nickel	98	86	86
Selenium	90	88	88
Silver	100	*	*
Thallium	95	49	51
Zinc	110	*	*

*Diluted out due to sample concentration

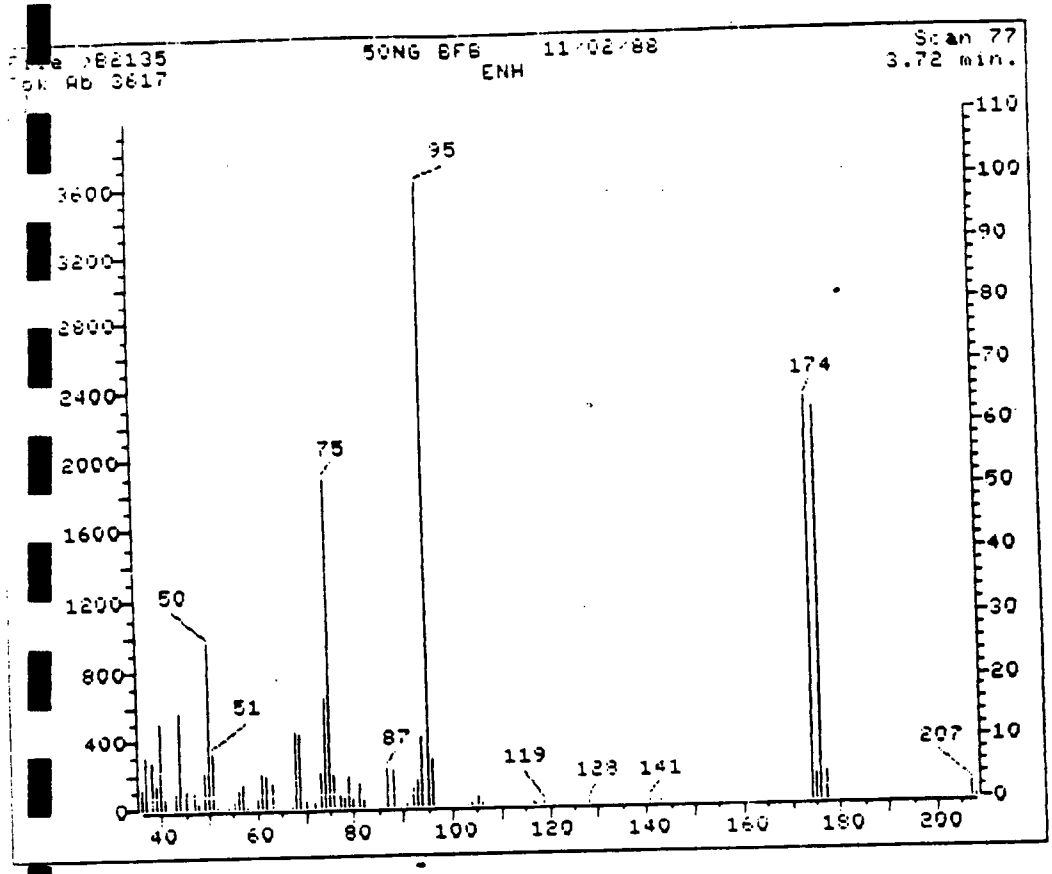

TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.46	26.46	Ok
75	30-60% of mass 95	52.17	52.17	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.47	7.47	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	63.99	63.99	Ok
175	5-9% of mass 174	3.98	6.22	Ok
176	95-101% of mass 174	62.37	97.47	Ok
177	5-9% of mass 176	4.45	7.13	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 16:04 Processor: LR
Run No: >B2135 QC Batch: _____
Spectrum No: _____

Form 0019
Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS-IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cayton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): Landfill Disposal; Waste Water Disposal; Incineration Disposal; BTU's

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Drums~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John F Cayton	Fed-X		
2	1-7	Fed-X 787795807-1	Larry Lauck	10/26/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John F Cayton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 27

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Organic Liquid

ANALYSIS PERFORMED:

Incineration Disposal Parameters

(Sample: FOL)

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

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The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory

11/9/88
Date

PROJECT 5763E

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Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Ash Content

The ash content of the samples was determined by either ASTM E830-81, Test Method for Ash in the Analysis Samples of Refuse-Derived Fuel (RDF-3), Section II, Vol. 11.04, or by ASTM D482-80 Test Method for Ash from Petroleum Products, Section 5, Vol. 05.01.

PROJECT 5763E

SUMMARY REPORT OF ANAYTICAL SERVICES

Sulfur Content

The sulfur content of the samples was determined by either ASTM E775-81, Test Methods for Total Sulfur in the Anaysis Sample of Refuse-Derived Fuel, Section II, Vol. 11.04, or by ASTM D129-64 (1978), Test Method for Sulfur in Petroleum Products (General Bomb Method), Section 5, Vol. 05.01.

Pesticides and PCB Content

Samples were prepared by Method 3510, 3540, or 3550 as appropriate; and analyzed according to Method 8080 of USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982.

Chlorine Content

The samples were analyzed for percent chlorine according to American Society for Testing and Materials, Section 5, Method D808-81, Chlorine in New and Used Petroleum Products (Bomb Method.

Viscosity

The viscosity of the samples were determined using a Brookfield viscometer according to ASTM D2983, Volume 5.03, 1983.

Water and Sediment Content

Organic liquids were analyzed for percent levels of water and sediment according to ASTM D4007, Volume 5.03, 1983, Centrifuge Method.

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples are performed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables are prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8270, GC/MS Methods for Semi-Volatile Organics.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Flash Point (Pensky-Martens)

Flash points were performed according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/ Chemical Methods, SW-846, 2nd edition, July 1982; Method 1010, Pensky-Martens Closed-cup Method.

3. ANALYTICAL RESULTS

The following tables detail the analytical results for samples #5763E-FOL.

PROJECT 5763E

TABLE 1 - INCINERATION DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Parameter	Result
Color	Black
Number of Phases	1
Percent by volume of phases	100
Physical state of phases	Liquid
Density	1.01 g/cm^3
Flash Point, PM, CC	20°C
Viscosity, Brookefield	Low cpu
BTU Content	11,400 BTU/lb
Ash Content	10.2% by weight
Chlorine Content	< 0.1% by weight
Sulfur Content	< 0.1% by weight
Total Cyanide	< 1.0 mg/Kg
Moisture Content	< 0.1% Moisture
Sediment Content	< 0.1% Sediment

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 100 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	500

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compounds	Concentration (mg/Kg)
Hydrocarbons	14,300
Unidentified constituents	1,220

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

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SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL	2,4-Dinitrotoluene	BDL
Anthracene	BDL	2,6-Dinitrotoluene	BDL
Benzidine	BDL	Dioctylphthalate	BDL
Benzo(a)anthracene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(b)fluoranthene	BDL	Fluoranthene	BDL
Benzo(k)fluoranthene	BDL	Fluorene	BDL
Benzo(g,h,i)perylene	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobutadiene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachloroethane	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachlorocyclo-pentadiene	BDL
Bis(2-chloroiso-propyl)ether.	BDL	Indeno-(1,2,3-cd) pyrene	BDL
4-Bromophenyl phenyl ether	BDL	Isophorone	BDL
Butyl benzyl phthalate	BDL	Naphthalene	BDL
2-Chloronaphthalene	BDL	Nitrobenzene	BDL
4-Chlorophenyl phenyl ether	BDL	N-nitrosodi-n-propylamine	BDL
Chrysene	BDL	N-nitrosodiphenyl-amine	BDL
Dibenzo(a,h)anthracene	BDL	Phenanthrene	BDL
Di-n-butylphthalate	BLD	Pyrene	BDL
1,3-Dichlorobenzene	BDL	1,2,4-Trichloro-benzene	BDL
1,4-Dichlorobenzene	BDL		
1,2-Dichlorobenzene	BDL		

21 40 19

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	18,200	100
2,4,6-Trichlorophenol	BDL	100

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mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compounds	Concentration (mg/Kg)
Gasoline range hydrocarbons	333,000
Diesel Fuel range hydrocarbons	182,000
Lube Oil range hydrocarbons	353,000
Phosphoric acid, triphenyl ester	6,010
Phenol,4-(1,1-dimethylethyl)-	8,700
Tri-p-cresyl phosphate	1,890
Tri-p-cresyl phosphate	617

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.25
BHC-alpha	BDL	0.25
BHC-beta	BDL	0.25
BHC-gamma	BDL	0.25
BHC-delta	BDL	0.25
Chlordane	BDL	2.5
4,4'-DDD	BDL	0.25
4,4'-DDE	BDL	0.25
4,4'-DDT	BDL	0.25
Dieldrin	BDL	0.25
Endosulfan-alpha	BDL	0.25
Endosulfan-beta	BDL	0.25
Endosulfan sulfate	BDL	0.25
Endrin	BDL	0.25
Endrin aldehyde	BDL	0.25
Heptachlor	BDL	0.25
Heptachlor expoxide	BDL	0.25
Toxaphene	BDL	2.5
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	25
Aroclor 1221	BDL	25
Aroclor 1232	BDL	25
Aroclor 1242	BDL	25
Aroclor 1248	BDL	25
Aroclor 1254	BDL	25
Aroclor 1260	BDL	25

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - TOTAL METALS FOR INCINERATION DISPOSAL

SAMPLE IDENTIFIER: Flammable Organic Liquid
ETC SAMPLE NUMBER: 5763E-FOL

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Antimony	BDL	1.0
Arsenic	57.0	1.0
Barium	BDL	1.0
Beryllium	BDL	1.0
Cadmium	13.8	1.0
Chromium	4.3	1.0
Copper	163	1.0
Iron	113	1.0
Lead	36.5	1.0
Manganese	30.0	1.0
Mercury	BDL	0.2
Nickel	225	1.0
Selenium	4.8	1.0
Silver	BDL	1.0
Thallium	47.5	1.0
Zinc	64.3	1.0

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total BTU Analysis - % Recovery:

Method Spike 99.4

Total Cyanide - % Recovery:

Method Spike 93.3
Calibration Spike 98.0

Sulfur Content - % Recovery:

Method Spike 102

Chlorine Content - % Recovery:

Method Spike 97.4

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Matrix Spike
a-BHC	77.5
b-BHC	40.2
Lindane	82.5
d-BHC	30.5
Heptachlor	89.5
DDE	89.3
DDT	107
DDD	84.3
Endosulfan I	89.3
Aroclor 1248	83.2

D. Metals - % Recoveries:

Compound	Method Spike	5763E-FOL Mtx. Spk.	5763E-FOL Mtx. Spk. Dup.
Antimony	96	*	*
Arsenic	97	80	77
Beryllium	100	96	94
Cadmium	100	100	100
Chromium	100	*	*
Copper	100	*	*
Lead	102	*	*
Nickel	98	86	86
Selenium	90	88	88
Silver	100	*	*
Thallium	95	49	51
Zinc	110	*	*

*Diluted out due to sample concentration

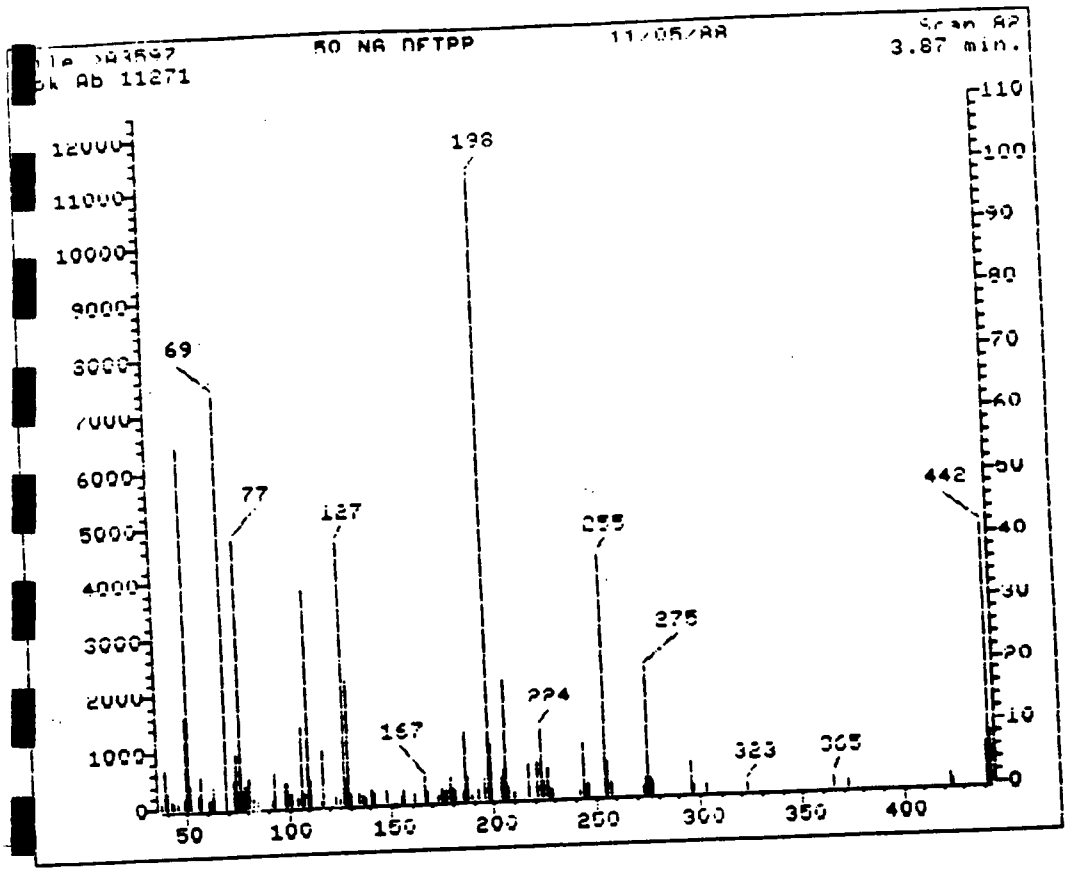


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	57.13	57.13	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	65.22	65.22	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	41.38	41.38	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	8.30	8.30	Ok
275	10-30% of mass 198	19.73	19.73	Ok
365	Greater than 1% of mass 198	1.83	1.83	Ok
441	0-100% of mass 443	6.65	81.50	Ok
442	Greater than 40% of mass 198	41.05	41.05	Ok
443	17-23% of mass 442	8.15	19.86	Ok

Injection Date: 11/05/88
Injection Time: 15:10
Run No: >A3597
Spectrum No:

Analyst: MM
Processor: MM
QC Batch:

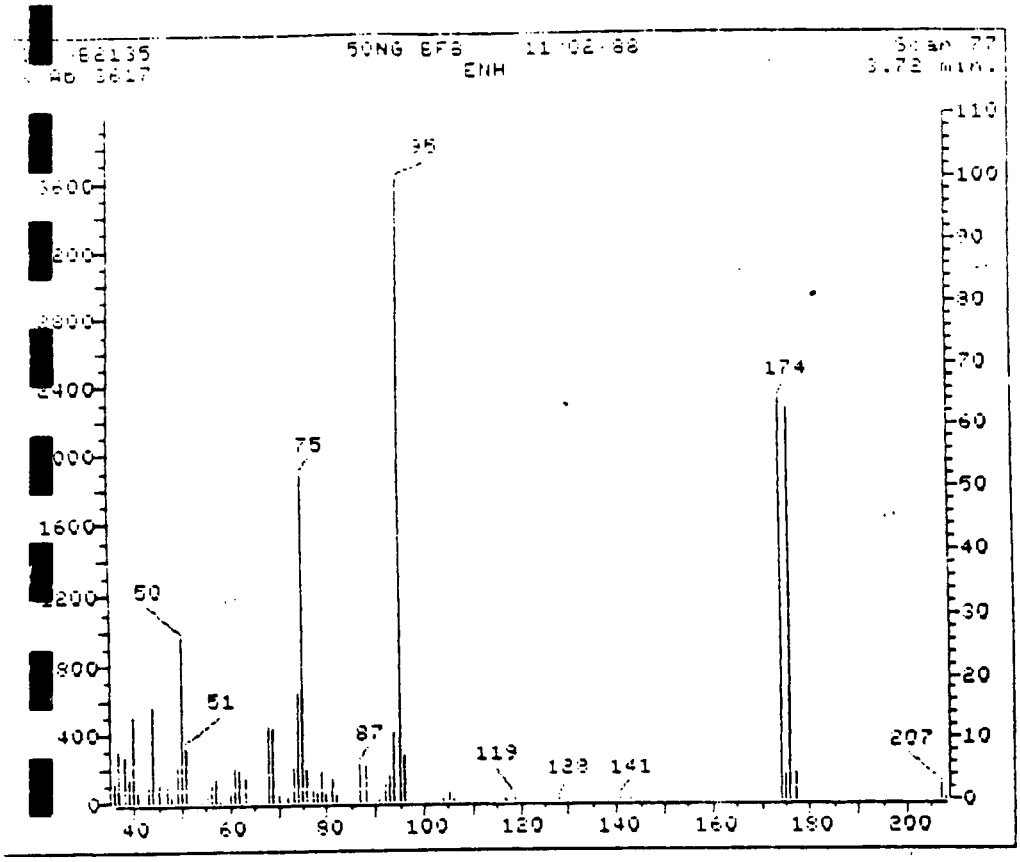


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
15-40% of mass 95	26.46	26.46	Ok
30-60% of mass 95	52.17	52.17	Ok
Base peak, 100% relative abundance	100.00	100.00	Ok
5-9% of mass 96	7.47	7.47	Ok
Less than 1% of mass 95	0.00	0.00	Ok
Greater than 50% of mass 95	63.99	63.99	Ok
5-9% of mass 174	3.98	6.22	Ok
95-101% of mass 174	62.37	97.47	Ok
5-9% of mass 176	4.45	7.13	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 16:04 Processor: LR
Run No: 82135 QC Batch: _____
Spectrum No: _____

[redacted] 0019 [redacted]

Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Brown~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7677958071	Larry Lanek	10/26/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 28

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Solid

ANALYSIS PERFORMED:

Landfill Disposal Parameters

(Sample: BNS)

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 11/9/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was and analyzed for Landfill Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 9065, Phenolics (Spectrophotometric, Manual 4-AAP with Distillation).

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed according to USEPA Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Method for Semivolatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Polychlorinated Biphenyls and Organochlorine Pesticides

Solid samples are prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 3550, Sonication or Method 3540, Soxhlet Extraction and Method 8080, Organochlorine Pesticides and PCBs.

Total and Amenable Cyanide

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

pH

Samples are tested for pH according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 9041, pH Paper Method.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Paint Filter Test

This test was performed on the samples in accordance with Method 9095, Paint Filter Liquids Test; USEPA SW-846, 2nd edition, July 1982, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

RCRA Parameters

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).

Pesticides

Solid sample leachates were analyzed for pesticides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509A.

Herbicides

Solid sample leachates were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on sample #5763E-BNS

PROJECT 5763E

TABLE 1 - LANDFILL DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Parameter	Result
Color	Brown
Flash Point, SF, CC	> 95°C
Density	0.91 g/cm^3
pH Test	9.10 pH units
Total Sulfide	< 10 mg/Kg
Total Cyanide	< 1.0 mg/Kg
Amenable Cyanide	< 1.0 mg/Kg
Total Phenols	< 0.5 mg/Kg
Paint Filter Test	None observed
Total Solids	88.7% by weight

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL	2,4-Dinitrotoluene	BDL
Anthracene	BDL	2,6-Dinitrotoluene	BDL
Benzidine	BDL	Dioctylphthalate	BDL
Benzo(a)anthracene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(b)fluoranthene	BDL	Fluoranthene	BDL
Benzo(k)fluoranthene	BDL	Fluorene	BDL
Benzo(g,h,i)perylene	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobutadiene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachloroethane	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachlorocyclo-pentadiene	BDL
Bis(2-chloroiso-propyl)ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
4-Bromophenyl phenyl ether	BDL	Isophorone	BDL
Butyl benzyl phthalate	BDL	Naphthalene	BDL
2-Chloronaphthalene	BDL	Nitrobenzene	BDL
4-Chlorophenyl phenyl ether	BDL	N-nitrosodi-n-propylamine	BDL
Chrysene	BDL	N-nitrosodiphenyl-amine	BDL
Dibenzo(a,h)anthracene	BDL	Phenanthrene	BDL
Di-n-butylphthalate	BLD	Pyrene	BDL
1,3-Dichlorobenzene	BDL	1,2,4-Trichloro-benzene	BDL
1,4-Dichlorobenzene	BDL		
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.05
BHC-alpha	BDL	0.05
BHC-beta	BDL	0.05
BHC-gamma	BDL	0.05
BHC-delta	BDL	0.05
Chlordane	BDL	0.5
4,4'-DDD	BDL	0.05
4,4'-DDE	BDL	0.05
4,4'-DDT	BDL	0.05
Dieldrin	BDL	0.05
Endosulfan-alpha	BDL	0.05
Endosulfan-beta	BDL	0.05
Endosulfan sulfate	BDL	0.05
Endrin	BDL	0.05
Endrin aldehyde	BDL	0.05
Heptachlor	BDL	0.05
Heptachlor expoxide	BDL	0.05
Methoxychlor	BDL	0.05
Toxaphene	BDL	0.5
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	3.0*
Aroclor 1221	BDL	3.0*
Aroclor 1232	BDL	3.0*
Aroclor 1242	BDL	3.0*
Aroclor 1248	BDL	3.0*
Aroclor 1254	BDL	3.0*
Aroclor 1260	BDL	3.0*

*Elevated Limit of Detection due to matrix interference
mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - RCRA PARAMETERS

SAMPLE IDENTIFIER: EP Toxicity Leachate; Base/Neutral Solid
ETC SAMPLE NUMBER: 5763E-BNS

Compound	Concentration (mg/L)	Detection Limit (mg/L)
RCRA Metals		
Arsenic	0.117	0.1
Barium	BDL	0.1
Cadmium	0.628	0.1
Chromium	BDL	0.1
Lead	0.136	0.1
Mercury	BDL	0.05
Selenium	BDL	0.1
Silver	0.108	0.1
Pesticides		
Lindane	BDL	0.001
Endrin	BDL	0.001
Methoxychlor	BDL	0.02
Toxaphene	BDL	0.01
Herbicides		
2,4-D	BDL	0.01
2,4,5-TP	BDL	0.01

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total Phenols Analysis - % Recovery:

Method Spike	83.2
Calibration Spike	95.8

Total Sulfide Analysis - % Recovery:

Method spike	83.5

Total Cyanide Analysis - % Recovery:

Method Spike	93.3
Calibration Spike	98.0

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: see attached
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol
Blank	80.1	87.7	91.0	92.1	143
5763E-FOS	90.6	33.3*	93.1	95.0	130
5763E-AS	38.1*	45.7*	92.0	97.8	120
5763E-OXS	88.8	91.5	98.2	98.8	144
5763E-PS	66.4	70.3	98.5	100	139
5763E-BNS	90.2	92.4	85.0	96.8	147

*Low recoveries due to matrix effects

Semi-volatile Organics Analysis

Spike Blanks, % Recoveries:

Compound	Method Spike
1,4-Dichlorobenzene	97.3
2-Chlorophenol	102
Phenol	103
N-Nitroso-di-n-propylamine	102
1,2,4-Trichlorobenzene	104
4-Chloro-3-Methylphenol	103
Acenaphthene	99.1
2,4-Dinitrotoluene	104
Lindane	99.4
Di-n-butylphthalate	99.0
4-Nitrophenol	106
Phentachlorophenol	109
Pyrene	105
4,4'-DDT	102

PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
a-BHC	68.3	**	**
b-BHC	39.3*	**	**
Lindane	74.8	**	**
d-BHC	29.3*	**	**
Heptachlor	83.0	**	**
DDE	85.8	**	**
DDT	107	**	**
DDD	78.8	**	**
Endosulfan I	80.0	**	**
Aroclor 1248	84.8	89.6	95.6

*Out of control
**Not used in spiking solution

E. RCRA Pesticides/Herbicides

RCRA Pesticides - % Recoveries:

Compound	Recovery Data
Toxaphene	110
Lindane	32.3*
Endrin	11.3*
Methoxychlor	9.8*

*Out of control

PROJECT 5763E

QC SUMMARY (CONTINUED)

RCRA Herbicides - % Recoveries:

Compound	Method Spike	Matrix Spike	Mtx. Spk. Duplicate
2,4-D	61.0	61.0	50.0
2,4,5-TP	85.0	82.0	80.0

F. RCRA Metals - EP Toxicity Leachate % Recovery:

Compound	Method Spike	5763E-BNS Mtx. Spk.	5763E-BNS Mtx. Spk. Dup.
Arsenic	96.4	94.1	95.5
Barium	98.4	91.3	90.5
Cadmium	88.6	81.5	82.0
Chromium	94.2	88.7	85.6
Iron	96.0	88.0	92.0
Lead	93.6	87.9	85.8
Selenium	90.0	89.5	88.4
Silver	29.5*	**	43.4*

*Out of control
**Not calculable

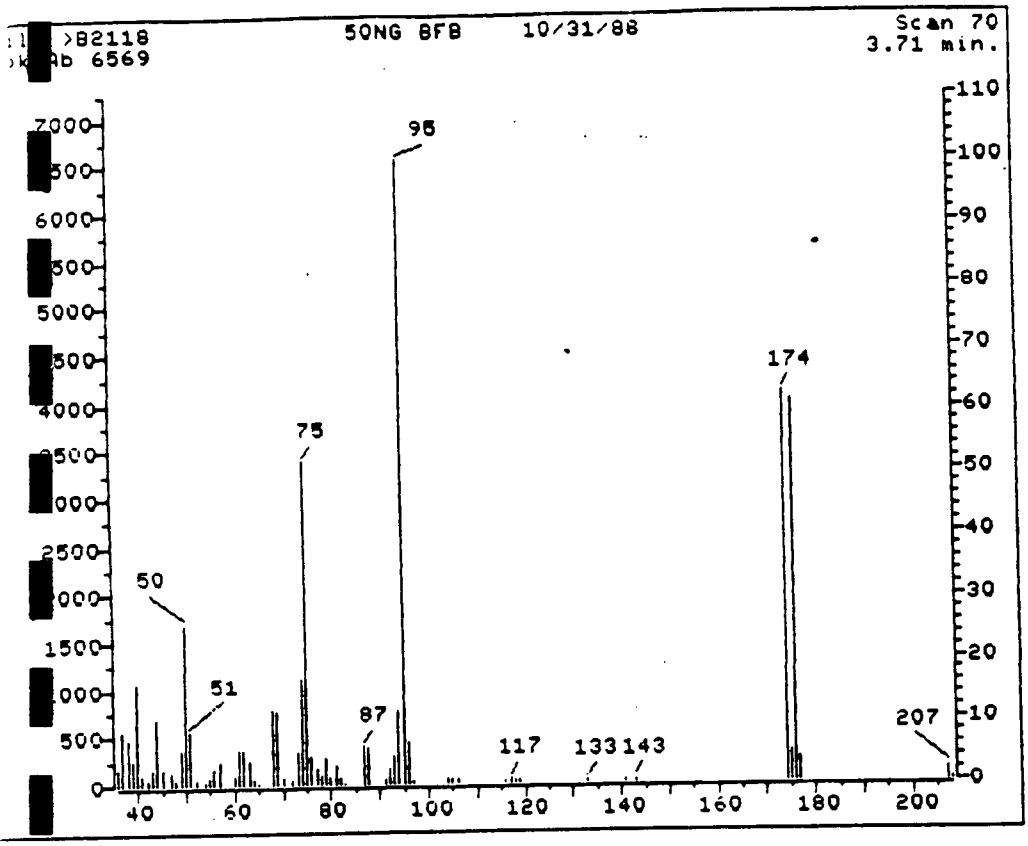


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	25.65	25.65	Ok
75	30-60% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	62.32	62.32	Ok
175	5-9% of mass 174	4.87	7.82	Ok
176	95-101% of mass 174	61.21	98.22	Ok
177	5-9% of mass 176	3.74	6.12	Ok

Injection Date: 10/31/88 Analyst: LR
Injection Time: 10:07 Processor: LR
Run No: >B2118 QC Batch: _____
Spectrum No: _____

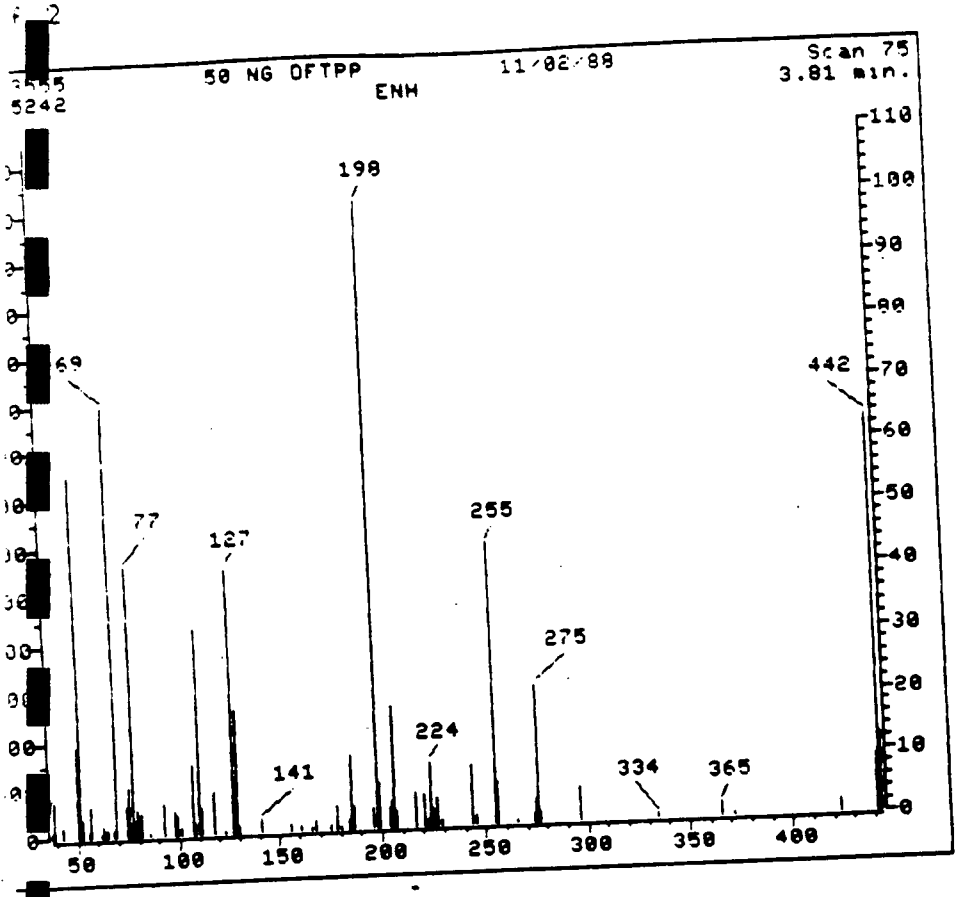


TABLE 2: METHOD PERFORMANCE DATA (QR23)

Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
30-60% of mass 198	57.12	57.12	Ok
Less than 2% of mass 69 (reference only)	1.01	1.48	Ok
Less than 2% of mass 69	68.32	68.32	Ok
40-60% of mass 198	0.00	0.00	Ok
Less than 1% of mass 198	41.78	41.78	Ok
Base peak, 100% relative abundance	0.00	0.00	Ok
5-9% of mass 198	100.00	100.00	Ok
10-30% of mass 198	7.06	7.06	Ok
Greater than 1% of mass 198	21.81	21.81	Ok
0-100% of mass 443	2.32	2.32	Ok
Greater than 40% of mass 198	9.15	74.20	Ok
17-23% of mass 442	63.18	63.18	Ok
	12.33	19.52	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 12:26 Processor: LR
Run No: >A3555 QC Batch: _____
Spectrum No: _____

001

Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Brown~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7827795807-1	Larry Lanek	10/26/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 29

QUALITY ASSURANCE DATA REPORT

JANUARY, 1989

International Metallurigical

Project Number 5763

Delivery Order Number 7445-02-032

OSC: Mr. John Shaw

P U R C H A S E O R D E R S E A R C H

VENDOR: 13053
ETC LABS

( ) -
P/O TOTAL $16,999.99

P/O # J05763-045296-
P/O DATE 10/28/88
REQUESTOR T. BROWN
APPROVAL T. O'HARA
J. COPUS
B. PANNING
DEL DATE 10/28/88
CONFIRMED 10/28/88

TY	PART NO	DESCRIPTION	PRICE	ACCT #
7	NONE	WASTE STREAMS FOR DISPOSAL ANALYSIS BY APPROVED EPA METHOD NTE $17,000.00	2,428.57	654

Form 6019
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Drums~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7877958071	Larry Lanek	10/27/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

Form 0019
Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cayton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Drums~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cayton	Fed-X		
2	1-7	Fed-X 7677958071	Larry Lanek	10/26/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cayton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

REVISED: 12/05/88

7445-CO-C32

COPY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Solid

ANALYSIS PERFORMED:

Landfill Disposal Parameters

(Sample: OXS)

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 12/5/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was and analyzed for Landfill Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 9065, Phenolics (Spectrophotometric, Manual 4-AAP with Distillation).

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed according to USEPA Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Method for Semivolatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Polychlorinated Biphenyls and Organochlorine Pesticides

Solid samples are prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 3550, Sonication or Method 3540 Soxhlet Extraction and Method 8080, Organochlorine Pesticides and PCBs.

Total and Amenable Cyanide

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

pH

Samples are tested for pH according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 9041, pH Paper Method.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Paint Filter Test

This test was performed on the samples in accordance with Method 9095, Paint Filter Liquids Test; USEPA SW-846, 2nd edition, July 1982, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

RCRA Parameters

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).

Pesticides

Solid sample leachates were analyzed for pesticides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509A.

Herbicides

Solid sample leachates were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on sample #5763E-OXS.

PROJECT 5763E

TABLE 1 - LANDFILL DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Parameter	Result
Color	Brown
Flash Point, SF, CC	> 95°C
Density	1.29 g/cm^3
pH Test	5.30 pH units
Total Sulfide	< 10 mg/Kg
Total Cyanide	3.93 mg/Kg
Amenable Cyanide	86.6 mg/Kg
Total Phenols	< 0.05 mg/Kg
Paint Filter Test	N/A
Total Solids	92.3% by weight
BTU Content	< 200 BTU/lb

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL	2,4-Dinitrotoluene	BDL
Anthracene	BDL	2,6-Dinitrotoluene	BDL
Benzidine	BDL	Dioctylphthalate	BDL
Benzo(a)anthracene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(b)fluoranthene	BDL	Fluoranthene	BDL
Benzo(k)fluoranthene	BDL	Fluorene	BDL
Benzo(g,h,i)perylene	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobutadiene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachloroethane	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachlorocyclo-pentadiene	BDL
Bis(2-chloroiso-propyl)ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
4-Bromophenyl phenyl ether	BDL	Isophorone	BDL
Butyl benzyl phthalate	BDL	Naphthalene	BDL
2-Chloronaphthalene	BDL	Nitrobenzene	BDL
4-Chlorophenyl phenyl ether	BDL	N-nitrosodi-n-propylamine	BDL
Chrysene	BDL	N-nitrosodiphenyl-amine	BDL
Dibenzo(a,h)anthracene	BDL	Phenanthrene	BDL
Di-n-butylphthalate	BLD	Pyrene	BDL
1,3-Dichlorobenzene	BDL	1,2,4-Trichloro-benzene	BDL
1,4-Dichlorobenzene	BDL		
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compounds	Concentration (mg/Kg)

No chromatographic peaks present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.04
BHC-alpha	BDL	0.04
BHC-beta	BDL	0.04
BHC-gamma	BDL	0.04
BHC-delta	BDL	0.04
Chlordane	BDL	0.4
4,4'-DDD	BDL	0.04
4,4'-DDE	BDL	0.04
4,4'-DDT	BDL	0.04
Dieldrin	BDL	0.04
Endosulfan-alpha	BDL	0.04
Endosulfan-beta	BDL	0.04
Endosulfan sulfate	BDL	0.04
Endrin	BDL	0.04
Endrin aldehyde	BDL	0.04
Heptachlor	BDL	0.04
Heptachlor expoxide	BDL	0.04
Toxaphene	BDL	0.4
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	0.3
Aroclor 1221	BDL	0.3
Aroclor 1232	BDL	0.3
Aroclor 1242	BDL	0.3
Aroclor 1248	BDL	0.3
Aroclor 1254	BDL	0.3
Aroclor 1260	BDL	0.3

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - RCRA PARAMETERS

SAMPLE IDENTIFIER: EP Toxicity Leachate; Oxidizer Solid
ETC SAMPLE NUMBER: 5763E-OXS

Compound	Concentration (mg/L)	Detection Limit (mg/L)
RCRA Metals		
Arsenic	BDL	0.1
Barium	0.256	0.1
Cadmium	0.575	0.1
Chromium	BDL	0.1
Lead	BDL	0.1
Mercury	BDL	0.05
Selenium	BDL	0.1
Silver	0.256	0.1
Pesticides		
Lindane	BDL	0.001
Endrin	BDL	0.001
Methoxychlor	BDL	0.01
Toxaphene	BDL	0.01
Herbicides		
2,4-D	BDL	0.01
2,4,5-TP	BDL	0.01

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total Phenols Analysis - % Recovery:

Method Spike	83.2
Calibration Spike	95.8

Total Sulfide Analysis - % Recovery:

Method spike	83.5

Total BTU Analysis - % Recovery:

Method Spike	99.4

Total Cyanide - % Recovery:

Method Spike	93.3
Calibration Spike	98.0

Total & Amenable Cyanide - % Recovery:

Method Spike	94.0
Calibration Spike	114

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: see attached
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol
Blank	80.1	87.7	91.0	92.1	143
5763E-FOS	90.6	33.3*	93.1	95.0	130
5763E-AS	38.1*	45.7*	92.0	97.8	120
5763E-OXS	88.8	91.5	98.2	98.8	144
5763E-PS	66.4	70.3	98.5	100	139
5763E-BNS	90.2	92.4	85.0	96.8	147

*Low recoveries due to matrix effects

Semi-volatile Organics Analysis

Spike Blanks, % Recoveries:

Compound	Method Spike
1,4-Dichlorobenzene	97.3
2-Chlorophenol	102
Phenol	103
N-Nitroso-di-n-propylamine	102
1,2,4-Trichlorobenzene	104
4-Chloro-3-Methylphenol	103
Acenaphthene	99.1
2,4-Dinitrotoluene	104
Lindane	99.4
Di-n-butylphthalate	99.0
4-Nitrophenol	106
Phentachlorophenol	109
Pyrene	105
4,4'-DDT	102

PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
a-BHC	68.3	**	**
b-BHC	39.3*	**	**
Lindane	74.8	**	**
d-BHC	29.3*	**	**
Heptachlor	83.0	**	**
DDE	85.8	**	**
DDT	107	**	**
DDD	78.8	**	**
Endosulfan I	80.0	**	**
Aroclor 1248	84.8	89.6	95.6

*Out of control
**Not used in spiking solution

E. RCRA Pesticides/Herbicides

RCRA Pesticides - % Recoveries:

Compound	Recovery Data
Toxaphene	73.3
Lindane	78.2
Endrin	23.0*
Methoxychlor	18.3*

*Out of Control

PROJECT 5763E

QC SUMMARY (CONTINUED)

RCRA Herbicides - % Recoveries:

Compound	Method Spike	Matrix Spike	Mtx. Spk. Duplicate
2,4-D	61.0	61.0	50.0
2,4,5-TP	85.0	82.0	80.0

F. RCRA Metals - EP Toxicity Leachate % Recovery:

Compound	Method Spike	5763E-BNS Mtx. Spk.	5763E-BNS Mtx. Spk. Dup.
Arsenic	96.4	94.1	95.5
Barium	98.4	91.3	90.5
Cadmium	88.6	81.5	82.0
Chromium	94.2	88.7	85.6
Iron	96.0	88.0	92.0
Lead	93.6	87.9	85.8
Selenium	90.0	89.5	88.4
Silver	29.5*	**	43.4*

*Out of control
**Not calculable

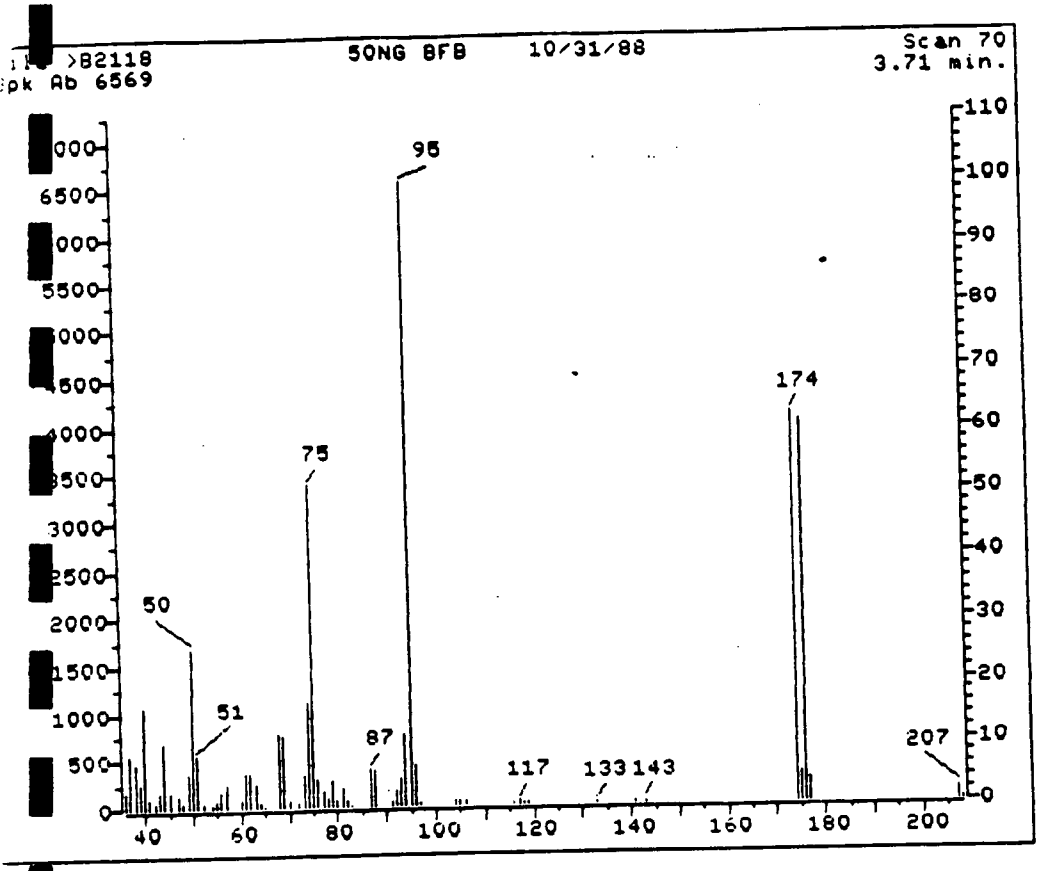


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	25.65	25.65	Ok
75	30-60% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	62.32	62.32	Ok
175	5-9% of mass 174	4.87	7.82	Ok
176	95-101% of mass 174	61.21	98.22	Ok
177	5-9% of mass 176	3.74	6.12	Ok

Injection Date: 10/31/88 Analyst: LR
Injection Time: 10:07 Processor: LR
Run No: >B2118 QC Batch: _____
Spectrum No: _____

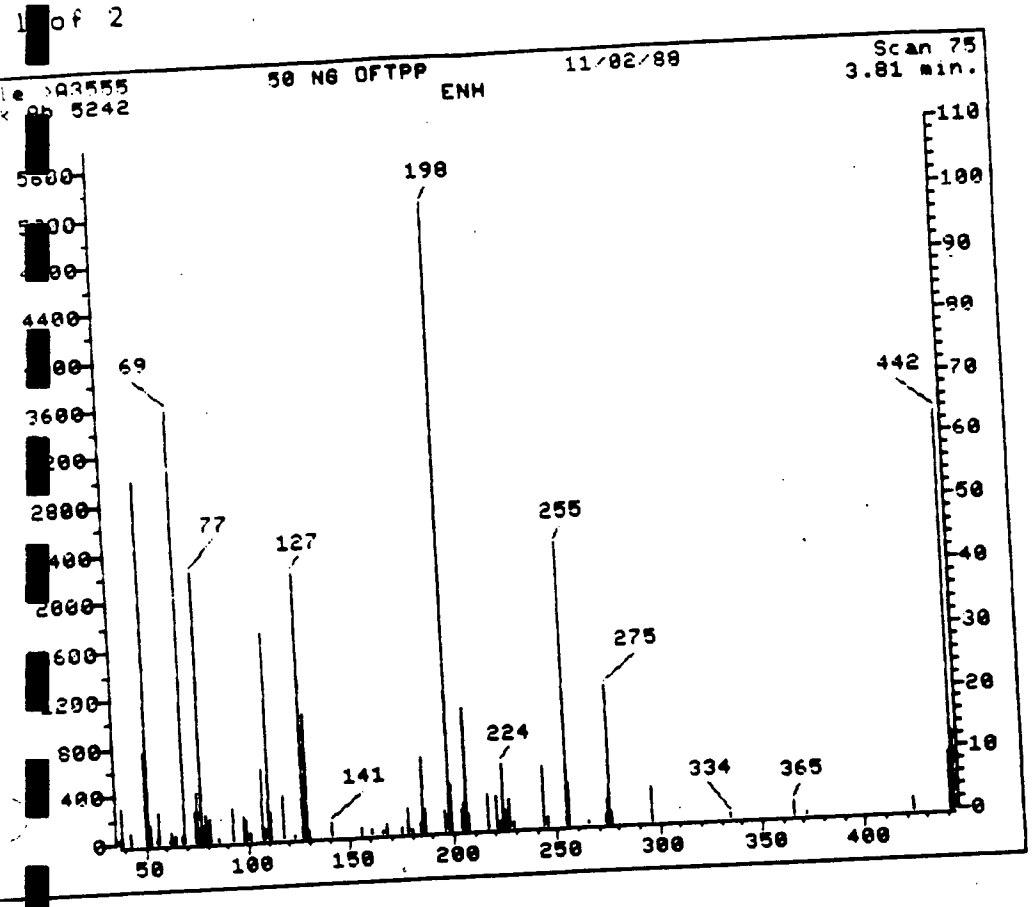


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	57.12	57.12	Ok
68	Less than 2% of mass 69	1.01	1.48	Ok
69	(reference only)	68.32	68.32	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	41.78	41.78	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.06	7.06	Ok
275	10-30% of mass 198	21.81	21.81	Ok
365	Greater than 1% of mass 198	2.32	2.32	Ok
441	0-100% of mass 443	9.15	74.20	Ok
442	Greater than 40% of mass 198	63.18	63.18	Ok
443	17-23% of mass 442	12.33	19.52	Ok

Injection Date: 11/02/88
Injection Time: 12:26
Run No: >A3555
Spectrum No: _____

Analyst: LR
Processor: LR
QC Batch: _____

Form 0019
Field Technical Services
Rev. 03/88

CHAIN-OF-CUSTODY RECORD

OHM

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJECT NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Drums~~ / Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7847915807-1	Larry Lanek	10/28/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 30

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

REVISED: 12/05/88

1445-02-032

COPY

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Solid

ANALYSIS PERFORMED:

Landfill Disposal Parameters

(Sample: PS)

DATE COMPLETED: 11/06/88

DATE RECEIVED: 10/26/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 12/5/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was and analyzed for Landfill Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 9065, Phenolics (Spectrophotometric, Manual 4-AAP with Distillation).

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed according to USEPA Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Method for Semivolatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Polychlorinated Biphenyls and Organochlorine Pesticides

Solid samples are prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 3550, Sonication or Method 3540, Soxhlet Extraction and Method 8080, Organochlorine Pesticides and PCBs.

Total and Amenable Cyanide

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

pH

Samples are tested for pH according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 9041, pH Paper Method.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Paint Filter Test

This test was performed on the samples in accordance with Method 9095, Paint Filter Liquids Test; USEPA SW-846, 2nd edition, July 1982, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

RCRA Parameters

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 303C, 3050, or 1310 as appropriate for the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).

Pesticides

Solid sample leachates were analyzed for pesticides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509A.

Herbicides

Solid sample leachates were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on sample #5763E-PS.

PROJECT 5763E

TABLE 1 - LANDFILL DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Parameter	Result
Color	Brown
Flash Point, SF, CC	> 95°C
Density	1.54 g/cm^3
pH Test	2.40 pH units
Total Sulfide	< 10 mg/Kg
Total Cyanide	< 1.0 mg/Kg
Amenable Cyanide	< 1.0 mg/Kg
Total Phenols	< 0.05 mg/Kg
Paint Filter Test	N/A
Total Solids	96.6% by weight
BTU Content	< 200 BTU/lb

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL	2,4-Dinitrotoluene	BDL
Anthracene	BDL	2,6-Dinitrotoluene	BDL
Benzidine	BDL	Dioctylphthalate	BDL
Benzo(a)anthracene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(b)fluoranthene	BDL	Fluoranthene	BDL
Benzo(k)fluoranthene	BDL	Fluorene	BDL
Benzo(g,h,i)perylene	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobutadiene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachloroethane	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachlorocyclo-pentadiene	BDL
Bis(2-chloroiso-propyl)ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
4-Bromophenyl phenyl ether	BDL	Isophorone	BDL
Butyl benzyl phthalate	BDL	Naphthalene	BDL
2-Chloronaphthalene	BDL	Nitrobenzene	BDL
4-Chlorophenyl phenyl ether	BDL	N-nitrosodi-n-propylamine	BDL
Chrysene	BDL	N-nitrosodiphenyl-amine	BDL
Dibenzo(a,h)anthracene	BDL	Phenanthrene	BDL
Di-n-butylphthalate	BLD	Pyrene	BDL
1,3-Dichlorobenzene	BDL	1,2,4-Trichloro-benzene	BDL
1,4-Dichlorobenzene	BDL		
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compounds	Concentration (mg/Kg)

No chromatographic peaks present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.04
BHC-alpha	BDL	0.04
BHC-beta	BDL	0.04
BHC-gamma	BDL	0.04
BHC-delta	BDL	0.04
Chlordane	BDL	0.4
4,4'-DDD	BDL	0.04
4,4'-DDE	BDL	0.04
4,4'-DDT	BDL	0.04
Dieldrin	BDL	0.04
Endosulfan-alpha	BDL	0.04
Endosulfan-beta	BDL	0.04
Endosulfan sulfate	BDL	0.04
Endrin	BDL	0.04
Endrin aldehyde	BDL	0.04
Heptachlor	BDL	0.04
Heptachlor expoxide	BDL	0.04
Toxaphene	BDL	0.4
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	0.3
Aroclor 1221	BDL	0.3
Aroclor 1232	BDL	0.3
Aroclor 1242	BDL	0.3
Aroclor 1248	BDL	0.3
Aroclor 1254	BDL	0.3
Aroclor 1260	BDL	0.3

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - RCRA PARAMETERS

SAMPLE IDENTIFIER: EP Toxicity Leachate; Peroxide Solid
ETC SAMPLE NUMBER: 5763E-PS

Compound	Concentration (mg/L)	Detection Limit (mg/L)
RCRA Metals		
Arsenic	0.125	0.1
Barium	10.1	0.1
Cadmium	BDL	0.1
Chromium	0.148	0.1
Lead	0.124	0.1
Mercury	BDL	0.05
Selenium	BDL	0.1
Silver	0.131	0.1
Pesticides		
Lindane	BDL	0.001
Endrin	BDL	0.001
Methoxychlor	BDL	0.01
Toxaphene	BDL	0.01
Herbicides		
2,4-D	BDL	0.01
2,4,5-TP	BDL	0.01

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total Phenols Analysis - % Recovery:

Method Spike	82.0
Calibration Spike	97.2

Total Sulfide Analysis - % Recovery:

Method spike	83.5

Total BTU Analysis - % Recovery:

Method Spike	99.4

Total Cyanide - % Recovery:

Method Spike	86.6
Calibration Spike	81.2

Chlorine Content - % Recovery:

Method Spike	97.4

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
Blank	82.4	83.7	86.1
5763E-BNS	79.9	79.3	80.6
5763E-OXS	80.3	77.4	82.2
5763E-AL	91.4	91.2	90.5
Blank	94.8	94.4	92.9
5763E-AL	82.3	81.3	82.5
5763E-PS	85.4	82.2	84.6
5763E-AS	85.2	82.5	81.1
5763E-FOL	93.7	80.1	80.9

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike % Recoveries:

Compound	Method Spike	Method Spike	6186-164 Mtx. Spk.	6186-164 Mtx. Spk. Dup.
Acrolein	104	101	*	*
Acrylonitrile	99.2	103	*	*
Benzene	104	103	102	107
Bromomethane	108	110	*	*
Bromodichloromethane	105	102	101	100
Bromoform	109	103	97.5	92.2
Carbon Tetrachloride	111	103	93.7	96.7
Chlorobenzene	110	102	92.9	96.7
Chloroethane	101	103	*	*
2-Chloroethylvinyl ether	103	106	102	102
Chloroform	103	101	99.7	105
Chloromethane	109	122	*	*
Dibromochloromethane	109	101	99.6	96.4
1,2-Dichlorobenzene	110	106	*	*
1,3-Dichlorobenzene	110	108	*	*
1,4-Dichlorobenzene	111	109	*	*
1,1-Dichloroethane	104	101	98.1	105
1,2-Dichloroethane	105	100	108	106
1,1-Dichloroethene	105	107	99.9	110
Trans-1,2-Dichloroethene	106	104	93.0	104
1,2-Dichloropropane	109	102	105	110
Cis-1,3-Dichloropropenes	106	102	99.0	101
Trans-1,3-Dichloro-propenes	106	103	98.8	95.5
Ethylbenzene	110	106	99.8	106
Methylene Chloride	109	106	83.2	90.6
1,1,2,2-Tetrachloroe-thane	109	103	96.6	97.4
Tetrachloroethene	112	107	90.1	94.8
1,1,1-Trichloroethane	108	104	99.5	100
1,1,2-Trichloroethane	107	104	103	102
Trichloroethene	108	103	98.3	99.1
Trichlorofluoromethane	112	116	95.8	99.6
Toluene	109	104	92.0	97.8
Vinyl Chloride	103	109	*	*
m+p-Xylenes (TOT.CONC.)	107	107	*	*
o-Xylene	108	107	*	*

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: see attached
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol
Blank	80.1	87.7	91.0	92.1	143
5763E-FOS	90.6	33.3*	93.1	95.0	130
5763E-AS	38.1*	45.7*	92.0	97.8	120
5763E-OXS	88.8	91.5	98.2	98.8	144
5763E-PS	66.4	70.3	98.5	100	139
5763E-BNS	90.2	92.4	85.0	96.8	147

*Low recoveries due to matrix effects

Semi-volatile Organics Analysis

Spike Blanks, % Recoveries:

Compound	Method Spike
1,4-Dichlorobenzene	97.3
2-Chlorophenol	102
Phenol	103
N-Nitroso-di-n-propylamine	102
1,2,4-Trichlorobenzene	104
4-Chloro-3-Methylphenol	103
Acenaphthene	99.1
2,4-Dinitrotoluene	104
Lindane	99.4
Di-n-butylphthalate	99.0
4-Nitrophenol	106
Phentachlorophenol	109
Pyrene	105
4,4'-DDT	102

PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs - Percent Spike Recoveries:

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
a-BHC	68.3	**	**
b-BHC	39.3*	**	**
Lindane	74.8	**	**
d-BHC	29.3*	**	**
Heptachlor	83.0	**	**
DDE	85.8	**	**
DDT	107	**	**
DDD	78.8	**	**
Endosulfan I	80.0	**	**
Aroclor 1248	84.8	89.6	95.6

*Out of control
**Not used in spiking solution

E. RCRA Pesticides/Herbicides

RCRA Pesticides - % Recoveries:

Compound	Recovery Data
Toxaphene	73.3
Lindane	78.2
Endrin	23.0
Methoxychlor	18.3

PROJECT 5763E

QC SUMMARY (CONTINUED)

RCRA Herbicides - % Recoveries:

Compound	Method Spike	Matrix Spike	Mtx. Spk. Duplicate
2,4-D	61.0	61.0	50.0
2,4,5-TP	85.0	82.0	80.0

F. RCRA Metals - EP Toxicity Leachate % Recovery:

Compound	Method Spike	5763E-BNS Mtx. Spk.	5763E-BNS Mtx. Spk. Dup.
Arsenic	96.4	94.1	95.5
Barium	98.4	91.3	90.5
Cadmium	88.6	81.5	82.0
Chromium	94.2	88.7	85.6
Iron	96.0	88.0	92.0
Lead	93.6	87.9	85.8
Selenium	90.0	89.5	88.4
Silver	29.5*	**	43.4*

*Out of control
**Not calculable

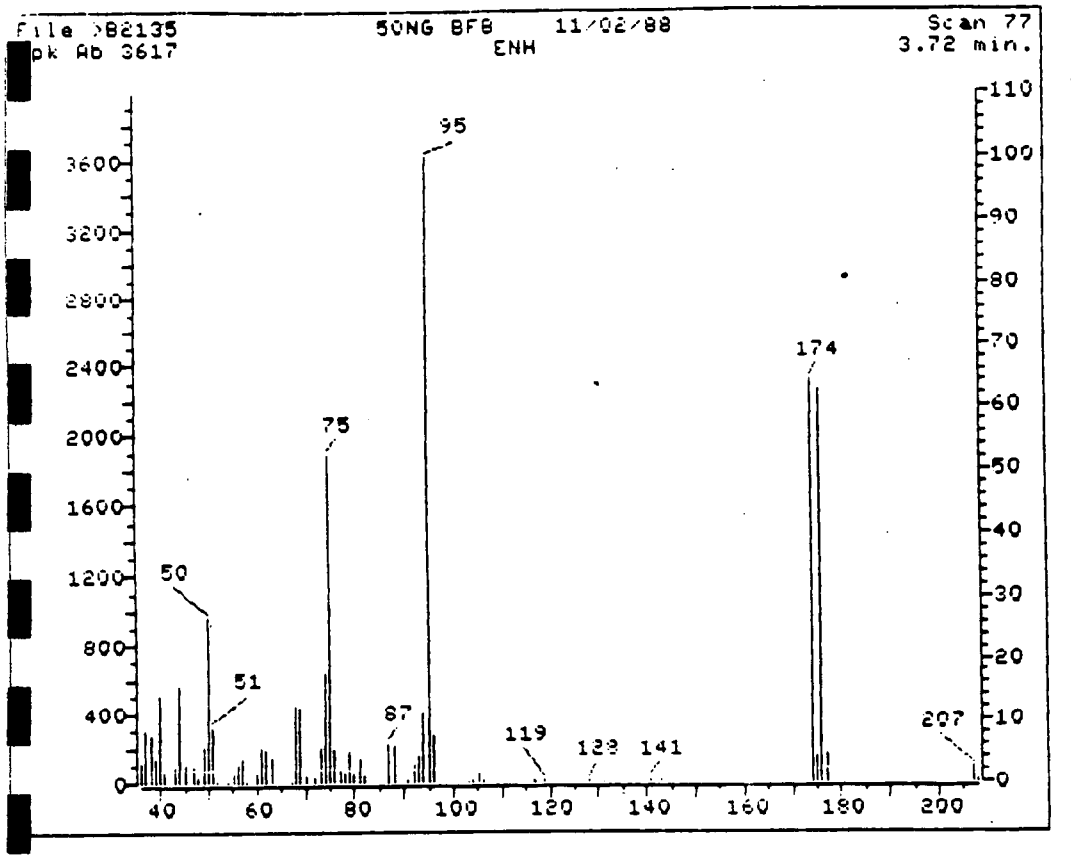


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.46	26.46	Ok
75	30-60% of mass 95	52.17	52.17	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.47	7.47	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	63.99	63.99	Ok
175	5-9% of mass 174	3.98	6.22	Ok
176	95-101% of mass 174	62.37	97.47	Ok
177	5-9% of mass 176	4.45	7.13	Ok

Injection Date: 11/02/88 Analyst: LR
Injection Time: 16:04 Processor: LR
Run No: >B2135 QC Batch: _____
Spectrum No: _____

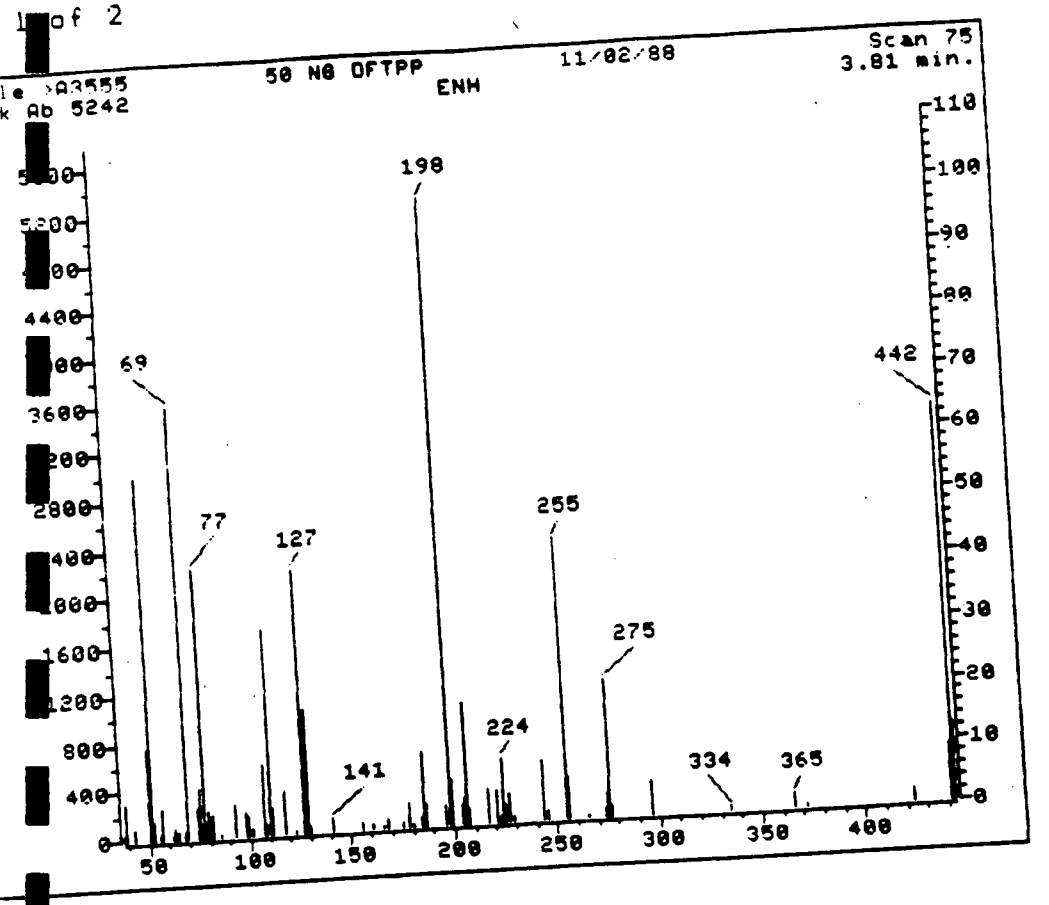


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	57.12	57.12	Ok
68	Less than 2% of mass 69	1.01	1.48	Ok
69	(reference only)	68.32	68.32	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	41.78	41.78	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.06	7.06	Ok
275	10-30% of mass 198	21.81	21.81	Ok
365	Greater than 1% of mass 198	2.32	2.32	Ok
441	0-100% of mass 443	9.15	74.20	Ok
442	Greater than 40% of mass 198	63.18	63.18	Ok
443	17-23% of mass 442	12.33	19.52	Ok

Injection Date: 11/02/88
Injection Time: 12:26
Run No: >A3555
Spectrum No: _____

Analyst: LR
Processor: LR
QC Batch: _____

Form 6019
Field Technical Services
Rev. 03/88

OHM

CHAIN-OF-CUSTODY RECORD

No. 41405

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

PROJECT NAME: ERCS - IMS
PROJECT LOCATION: Newark, NJ
PROJ. NO.: 5763E
PROJECT CONTACT: John Cafton
PROJECT TELEPHONE NO.: 201-589-8392
CLIENT'S REPRESENTATIVE: John Shaw (OSC)
PROJECT MANAGER/SUPERVISOR: Tim Brown

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	Landfill Disposal	Waste Water Disposal	Incineration Disposal	BTU's					REMARKS
1	5763-BNS	10/25/88	1400	X		Gray Solid - Bulk of Base/ Neutral Solid Drums	1	X								
2	5763-FOL	10-25	1400	X		Brown Liquid - Bulk of Flammable ~~Organic~~ Liquid Drums	1			X						
3	5763-FOS	10-25	1400	X		Gray Solid - Bulk of Flammable Solid Drums	1			X						
4	5763-AL	10-25	1400	X		Yellow Liquid - Bulk of Acid Liquid Drums	1		X							
5	5763-OXS	10-25	1400	X		Brown Solid - Bulk of Oxidizer Solid Drums	1	X			X					SOME PIECES ARE BLUE OR WHITE
6	5763-PS	10-25	1400	X		Brown Solid - Bulk of Peroxide Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
7	5763-AS	10-25	1400	X		Brown Solid - Bulk of Acid Solid Drums	1	X			X					LIGHT GRAY-BROWN COLOR
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-7	John Cafton	Fed-X		
2	1-7	Fed-X 7897195807-1	Larry Lanek	10/28/88	1050
3					
4					

REMARKS

SAMPLER'S SIGNATURE: John Cafton

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 31

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC · FINDLAY LABORATORY

CLIENT: USEPA Region II
IMF
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Soil

ANALYSIS PERFORMED:

Landfill Disposal Parameters

(Sample: 302)

DATE COMPLETED: 11/12/88

DATE RECEIVED: 11/03/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.-ETC Findlay Laboratory — 11/16/88 Date

Floor Surveying

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was analyzed for Landfill Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 9065, Phenolics (Spectrophotometric, Manual 4-AAP with Distillation).

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed according to USEPA Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Method for Semivolatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Polychlorinated Biphenyls (PCBs) - Solid/Soil

Solid samples are prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 3550, Sonication or Method 3540, Soxhlet Extraction and Method 8080, Organochlorine Pesticides and PCBs.

Total and Amenable Cyanide

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

pH

Samples are tested for pH according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 9041, pH Paper Method.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Paint Filter Test

This test was performed on the samples in accordance with Method 9095, Paint Filter Liquids Test; USEPA SW-846, 2nd edition, July 1982, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

RCRA Parameters

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).

Pesticides

Solid sample leachates were analyzed for pesticides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509A.

Herbicides

Solid sample leachates were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on sample #5763E-302.

PROJECT 5763E

TABLE 1 - LANDFILL DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Parameter	Result
Color	Brown
Flash Point, SF, CC	> 95°C
Density	0.86 g/cm^3
pH Test	6.4 pH units
Total Sulfide	< 10 mg/Kg
Total Cyanide	4.56 mg/Kg
Amenable Cyanide	1.67 mg/Kg
Total Phenols	6.16 mg/Kg
Paint Filter Test	Pass
Total Solids	82.5% by weight

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	BDL

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	500

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL	2,4-Dinitrotoluene	BDL
Anthracene	BDL	2,6-Dinitrotoluene	BDL
Benzidine	BDL	Dioctylphthalate	BDL
Benzo(a)anthracene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(b)fluoranthene	BDL	Fluoranthene	BDL
Benzo(k)fluoranthene	BDL	Fluorene	BDL
Benzo(g,h,i)perylene	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobutadiene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachloroethane	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachlorocyclo-pentadiene	BDL
Bis(2-chloroiso-propyl)ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
4-Bromophenyl phenyl ether	BDL	Isophorone	BDL
Butyl benzyl phthalate	BDL	Naphthalene	BDL
2-Chloronaphthalene	BDL	Nitrobenzene	BDL
4-Chlorophenyl phenyl ether	BDL	N-nitrosodi-n-propylamine	BDL
Chrysene	BDL	N-nitrosodiphenyl-amine	BDL
Dibenzo(a,h)anthracene	BDL	Phenanthrene	BDL
Di-n-butylphthalate	BLD	Pyrene	BDL
1,3-Dichlorobenzene	BDL	1,2,4-Trichloro-benzene	BDL
1,4-Dichlorobenzene	BDL		
1,2-Dichlorobenzene	BDL		

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Benzoic acid	BDL	500
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
Cyclohexanone	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	BDL	100
2,4,6-Trichlorophenol	BDL	100

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compounds	Concentration (mg/Kg)
Phosphoric acid, triphenyl ester	110

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.05
BHC-alpha	BDL	0.05
BHC-beta	BDL	0.05
BHC-gamma	0.053	0.05
BHC-delta	BDL	0.05
Chlordane	BDL	0.5
4,4'-DDD	0.552	0.05
4,4'-DDE	0.205	0.05
4,4'-DDT	1.76	0.05
Dieldrin	BDL	0.05
Endosulfan-alpha	BDL	0.05
Endosulfan-beta	BDL	0.05
Endosulfan sulfate	BDL	0.05
Endrin	BDL	0.05
Endrin aldehyde	BDL	0.05
Heptachlor	BDL	0.05
Heptachlor expoxide	BDL	0.05
Toxaphene	BDL	0.5
Methoxychlor	0.492	0.05
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	0.5
Aroclor 1221	BDL	0.5
Aroclor 1232	BDL	0.5
Aroclor 1242	BDL	0.5
Aroclor 1248	BDL	0.5
Aroclor 1254	BDL	0.5
Aroclor 1260	BDL	0.5

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - RCRA PARAMETERS

SAMPLE IDENTIFIER: EP Toxicity Leachate; Dirt from Sweeping Floors
ETC SAMPLE NUMBER: 5763E-302

Compound	Concentration (mg/L)	Detection Limit (mg/L)
RCRA Metals		
Arsenic	BDL	0.1
Barium	BDL	0.1
Cadmium	0.29	0.1
Chromium	BDL	0.1
Lead	0.26	0.1
Mercury	BDL	0.05
Selenium	BDL	0.1
Silver	BDL	0.1
Pesticides		
Lindane	BDL	0.001
Endrin	BDL	0.001
Methoxychlor	BDL	0.01
Toxaphene	BDL	0.01
Herbicides		
2,4-D	BDL	0.01
2,4,5-TP	BDL	0.01

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total Cyanide Analysis - % Recovery:

Spike 94

Total Phenol Analysis - % Recovery:

Spike 104

Total Sulfide Analysis - % Recovery:

Spike 89

B. Organics

Compound	Recovery
a-BHC	101
Drildrin	93
Lindane	95
Heptachlor	131
Heptachlor Epoxide	98
Aroclor 1248	88

C. Metals Analysis - % Recovery:

Compound	Spike
Arsenic	92
Barium	91
Cadmium	100
Chromium	92
Lead	98
Mercury	95
Selenium	89
Silver	43

Herbicides

2,4-D	84
2,4,5-TP	88

VOLATILE MATRIX SPIKE

QUANT REPORT

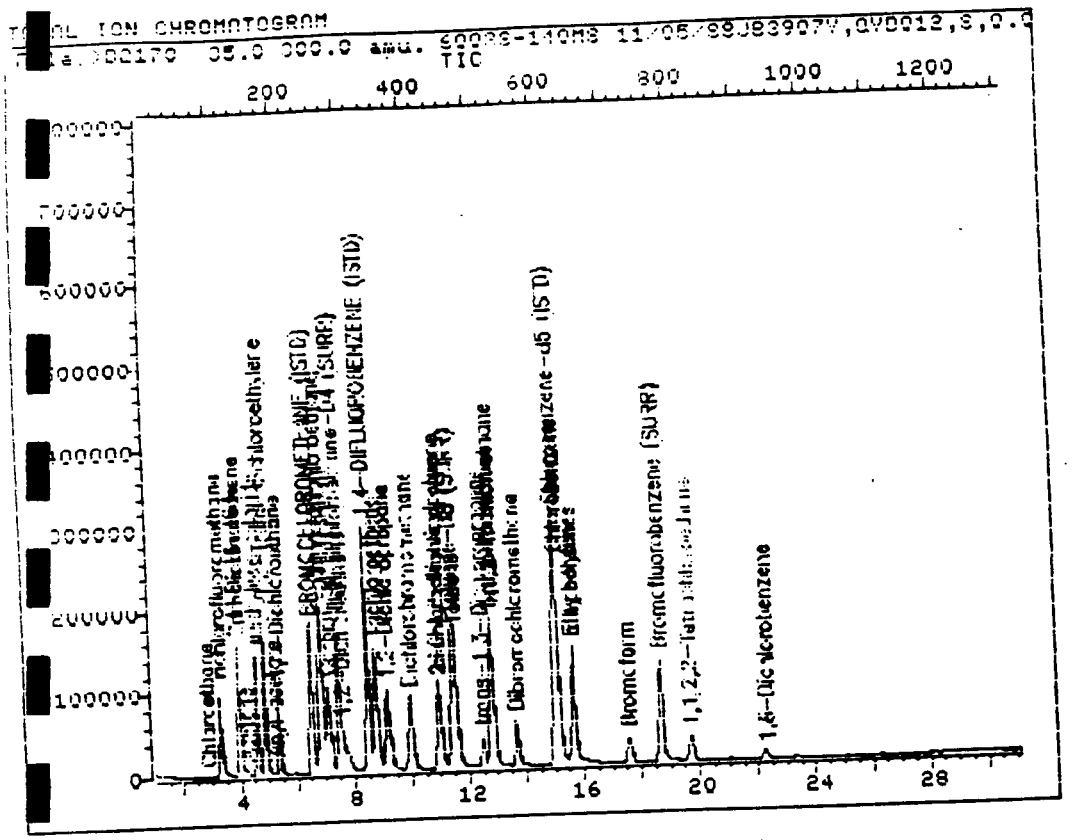
Quant Rev: 7 Quant Time: 881105 18:53
Injected at: 881105 17:13
Dilution Factor: 1.00000

Operator ID: JOE
Output File: ^82170::AQ
Data File: >82170::U3
Name: 6003S-140MS 11/05/88
Misc: JB3907V,QVD012,S,0.000864,,4UL PURGE A/B,10UL IS+2ULSURR ALS
T=40 unless otherwise specified TTN

ID File: ID 524::PF
Title: VOLATILES BY CRYO PURGE AND TRAP -METHOD 524.2
Last Calibration: 881025 08:35

	Compound	R.T.	Scan#	Area	Target Conc	Units	%Rec	q	% RPD
1)	*BROMOCHLOROMETHANE (ISTD)	6.50	240	168078	1000.00	NG		88	
2)	Acetone	4.20	140	15728	~~220.63~~	~~NG~~		81	
6)	Carbon disulfide	3.93	128	938	~~.698~~	~~NG~~		87	
7)	Chloroethane	2.82	80	1013	~~3.65~~	~~NG~~		58	
8)	Chloroform	6.82	254	374306	431.49	NG	108	83	3.6
10)	1,1-Dichloroethane	5.35	190	357091	436.23	NG	109	98	5.3
11)	1,2-Dichloroethane	7.60	288	139090	435.94	NG	109	97	2.7
12)	1,1-Dichloroethene	3.93	128	182558	450.86	NG	113	92	1.75
13)	1,2-Trans-dichloroethylene	4.84	168	202904	428.88	NG	107	79	1.85
16)	Methylene chloride	4.57	156	158076	353.11	NG	88.3	77	2.68
18)	Trichlorofluoromethane	3.28	100	364307	456.50	NG	114	97	2.66
20)	1,2-Dichloroethane-D4 (SURR)	7.46	282	1429645 00	521.86	NG	104	79	4.1
22)	*1,4-DIFLUOROBENZENE (ISTD)	8.47	326	1076219	1000.00	NG		97	
23)	Benzene	7.46	282	494709	451.84	NG	113	83	1.75
24)	Dichlorobromomethane	9.94	390	292628	434.31	NG	109	98	0.91
25)	Bromoform	17.55	721	71812	429.51	NG	107	95	0
26)	Carbon tetrachloride	7.10	266	272531	484.47	NG	121	97	0.8
27)	2-Chloroethylvinyl ether	10.93	433	46711	446.40	NG	112	91	1.80
28)	Dibromochloromethane	13.67	552	155478	436.11	NG	109	91	1.85
29)	1,2-Dichloropropane	9.16	356	190586	439.60	NG	110	98	0.91
30)	cis-1,3-Dichloropropene	10.96	434	2740574 80	517.89	NG	108	98	0.92
31)	trans-1,3-Dichloropropene	12.45	499	99274 320	354.44	NG	111	83	0
35)	1,1,1-Trichloroethane	6.84	255	320571	447.39	NG	112	99	0.89
36)	1,1,2-Trichloroethane	12.82	515	84861	443.92	NG	111	94	0.90
37)	Trichloroethene	8.77	339	216995	430.04	NG	108	94	0.9
38)	Vinyl acetate	5.21	184	2338	~~7.47~~	~~NG~~		49	
40)	*Chlorobenzene-d5 (ISTD)	15.04	612	700760	1000.00	NG		98	
41)	Chlorobenzene	15.11	615	343030	414.31	NG	104	72	1.9
42)	1,3-Dichlorobenzene	22.28	927	1659	~~2.64~~	~~NG~~		96	
43)	1,4-Dichlorobenzene	22.28	927	1659	~~2.49~~	~~NG~~		96	
45)	Ethylbenzene	15.64	638	173356	431.78	NG	108	98	0.9
48)	1,1,2,2-Tetrachloroethane	19.66	813	103762	425.45	NG	106	97	0
49)	Tetrachloroethene	12.79	514	167731	418.36	NG	105	92	0.9
50)	Toluene	11.55	460	320093	418.94	NG	105	97	0.9
51)	m+p-Xylenes	15.64	638	173356	~~320.27~~	~~NG~~		72	
54)	Bromofluorobenzene (SURR)	18.65	769	275327 500	502.51	NG	101	79	10.5
55)	Toluene-D8 (SURR)	11.41	454	569745 500	519.92	NG	104	95	9.8

* Compound is ISTD



Data File: >B2170::U3 Quant Output File: ^B2170::AQ
Name: 6003S-140MS 11/05/88
Misc: JB3907V,QVD012,S,0.000864,,4UL PURGE A/B,10UL IS+2ULSURR ALS

Id File: ID 524::PF
Title: VOLATILES BY CRYO PURGE AND TRAP -METHOD 524.2
Last Calibration: 881025 08:35

Operator ID: JOE
Quant Time: 881105 18:53
Injected at: 881105 17:13

QUANT REPORT

Quant Rev: 7 Quant Time: 881105 18:57

Operator ID: JOE Injected at: 881105 18:13

Output File: ^B2171::AQ Dilution Factor: 1.00000

Data File: >B2171::U3

Name: 6003S-140MSD11/05/88

Misc: JB3907V,QVD012,S,0.000864,,4UL PURGE A/B,10UL IS+2ULSURR ALS

T=400 unless otherwise specified MM

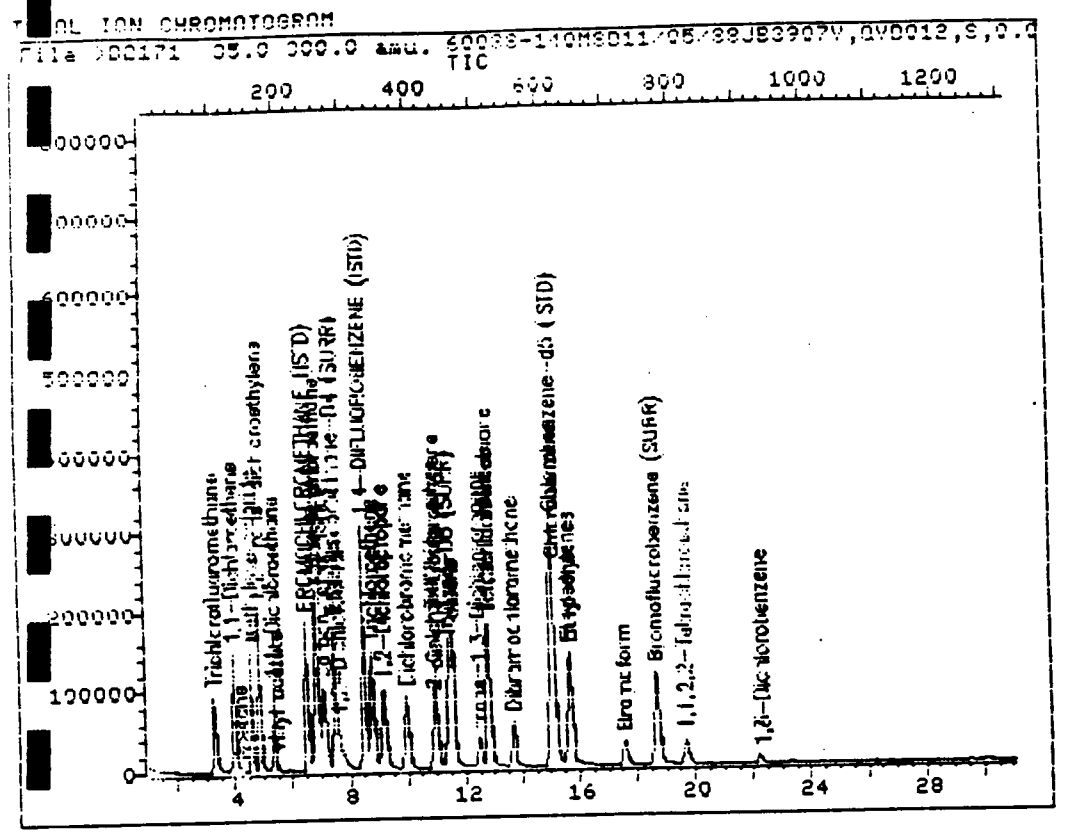
ID File: ID 524::PF

Title: VOLATILES BY CRYO PURGE AND TRAP -METHOD 524.2

Last Calibration: 881025 08:35

	Compound	R.T.	Scan#	Area	Target Conc	Units	%Rec	q
1)	*BROMOCHLOROMETHANE (ISTD)	6.49	239	162665	1000.00	NG	—	88
2)	Acetone	4.17	138	1827	~~26.48~~	~~NG~~		70
8)	Chloroform	6.81	253	377726	449.92	NG	112	83
10)	1,1-Dichloroethane	5.34	189	360911	455.57	NG	114	97
11)	1,2-Dichloroethane	7.59	287	138089	447.21	NG	112	96
12)	1,1-Dichloroethene	3.94	128	180414	460.39	NG	115	91
13)	1,2-Trans-dichloroethylene	4.84	167	199894	436.57	NG	109	78
16)	Methylene chloride	4.58	156	157195	362.82	NG	90.7	77
18)	Trichlorofluoromethane	3.27	99	361348	467.86	NG	117	97
20)	1,2-Dichloroethane-D4 (SURR)	7.45	281	1323565	500 499.21	NG	99.8	81
22)	*1,4-DIFLUOROBENZENE (ISTD)	8.46	325	1078962	1000.00	NG	—	97
23)	Benzene	7.45	281	504698	459.80	NG	115	83
24)	Dichlorobromomethane	9.96	390	297673	440.68	NG	110	98
25)	Bromoform	17.54	720	71896	428.92	NG	107	95
26)	Carbon tetrachloride	7.06	264	271751	481.85	NG	120	98
27)	2-Chloroethylvinyl ether	10.90	431	46149	439.91	NG	110	91
28)	Dibromochloromethane	13.66	551	153393	429.17	NG	107	90
29)	1,2-Dichloropropane	9.15	355	189050	434.94	NG	109	97
30)	cis-1,3-Dichloropropene	10.95	433	272000	480 522.12	NG	109	98
31)	trans-1,3-Dichloropropene	12.44	498	99547	320 354.51	NG	111	84
35)	1,1,1-Trichloroethane	6.83	254	325399	452.97	NG	113	98
36)	1,1,2-Trichloroethane	12.78	513	84436	440.58	NG	110	94
37)	Trichloroethene	8.76	338	217458	429.87	NG	107	93
38)	Vinyl acetate	5.43	193	77^	~~.245~~	~~NG~~		95
40)	*Chlorobenzene-d5 (ISTD)	15.04	611	708354	1000.00	NG		97
41)	Chlorobenzene	15.10	614	340440	406.78	NG	102	84
42)	1,3-Dichlorobenzene	22.27	926	707	~~1.11~~	~~NG~~		85
43)	1,4-Dichlorobenzene	22.27	926	707	~~1.05~~	~~NG~~		85
45)	Ethylbenzene	15.63	637	173402	427.26	NG	107	97
48)	1,1,2,2-Tetrachloroethane	19.65	812	104775	425.00	NG	106	98
49)	Tetrachloroethene	12.78	513	169268	417.66	NG	104	91
50)	Toluene	11.54	459	322764	417.91	NG	104	97
51)	m+p-Xylenes	15.63	637	173402	~~316.93~~	~~NG~~		72
54)	Bromofluorobenzene (SURR)	18.64	768	253700	500 458.07	NG	91.6	78
55)	Toluene-D8 (SURR)	11.38	452	521854	500 471.11	NG	94.2	95

* Compound is ISTD



Data File: >B2171::U3 Quant Output File: ^B2171::AQ
Name: 6003S-140MSD11/05/88
Misc: JB3907V,QVD012,S,0.000864,,4UL PURGE A/B,10UL IS+2ULSURR ALS

Id File: ID 524::PF
Title: VOLATILES BY CRYO PURGE AND TRAP -METHOD 524.2
Last Calibration: 881025 08:35

Operator ID: JOE
Quant Time: 881105 18:57
Injected at: 881105 18:13

OHM O.H. Materials Corp.
16406 U.S. Route 224 East
Findlay, Ohio 45839-0551
419-423-3526

CHAIN-OF-CUSTODY RECORD

№ 40060

PROJECT LOCATION	NAME OF CLIENT	PROJECT TELEPHONE NO	PROJECT NUMBER
Newark, NJ	U.S. EPA Region 2	(201) 589-8392	5763 E

ITEM NUMBER	SAMPLE NUMBER	NUMBER & SIZE OF CONTAINERS	DESCRIPTION	TRANSFER NUMBER & CHECK 1	2	3	4	5	6	7
1	5763-302	1-32oz jar	Brown Solid, Dirt from Sweeping Floors 11/2/88 1100 JC/BC	✓	✓					

Person Responsible for sample	Affiliation	Date	Time
JOHN CAYTON	OHM	11/2	1600

Purpose of analysis (use back of front sheet if necessary)

LANDFILL
DISPOSAL
ANALYSIS

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1	John F Cayton	Federal Express	11/2	1700
2	1	Fed-x 9964803973	Larry Lanich	11/3/88	1030
3					
4					
5					
6					
7					

REFERENCE NO. 32

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

CLIENT: USEPA Region II
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E **SAMPLE TYPE:** Solid

ANALYSIS PERFORMED:

Incineration Disposal Parameters

(Sample: 301)

DATE COMPLETED: 5-26-89 **DATE RECEIVED:** 5-04-89

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr., ETC-Findlay Laboratory 5/30/89 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

ETC-Findlay Laboratory received 1 sample from OHM Corporation (OHMC). This sample was acquired by their technical personnel and transferred to the laboratory complete with Chain-of- Custody Record(s), a copy of which is attached for reference. This sample was analyzed for Incineration Disposal parameters.

2. ANALYTICAL METHODOLOGY

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984). Mercury was prepared and analyzed by Method 7470 or 7471; Manual Cold Vapor Techniques.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Ash Content

The ash content of the samples was determined by either ASTM E830-81, Test Method for Ash in the Analysis Samples of Refuse-Derived Fuel (RDF-3), Section II, Vol. 11.04, or by ASTM D482-80 Test Method for Ash from Petroleum Products, Section 5, Vol. 05.01.

PROJECT 5763E

SUMMARY REPORT OF ANAYTICAL SERVICES

Sulfur Content

The sulfur content of the samples was determined by either ASTM E775-81, Test Methods for Total Sulfur in the Analysis Sample of Refuse-Derived Fuel, Section II, Vol. 11.04, or by ASTM D129-64 (1978), Test Method for Sulfur in Petroleum Products (General Bomb Method), Section 5, Vol. 05.01.

Pesticides and PCB Content

Samples were prepared by Method 3510, 3540, or 3550 as appropriate; and analyzed according to Method 8080 of USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982.

Chlorine Content

The samples were analyzed for percent chlorine according to American Society for Testing and Materials, Section 5, Method D808-81, Chlorine in New and Used Petroleum Products (Bomb Method.

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples are performed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables are prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8270, GC/MS Methods for Semi-Volatile Organics.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Oxidizers

All water soluble or partially water soluble samples were tested for oxidizing strength by a spot test with potassium iodide and starch paper.

Peroxides

All samples were tested for the presence of peroxides by using commercially available peroxide test strips.

pH

All samples that were water soluble were tested with pH strips to determine if they were corrosive as per EPA 600/4-84-038 (May 1984); Characterization of Hazardous Waste Sites, Vol. III.

3. ANALYTICAL RESULTS

The following tables detail the analytical results for sample #5763E-301.

PROJECT 5763E

TABLE 1 - INCINERATION DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Drum #301, Brown Solid
ETC SAMPLE NUMBER: 5763E-301

Parameter	Result
Color	Brown
Number of Phases	1
Percent by volume of phases	Solid
Physical state of phases	100
Density	0.910 g/cm^3
Flash Point, SF, CC	> 93°C
pH Test	4.5 pH units
BTU Content	224 BTU/lb
Ash Content	72.2 % by weight
Chlorine Content	0.263 % by weight
Sulfur Content	0.163 % by weight
Total Solids	96.3 % by weight
Oxidizer Spot Test	Negative
Peroxide	< 50 mg/kg

MAY 23, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Volatiles (JR05)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	890503	0

QJS034

Compound	Results: Sample Concen. mg/kg	Results: MDL mg/kg	Results: Blank Data mg/kg
Acetone	60.5	45.0	BDL
Acrolein	BDL	90.1	BDL
Acrylonitrile	BDL	90.1	BDL
Benzene	BDL	9.01	BDL
Bromoform	BDL	9.01	BDL
Carbon disulfide	BDL	9.01	BDL
Carbon tetrachloride	BDL	9.01	BDL
Chlorobenzene	BDL	9.01	BDL
2-Chloro-1,3-butadiene	BDL	9.01	BDL
Chlorodibromomethane	BDL	9.01	BDL
Chloroethane	BDL	9.01	BDL
Chloroform	BDL	9.01	BDL
2-Chloroethylvinyl ether	BDL	9.01	BDL
3-Chloropropene	BDL	9.01	BDL
1,2-Dibromo-3-chloropropane	BDL	9.01	BDL
Dichlorobromomethane	BDL	9.01	BDL
1,4-Dichloro-2-butene	BDL	9.01	BDL
Dichlorodifluoromethane	BDL	9.01	BDL
1,1-Dichloroethane	BDL	9.01	BDL
1,2-Dichloroethane	BDL	9.01	BDL
1,1-Dichloroethylene	BDL	9.01	BDL
trans-1,2-Dichloroethene	BDL	9.01	BDL
1,2-Dichloropropane	BDL	9.01	BDL
cis-1,3-Dichloropropylene	BDL	9.01	BDL
trans-1,3-Dichloropropylene	BDL	9.01	BDL
Dibromomethane	BDL	9.01	BDL
Ethylbenzene	BDL	9.01	BDL
Ethylene dibromide	BDL	9.01	BDL
2-Hexanone	BDL	9.01	BDL
Iodomethane	BDL	9.01	BDL
Methyl bromide	BDL	9.01	BDL
Methyl chloride	BDL	9.01	BDL
Methylene chloride	BDL	9.01	BDL
Methyl ethyl ketone	BDL	9.01	BDL
Methyl-iso-butyl ketone	BDL	9.01	BDL
Styrene	BDL	9.01	BDL
1,1,1,2-Tetrachloroethane	BDL	9.01	BDL
1,1,2,2-Tetrachloroethane	BDL	9.01	BDL
Tetrachloroethylene	BDL	9.01	BDL

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MAY 23, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Volatiles (JR05)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	890503		0

QVS034

Compound	Results: Sample Concen. mg/kg	Results: MDL mg/kg	Results: Blank Data mg/kg
Tetrahydrofuran	BDL	9.01	BDL
Toluene	BDL	9.01	BDL
1,1,1-Trichloroethane	BDL	9.01	BDL
1,1,2-Trichloroethane	BDL	9.01	BDL
Trichloroethylene	BDL	9.01	BDL
Trichlorofluoromethane	BDL	9.01	BDL
1,2,3-Trichloropropane	BDL	9.01	BDL
Vinyl acetate	BDL	45.0	BDL
Vinyl chloride	BDL	9.01	BDL
m+p-Xylenes	9.49	9.01	BDL
o-Xylene	BDL	9.01	BDL

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PROJECT 5763E

TABLE 3 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Drum #301, Brown Solid
ETC SAMPLE NUMBER: 5763E-301

CAS #	Compounds	Retention Time (min)	Estimated Concentration (mg/kg)
111762	Ethanol, 2-butoxy-	21.38	20.8
95498	Benzene, 1-chloro-2-methyl-	22.00	11.1

mg/kg = ppm (parts-per-million)

MAY 24, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	890503		0

QC2338

Compound	Results: Sample Concen. mg/kg	MDL mg/kg	Blank Data mg/kg
Acenaphthene	BDL	9.84	BDL
Acenaphthylene	BDL	9.84	BDL
Anthracene	BDL	9.84	BDL
Benzoic acid	BDL	9.84	BDL
Benzyl alcohol	BDL	9.84	BDL
Benzo(a)anthracene	BDL	9.84	BDL
Benzo(b)fluoranthene	BDL	9.84	BDL
tris(2,3-Dibromopropyl)phos	BDL	9.84	BDL
Benzo(k)fluoranthene	BDL	9.84	BDL
Benzo(ghi)perylene	BDL	9.84	BDL
Benzo(a)pyrene	BDL	9.84	BDL
bis(2-Chloroethoxy)ethane	BDL	9.84	BDL
bis(2-Chloroethyl) ether	BDL	9.84	BDL
bis(2-Chloroethoxy)methane	BDL	9.84	BDL
bis(2-Chloroisopropyl)ether	BDL	9.84	BDL
bis(2-Ethylhexyl)phthalate	1050	98.4	BDL
4-Bromophenyl phenyl ether	BDL	9.84	BDL
Butyl benzyl phthalate	1800	98.4	BDL
4-Chloroaniline	BDL	9.84	BDL
p-Chloro-m-cresol	BDL	9.84	BDL
2-Chloronaphthalene	BDL	9.84	BDL
2-Chlorophenol	BDL	9.84	BDL
4-Chlorophenyl phenyl ether	BDL	9.84	BDL
3-Chloropropionitrile	BDL	9.84	BDL
Chrysene	BDL	9.84	BDL
Dibenzo(a,h)anthracene	BDL	9.84	BDL
Dibenzofuran	BDL	9.84	BDL
Di-n-butyl phthalate	30.7	9.84	BDL
1,2-Dichlorobenzene	BDL	9.84	BDL
1,3-Dichlorobenzene	BDL	9.84	BDL
1,4-Dichlorobenzene	BDL	9.84	BDL
3,3'-Dichlorobenzidine	BDL	9.84	BDL
2,4-Dichlorophenol	45.3	9.84	BDL
2,6-Dichlorophenol	10.0	9.84	BDL
Diethyl phthalate	BDL	9.84	BDL
Dimethyl phthalate	BDL	9.84	BDL
2,4-Dimethylphenol	BDL	9.84	BDL
4,6-Dinitro-o-cresol	BDL	49.2	BDL
2,4-Dinitrophenol	BDL	49.2	BDL

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MAY 24, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	890503		0

QC2338

Compound	Results: Sample Concen. mg/kg	MDL mg/kg	Blank Data mg/kg
2,4-Dinitrotoluene	BDL	9.84	BDL
2,6-Dinitrotoluene	BDL	9.84	BDL
Di-n-octyl phthalate	BDL	9.84	BDL
Fluoranthene	BDL	9.84	BDL
Fluorene	14.0	9.84	13.1
Hexachlorobenzene	BDL	9.84	BDL
Hexachlorobutadiene	BDL	9.84	BDL
Hexachlorocyclopentadiene	BDL	9.84	BDL
Hexachloroethane	BDL	9.84	BDL
Hexachloropropene	BDL	9.84	BDL
Indeno(1,2,3-c,d)pyrene	BDL	9.84	BDL
Isophorone	169	9.84	BDL
4,4'-Methylenebis(2-chloroa	BDL	9.84	BDL
2-Methylnaphthalene	19.2	9.84	BDL
2-Methylphenol	BDL	9.84	BDL
4-Methylphenol	BDL	9.84	BDL
N-Nitrosodimethylamine	BDL	9.84	BDL
N-Nitrosodi-n-propylamine	BDL	9.84	BDL
N-Nitrosodiphenylamine	BDL	9.84	BDL
Naphthalene	31.6	9.84	BDL
2-Nitroaniline	BDL	9.84	BDL
3-Nitroaniline	BDL	9.84	BDL
4-Nitroaniline	BDL	9.84	BDL
Nitrobenzene	BDL	9.84	BDL
2-Nitrophenol	BDL	9.84	BDL
4-Nitrophenol	BDL	49.2	BDL
Pentachlorobenzene	BDL	9.84	BDL
Pentachloronitrobenzene	BDL	9.84	BDL
Pentachlorophenol	BDL	49.2	BDL
Pentachloroethane	BDL	9.84	BDL
Phenanthrene	BDL	9.84	BDL
Phenol	BDL	9.84	BDL
Pronamide	BDL	9.84	BDL
Pyrene	BDL	9.84	BDL
1,2,4,5-Tetrachlorobenzene	BDL	9.84	BDL
2,3,4,6-Tetrachlorophenol	BDL	9.84	BDL
1,2,4-Trichlorobenzene	BDL	9.84	BDL
2,4,5-Trichlorophenol	BDL	9.84	BDL
2,4,6-Trichlorophenol	12.7	9.84	BDL

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PROJECT 5763E

TABLE 5 - TENTATIVELY IDENTIFIED SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Drum #301, Brown Solid
ETC SAMPLE NUMBER: 5763E-301

CAS #	Compounds	Retention Time (min)	Estimated Concentration (mg/kg)
N/A	Non-priority pollutant unidentified compounds	N/A	2,620
N/A	Hydrocarbons (unidentified)		
	Gasoline range	N/A	620
	Diesel range	N/A	2,670
N/A	Benzene, 1-chloro-methyl-(total)	N/A	442
N/A	Ethanone, alkyl substituted	14.46	182
1011127	Cyclohexanone, 2-cyclohexylidene-	20.7	70.7
108941	Cyclohexanone	7.00	6,690
57103	Hexadecanoic acid	26.88	43.5
111762	Ethanol, 2-butoxy-	7.56	93.4
1241947	Phosphoric acid, 2-ethylhexyl diphenyl ester	32.41	22.5
93185	Naphthalene, 2-ethoxy	20.80	36.2
104767	1-Hexanol, 2-ethyl	11.05	80.3
N/A	Tri-P-cresyl Phosphate	34.94	19.0
74367343	Propanoic acid, 2-methyl-, 3-hydroxy-2,4,4-trimethyl pentyl ester	18.15	31.4
111159	Ethanol, 2-ethoxy-,acetate	7.79	70.7
932661	Ethanone, 1-(1-cyclohexen-l-yl)-	12.85	33.0
141797	3-penten-2-one, 4-methyl-	3.99	49.4
6238637	Acetic acid, pentyl ester	7.91	42.8
115866	Phosphoric acid, triphenyl ester	32.10	8.21
591786	2-hexanone	3.79	32.1
N/A	Trans/trans-photocitral	15.98	16.3
80057	Phenol, 4,4'-(1-methylethylidene)bis-	29.55	6.00
N/A	2-Cyclohexen-1-one	8.19	21.0
N/A	Non-priority pollutant unidentified compounds	30.29	239

N/A = Not applicable
mg/kg = ppm (parts-per-million)

PROJECT 5763E

TABLE 6 - PCBS, PESTICIDES, AND HERBICIDES

SAMPLE IDENTIFIER: Drum #301, Brown Solid
ETC SAMPLE NUMBER: 5763E-301

Compound	Concentration (mg/kg)	Detection Limit (mg/kg)
Polychlorinated Biphenyls		
Aroclor 1016	BDL	1.25
Aroclor 1221	BDL	1.25
Aroclor 1232	BDL	1.25
Aroclor 1242	BDL	1.25
Aroclor 1248	BDL	1.25
Aroclor 1254	4.17	1.25
Aroclor 1260	2.73	1.25
Pesticides		
Aldrin	BDL	4.80
BHC-alpha	BDL	4.80
BHC-beta	BDL	4.80
BHC-gamma	BDL	4.80
BHC-delta	BDL	4.80
Chlordane	BDL	48
4,4'-DDD	BDL	4.80
4,4'-DDE	BDL	4.80
4,4'-DDT	BDL	4.80
Dieldrin	BDL	4.80
Endosulfan-alpha	BDL	4.80
Endosulfan-beta	BDL	4.80
Endosulfan sulfate	BDL	4.80
Endrin	BDL	4.80
Endrin aldehyde	BDL	4.80
Heptachlor	BDL	4.80
Heptachlor expoxide	BDL	4.80
Toxaphene	BDL	48
Herbicides		
2,4-D	BDL	0.1
2,4,5-T	BDL	0.1
2,4,5-TP	BDL	0.1

mg/kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - TOTAL METALS FOR INCINERATION DISPOSAL

SAMPLE IDENTIFIER: Drum #301, Brown Solid
ETC SAMPLE NUMBER: 5763E-301

Compound	Concentration (mg/kg)	Detection Limit (mg/kg)
Antimony	BDL	62.5
Arsenic	BDL	62.5
Barium	31.6	12.5
Beryllium	BDL	6.25
Cadmium	35.6	6.25
Chromium	409	6.25
Copper	85.7	6.25
Iron	487,000	10
Lead	1,300	25
Manganese	1,860	6.25
Mercury	4.18	0.2
Molybdenum	69.5	6.25
Nickel	65.6	6.25
Potassium	BDL	1,250
Selenium	BDL	25
Silver	BDL	6.25
Sodium	2,090	625
Thallium	BDL	62.5
Vanadium	BDL	6.25
Zinc	74.4	12.5

NOTE: Elevated detection limits due to high iron content
mg/kg = ppm (parts-per-million)
BDL = Below Detection Limit

QC SUMMARY

PROJECT 5763E

QC SUMMARY

A. BTU Content - % Recovery:

Method Spike	103

Chlorine Content - % Recovery:

Method Spike	106

Sulfur Content - % Recovery:

Method Spike	99.5

TABLE 2: METHOD PERFORMANCE DATA

Surrogate Recovery

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	89050		0

Compound	Amount added ug	% Recovery	Control Limits Lower	Control Limits Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	1.25	104	76.0	114
Bromofluorobenzene	1.25	97	86	120
Toluene-D8	1.25	95	88	110
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	987	94	35	110
2-Fluorobiphenyl	995	98	43	120
Terphenyl-D14	0	0	30	100
ACID FRACTION (GC/MS)				
Phenol-D6	1990	25	10	90
2-Fluorophenol	2000	41	21	100
2,4,6-Tribromophenol	2000	51	10	120
Dibutylchlorendate	-	-	-	-

TABLE 2: METHOD PERFORMANCE DATA

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Surrogate Recovery

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	89050	0

Compound	Amount added ug	% Recovery	Control Limits Lower	Control Limits Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	1.25	92	70	120
Bromofluorobenzene	1.25	104	74.0	121
Toluene-D8	1.25	99	81	120
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	4940	109	23.0	120
2-Fluorobiphenyl	4970	113	30.0	115
Terphenyl-D14	0	0	20	100
ACID FRACTION (GC/MS)				
Phenol-D6	9930	100	24.0	113
2-Fluorophenol	10000	133	25.0	121
2,4,6-Tribromophenol	10000	159	19.0	122
Dibutylchlorendate	-	-	-	-

TABLE 1: QUALITY ASSURANCE DATA

Priority Pollutant Volatiles (JR01)

Chain of Custody Data Required for ETC Data Management Summary Reports

QVS034

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate		
	Blank Data mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD
Benzene	BDL	5.00	103	BDL	4.74	108	5.13	5.01	2
Bromoform	BDL	5.00	96	BDL	4.74	98	4.66	5.07	8
Carbon tetrachloride	BDL	5.00	93	BDL	4.74	93	4.40	4.40	.2
Chlorobenzene	BDL	5.00	98	BDL	4.74	103	4.90	4.75	3
Chlorodibromomethane	BDL	5.00	97	BDL	4.74	98	4.65	5.04	8
Chloroethane	BDL	5.00	95	BDL	4.74	96	4.53	4.28	6
Chloroform	BDL	5.00	107	BDL	4.74	109	5.17	5.00	3
2-Chloroethylvinyl ether	BDL	5.00	125	BDL	4.74	129	6.13	6.50	6
Dichlorobromomethane	BDL	5.00	97	BDL	4.74	101	4.77	4.93	3
1,1-Dichloroethane	BDL	5.00	105	BDL	4.74	107	5.09	4.82	5
1,2-Dichloroethane	BDL	5.00	105	BDL	4.74	106	5.00	5.14	3
1,1-Dichloroethylene	BDL	5.00	116	BDL	4.74	120	5.69	5.32	7
trans-1,2-Dichloroethene	BDL	5.00	106	BDL	4.74	113	5.35	4.91	9
1,2-Dichloropropane	BDL	5.00	98	BDL	4.74	101	4.78	4.85	1
cis-1,3-Dichloropropylene	BDL	6.00	95	BDL	5.69	100	5.71	5.84	2
trans-1,3-Dichloropropylene	BDL	4.00	93	BDL	3.79	99	3.74	3.95	5
Ethylbenzene	BDL	5.00	110	BDL	4.74	112	5.30	5.02	5
Methyl bromide	BDL	5.00	39	BDL	4.74	66	3.13	3.14	.2
Methyl chloride	BDL	5.00	101	BDL	4.74	97	4.62	4.44	4
Methylene chloride	BDL	5.00	96	BDL	4.74	102	4.94	4.68	5
1,1,2,2-Tetrachloroethane	BDL	5.00	77	BDL	4.74	96	4.53	4.91	8
Tetrachloroethylene	BDL	5.00	107	BDL	4.74	113	5.37	5.05	6
Toluene	BDL	5.00	107	BDL	4.74	112	5.29	4.98	6
1,1,1-Trichloroethane	BDL	5.00	111	BDL	4.74	114	5.40	5.31	2
1,1,2-Trichloroethane	BDL	5.00	97	BDL	4.74	98	4.65	5.02	7
Trichloroethylene	BDL	5.00	117	BDL	4.74	109	5.15	5.04	2
Trichlorofluoromethane	BDL	5.00	113	BDL	4.74	113	5.37	5.12	5
Vinyl chloride	BDL	5.00	91	BDL	4.74	89	4.20	3.98	5

MAY 19, 1989

TABLE 1: QUALITY ASSURANCE DATA

Disposal Semi-Volatiles (JR06)

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Chain of Custody Data Required for ETC Data Management Summary Reports

QC2343

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate		
	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov	First mg/l	Second mg/l	RPD
Acenaphthene	BDL	2.00	111	-	-	-	BDL	BDL	0
Acenaphthylene	BDL	2.00	109	-	-	-	BDL	BDL	0
Anthracene	BDL	2.00	109	-	-	-	BDL	BDL	0
Benzoic acid	BDL	2.00	100	-	-	-	BDL	BDL	0
Benzyl alcohol	BDL	2.00	106	-	-	-	BDL	BDL	0
Benzo(a)anthracene	BDL	2.00	105	-	-	-	BDL	BDL	0
Benzo(b)fluoranthene	BDL	2.00	95	-	-	-	BDL	BDL	0
tris(2,3-Dibromopropyl)phos	BDL	4.52	99	-	-	-	BDL	BDL	0
Benzo(k)fluoranthene	BDL	2.00	104	-	-	-	BDL	BDL	0
Benzo(ghi)perylene	BDL	2.00	87	-	-	-	BDL	BDL	0
Benzo(a)pyrene	BDL	2.00	100	-	-	-	BDL	BDL	0
bis(2-Chloroethoxy)ethane	BDL	2.15	93	-	-	-	BDL	BDL	0
bis(2-Chloroethyl) ether	BDL	2.00	108	-	-	-	BDL	BDL	0
bis(2-Chloroethoxy)methane	BDL	2.00	103	-	-	-	BDL	BDL	0
bis(2-Chloroisopropyl)ether	BDL	2.00	77	-	-	-	BDL	BDL	0
bis(2-Ethylhexyl)phthalate	BDL	2.00	112	-	-	-	BDL	BDL	0
4-Bromophenyl phenyl ether	BDL	2.00	105	-	-	-	BDL	BDL	0
Butyl benzyl phthalate	BDL	2.00	117	-	-	-	BDL	BDL	0
4-Chloroaniline	BDL	2.00	118	-	-	-	BDL	BDL	0
p-Chloro-m-cresol	BDL	2.00	103	-	-	-	BDL	BDL	0
2-Chloronaphthalene	BDL	2.00	109	-	-	-	BDL	BDL	0
2-Chlorophenol	BDL	2.00	116	-	-	-	BDL	BDL	0
4-Chlorophenyl phenyl ether	BDL	2.00	102	-	-	-	BDL	BDL	0
3-Chloropropionitrile	BDL	1.67	90	-	-	-	BDL	BDL	0
Chrysene	BDL	2.00	106	-	-	-	BDL	BDL	0
Dibenzo(a,h)anthracene	BDL	2.00	90	-	-	-	BDL	BDL	0
Dibenzofuran	BDL	2.00	106	-	-	-	BDL	BDL	0
Di-n-butyl phthalate	BDL	2.00	114	-	-	-	BDL	BDL	0
3,3'-Dichlorobenzidine	BDL	2.00	104	-	-	-	BDL	BDL	0
2,4-Dichlorophenol	BDL	2.00	102	-	-	-	BDL	BDL	0
2,6-Dichlorophenol	BDL	3.00	109	-	-	-	BDL	BDL	0
Diethyl phthalate	BDL	2.00	110	-	-	-	BDL	BDL	0
Dimethyl phthalate	BDL	2.00	108	-	-	-	BDL	BDL	0
2,4-Dimethylphenol	BDL	2.00	110	-	-	-	BDL	BDL	0
4,6-Dinitro-o-cresol	BDL	2.00	125	-	-	-	BDL	BDL	0
2,4-Dinitrophenol	BDL	2.00	102	-	-	-	BDL	BDL	0
2,4-Dinitrotoluene	BDL	2.00	110	-	-	-	BDL	BDL	0
2,6-Dinitrotoluene	BDL	2.00	112	-	-	-	BDL	BDL	0
Di-n-octyl phthalate	BDL	2.00	106	-	-	-	BDL	BDL	0

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TABLE 1: QUALITY ASSURANCE DATA

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

QC2343

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov	First mg/l	Second mg/l	RPD	
Fluoranthene	BDL	2.00	108	-	-	-	BDL	BDL	0	
Fluorene	BDL	2.00	105	-	-	-	BDL	BDL	~~200~~ 0	LR
Hexachlorobenzene	BDL	2.00	103	-	-	-	BDL	BDL	0	
Hexachlorobutadiene	BDL	2.00	94	-	-	-	BDL	BDL	0	
Hexachlorocyclopentadiene	BDL	2.00	112	-	-	-	BDL	BDL	0	
Hexachloroethane	BDL	2.00	111	-	-	-	BDL	BDL	0	
Hexachloropropene	BDL	5.95	106	-	-	-	BDL	BDL	0	
Indeno(1,2,3-c,d)pyrene	BDL	2.00	90	-	-	-	BDL	BDL	0	
Isophorone	BDL	2.00	102	-	-	-	4720	5220	10	
4,4'-Methylenebis(2-chloroa	BDL	3.13	104	-	-	-	BDL	BDL	0	
2-Methylnaphthalene	BDL	2.00	104	-	-	-	BDL	BDL	0	
2-Methylphenol	BDL	2.00	108	-	-	-	BDL	BDL	0	
4-Methylphenol	BDL	2.00	106	-	-	-	BDL	BDL	0	
N-Nitrosodimethylamine	BDL	2.00	104	-	-	-	BDL	BDL	0	
N-Nitrosodi-n-propylamine	BDL	2.00	95	-	-	-	BDL	BDL	0	
N-Nitrosodiphenylamine	BDL	2.00	113	-	-	-	BDL	BDL	0	
Naphthalene	BDL	2.00	112	-	-	-	BDL	BDL	0	
2-Nitroaniline	BDL	2.00	107	-	-	-	BDL	BDL	0	
3-Nitroaniline	BDL	2.00	118	-	-	-	BDL	BDL	0	
4-Nitroaniline	BDL	2.00	111	-	-	-	BDL	BDL	0	
Nitrobenzene	BDL	2.00	105	-	-	-	BDL	BDL	0	
2-Nitrophenol	BDL	2.00	112	-	-	-	BDL	BDL	0	
4-Nitrophenol	BDL	2.00	121	-	-	-	BDL	BDL	0	
Pentachlorobenzene	BDL	2.25	97	-	-	-	BDL	BDL	0	
Pentachloronitrobenzene	BDL	6.05	104	-	-	-	BDL	BDL	0	
Pentachlorophenol	BDL	2.00	109	-	-	-	BDL	BDL	0	
Pentachloroethane	-	-	-	-	-	-	-	-	-	
Phenanthrene	BDL	2.00	112	-	-	-	BDL	BDL	0	
Phenol	BDL	2.00	109	-	-	-	BDL	BDL	0	
Pronamide	BDL	3.13	114	-	-	-	BDL	BDL	0	
Pyrene	BDL	2.00	104	-	-	-	BDL	BDL	0	
1,2,4,5-Tetrachlorobenzene	BDL	2.07	103	-	-	-	BDL	BDL	0	
2,3,4,6-Tetrachlorophenol	BDL	2.40	84	-	-	-	BDL	BDL	0	
1,2,4-Trichlorobenzene	BDL	2.00	101	-	-	-	BDL	BDL	0	
2,4,5-Trichlorophenol	BDL	2.00	106	-	-	-	BDL	BDL	0	
2,4,6-Trichlorophenol	BDL	2.00	107	-	-	-	BDL	BDL	0	

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PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs Spike Recoveries (%): #300

Compound	Method Spike
Aroclor 1260	101
a-BHC	92.8
Lindane	92.8
b-BHC	91.5
Heptachlor	90.2
d-BHC	92.2
Aldrin	72.0
Heptachlor Epoxide	88.5
Endosulfin I	84.8
4,4'-DDE	82.5
Dieldrin	81.8
Endrin	86.2
4,4-DDD	80.8
Endosulfin II	74.5
4,4'-DDT	92.5
Endrin Aldehyde	57.5
Endosulfin sulfate	72.2
Methoxychlor	89.7
DBC	83.5

PROJECT 5763E

QC SUMMARY (CONTINUED)

Pesticides and PCBs Spike Recoveries (%): #301

Compound	Method Spike
Aroclor 1260	113
a-BHC	70.2
Lindane	91.2
b-BHC	91.2
Heptachlor	70.2
d-BHC	83.2
Aldrin	70.2
Heptachlor Epoxide	81.0
Endosulfan I	82.2
4,4'-DDE	82.2
Dieldrin	82.2
Endrin	81.2
4,4-DDD	69.2
Endosulfan II	92.5
4,4'-DDT	100
Endrin Aldehyde	126
Endosulfan sulfate	100
Methoxychlor	100
DBC	110

E. RCRA Herbicides Recoveries (%): #300

Compound	% Recovery
2,4-D	158
2,4,5-TP	110
2,4,5-T	153

RCRA Herbicides Recoveries (%): #301

Compound	% Recovery
2,4-D	111
2,4,5-TP	107
2,4,5-T	105

PROJECT 5763E

QC SUMMARY (CONTINUED)

F. Metals Recoveries (%): #300

Compound	MTX SPK	MTX SPK DUP	MTD SPK
Antimony	87.8	81.0	83.4
Arsenic	86.5	93.0	83.0
Barium	86.0	89.5	82.5
Beryllium	86.0	90.0	84.0
Cadmium	90.0	98.0	84.0
Calcium	NS	NS	NS
Chromium	88.5	87.5	85.0
Cobalt	NS	NS	NS
Copper	85.6	88.0	88.4
Iron	DL	DL	101
Lead	75.8	83.8	81.0
Magnesium	NS	NS	NS
Manganese	DL	DL	83.4
Mercury	95	96	114
Nickel	DL	DL	91.2
Potassium	NS	NS	NS
Selenium	84.5	91.0	80.5
Silver	35.0	52.5	103
Sodium	NS	NS	NS
Thallium	77.5	84.0	83.0
Vanadium	87.0	91.8	79.0
Zinc	DL	DL	96.2
Molybdenum	DL	DL	81.2

DL = Diluted
NS = Not Spiked

PROJECT 5763E

QC SUMMARY (CONTINUED)

Metals Recoveries (%): #301

Compound	MTX SPK	MTX SPK DUP	MTD SPK
Antimony	77.6	NS	87.2
Arsenic	80.2	79.2	85.3
Barium	85.2	84.8	95.8
Beryllium	93.6	NS	94.0
Cadmium	92.0	94.4	95.2
Calcium	NS	NS	NS
Chromium	51.9	54.8	93.5
Cobalt	76.2	NS	95.6
Copper	77.8	NS	93.6
Iron	NS	NS	NS
Lead	122	121	97.2
Magnesium	NS	NS	NS
Manganese	NS	NS	92.4
Mercury	NS	NS	114
Nickel	56.6	NS	90.0
Potassium	NS	NS	NS
Selenium	81.8	81.0	86.6
Silver	86.0	86.0	100
Sodium	NS	NS	NS
Thallium	77.0	NS	92.6
Vanadium	65.2	NS	94.4
Zinc	20	NS	94.4
Molybdenum	83.6	NS	93.6

NS = Not Spiked

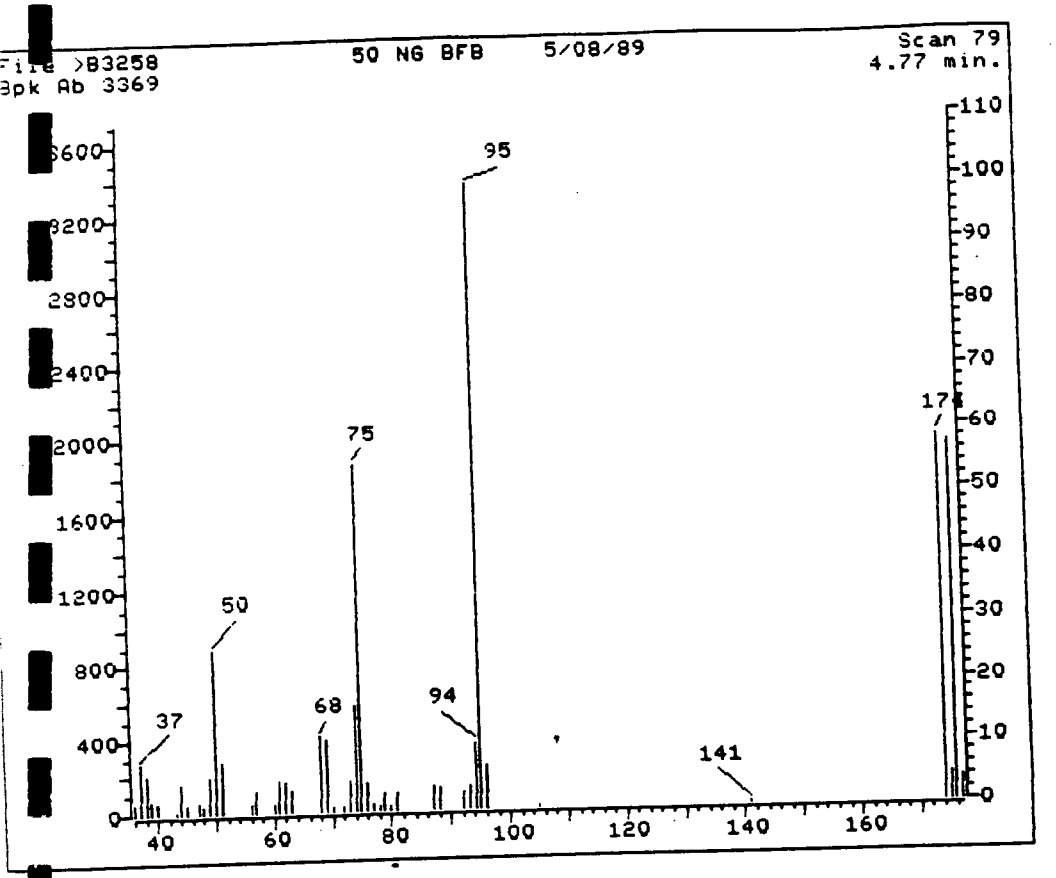


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.06	26.06	Ok
75	30-60% of mass 95	55.15	55.15	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.80	6.80	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	58.21	58.21	Ok
175	5-9% of mass 174	4.27	7.34	Ok
176	95-101% of mass 174	57.08	98.06	Ok
177	5-9% of mass 176	3.89	6.81	Ok

Injection Date: 05/08/89 Analyst: LR
Injection Time: 10:37 Processor: LR
Run No: >B3258 QC Batch: _____
Spectrum No: _____

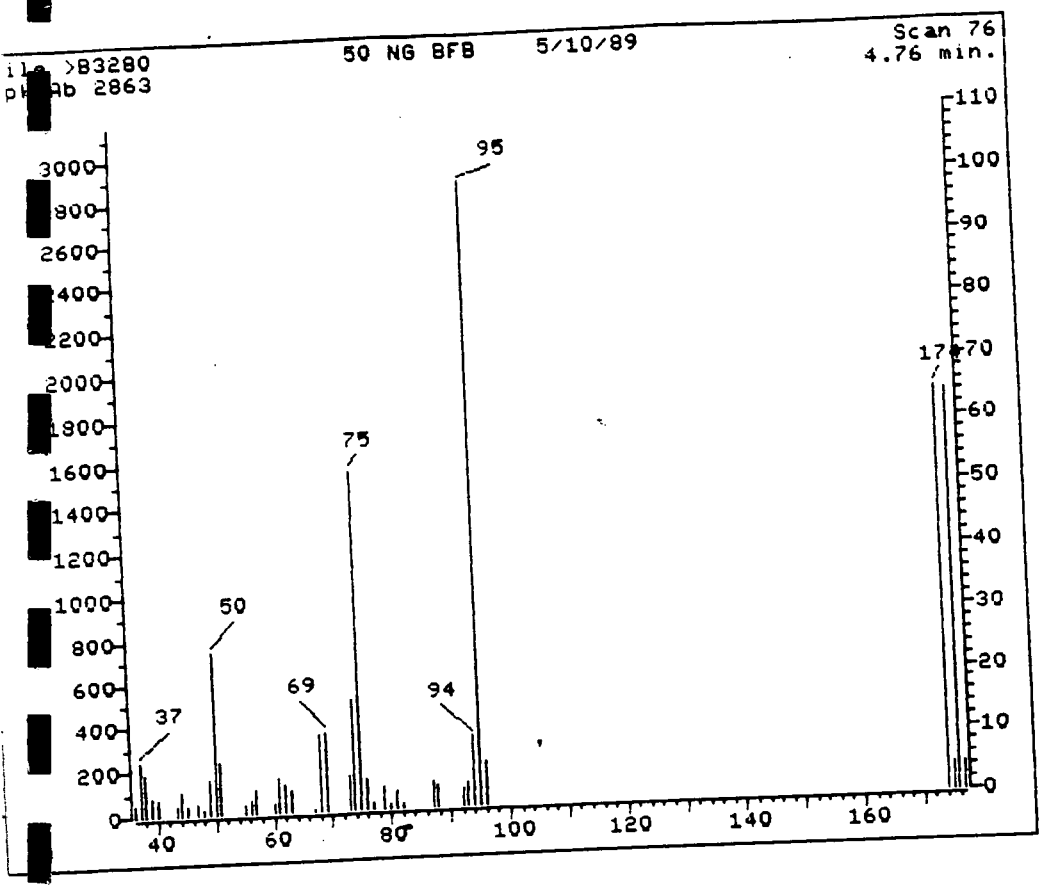


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	25.92	25.92	Ok
75	30-60% of mass 95	54.10	54.10	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.78	6.78	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	64.51	64.51	Ok
175	5-9% of mass 174	4.44	6.88	Ok
176	95-101% of mass 174	64.09	99.35	Ok
177	5-9% of mass 176	4.26	6.65	Ok

Injection Date: 05/10/89 Analyst: LR
Injection Time: 08:33 Processor: LR
Run No: >B3280 QC Batch: _____
Spectrum No: _____

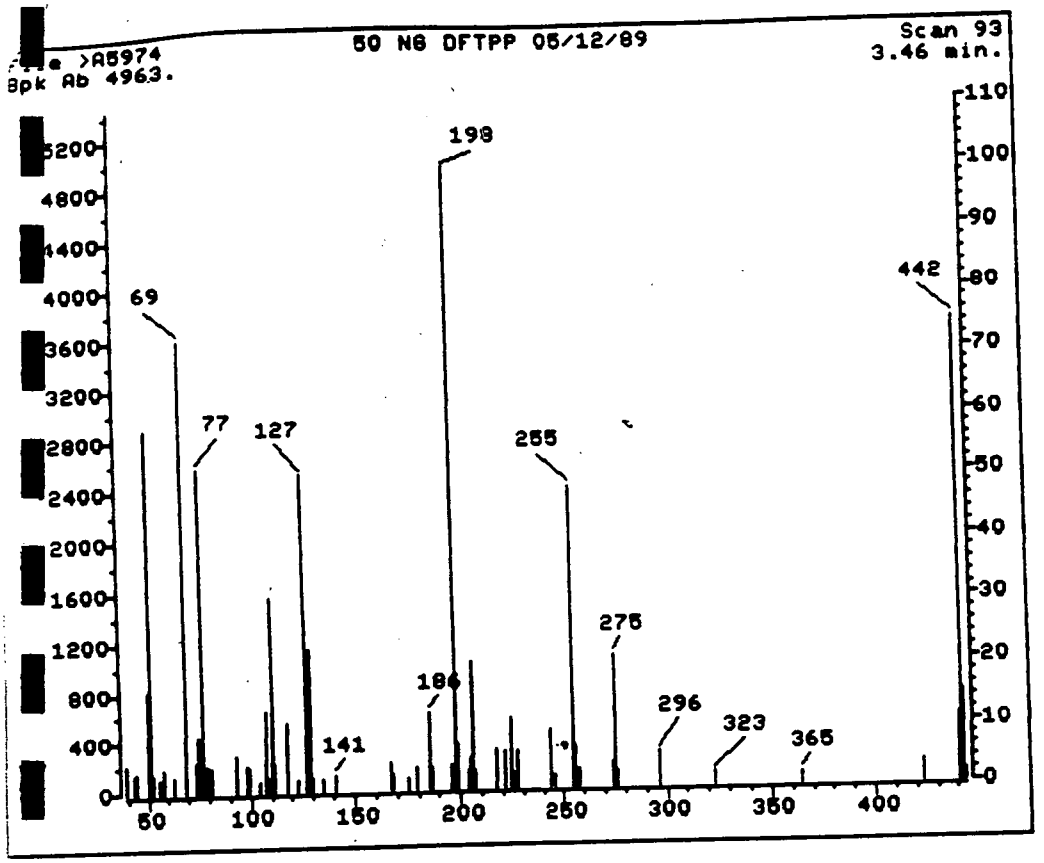


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	58.09	58.09	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	72.48	72.48	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	50.70	50.70	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.23	7.23	Ok
275	10-30% of mass 198	21.08	21.08	Ok
365	Greater than 1% of mass 198	1.85	1.85	Ok
441	0-100% of mass 443	10.80	74.65	Ok
442	Greater than 40% of mass 198	74.43	74.43	Ok
443	17-23% of mass 442	14.47	19.44	Ok

Injection Date: 05/12/89 Analyst: LR
Injection Time: 09:22 Processor: LR
Run No: >A5974 QC Batch: _____
Spectrum No: _____

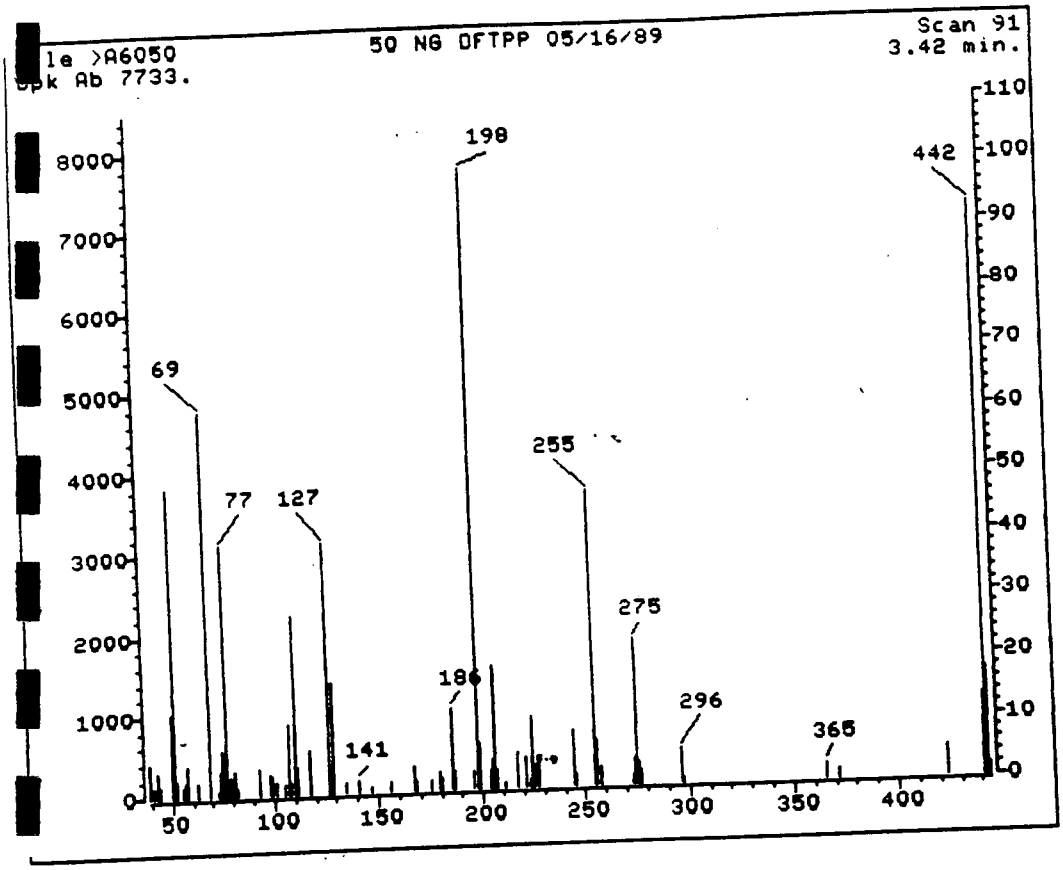
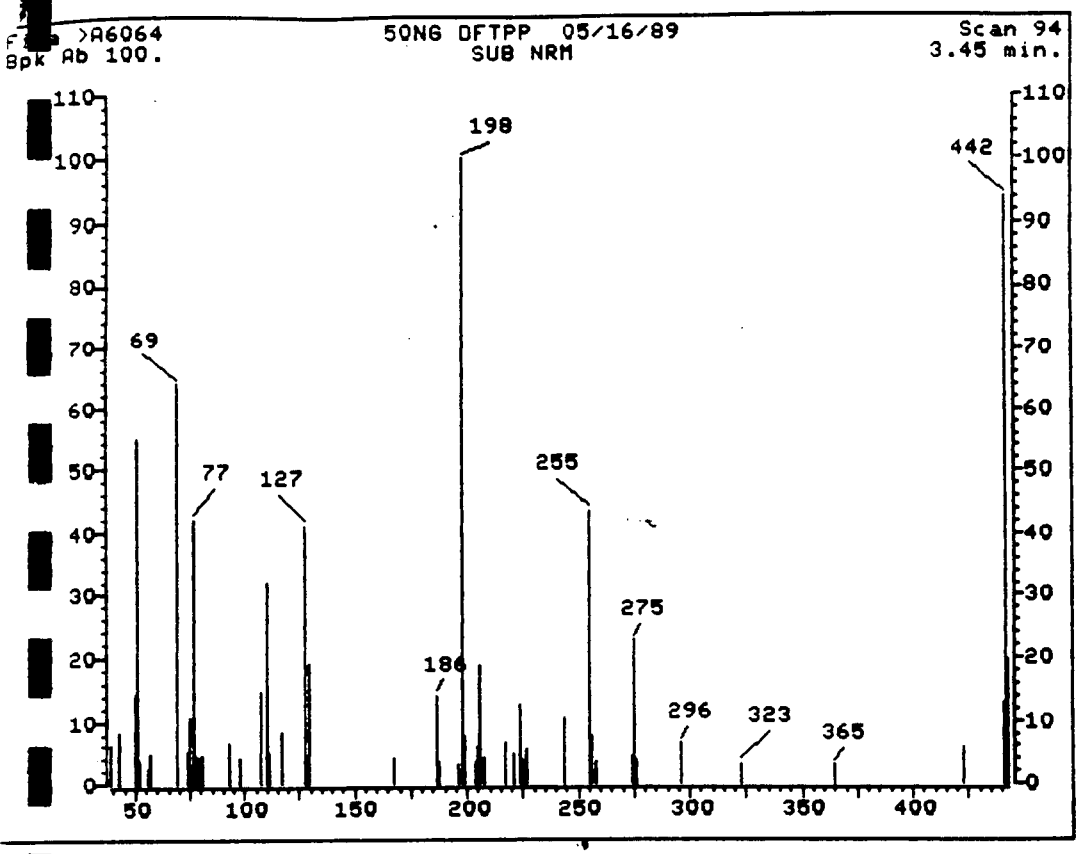


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	49.40	49.40	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	61.46	61.46	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	40.15	40.15	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.11	7.11	Ok
275	10-30% of mass 198	23.34	23.34	Ok
365	Greater than 1% of mass 198	2.48	2.48	Ok
441	0-100% of mass 443	13.19	75.50	Ok
442	Greater than 40% of mass 198	92.33	92.33	Ok
443	17-23% of mass 442	17.47	18.92	Ok

Injection Date: 05/16/89 Analyst: LR
Injection Time: 07:43 Processor: LR
Run No: >A6050 QC Batch: _____
Spectrum No: _____



>A6064 50NG DFTPP 05/16/89
94 SUB NRM

File: >A6064 Scan #: 94 Retn. time: 3.45

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
39.00	6.037	77.00	42.028	126.95	41.094	205.95	18.546	274.05	4.603
43.00	8.072	78.00	4.436	127.95	4.069	207.05	4.103	275.05	22.682
50.00	14.276	79.00	4.270	128.95	19.079	216.95	6.338	275.95	3.736
51.00	54.736	80.00	3.836	166.95	4.270	220.95	4.837	295.95	6.438
52.00	3.936	81.00	4.636	186.05	14.009	223.95	12.675	323.05	3.169
66.00	2.468	92.90	6.404	186.95	3.536	224.95	3.869	365.00	3.035
67.00	4.803	98.00	4.169	195.95	3.035	226.95	5.504	423.00	5.971
68.90	63.943	107.00	14.777	197.95	100.000	244.05	10.540	441.10	12.875
74.00	5.070	109.95	31.821	198.95	7.605	254.95	43.429	442.10	93.963
75.00	10.407	110.95	4.770	203.95	3.469	255.95	7.505	443.10	19.680
76.00	2.935	116.95	8.272	204.95	5.771	257.95	3.536		

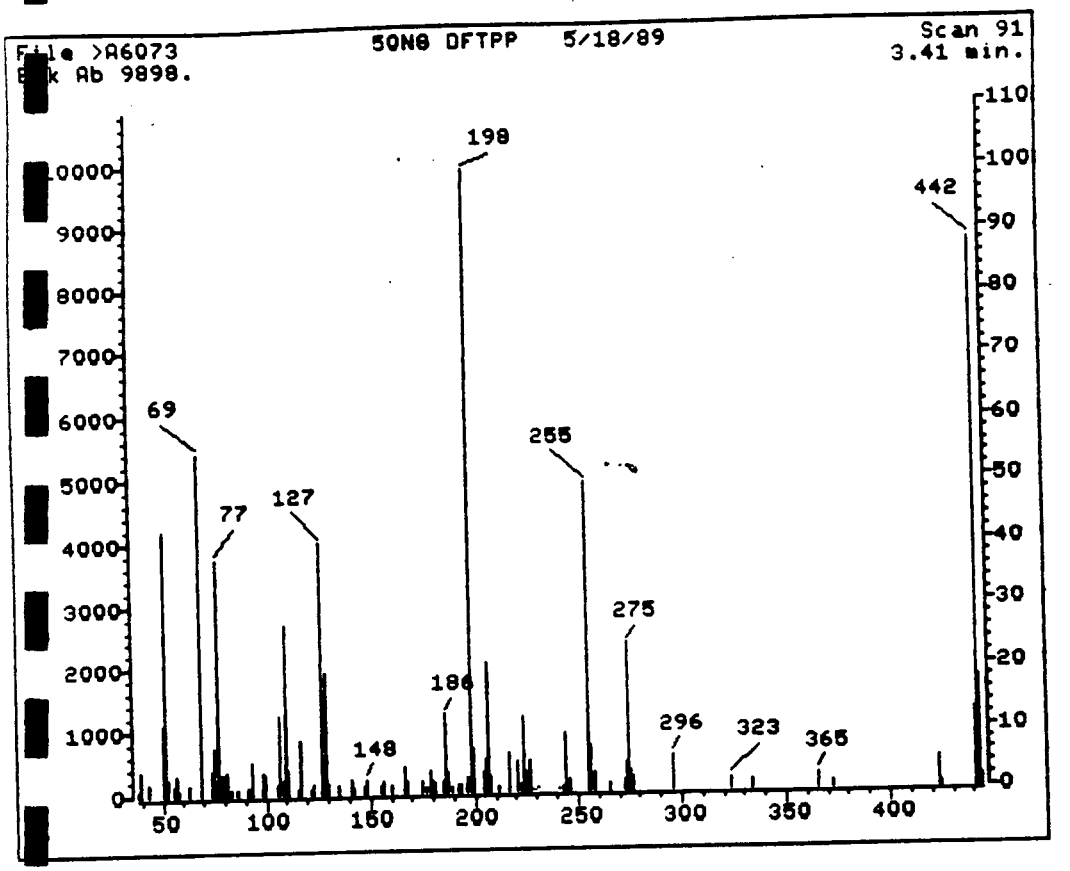


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	42.34	42.34	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	54.65	54.65	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	40.24	40.24	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.72	6.72	Ok
275	10-30% of mass 198	23.70	23.70	Ok
365	Greater than 1% of mass 198	2.54	2.54	Ok
441	0-100% of mass 443	12.44	70.91	Ok
442	Greater than 40% of mass 198	87.97	87.97	Ok
443	17-23% of mass 442	17.54	19.94	Ok

Injection Date: 05/18/89 Analyst: LR
Injection Time: 08:41 Processor: LR
Run No: >A6073 QC Batch: _____
Spectrum No: _____

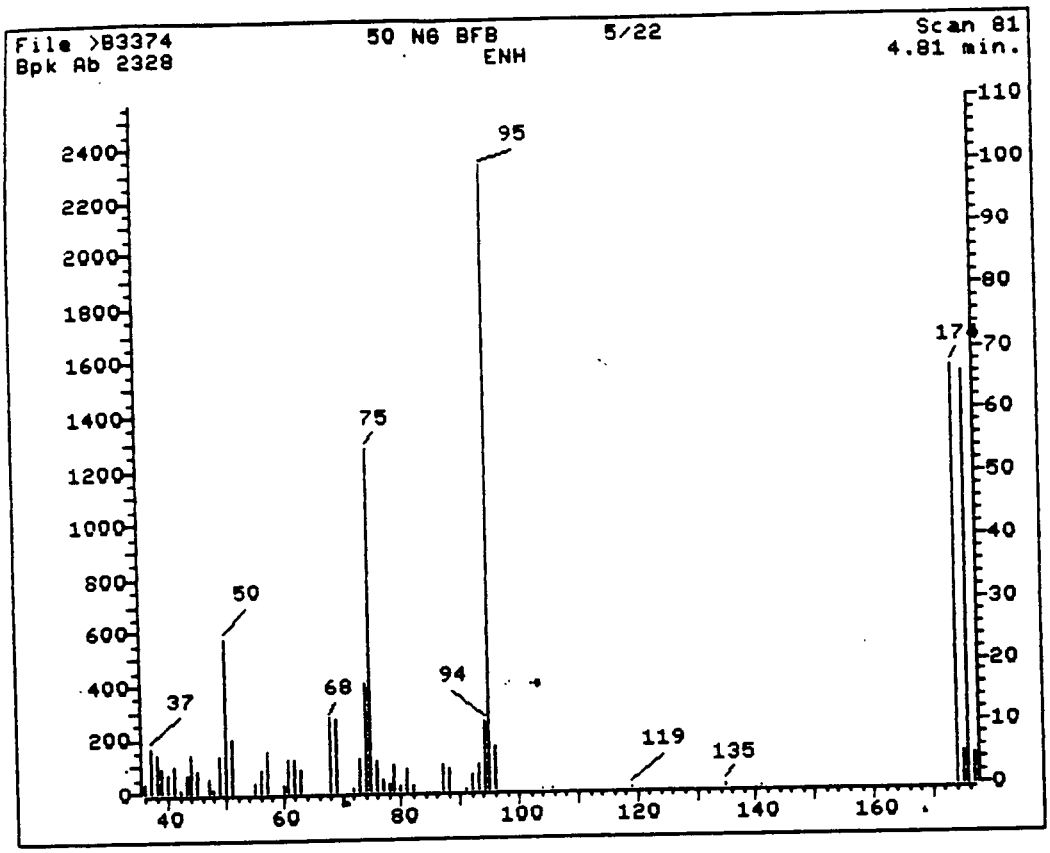


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	24.63	24.63	Ok
75	30-60% of mass 95	54.78	54.78	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.65	6.65	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	66.90	66.90	Ok
175	5-9% of mass 174	4.98	7.45	Ok
176	95-101% of mass 174	65.95	98.57	Ok
177	5-9% of mass 176	4.62	7.01	Ok

Injection Date: 05/22/89 Analyst: _____
Injection Time: 09:39 Processor: _____
Run No: >B3374 QC Batch: _____
Spectrum No: _____

OHM

CHAIN-OF-CUSTODY RECORD

Form 00[illegible]
Field Technical Services
Rev. 06/88

No. 47943

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

PROJECT NAME: IMS
PROJECT LOCATION: Newark NJ
PROJ. NO.: 5763E
PROJECT CONTACT: Lonnie Quinn / JR Kelly
PROJECT TELEPHONE NO.: ~~609 4~~ 301-287-2383
CLIENT'S REPRESENTATIVE: USEPA - OSC John Shaw
PROJECT MANAGER/SUPERVISOR: ERCS.

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): INCINERATOR DISPOSAL ANALYSIS; LANDFILL ANALYSIS

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	INCINERATOR DISPOSAL ANALYSIS	LANDFILL ANALYSIS	REMARKS
1	5763-300	5/3/89		X		Drum # 300 Brown Liquid	1-8oz	/	/	
2	5763-301	5/3/89			/	Drum # 301 Brown Solid	1-8oz		/	
3										
4										
5										
6										
7										
8										
9										
10										

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-2	[signature]	FEDEX 188045783 2	5/3	
2	1-2	Fedex 188045783	[signature]	5/4/89	1030
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [signature]

LAB COPY

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

REFERENCE NO. 33

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

REVISED: 6-05-89

CLIENT: USEPA Region II
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Liquid

ANALYSIS PERFORMED:

Incineration Disposal Parameters

(Sample: 300)

DATE COMPLETED: 5-26-89

DATE RECEIVED: 5-04-89

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: TE Gu for — 6/5/89

R. J. Schock, Mgr., ETC-Findlay Laboratory — Date

Received this updated version on 6/8/89 JJP
Previous one signed 5/30/89

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

ETC-Findlay Laboratory received 1 sample from OHM Corporation (OHMC). This sample was acquired by their technical personnel and transferred to the laboratory complete with Chain-of- Custody Record(s), a copy of which is attached for reference. This sample was for Incineration Disposal parameters.

2. ANALYTICAL METHODOLOGY

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, molybenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984). Mercury was prepared and analyzed by Method 7470 or 7471; Manual Cold Vapor Techniques.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

BTU Content-Solids and Liquids

The BTU content of the samples was determined by either ASTM E711-81, Test Method for Gross Calorific Value of Refuse Derived Fuel (RDF-3) by Bomb Calorimeter, Section II, Vol. 11.04 or by ASTM D240-76, Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Section 5, Vol. 05.01.

Ash Content

The ash content of the samples was determined by either ASTM E830-81, Test Method for Ash in the Analysis Samples of Refuse-Derived Fuel (RDF-3), Section II, Vol. 11.04, or by ASTM D482-80 Test Method for Ash from Petroleum Products, Section 5, Vol. 05.01.

PROJECT 5763E

SUMMARY REPORT OF ANAYTICAL SERVICES

Sulfur Content

The sulfur content of the samples was determined by either ASTM E775-81, Test Methods for Total Sulfur in the Analysis Sample of Refuse-Derived Fuel, Section II, Vol. 11.04, or by ASTM D129-64 (1978), Test Method for Sulfur in Petroleum Products (General Bomb Method), Section 5, Vol. 05.01.

Pesticides and PCB Content

Samples were prepared by Method 3510, 3540, or 3550 as appropriate; and analyzed according to Method 8080 of USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982.

Chlorine Content

The samples were analyzed for percent chlorine according to American Society for Testing and Materials, Section 5, Method D808-81, Chlorine in New and Used Petroleum Products (Bomb Method.

Viscosity

The viscosity of the samples were determined using a Brookfield viscometer according to ASTM D2983, Volume 5.03, 1983.

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples are performed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables are prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8270, GC/MS Methods for Semi-Volatile Organics.

Flash Point (Pensky-Martens)

Flash points were performed according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1010, Pensky-Martens Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Solids

Percent solids for the samples are determined according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Methods 160.1, 160.2 and/or 160.3.

Oxidizers

All water soluble or partially water soluble samples were tested for oxidizing strength by a spot test with potassium iodide and starch paper.

Peroxides

All samples were tested for the presence of peroxides by using commercially available peroxide test strips.

pH

All samples that were water soluble were tested with pH strips to determine if they were corrosive as per EPA 600/4-84-038 (May 1984); Characterization of Hazardous Waste Sites, Vol. III.

Disposal Herbicides

Samples were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the analytical results for sample #5763E-300.

PROJECT 5763E

TABLE 1 - INCINERATION DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Drum #300, Brown Liquid
ETC SAMPLE NUMBER: 5763E-300

Parameter	Result
Color	Brown
Number of Phases	1
Percent by volume of phases	100
Physical state of phases	Liquid
Density	1.03 g/cm^3
Flash Point, PM, CC	> 93°C
pH Test	5.5 pH units
Viscosity, Brookfield	Low cpu
BTU Content	950 BTU/lb
Ash Content	6.88 % by weight
Chlorine Content	< 0.1 % by weight
Sulfur Content	0.327 % by weight
Total Solids	11,500 mg/L
Total Suspended Solids	2,650 mg/L
Total Dissolved Solids	8,840 mg/L
Oxidizer Spot Test	Negative
Peroxide	< 50 mg/L

MAY 11, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Volatiles (JR05)

Chain of Custody Data Required for ETC Data Management Summary Reports

QVW031

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	890503		0

Compound	Results: Sample Concen. mg/l	Results: MDL mg/l
Acetone	68.1	50.0
Acrolein	BDL	100
Acrylonitrile	BDL	100
Benzene	BDL	10.0
Bromoform	BDL	10.0
Carbon disulfide	BDL	10.0
Carbon tetrachloride	BDL	10.0
Chlorobenzene	BDL	10.0
2-Chloro-1,3-butadiene	BDL	10.0
Chlorodibromomethane	BDL	10.0
Chloroethane	BDL	10.0
Chloroform	BDL	10.0
2-Chloroethylvinyl ether	BDL	10.0
3-Chloropropene	BDL	10.0
1,2-Dichlorobenzene	BDL	10.0
1,3-Dichlorobenzene	BDL	10.0
1,4-Dichlorobenzene	BDL	10.0
1,2-Dibromo-3-chloropropane	BDL	10.0
Dichlorobromomethane	BDL	10.0
1,4-Dichloro-2-butene	BDL	10.0
Dichlorodifluoromethane	BDL	10.0
1,1-Dichloroethane	BDL	10.0
1,2-Dichloroethane	BDL	10.0
1,1-Dichloroethylene	BDL	10.0
trans-1,2-Dichloroethene	BDL	10.0
1,2-Dichloropropane	BDL	10.0
cis-1,3-Dichloropropylene	BDL	10.0
trans-1,3-Dichloropropylene	BDL	10.0
Dibromomethane	BDL	10.0
Ethylbenzene	BDL	10.0
Ethylene dibromide	BDL	10.0
2-Hexanone	BDL	10.0
Iodomethane	BDL	10.0
Methyl bromide	BDL	10.0
Methyl chloride	BDL	10.0
Methylene chloride	BDL	10.0
Methyl ethyl ketone	BDL	10.0
Methyl-iso-butyl ketone	BDL	10.0
Styrene	BDL	10.0

5-26-89
5

MAY 11, 1989

TABLE 1: QUANTITATIVE RESULTS

Disposal Volatiles (JR05)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	890503		0

CVW031

Compound	Results: Sample Concen. mg/l	Results: MDL mg/l
1,1,1,2-Tetrachloroethane	BDL	10.0
1,1,2,2-Tetrachloroethane	BDL	10.0
Tetrachloroethylene	BDL	10.0
Tetrahydrofuran	BDL	10.0
Toluene	BDL	10.0
1,1,1-Trichloroethane	BDL	10.0
1,1,2-Trichloroethane	BDL	10.0
Trichloroethylene	BDL	10.0
Trichlorofluoromethane	BDL	10.0
1,2,3-Trichloropropane	BDL	10.0
Vinyl acetate	BDL	50.0
Vinyl chloride	BDL	10.0
m+p-Xylenes	BDL	10.0
o-Xylene	BDL	10.0

PROJECT 5763E

TABLE 3 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Drum #300 Brown Liquid
ETC SAMPLE NUMBER: 5763E-300

CAS #	Compounds	Retention Time (min)	Estimated Concentration (mg/L)
N/A	Trimethylbenzene	23.76	17.4
78591	2-Cyclohexen-1-one, 3,5,5-trimethyl-	27.34	13.6

N/A = Not applicable
mg/L = ppm (parts-per-million)

TABLE 1: QUANTITATIVE RESULTS

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	890503		0

QC2343

Compound	Results: Sample Concen. mg/l	Results: MDL mg/l
Fluoranthene	BDL	10.0
Fluorene	BDL	10.0
Hexachlorobenzene	BDL	10.0
Hexachlorobutadiene	BDL	10.0
Hexachlorocyclopentadiene	BDL	10.0
Hexachloroethane	BDL	10.0
Hexachloropropene	BDL	10.0
Indeno(1,2,3-c,d)pyrene	BDL	10.0
Isophorone	4720	100
4,4'-Methylenebis(2-chloroa	BDL	10.0
2-Methylnaphthalene	BDL	10.0
2-Methylphenol	BDL	10.0
4-Methylphenol	BDL	10.0
N-Nitrosodimethylamine	BDL	10.0
N-Nitrosodi-n-propylamine	BDL	10.0
N-Nitrosodiphenylamine	BDL	10.0
Naphthalene	BDL	10.0
2-Nitroaniline	BDL	10.0
3-Nitroaniline	BDL	10.0
4-Nitroaniline	BDL	10.0
Nitrobenzene	BDL	10.0
2-Nitrophenol	BDL	10.0
4-Nitrophenol	BDL	50.0
Pentachlorobenzene	BDL	10.0
Pentachloronitrobenzene	BDL	10.0
Pentachlorophenol	BDL	50.0
Pentachloroethane	BDL	10.0
Phenanthrene	BDL	10.0
Phenol	BDL	10.0
Pronamide	BDL	10.0
Pyrene	BDL	10.0
1,2,4,5-Tetrachlorobenzene	BDL	10.0
2,3,4,6-Tetrachlorophenol	BDL	10.0
1,2,4-Trichlorobenzene	BDL	10.0
2,4,5-Trichlorophenol	BDL	10.0
2,4,6-Trichlorophenol	BDL	10.0

TABLE 1: QUANTITATIVE RESULTS

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	890503		0

QC2343

Compound	Results: Sample Concen. mg/l	Results: MDL mg/l
Acenaphthene	BDL	10.0
Acenaphthylene	BDL	10.0
Anthracene	BDL	10.0
Benzoic acid	BDL	10.0
Benzyl alcohol	BDL	10.0
Benzo(a)anthracene	BDL	10.0
Benzo(b)fluoranthene	BDL	10.0
tris(2,3-Dibromopropyl)phos	BDL	10.0
Benzo(k)fluoranthene	BDL	10.0
Benzo(ghi)perylene	BDL	10.0
Benzo(a)pyrene	BDL	10.0
bis(2-Chloroethoxy)ethane	BDL	10.0
bis(2-Chloroethyl) ether	BDL	10.0
bis(2-Chloroethoxy)methane	BDL	10.0
bis(2-Chloroisopropyl)ether	BDL	10.0
bis(2-Ethylhexyl)phthalate	BDL	10.0
4-Bromophenyl phenyl ether	BDL	10.0
Butyl benzyl phthalate	BDL	10.0
4-Chloroaniline	BDL	10.0
p-Chloro-m-cresol	BDL	10.0
2-Chloronaphthalene	BDL	10.0
2-Chlorophenol	BDL	10.0
4-Chlorophenyl phenyl ether	BDL	10.0
3-Chloropropionitrile	BDL	10.0
Chrysene	BDL	10.0
Dibenzo(a,h)anthracene	BDL	10.0
Dibenzofuran	BDL	10.0
Di-n-butyl phthalate	BDL	10.0
3,3'-Dichlorobenzidine	BDL	10.0
2,4-Dichlorophenol	BDL	10.0
2,6-Dichlorophenol	BDL	10.0
Diethyl phthalate	BDL	10.0
Dimethyl phthalate	BDL	10.0
2,4-Dimethylphenol	BDL	10.0
4,6-Dinitro-o-cresol	BDL	50.0
2,4-Dinitrophenol	BDL	50.0
2,4-Dinitrotoluene	BDL	10.0
2,6-Dinitrotoluene	BDL	10.0
Di-n-octyl phthalate	BDL	10.0

PROJECT 5763E

TABLE 5 - TENTATIVELY IDENTIFIED SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Drum #300, Brown Liquid
ETC SAMPLE NUMBER: 5763E-300

CAS #	Compounds	Retention Time (min)	Estimated Concentration (mg/L)
112345	Ethanol, 2-(2-Butoxyethoxy)-	14.63	367
111762	Ethanol, 2-Butoxy-	7.54	197
930687	2-Cyclohexen-1-one	13.64	115
20547993	1,4-Cyclohexanedione, 2,2,6-trimethyl	14.14	43.7
1123097	2-Cyclohexen-1-one, 3,5-dimethyl	12.67	33.3
N/A	2-Butanol, 3-methoxy	10.31	39.3
149575	Hexanoic Acid, 2-ethyl-	13.32	28.8
N/A	alkane (unidentified)	12.74	19.0
N/A	total unidentified	N/A	73.9

N/A = Not applicable
mg/L = ppm (parts-per-million)

PROJECT 5763E

TABLE 6 - PCBS, PESTICIDES, AND HERBICIDES

SAMPLE IDENTIFIER: Drum #300, Brown Liquid
ETC SAMPLE NUMBER: 5763E-300

Compound	Concentration (ug/L)	Detection Limit (ug/L)
Polychlorinated Biphenyls		
Aroclor 1016	BDL	50
Aroclor 1221	BDL	50
Aroclor 1232	BDL	50
Aroclor 1242	BDL	50
Aroclor 1248	BDL	50
Aroclor 1254	BDL	50
Aroclor 1260	BDL	50
Pesticides		
Aldrin	BDL	100
BHC-alpha	BDL	100
BHC-beta	BDL	100
BHC-gamma	BDL	100
BHC-delta	BDL	100
Chlordane	BDL	1,000
4,4'-DDD	BDL	100
4,4'-DDE	BDL	100
4,4'-DDT	BDL	100
Dieldrin	BDL	100
Endosulfan-alpha	BDL	100
Endosulfan-beta	BDL	100
Endosulfan sulfate	BDL	100
Endrin	BDL	100
Endrin aldehyde	BDL	100
Heptachlor	BDL	100
Heptachlor epoxide	BDL	100
Toxaphene	BDL	1,000
Herbicides		
2,4-D	BDL	10
2,4,5-T	BDL	10
2,4,5-TP	BDL	10

ug/L = ppb (parts-per-billion)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - TOTAL METALS FOR INCINERATION DISPOSAL

SAMPLE IDENTIFIER: Drum #300, Brown Liquid
ETC SAMPLE NUMBER: 5763E-300

Compound	Concentration (mg/L)	Detection Limit (mg/L)
Antimony	BDL	0.5
Arsenic	BDL	0.5
Barium	BDL	0.5
Beryllium	BDL	0.5
Cadmium	BDL	0.5
Chromium	BDL	0.5
Copper	BDL	0.5
Iron	140	0.5
Lead	19.6	0.5
Manganese	1.62	0.5
Mercury	BDL	0.05
Molybdenum	BDL	0.5
Nickel	BDL	0.5
Potassium	53.6	5.0
Selenium	BDL	0.5
Silver	BDL	0.5
Sodium	2,440	1.0
Thallium	BDL	0.5
Vanadium	BDL	0.5
Zinc	33.3	0.5

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

QC SUMMARY

PROJECT 5763E

QC SUMMARY

A. BTU Content - % Recovery:

Method Spike	103
Chlorine Content - % Recovery:	
Method Spike	106
Sulfur Content - % Recovery:	
Method Spike	99.5

MAY 19, 1989

TABLE 2: METHOD PERFORMANCE DATA

Surrogate Recovery

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Hours
JC2053	OHM NORTH EAST REGIONAL OFFICE	005763E	L 300	89C50		0

Compound	Amount added ug	% Recovery	Control Limits Lower	Control Limits Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	1.25	104	76.0	114
Bromofluorobenzene	1.25	97	86	120
Toluene-D8	1.25	95	88	110
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	987	94	35	110
2-Fluorobiphenyl	995	98	43	120
Terphenyl-D14	0	0	30	100
ACID FRACTION (GC/MS)				
Phenol-D6	1990	25	10	90
2-Fluorophenol	2000	41	21	100
2,4,6-Tribromophenol	2000	51	10	120
Dibutylchlorendate	-	-	-	-

TABLE 2: METHOD PERFORMANCE DATA

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Surrogate Recovery

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time Hours
JC2054	OHM NORTH EAST REGIONAL OFFICE	005763E	L 301	89050	0

Compound	Amount added ug	% Recovery	Control Limits Lower	Control Limits Upper
VOLATILE FRACTION (GC/MS)				
1,2-Dichloroethane-D4	1.25	92	70	120
Bromofluorobenzene	1.25	104	74.0	121
Toluene-D8	1.25	99	81	120
BASE/NEUTRAL FRACTION (GC/MS)				
Nitrobenzene-D5	4940	109	23.0	120
2-Fluorobiphenyl	4970	113	30.0	115
Terphenyl-D14	0	0	20	100
ACID FRACTION (GC/MS)				
Phenol-D6	9930	100	24.0	113
2-Fluorophenol	10000	133	25.0	121
2,4,6-Tribromophenol	10000	159	19.0	122
Dibutylchlorendate	-	-	-	-

TABLE 1: QUALITY ASSURANCE DATA

Priority Pollutant Volatiles (JR01)

Chain of Custody Data Required for ETC Data Management Summary Reports

QVS034

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate		
	Blank Data mg/kg	Concen. Added mg/kg	% Recov	Unspiked Sample mg/kg	Concen. Added mg/kg	% Recov	First mg/kg	Second mg/kg	RPD
Benzene	BDL	5.00	103	BDL	4.74	108	5.13	5.01	2
Bromoform	BDL	5.00	96	BDL	4.74	98	4.66	5.07	8
Carbon tetrachloride	BDL	5.00	93	BDL	4.74	93	4.40	4.40	.2
Chlorobenzene	BDL	5.00	98	BDL	4.74	103	4.90	4.75	3
Chlorodibromomethane	BDL	5.00	97	BDL	4.74	98	4.65	5.04	8
Chloroethane	BDL	5.00	95	BDL	4.74	96	4.53	4.28	6
Chloroform	BDL	5.00	107	BDL	4.74	109	5.17	5.00	3
2-Chloroethylvinyl ether	BDL	5.00	125	BDL	4.74	129	6.13	6.50	6
Dichlorobromomethane	BDL	5.00	97	BDL	4.74	101	4.77	4.93	3
1,1-Dichloroethane	BDL	5.00	105	BDL	4.74	107	5.09	4.82	5
1,2-Dichloroethane	BDL	5.00	105	BDL	4.74	106	5.00	5.14	3
1,1-Dichloroethylene	BDL	5.00	116	BDL	4.74	120	5.69	5.32	7
trans-1,2-Dichloroethene	BDL	5.00	106	BDL	4.74	113	5.35	4.91	9
1,2-Dichloropropane	BDL	5.00	98	BDL	4.74	101	4.78	4.85	1
cis-1,3-Dichloropropylene	BDL	6.00	95	BDL	5.69	100	5.71	5.84	2
trans-1,3-Dichloropropylene	BDL	4.00	93	BDL	3.79	99	3.74	3.95	5
Ethylbenzene	BDL	5.00	110	BDL	4.74	112	5.30	5.02	5
Methyl bromide	BDL	5.00	39	BDL	4.74	66	3.13	3.14	.2
Methyl chloride	BDL	5.00	101	BDL	4.74	97	4.62	4.44	4
Methylene chloride	BDL	5.00	96	BDL	4.74	102	4.94	4.68	5
1,1,2,2-Tetrachloroethane	BDL	5.00	77	BDL	4.74	96	4.53	4.91	8
Tetrachloroethylene	BDL	5.00	107	BDL	4.74	113	5.37	5.05	6
Toluene	BDL	5.00	107	BDL	4.74	112	5.29	4.98	6
1,1,1-Trichloroethane	BDL	5.00	111	BDL	4.74	114	5.40	5.31	2
1,1,2-Trichloroethane	BDL	5.00	97	BDL	4.74	98	4.65	5.02	7
Trichloroethylene	BDL	5.00	117	BDL	4.74	109	5.15	5.04	2
Trichlorofluoromethane	BDL	5.00	113	BDL	4.74	113	5.37	5.12	5
Vinyl chloride	BDL	5.00	91	BDL	4.74	89	4.20	3.98	5

MAY 19, 1989

TABLE 1: QUALITY ASSURANCE DATA

Disposal Semi-Volatiles (JR06)

BFB TUNE FILES: SEE ATTACHED
CALIBRATION FILES: SEE ATTACHED

Chain of Custody Data Required for ETC Data Management Summary Reports

QC2343

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate		
	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov	First mg/l	Second mg/l	RPD
Acenaphthene	BDL	2.00	111	-	-	-	BDL	BDL	0
Acenaphthylene	BDL	2.00	109	-	-	-	BDL	BDL	0
Anthracene	BDL	2.00	109	-	-	-	BDL	BDL	0
Benzoic acid	BDL	2.00	100	-	-	-	BDL	BDL	0
Benzyl alcohol	BDL	2.00	106	-	-	-	BDL	BDL	0
Benzo(a)anthracene	BDL	2.00	105	-	-	-	BDL	BDL	0
Benzo(b)fluoranthene	BDL	2.00	95	-	-	-	BDL	BDL	0
tris(2,3-Dibromopropyl)phos	BDL	4.52	99	-	-	-	BDL	BDL	0
Benzo(k)fluoranthene	BDL	2.00	104	-	-	-	BDL	BDL	0
Benzo(ghi)perylene	BDL	2.00	87	-	-	-	BDL	BDL	0
Benzo(a)pyrene	BDL	2.00	100	-	-	-	BDL	BDL	0
bis(2-Chloroethoxy)ethane	BDL	2.15	93	-	-	-	BDL	BDL	0
bis(2-Chloroethyl) ether	BDL	2.00	108	-	-	-	BDL	BDL	0
bis(2-Chloroethoxy)methane	BDL	2.00	103	-	-	-	BDL	BDL	0
bis(2-Chloroisopropyl)ether	BDL	2.00	77	-	-	-	BDL	BDL	0
bis(2-Ethylhexyl)phthalate	BDL	2.00	112	-	-	-	BDL	BDL	0
4-Bromophenyl phenyl ether	BDL	2.00	105	-	-	-	BDL	BDL	0
Butyl benzyl phthalate	BDL	2.00	117	-	-	-	BDL	BDL	0
4-Chloroaniline	BDL	2.00	118	-	-	-	BDL	BDL	0
p-Chloro-m-cresol	BDL	2.00	103	-	-	-	BDL	BDL	0
2-Chloronaphthalene	BDL	2.00	109	-	-	-	BDL	BDL	0
2-Chlorophenol	BDL	2.00	116	-	-	-	BDL	BDL	0
4-Chlorophenyl phenyl ether	BDL	2.00	102	-	-	-	BDL	BDL	0
3-Chloropropionitrile	BDL	1.67	90	-	-	-	BDL	BDL	0
Chrysene	BDL	2.00	106	-	-	-	BDL	BDL	0
Dibenzo(a,h)anthracene	BDL	2.00	90	-	-	-	BDL	BDL	0
Dibenzofuran	BDL	2.00	106	-	-	-	BDL	BDL	0
Di-n-butyl phthalate	BDL	2.00	114	-	-	-	BDL	BDL	0
3,3'-Dichlorobenzidine	BDL	2.00	104	-	-	-	BDL	BDL	0
2,4-Dichlorophenol	BDL	2.00	102	-	-	-	BDL	BDL	0
2,6-Dichlorophenol	BDL	3.00	109	-	-	-	BDL	BDL	0
Diethyl phthalate	BDL	2.00	110	-	-	-	BDL	BDL	0
Dimethyl phthalate	BDL	2.00	108	-	-	-	BDL	BDL	0
2,4-Dimethylphenol	BDL	2.00	110	-	-	-	BDL	BDL	0
4,6-Dinitro-o-cresol	BDL	2.00	125	-	-	-	BDL	BDL	0
2,4-Dinitrophenol	BDL	2.00	102	-	-	-	BDL	BDL	0
2,4-Dinitrotoluene	BDL	2.00	110	-	-	-	BDL	BDL	0
2,6-Dinitrotoluene	BDL	2.00	112	-	-	-	BDL	BDL	0
Di-n-octyl phthalate	BDL	2.00	106	-	-	-	BDL	BDL	0

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MAY 19, 1989

TABLE 1: QUALITY ASSURANCE DATA

Disposal Semi-Volatiles (JR06)

Chain of Custody Data Required for ETC Data Management Summary Reports

QC2343

ETC Batch No.

Compound	QC Blank and Spiked Data			QC Matrix Spike			QC Duplicate			
	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov	First mg/l	Second mg/l	RPD	
Fluoranthene	BDL	2.00	108	-	-	-	BDL	BDL	0	
Fluorene	BDL	2.00	105	-	-	-	BDL	BDL	~~200~~ 0	(LR)
Hexachlorobenzene	BDL	2.00	103	-	-	-	BDL	BDL	0	
Hexachlorobutadiene	BDL	2.00	94	-	-	-	BDL	BDL	0	
Hexachlorocyclopentadiene	BDL	2.00	112	-	-	-	BDL	BDL	0	
Hexachloroethane	BDL	2.00	111	-	-	-	BDL	BDL	0	
Hexachloropropene	BDL	5.95	106	-	-	-	BDL	BDL	0	
Indeno(1,2,3-c,d)pyrene	BDL	2.00	90	-	-	-	BDL	BDL	0	
Isophorone	BDL	2.00	102	-	-	-	4720	5220	10	
4,4'-Methylenebis(2-chloroa	BDL	3.13	104	-	-	-	BDL	BDL	0	
2-Methylnaphthalene	BDL	2.00	104	-	-	-	BDL	BDL	0	
2-Methylphenol	BDL	2.00	108	-	-	-	BDL	BDL	0	
4-Methylphenol	BDL	2.00	106	-	-	-	BDL	BDL	0	
N-Nitrosodimethylamine	BDL	2.00	104	-	-	-	BDL	BDL	0	
N-Nitrosodi-n-propylamine	BDL	2.00	95	-	-	-	BDL	BDL	0	
N-Nitrosodiphenylamine	BDL	2.00	113	-	-	-	BDL	BDL	0	
Naphthalene	BDL	2.00	112	-	-	-	BDL	BDL	0	
2-Nitroaniline	BDL	2.00	107	-	-	-	BDL	BDL	0	
3-Nitroaniline	BDL	2.00	118	-	-	-	BDL	BDL	0	
4-Nitroaniline	BDL	2.00	111	-	-	-	BDL	BDL	0	
Nitrobenzene	BDL	2.00	105	-	-	-	BDL	BDL	0	
2-Nitrophenol	BDL	2.00	112	-	-	-	BDL	BDL	0	
4-Nitrophenol	BDL	2.00	121	-	-	-	BDL	BDL	0	
Pentachlorobenzene	BDL	2.25	97	-	-	-	BDL	BDL	0	
Pentachloronitrobenzene	BDL	6.05	104	-	-	-	BDL	BDL	0	
Pentachlorophenol	BDL	2.00	109	-	-	-	BDL	BDL	0	
Pentachloroethane	-	-	-	-	-	-	-	-	-	
Phenanthrene	BDL	2.00	112	-	-	-	BDL	BDL	0	
Phenol	BDL	2.00	109	-	-	-	BDL	BDL	0	
Pronamide	BDL	3.13	114	-	-	-	BDL	BDL	0	
Pyrene	BDL	2.00	104	-	-	-	BDL	BDL	0	
1,2,4,5-Tetrachlorobenzene	BDL	2.07	103	-	-	-	BDL	BDL	0	
2,3,4,6-Tetrachlorophenol	BDL	2.40	84	-	-	-	BDL	BDL	0	
1,2,4-Trichlorobenzene	BDL	2.00	101	-	-	-	BDL	BDL	0	
2,4,5-Trichlorophenol	BDL	2.00	106	-	-	-	BDL	BDL	0	
2,4,6-Trichlorophenol	BDL	2.00	107	-	-	-	BDL	BDL	0	

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PROJECT 5763E

QC SUMMARY (CONTINUED)

D. Pesticides and PCBs Spike Recoveries (%): #300

Compound	Method Spike
Aroclor 1260	101
a-BHC	92.8
Lindane	92.8
b-BHC	91.5
Heptachlor	90.2
d-BHC	92.2
Aldrin	72.0
Heptachlor Epoxide	88.5
Endosulfin I	84.8
4,4'-DDE	82.5
Dieldrin	81.8
Endrin	86.2
4,4-DDD	80.8
Endosulfin II	74.5
4,4'-DDT	92.5
Endrin Aldehyde	57.5
Endosulfin sulfate	72.2
Methoxychlor	89.7
DBC	83.5

PROJECT 5763E

QC SUMMARY (CONTINUED)

Pesticides and PCBs Spike Recoveries (%): #301

Compound	Method Spike
Aroclor 1260	113
a-BHC	70.2
Lindane	91.2
b-BHC	91.2
Heptachlor	70.2
d-BHC	83.2
Aldrin	70.2
Heptachlor Epoxide	81.0
Endosulfan I	82.2
4,4'-DDE	82.2
Dieldrin	82.2
Endrin	81.2
4,4-DDD	69.2
Endosulfan II	92.5
4,4'-DDT	100
Endrin Aldehyde	126
Endosulfan sulfate	100
Methoxychlor	100
DBC	110

E. RCRA Herbicides Recoveries (%): #300

Compound	% Recovery
2,4-D	158
2,4,5-TP	110
2,4,5-T	153

RCRA Herbicides Recoveries (%): #301

Compound	% Recovery
2,4-D	111
2,4,5-TP	107
2,4,5-T	105

PROJECT 5763E

QC SUMMARY (CONTINUED)

F. Metals Recoveries (%): #300

Compound	MTX SPK	MTX SPK DUP	MTD SPK
Antimony	87.8	81.0	83.4
Arsenic	86.5	93.0	83.0
Barium	86.0	89.5	82.5
Beryllium	86.0	90.0	84.0
Cadmium	90.0	98.0	84.0
Calcium	NS	NS	NS
Chromium	88.5	87.5	85.0
Cobalt	NS	NS	NS
Copper	85.6	88.0	88.4
Iron	DL	DL	101
Lead	75.8	83.8	81.0
Magnesium	NS	NS	NS
Manganese	DL	DL	83.4
Mercury	95	96	114
Nickel	DL	DL	91.2
Potassium	NS	NS	NS
Selenium	84.5	91.0	80.5
Silver	35.0	52.5	103
Sodium	NS	NS	NS
Thallium	77.5	84.0	83.0
Vanadium	87.0	91.8	79.0
Zinc	DL	DL	96.2
Molybdenum	DL	DL	81.2

DL = Diluted
NS = Not Spiked

PROJECT 5763E

QC SUMMARY (CONTINUED)

Metals Recoveries (%): #301

Compound	MTX SPK	MTX SPK DUP	MTD SPK
Antimony	77.6	NS	87.2
Arsenic	80.2	79.2	85.3
Barium	85.2	84.8	95.8
Beryllium	93.6	NS	94.0
Cadmium	92.0	94.4	95.2
Calcium	NS	NS	NS
Chromium	51.9	54.8	93.5
Cobalt	76.2	NS	95.6
Copper	77.8	NS	93.6
Iron	NS	NS	NS
Lead	122	121	97.2
Magnesium	NS	NS	NS
Manganese	NS	NS	92.4
Mercury	NS	NS	114
Nickel	56.6	NS	90.0
Potassium	NS	NS	NS
Selenium	81.8	81.0	86.6
Silver	86.0	86.0	100
Sodium	NS	NS	NS
Thallium	77.0	NS	92.6
Vanadium	65.2	NS	94.4
Zinc	20	NS	94.4
Molybdenum	83.6	NS	93.6

NS = Not Spiked

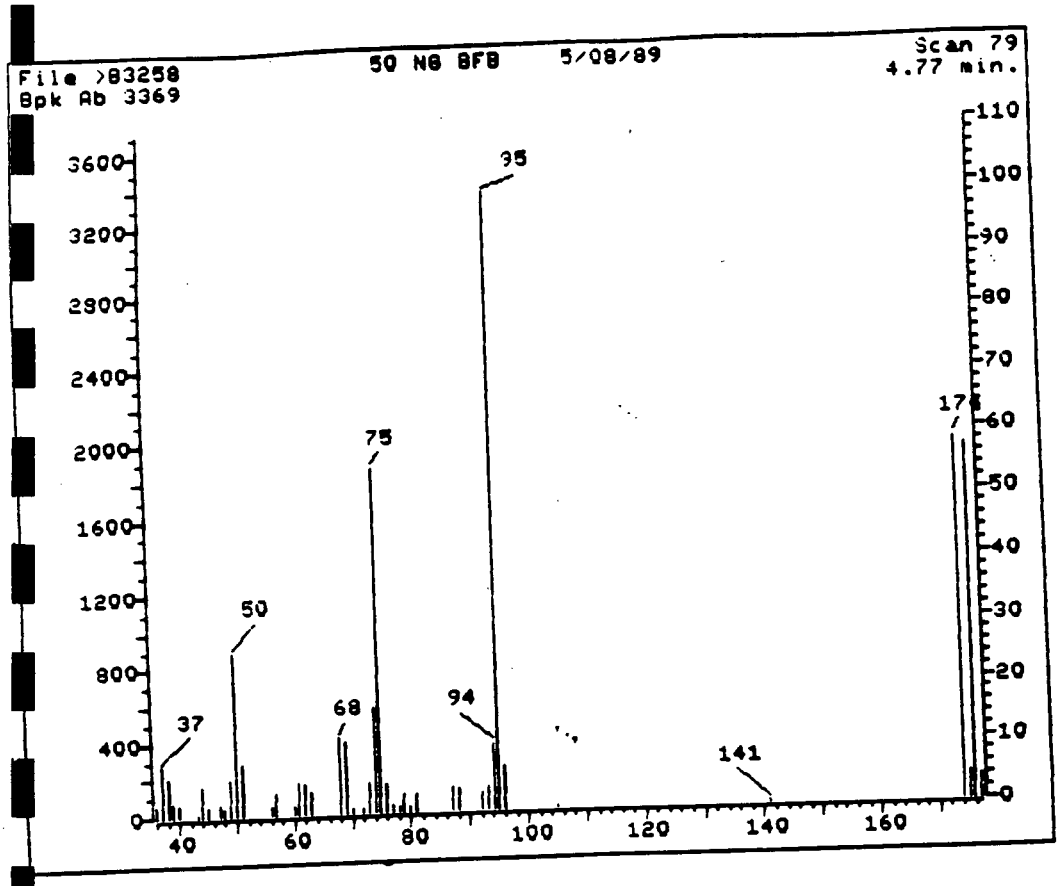


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	26.06	26.06	Ok
75	30-60% of mass 95	55.15	55.15	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.80	6.80	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	58.21	58.21	Ok
175	5-9% of mass 174	4.27	7.34	Ok
176	95-101% of mass 174	57.08	98.06	Ok
177	5-9% of mass 176	3.89	6.81	Ok

Injection Date: 05/08/89 Analyst: LR
Injection Time: 10:37 Processor: LR
Run No: >83258 QC Batch: _____
Spectrum No: _____

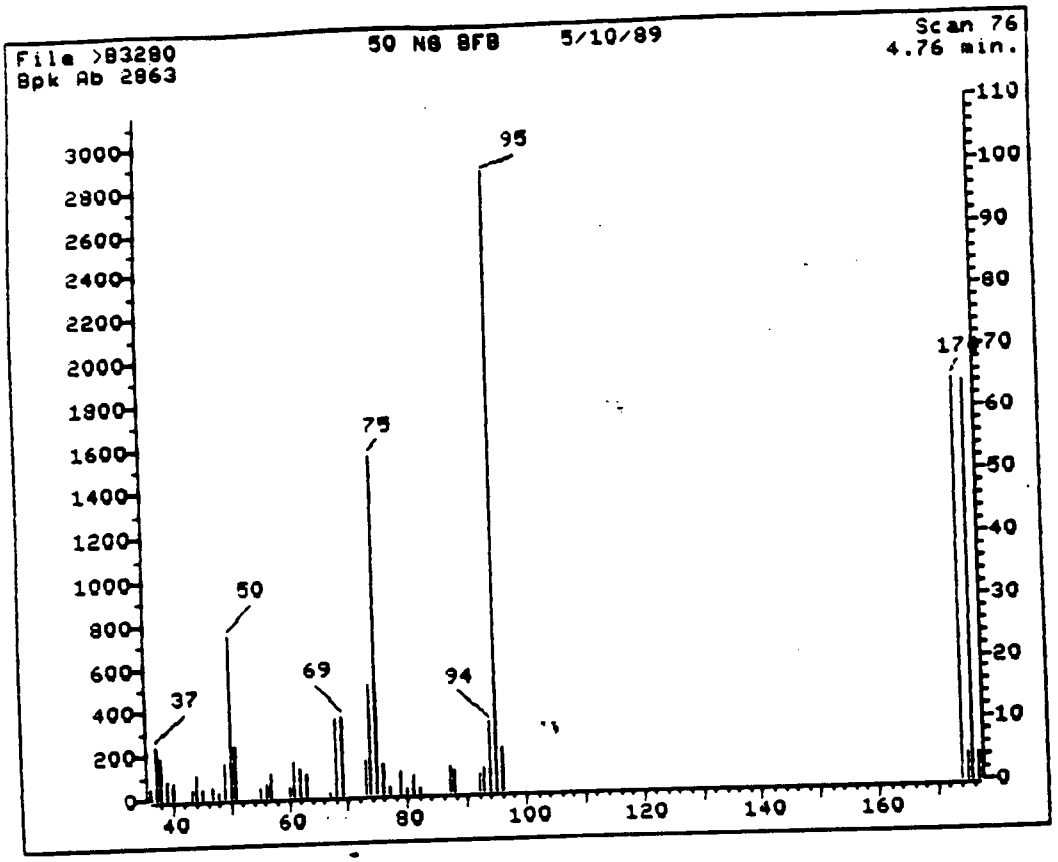


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	25.92	25.92	Ok
75	30-60% of mass 95	54.10	54.10	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.78	6.78	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	64.51	64.51	Ok
175	5-9% of mass 174	4.44	6.88	Ok
176	95-101% of mass 174	64.09	99.35	Ok
177	5-9% of mass 176	4.26	6.65	Ok

Injection Date: 05/10/89 Analyst: LR
Injection Time: 08:33 Processor: LR
Run No: >B3280 QC Batch: _____
Spectrum No: _____

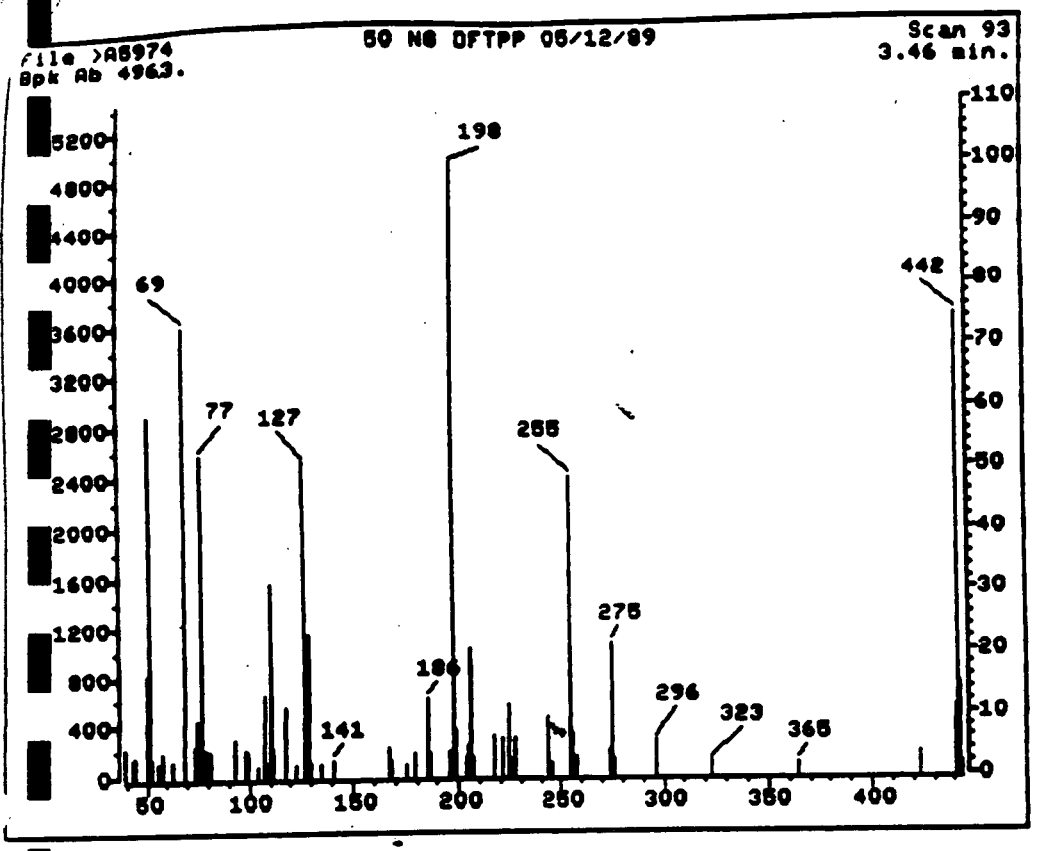


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	58.09	58.09	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	72.48	72.48	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	50.70	50.70	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.23	7.23	Ok
275	10-30% of mass 198	21.08	21.08	Ok
365	Greater than 1% of mass 198	1.85	1.85	Ok
441	0-100% of mass 443	10.80	74.65	Ok
442	Greater than 40% of mass 198	74.43	74.43	Ok
443	17-23% of mass 442	14.47	19.44	Ok

Injection Date: 05/12/89 Analyst: LR
Injection Time: 09:22 Processor: LR
Run No: >A5974 QC Batch: _____
Spectrum No: _____

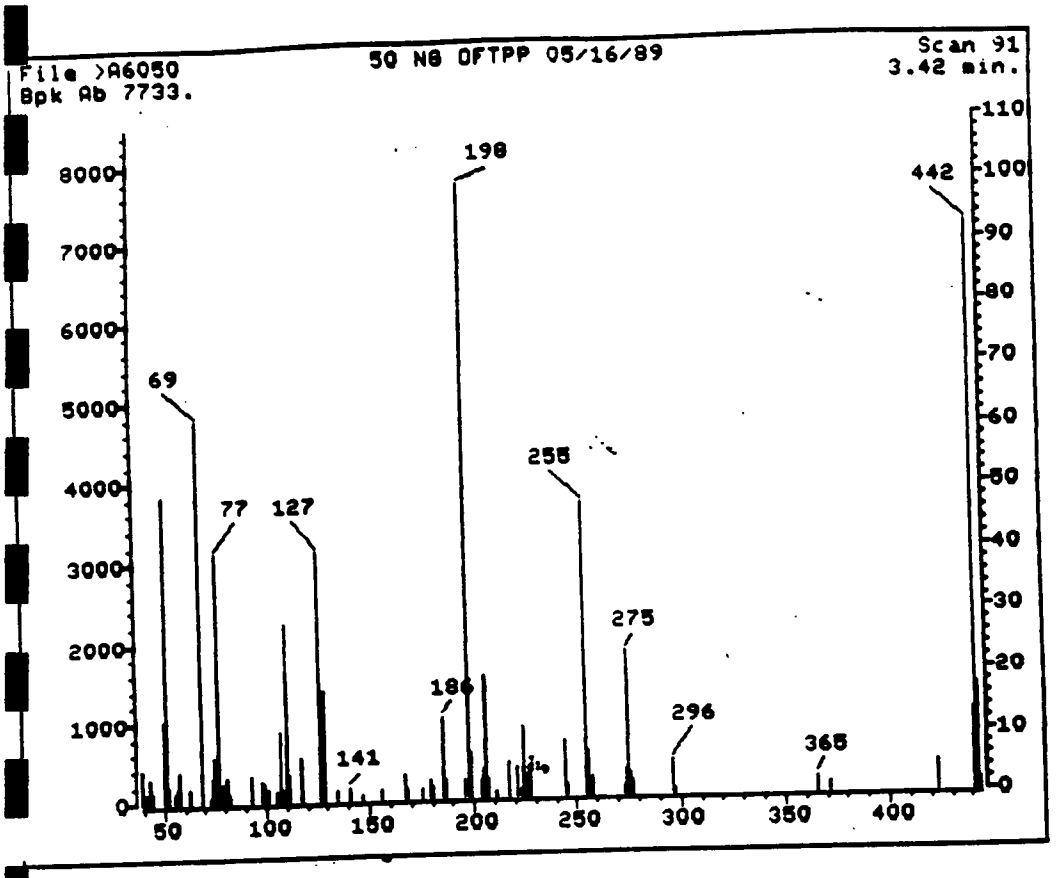


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-60% of mass 198	49.40	49.40	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	61.46	61.46	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	40.15	40.15	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	7.11	7.11	Ok
275	10-30% of mass 198	23.34	23.34	Ok
365	Greater than 1% of mass 198	2.48	2.48	Ok
441	0-100% of mass 443	13.19	75.50	Ok
442	Greater than 40% of mass 198	92.33	92.33	Ok
443	17-23% of mass 442	17.47	18.92	Ok

Injection Date: 05/16/89 Analyst: LR
Injection Time: 07:43 Processor: LR
Run No: >A6050 QC Batch: _____
Spectrum No: _____

OHM

CHAIN-OF-CUSTODY RECORD

Form 0019
Field Technical Services
Rev. 03/88

No. 47943

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

PROJECT NAME: IMS
PROJECT LOCATION: Newark NJ
PROJ. NO.: 5763E
PROJECT CONTACT: Lonnie Guinn / JRKelly
PROJECT TELEPHONE NO.: ~~609~~ 301-287-2383
CLIENT'S REPRESENTATIVE: USEPA - OSC John Shaw
PROJECT MANAGER/SUPERVISOR: ERCS.

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS): INCINERATION DISPOSAL ANALYSIS; LANDFILL ANALYSIS

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	INCINERATION DISPOSAL ANALYSIS	LANDFILL ANALYSIS	REMARKS
1	5763-300	5/3/89		X		DRUM # 300 BROWN LIQUID	1-8oz	/		
2	5763-301	5/3/89			/	DRUM # 301 BROWN SOLID	1-8oz		/	
3										
4										
5										
6										
7										
8										
9										
10										

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-2	[signature]	FEDEX 188045783 2	5/3	
2	1-2	Fedex 188045783 2	[signature]	5/4/89	1030
3					
4					

REMARKS

SAMPLER'S SIGNATURE: [signature]

A Subsidiary of Environmental Treatment and Technologies Corp.
The Environmental Services Company

LAB COPY

REFERENCE NO. 34

ANALYTICAL REPORT

Findlay Laboratory, A Division of
Environmental Testing and Certification Corp.
16406 U.S. Route 224 East
P.O. Box 1404
Findlay, Ohio 45839-1404

ETC - FINDLAY LABORATORY

Received 11/15/88 J.J. Shaw

CLIENT: USEPA Region II
IMS
Newark, NJ

ATTN: J. Copus
John Shaw, OSC

PROJECT NUMBER: 5763E

SAMPLE TYPE: Solid

ANALYSIS PERFORMED:

Landfill Disposal Parameters

(Sample: PIT)

DATE COMPLETED: 11/12/88

DATE RECEIVED: 11/01/88

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. Environmental Testing and Certification Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

The analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and Approved by: R. J. Schock, Mgr.,-ETC Findlay Laboratory — 11/14/88 Date

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

1. INTRODUCTION

Environmental Testing & Certification Corp. (ETC) Findlay Lab., received 1 sample from O.H. Materials Corp. This sample was acquired by their technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was analyzed for Landfill Disposal parameters.

2. ANALYTICAL METHODOLOGY

Total Phenols

Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 9065, Phenolics (Spectrophotometric, Manual 4-AAP with Distillation).

GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed according to USEPA Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Method for Semivolatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

Density

Densities were determined by either ASTM Method D1298-90 for liquids or by Method 213E for solids, Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

Total Solids

Solid samples were analyzed for Total Solids (TS) according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 209F, Residue, Total, Gravimetric, Dried at 103°C-105°C.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

Polychlorinated Biphenyls and Organochlorine Pesticides

Solid samples are prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 3550, Sonication Extraction and Method 8080, Organochlorine Pesticides and PCBs.

Total and Amenable Cyanide

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide.

pH

Samples are tested for pH according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 9041, pH Paper Method.

Sulfides

Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.

Paint Filter Test

This test was performed on the samples in accordance with Method 9095, Paint Filter Liquids Test; USEPA SW-846, 2nd edition, July 1982, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.

Flash Point (Seta-Flash)

Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1020, Seta-flash Closed-cup Method.

PROJECT 5763E

SUMMARY REPORT OF ANALYTICAL SERVICES

RCRA Parameters

Metals

Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Sample analyses for these metals were performed according to Method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).

Pesticides

Solid sample leachates were analyzed for pesticides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509A.

Herbicides

Solid sample leachates were analyzed for herbicides according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 509B.

3. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on sample #5763E-PIT.

PROJECT 5763E

TABLE 1 - LANDFILL DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Parameter	Result
Color	Brown
Flash Point, SF, CC	> 95°C
Density	1.29 g/cm^3
pH Test	11.5 pH units
Total Sulfide	< 10 mg/Kg
Total Cyanide	8.29 mg/Kg
Amenable Cyanide	4.86 mg/Kg
Total Phenols	347 mg/Kg
Paint Filter Test	Pass
Total Solids	95.0% by weight

PROJECT 5763E

TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)
Acrolein	BDL*
Acrylonitrile	BDL*
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	191
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,2-Dichlorobenzene	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Cis-1,2-Dichloropropene	BDL
Trans-1,3-Dichloropropene	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Trichlorofluoromethane	BDL
Toluene	BDL
Vinyl Chloride	BDL
Total Xylenes	264

*Limit of Detection = 1,000 mg/Kg ppm (parts-per-million)
Limit of Detection = 100 mg/Kg ppm
BDL = Below Detection Limit

PROJECT 5763E

TABLE 3 - ADDITIONAL VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Acetone	BDL	500
2-Butanone (MEK)	BDL	100
Carbon Disulfide	BDL	100
Ethyl ether	BDL	100
Ethylene Dibromide	BDL	100
2-Hexanone	BDL	100
4-Methyl-2-Pentanone (MIBK)	BDL	100
Styrene	BDL	100
Tetrahydrofuran	BDL	100
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	BDL	100
Vinyl Acetate	BDL	500

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 4 - VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)	Compound	Concentration (mg/Kg)
Acenaphthene	BDL		
Anthracene	BDL	2,4-Dinitrotoluene	BDL
Benzidine	BDL	2,6-Dinitrotoluene	BDL
Benzo(a)anthracene	BDL	Dioctylphthalate	BDL
Benzo(b)fluoranthene	BDL	1,2-Diphenyl hydrazine	BDL
Benzo(k)fluoranthene	BDL	Fluoranthene	BDL
Benzo(g,h,i)perylene	BDL	Fluorene	BDL
Bis(2-chloroethyl)-ether	BDL	Hexachlorobenzene	BDL
Bis(2-chloroethoxy)-methane	BDL	Hexachlorobutadiene	BDL
Bis(2-ethylhexyl)-phthalate	BDL	Hexachloroethane	BDL
Bis(2-chloroisopropyl)ether	BDL	Hexachlorocyclopentadiene	BDL
4-Bromophenyl phenyl ether	BDL	Indeno-(1,2,3-cd) pyrene	BDL
Butyl benzyl phthalate	BDL	Isophorone	BDL
2-Chloronaphthalene	BDL	Naphthalene	BDL
4-Chlorophenyl phenyl ether	BDL	Nitrobenzene	BDL
Chrysene	BDL	N-nitrosodi-n-propylamine	BDL
Dibenzo(a,h)anthracene	BDL	N-nitrosodiphenylamine	BDL
Di-n-butylphthalate	241	Phenanthrene	BDL
1,3-Dichlorobenzene	BDL	Pyrene	BDL
1,4-Dichlorobenzene	BDL	1,2,4-Trichlorobenzene	BDL
1,2-Dichlorobenzene	BDL		

40

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
4-Chloro-3-Methylphenol	BDL	100
2-Chlorophenol	BDL	100
2,4-Dichlorophenol	BDL	100
2,4-Dimethylphenol	BDL	100
2,4-Dinitrophenol	BDL	500
2-Methyl-4,6-Dinitrophenol	BDL	500
2-Nitrophenol	BDL	100
4-Nitrophenol	BDL	500
Pentachlorophenol	BDL	500
Phenol	353	100
2,4,6-Trichlorophenol	BDL	100

11

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/Kg ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compounds	Concentration (mg/Kg)

No chromatographic peaks were present with an area greater than 25% of the internal standards

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/Kg)	Detection Limit (mg/Kg)
Aldrin	BDL	0.01
BHC-alpha	BDL	0.01
BHC-beta	BDL	0.01
BHC-gamma	BDL	0.01
BHC-delta	BDL	0.01
Chlordane	BDL	0.1
4,4'-DDD	BDL	0.01
4,4'-DDE	BDL	0.01
4,4'-DDT	BDL	0.01
Dieldrin	BDL	0.01
Endosulfan-alpha	BDL	0.01
Endosulfan-beta	BDL	0.01
Endosulfan sulfate	BDL	0.01
Endrin	BDL	0.01
Endrin aldehyde	BDL	0.01
Heptachlor	BDL	0.01
Heptachlor expoxide	BDL	0.01
Toxaphene	BDL	0.1
POLYCHLORINATED BIPHENYLS		
Aroclor 1016	BDL	0.1
Aroclor 1221	BDL	0.1
Aroclor 1232	BDL	0.1
Aroclor 1242	BDL	0.1
Aroclor 1248	BDL	0.1
Aroclor 1254	BDL	0.1
Aroclor 1260	BDL	0.1

mg/Kg = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

TABLE 10 - RCRA PARAMETERS

SAMPLE IDENTIFIER: EP Toxicity Leachate; Solid
ETC SAMPLE NUMBER: 5763E-PIT

Compound	Concentration (mg/L)	Detection Limit (mg/L)
RCRA Metals		
Arsenic	BDL	0.1
Barium	BDL	0.1
Cadmium	BDL	0.1
Chromium	BDL	0.1
Lead	8.3	0.1
Mercury	BDL	0.05
Selenium	BDL	0.1
Silver	BDL	0.1
Pesticides		
Lindane	BDL	0.001
Endrin	BDL	0.001
Methoxychlor	BDL	0.01
Toxaphene	BDL	0.01
Herbicides		
2,4-D	BDL	0.01
2,4,5-TP	BDL	0.01

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5763E

QC SUMMARY

A. Total Ammenable and Cyanide Analysis - % Recovery:

Method Spike	94.0
Calibration Spike	114

Total Phenols Analysis - % Recovery:

Method Spike	82.0
Calibration Spike	97.2

Total Sulfide Analysis - % Recovery:

Method Spike	89.0

B. GC/MS Priority Pollutant Volatile Organics:

Calibration Files: see attached
Surrogate Recoveries:

Sample Number	Benzene-d6	Bromofluoro-benzene	Toluene-d8
5763E-PIT	90.3	84.8	88.4
Blank	85.8	80.9	82.2
Method Spike	104	98.3	99.2
6003S-140 Mtd. Spk.	104	101	104
6003S-140 Mtd. Spk. Dup.	99.8	91.6	94.2

Volatile Organics Spike Recoveries (%):

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
Acrolein	106	*	*
Acrylonitrile	110	*	*
Benzene	108	113	115
Bromomethane	125	*	*
Bromodichloromethane	105	109	107
Bromoform	104	107	107
Carbon Tetrachloride	113	121	120
Chlorobenzene	99.3	104	102
Chloroethane	111	*	*
2-Chloroethylvinyl ether	105	112	110
Chloroform	106	108	112
Chloromethane	93.3	*	*
Dibromochloromethane	103	109	110

*Not used in spiking solution

PROJECT 5763E

QC SUMMARY (CONTINUED)

Volatile Organics Spike Recoveries (%): (continued)

Compound	Method Spike	6003S-140 Mtx. Spk.	6003S-140 Mtx. Spk. Dup.
1,2-Dichlorobenzene	96.2	*	*
1,3-Dichlorobenzene	95.7	*	*
1,4-Dichlorobenzene	96.7	*	*
1,1-Dichloroethane	107	109	112
1,2-Dichloroethane	107	109	114
1,1-Dichloroethene	108	113	112
Trans-1,2-Dichloroethene	103	107	109
1,2-Dichloropropane	103	110	109
Cis-1,3-Dichloropropenes	103	108	109
Trans-1,3-Dichloropropenes	111	111	111
Ethylbenzene	99.2	108	107
Methylene Chloride	99.0	88.3	90.7
1,1,2,2-Tetrachloroethane	102	106	106
Tetrachloroethene	98.7	105	104
1,1,1-Trichloroethane	107	112	113
1,1,2-Trichloroethane	106	111	110
Trichloroethene	101	108	107
Trichlorofluoromethane	110	114	117
Toluene	100	105	104
Vinyl Chloride	110	*	*
m+p-Xylenes (TOT. CONC.)	99.2	*	*
o-Xylene	98.2	*	*

C. GC/MS Priority Pollutant Semi-volatile Organics:

DFTPP Tune File: (see attached)
Percent Surrogate Recoveries:

Sample Number	2-Fluoro-phenol	Phenol d5	Nitro-Benzene d5	2-Fluoro-biphenyl	2,4,6-Tri-bromo-phenol
Method Blank	7.27	79.1	78.2	82.7	100
5763E-PIT	49.3	80.2	77.8	85.8	76.5

PROJECT 5763E

QC SUMMARY (CONTINUED)

Semi-volatile Organics Analysis

Spike % Recoveries:

Compound	Method Blank
1,4-Dichlorobenzene	104
2-Chlorophenol	105
Phenol	104
N-Nitroso-di-n-propylamine	97.8
1,2,4-Trichlorobenzene	105
4-Chloro-3-Methylphenol	100
Acenaphthene	106
2,4-Dinitrotoluene	91.7
Lindane	106
Di-n-butylphthalate	106
4-Nitrophneol	89.2
Pentachlorophenol	97.3
Pyrene	96.8
4,4'-DDT	93.5

D. Pesticides and PCBs Spike Recoveries (%):

Compound	Method Spike	5763E-PIT Matrix Spike
Aldrin	72.4	8.7*
b-BHC	38.9	**
Lindane	75.0	114
d-BHC	17.9*	58.7
Heptachlor	86.9	151
DDE	84.7	81.6
DDT	91.3	**
DDD	87.6	207*
Aroclor 1248	96.5	81.6

*Out of control
**Sample interference

PROJECT 5763E

QC SUMMARY (CONTINUED)

E. RCRA Parameters Analysis - % Recovery:

Metals

Compound	Method Spike	6355-118 Mtx. Spk.	6355-118 Mtx. Spk. Dup.
Arsenic	90	96	92
Barium	92	91	91
Cadmium	92	100	100
Chromium	95	94	92
Lead	96	100	98
Selenium	86	92	89
Silver	58	58	43

Compound	Method Spike	Matrix Spike
Pesticides		
Lindane	85.8	87.8
Endrin	88.2	80.2
Methoxychlor	74.0	71.6
Toxaphene	73.8	*
Herbicides		
2,4-D	65.0	84.0
2,4,5-TP	80.0	88.0

*Not used in spiking solution

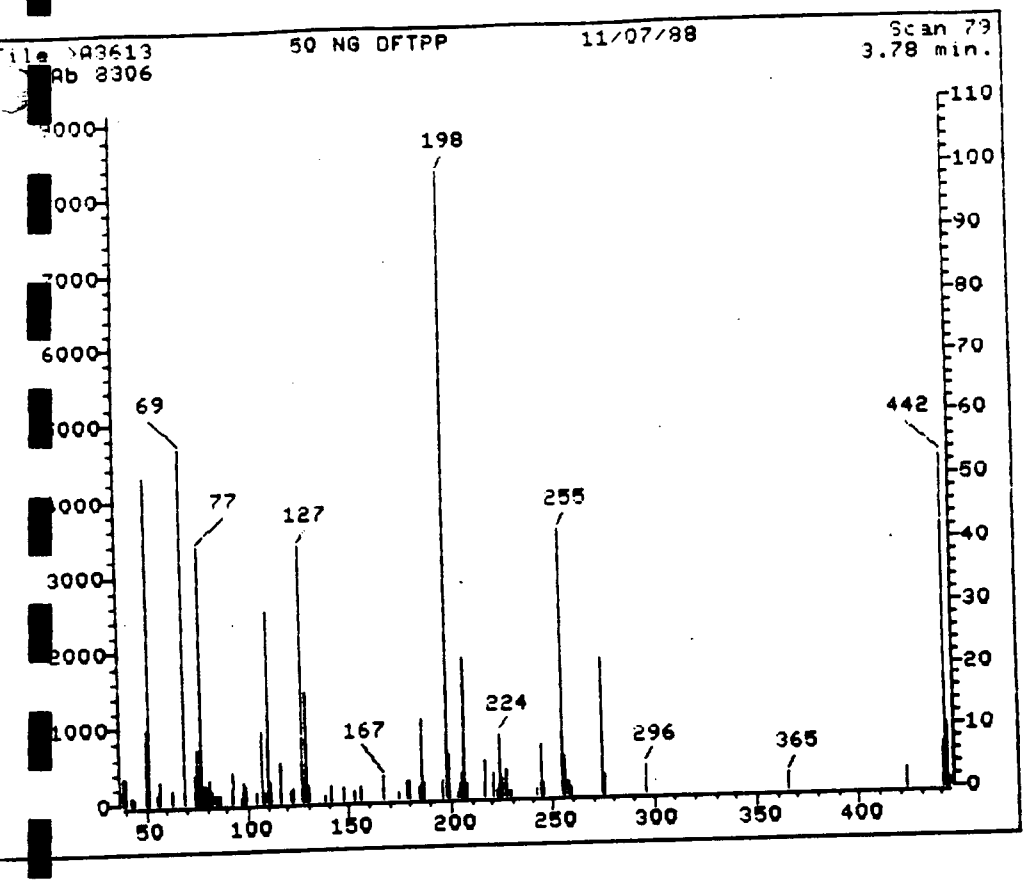


TABLE 2: METHOD PERFORMANCE DATA (QR23)

GC/MS Tuning Data - Decafluorotriphenylphospine (DFTPP) for Base/Neutral Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
[illegible]	30-60% of mass 198	51.85	51.85	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	55.94	55.94	Ok
[illegible]	Less than 2% of mass 69	0.00	0.00	Ok
127	40-60% of mass 198	40.60	40.60	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
[illegible]	Base peak, 100% relative abundance	100.00	100.00	Ok
[illegible]	5-9% of mass 198	6.72	6.72	Ok
275	10-30% of mass 198	21.67	21.67	Ok
[illegible]	Greater than 1% of mass 198	2.62	2.62	Ok
[illegible]	0-100% of mass 443	7.08	69.92	Ok
442	Greater than 40% of mass 198	52.81	52.81	Ok
443	17-23% of mass 442	10.13	19.17	Ok

Injection Date: 11/07/88 Analyst: LR
Injection Time: 14:31 Processor: LR
Run No: >A3613 QC Batch: _____
Spectrum No: _____
_____

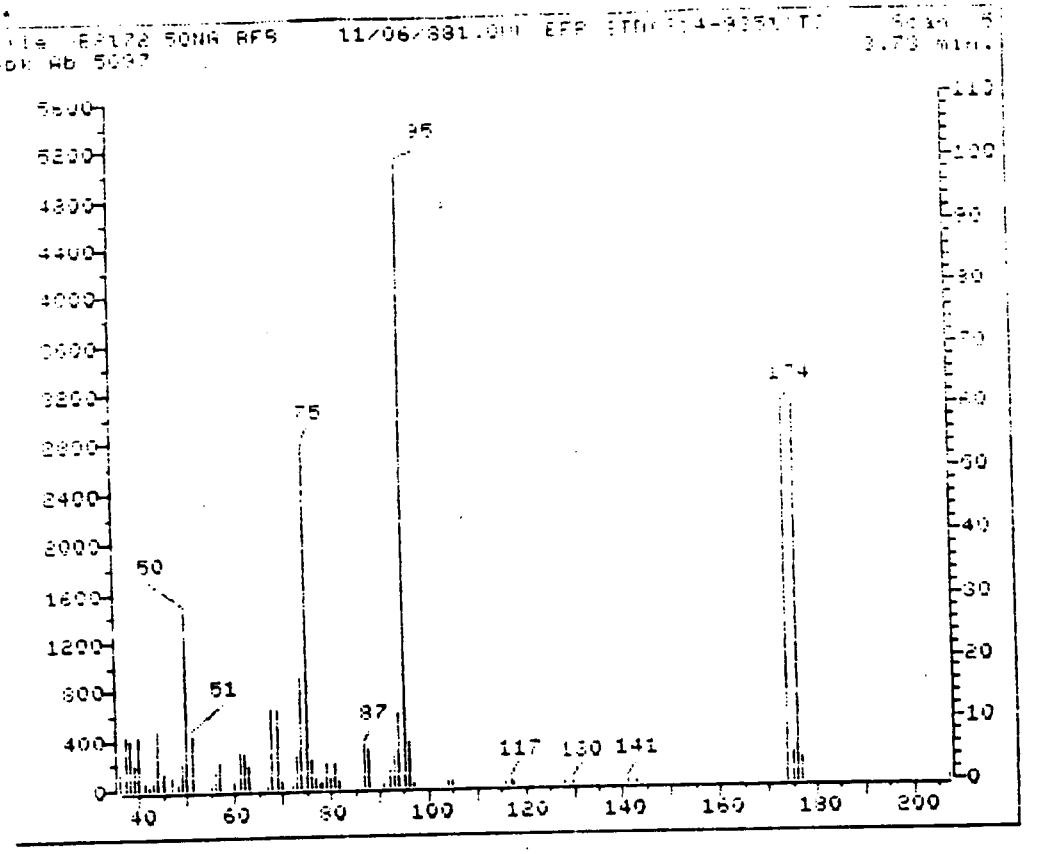


TABLE 2: METHOD PERFORMANCE DATA (QR21)

GC/MS Tuning Data - Bromofluorobenzene (BFB) for Volatiles Analysis

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	28.39	28.39	Ok
75	30-60% of mass 95	54.70	54.70	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.08	7.08	Ok
173	Less than 1% of mass 95	0.00	0.00	Ok
174	Greater than 50% of mass 95	59.74	59.74	Ok
175	5-9% of mass 174	4.87	8.14	Ok
176	95-101% of mass 174	59.72	99.97	Ok
177	5-9% of mass 176	3.85	6.44	Ok

Injection Date: 11/06/88 Analyst: MM
Injection Time: 10:57 Processor: MM
Run No: >B2172 GC Batch: _____
Spectrum No: _____

OHM Materials Corp.
10406 U.S. Route 224 East
Findlay, Ohio 45839-0551
419-423-3526

CHAIN-OF-CUSTODY RECORD

№ 40063

PROJECT LOCATION	NAME OF CLIENT	PROJECT TELEPHONE NO	PROJECT NUMBER
Newark, NJ	U.S. EPA Region 2	201-589-8392	5763 E

ITEM NUMBER	SAMPLE NUMBER	NUMBER & SIZE OF CONTAINERS	DESCRIPTION	TRANSFER NUMBER & CHECK 1	2	3	4	5	6	7
1	5763-PIT	1- 32oz. jar	Light Brown Solid, Waste sand, lime, and smashed unknowns from pit, Result of unknown remote opening 10-29-88 1200 JC/BC	✓	✓					
			P.O. # 45296-1							

Person Responsible for sample	Affiliation	Date	Time
JOHN CAYTON	OHM	10/31	1630

Purpose of analysis (use back of front sheet if necessary)
LANDFILL DISPOSAL
10 DAY TURNAROUND
(RESULTS DUE NOV. 11, 1988)

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1	John F Cayton	Federal Express	10/31	1630
2	1	Fed-X 9916803962	Larry Lauck	11-1-88	1030
3					
4					
5					
6					
7					

REFERENCE NO. 35

STATE OF NEW JERSEY
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

DIVISION OF WATER POLICY
AND SUPPLY

SPECIAL REPORT NO. 28

GROUND-WATER RESOURCES OF ESSEX COUNTY, NEW JERSEY

Prepared in cooperation with
United States Department of the Interior
Geological Survey

1968

GROUND-WATER RESOURCES OF ESSEX COUNTY, NEW JERSEY

By

WILLIAM D. NICHOLS

Hydrologist, U. S. Geological Survey

SPECIAL REPORT NO. 28

1968

Prepared by the U. S. Geological Survey

in Cooperation with the

State of New Jersey

Population of Essex County 1900-60

1900	359,053
1910	512,886
1920	652,089
1930	833,513
1940	837,340
1950	905,949
1960	923,545

Nearly 90 percent of the county's population is located in the 71.5 square miles (55.6 percent of total area) east of the Watchung Mountains.

The economy of Essex County is primarily industrial. The principal manufactured products include food products, electrical goods and machinery, chemicals, machinery (excluding electrical machinery), fabricated metal products, and apparel. In 1960, only about 5 percent of the total land area of the county was utilized as farmland.

GEOLOGY

INTRODUCTION

The Brunswick Formation and Watchung Basalt of the Newark Group of Late Triassic age underlie all of Essex County. The Brunswick Formation is dominantly shale and sandstone, but also includes minor amounts of conglomerate. The Watchung Basalt consists of three extensive sequences of lava flows intercalated with the shale and sandstone of the Brunswick Formation. The generalized bedrock geologic map (fig. 2) shows the areal extent of the rocks of Triassic age underlying Essex County. Overlying the rocks of the Newark Group are unconsolidated clay, sand, and gravel deposited during the Pleistocene and Recent Epochs. Pleistocene deposits are the most widespread and are found throughout the county. Deposits of Recent age are confined to the present-day stream valleys. Figure 3 shows the general distribution of the unconsolidated Pleistocene deposits.

Parts of Fairfield and Millburn Townships and Newark are underlain by valleys cut (fig. 3) in bedrock by streams that drained the area before the last glaciation. The valley were subsequently filled in and buried by glacial debris and have little present-day surface expression.

DISTRIBUTION AND LITHOLOGY OF ROCK UNITS

Consolidated Rocks

Rocks of the Brunswick Formation, the uppermost unit of the Newark Group, underlie most of Essex County. The formation consists dominantly of interbedded brown, reddish-brown, and gray shale, sandy shale, sandstone, and some conglomerate. Three sheets of gray to black basalt are intercalated with sandstone and shale beds of the Brunswick Formation. The total thickness of the Brunswick Formation is not known, but probably exceeds 6,000 feet (Kümmel 1940, p. 102).

In the southern part of the county east of the Watchung Mountains, the Brunswick Formation is predominantly a soft red shale. These rocks become coarser grained toward the north. In the northern part of the county the rocks are mostly sandstone and some interbedded shale; conglomerate is found in the extreme northern part of the county. This change from soft, easily weathered, shale to more resistant sandstone is reflected in the change of topography from the rather flat low-lying plain with few hills in southern Newark to hills of low relief in the northern part of the county.

Between First and Second Watchung Mountains, the Brunswick Formation is dominantly sandstone. West of Second Watchung Mountain, the formation is covered with thick deposits of unconsolidated sediments

of glacial origin and few outcrops can be found. As indicated from records of wells drilled in this area, the rocks are mainly shale and some interbedded sandstone.

Two prominent ridges, First and Second Watchung Mountains, extend from northeast to southwest across the county (fig. 2). These are the two lowest sequences of basalt flows of the Watchung Basalt. The third, uppermost, sequence of flows is represented by Ricker Hill in Livingston Township. These basalt sheets were formed by lava which was extruded at three different times during the accumulation of the sedimentary rocks of the formation. Each of these sheets is made up of several lava flows. Scoriaceous zones occur at the top of many of the individual flows. In some places, thin beds of shale occur between successive flows. The lower part of the Watchung Basalt, which comprises First Watchung Mountain, is from 600 to 650 feet thick; the Watchung Basalt in Second Watchung Mountain varies from 750 to 900 feet in thickness; the uppermost Watchung Basalt ranges from 225 to 350 feet in thickness (Darton and others, 1908, p. 10).

First and Second Watchung Mountains are parallel, and in places have double-crested ridges reflecting the presence of interbedded sedimentary rocks; the ridges generally rise between 300 and 400 feet above the adjacent country. The trend of the ridges reflect the general strike of the sedimentary rocks of the Brunswick Formation. The beds dip about 10 degrees toward the northwest.

Pleistocene and Recent Deposits

Unconsolidated sediments deposited by glaciers or by glacial meltwater during the Pleistocene Epoch cover most areas of Essex County. These deposits can be divided roughly into several types. Unstratified drift called till or ground moraine is a heterogeneous mixture of clay, silt, sand, gravel, cobbles, and boulders which was deposited by the ice. Unstratified drift that has accumulated in a ridgelike deposit along the margin of a glacier is called an end moraine. Stratified drift is deposited by glacial meltwater in streams (glaciofluvial deposits) and lakes (glaciolacustrine deposits). Glaciofluvial deposits are generally stratified sand, and sand and gravel, and glaciolacustrine deposits are usually bedded or laminated silt and clay. Figure 3 is a map showing the generalized distribution of the Pleistocene deposits in Essex County.

Streams and rivers draining the Essex County area before the last glaciation cut deep valleys into the Triassic rocks (fig. 3). These valleys were subsequently buried by glacial debris, and the thickness of the glacial deposits is largely controlled by the underlying bedrock topography. The

altitude of the floor of the buried bedrock valley under the Newark area is as much as 280 feet below sea level (fig. 4), and the glacial drift is as much as 300 feet thick. In the southwestern corner of Essex County in Millburn Township, the altitude of the valley floor is 17 feet above sea level and the drift averages 150 feet in thickness. In the northwestern part of the county in Fairfield Township, the floor of the valley is as much as 35 feet below sea level and the drift has a maximum thickness of about 200 feet. In the areas between the valleys, where the bedrock surface is high, the drift ranges from 0 to 70 feet thick.

East of the Watchung Mountains and west of the buried valley under the Newark area, the glacial deposits consist dominantly of till. The valley under the Newark area, however, is filled largely with stratified drift and interbedded lenses of till. In the central and southern part of Newark the main valley (fig. 4) is filled with as much as 200 feet of lacustrine clay and sandy clay, which is overlain by 50 to 100 feet of other stratified or unstratified glacial drift. In the northern part of Newark, where the valley (fig. 4) parallels the Passaic River, the valley contains several deposits of sand and gravel interbedded with clay and till. The sand and gravel ranges from 1 to 19 feet in thickness and is encountered mostly at depths of less than 50 feet and depths of more than 220 feet below land surface.

The present-day valley between First and Second Watchung Mountains is underlain by approximately 100 feet of stratified drift in both Cedar Grove in the north and Millburn Township in the south. These deposits consist mostly of stratified sand and gravel. Their maximum thickness appears to occur under that part of the valley west of the Rahway and Peckman Rivers; east of the rivers, the bedrock surface is shallow (30 to 50 feet below the valley floor), and the unconsolidated deposits are thin. There are not enough data to define the thickness and character of the subsurface glacial deposits in the valley in Verona and most of West Orange.

West of Second Watchung Mountain, the stratigraphy of the glacial deposits is moderately complex, especially in the buried valleys. The drift in the main buried valley in Livingston and Millburn Townships (fig. 3) has a maximum thickness of about 170 feet and consists of interbedded sand, sand and gravel, clay and till. Thicknesses of sand and gravel outwash range from 20 to 80 feet. Farther north, in north-western Fairfield, the main buried valley (fig. 3) is filled with as much as 200 feet of drift consisting almost exclusively of 140 to 170 feet of laminated silt and clay underlain by 10 to 30 feet of till. Deposits of fine- to medium-grained sand ranging in thickness from 0 to 20 feet occur on the surface.

FIG. 4

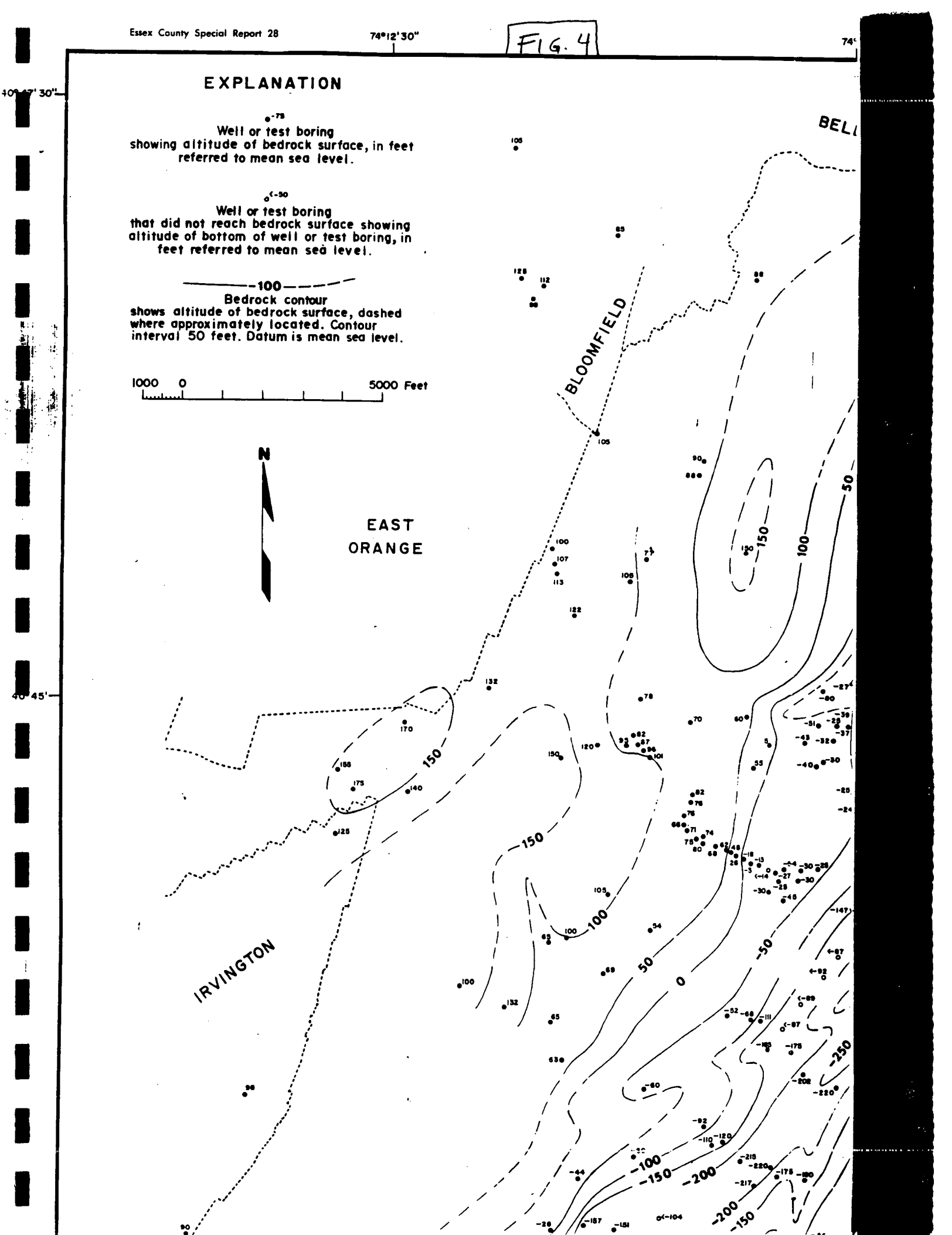

74°12'30"
40°47'30"
40°45'
EXPLANATION
Well or test boring showing altitude of bedrock surface, in feet referred to mean sea level.
Well or test boring that did not reach bedrock surface showing altitude of bottom of well or test boring, in feet referred to mean sea level.
100
Bedrock contour shows altitude of bedrock surface, dashed where approximately located. Contour interval 50 feet. Datum is mean sea level.
1000 0 5000 Feet
N
EAST ORANGE
BLOOMFIELD
IRVINGTON
BELL

FIG. 4

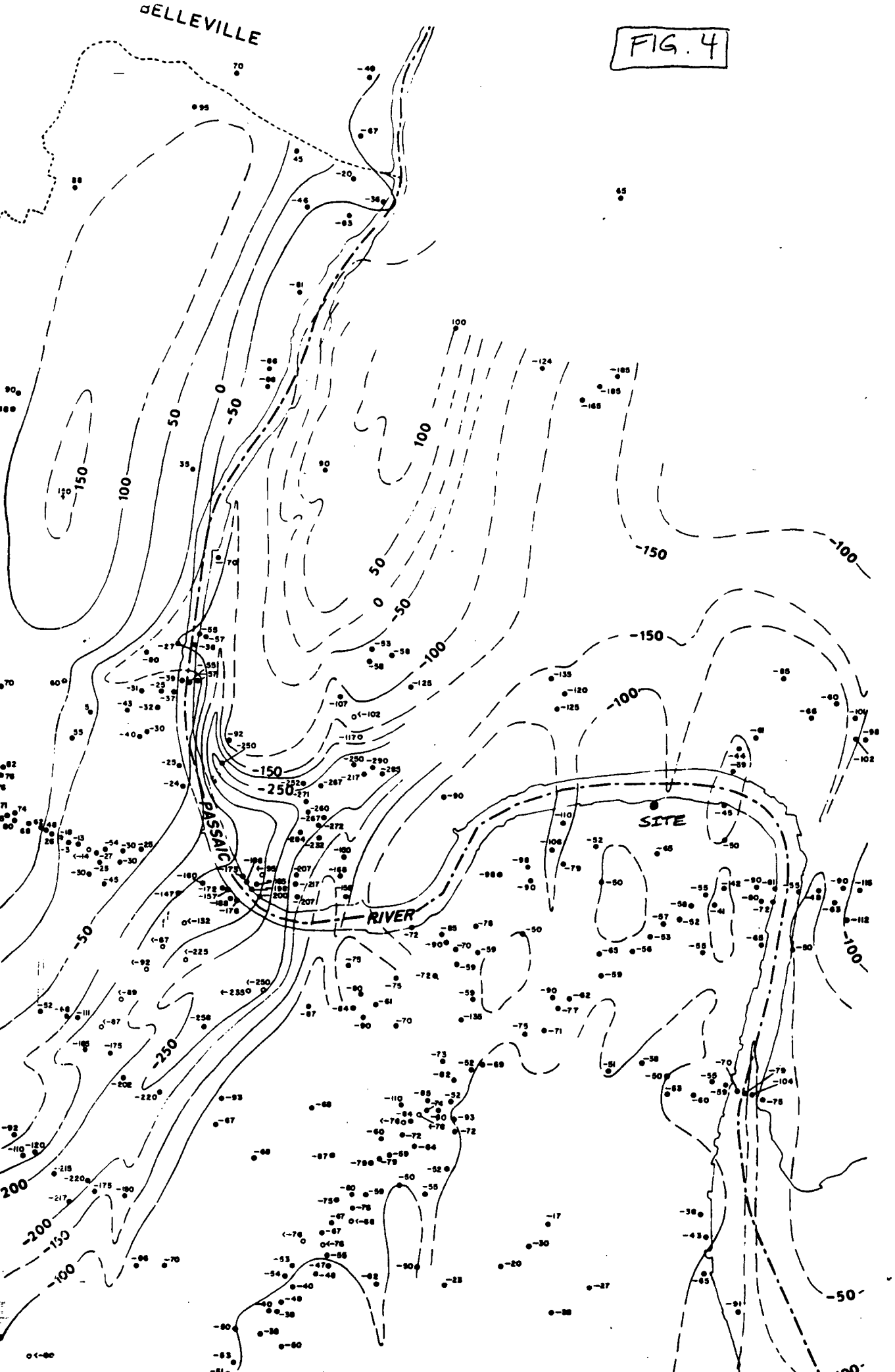
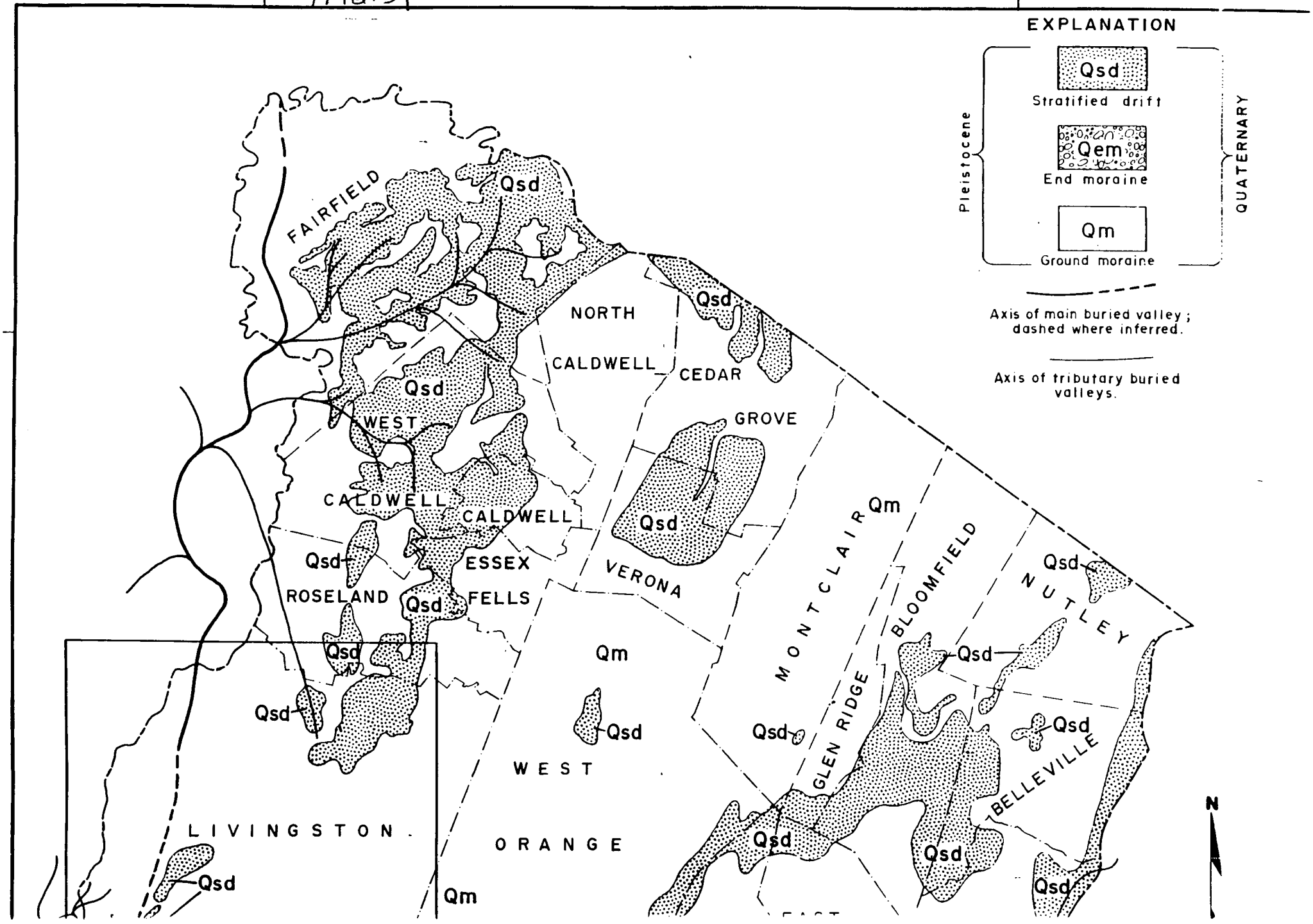


FIG. 3


74°20'
74°10'
°52'
EXPLANATION
Qsd
Stratified drift
Qem
End moraine
Qm
Ground moraine
Pleistocene
QUATERNARY
Axis of main buried valley; dashed where inferred.
Axis of tributary buried valleys.
FAIRFIELD
NORTH CALDWELL
CEDAR GROVE
WEST CALDWELL
CALDWELL
ESSEX FELLS
ROSELAND
VERONA
MONTCLAIR
BLOOMFIELD
NUTLEY
GLEN RIDGE
BELLEVILLE
WEST ORANGE
LIVINGSTON
EAST
Qsd
Qm
N

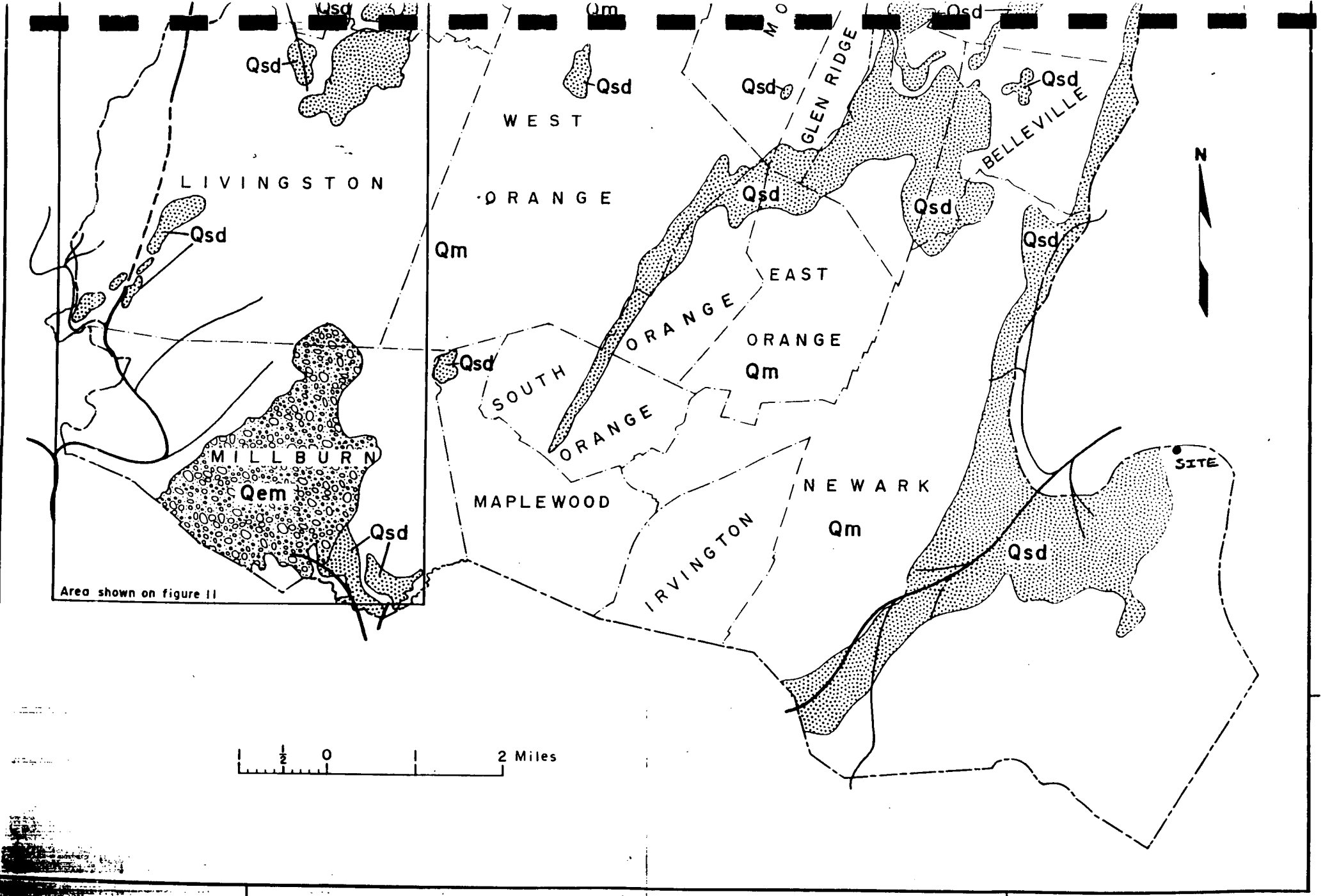


Figure 3.—Generalized surficial geologic map of Essex County, N. J. showing axes of buried valleys.

REFERENCE NO. 36

THE LATEST TRIASSIC AND EARLY JURASSIC FORMATIONS OF THE NEWARK BASIN (EASTERN NORTH AMERICA, NEWARK SUPERGROUP): STRATIGRAPHY, STRUCTURE, AND CORRELATION

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ABSTRACT. *Newark Supergroup deposits of the Newark Basin (New York, New Jersey, and Pennsylvania) are here divided into nine formations called (from the bottom up): Stockton Formation (maximum 1800 m); Lockatong Formation (maximum 1150 m); Passaic Formation (maximum 6000 m); Orange Mountain Basalt (maximum 200 m); Feltville Formation (maximum 600 m); Preakness Basalt (maximum +300 m); Towaco Formation (maximum 340 m); Hook Mountain Basalt (maximum 110 m); and Boonton Formation (maximum +500 m). The latter seven formations are new and result from subdividing the Brunswick Formation and Watchung Basalt of Kümmel and Darton. Each formation is characterized by its own suite of lithologies, the differences being especially obvious in the number, thickness, and nature of their gray and black sedimentary cycles (or lack thereof).*

Newark Basin structure still escapes comprehensive understanding, although it is clear that faults (predominantly normal) and onlaps bound both the eastern and western edges of the basin. The cumulative thickness of formations and the apparent movement of the faults is greater on the western than the eastern side, however.

Fossils are abundant in the sedimentary formations of the Newark Basin and provide a means of correlating the sequence with other early Mesozoic areas. The Stockton, Lockatong, and most of the Passaic Formation are Late Triassic (?Middle and Late Carnian — Rhaetic) while the uppermost Passaic Formation (at least locally) and younger beds appear to be Early Jurassic (Hettangian and Sinemurian) in age. The distribution of kinds of fossils is intimately related to sequences of lithologies in sedimentary cycles.

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INTRODUCTION

Despite well over a century of interest in the early Mesozoic Newark Supergroup of eastern North America, many fundamental aspects of its historical and structural geology remain unexplored. In part, this is due to the complexity of stratigraphic and structural relations in the individual basins, coupled with the rarity of continuous exposures. As a result, much of our accepted understanding of the Newark Supergroup has been based on incomplete observations and opinion. The purpose of this paper is to provide a more thorough observational foundation against which past hypotheses may be assessed and on which future work may be based. Emphasis is placed on the younger beds of the Newark Basin, for they have never been examined in detail, and a new stratigraphic framework is proposed. These younger Newark Basin beds provide us with a key to understanding the entire basin column, which in turn is crucial to the context in which early Mesozoic organic evolution, continental sedimentation, and tectonic development are to be studied.

REGIONAL SETTING

Triassic and Jurassic Newark Supergroup rocks (Figure 1) (Olsen, 1978; Van Houten, 1977) occupy numerous elongate basins in eastern North America and consist of predominantly detrital fill locally more than 10,000 m thick. In most

Guide. In this way, nominal status is given to beds critical to the overall pattern of Newark Basin historical geology.

DESCRIPTIVE STRATIGRAPHY OF THE POST-LOCKATONG FORMATIONS

The Passaic Formation

The name Passaic Formation is proposed for the predominantly red siltstone, sandstone, and conglomerate which conformably overlie the Lockatong Formation and which underlie the Orange Mountain and Jacksonwald basalts. It is equivalent to the pre-basalt part of Kümmel's Brunswick Formation (Table 1). The type section (Figure 4) consists of intermittent exposures of red siltstone and sandstone along interstate Route 80 near Passaic, New Jersey (Figure 2 and Appendix).

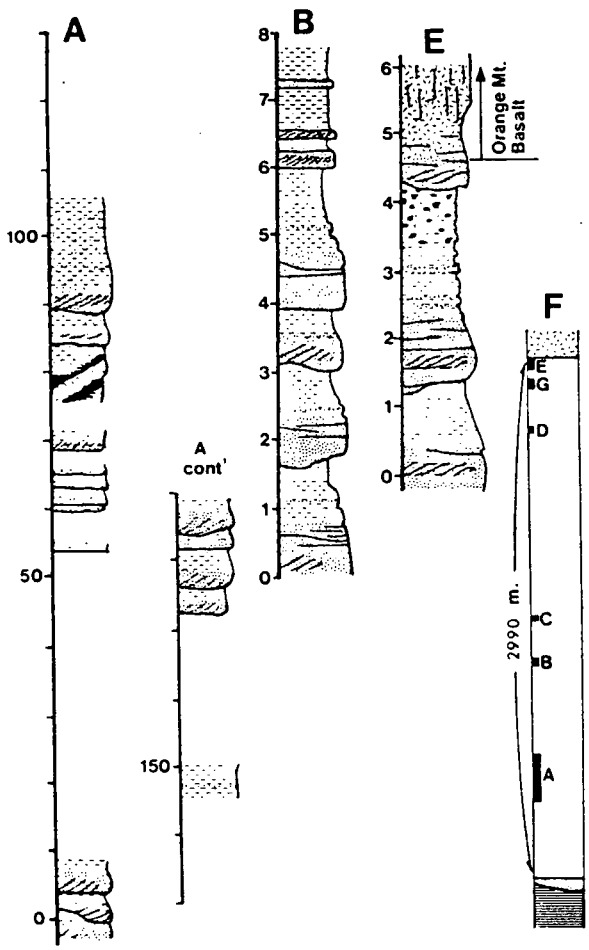


FIG. 4. A - E, type section of Passaic Formation (see Appendix for description); F, diagram showing positions of sections A - E in Passaic Formation.

As is the case for all Newark formations, the estimation of stratigraphic thicknesses in the Passaic Formation is hampered by the presence of a series of faults with variable amounts of dip-slip displacement cutting much of the Newark Basin. The exact distribution of these faults is poorly known and thus many trigonometrically computed thicknesses in the Passaic Formation are probably overestimations. This is especially true in the northern and southern portions of the Newark Basin. The field relationship of mapped gray siltstones in the central Newark Basin, however, shows that in broad areas these smaller faults are missing and the calculated stratigraphic thickness is probably correct (McLaughlin, 1943). Instead of a large number of small faults, the central Newark Basin is cut by several very large faults (Figure 2).

In spite of these mensuration problems, it is clear that the Passaic Formation is the thickest, coherent lithologic unit in the Newark Basin, reaching a maximum calculated stratigraphic thickness of over 6,000 m (Jacksonwald Syncline). The formation outcrops throughout the Newark Basin although its upper beds are preserved only in the Watchung Syncline (Figure 2), in the smaller synclines preserved along the eastern side of the Flemington Fault, and in the Jacksonwald Syncline. In all other areas, the upper Passaic Formation has been removed by post-Newark erosion.

While in most areas the Passaic Formation rests conformably on Lockatong Formation, in several areas on the western margin of the Newark Basin, the Passaic directly onlaps the step-faulted basement without any intervening Stockton or Lockatong. In these areas (see Figure 5), the thickness of upper Passaic Formation present below the Orange Mountain Basalt is comparatively slight. One area where these relationships can be clearly seen is near Cushetunk Mountain (Figure 5) in central New Jersey. In the New Germantown Syncline, the stratigraphic distance from the Palaeozoic basement to the Orange Mountain Basalt is about 800 m. Less than 30 km to the southwest, over 1,000 m of Passaic is

REFERENCE NO. 37

federal register

Friday
December 14, 1990

Part II

Environmental Protection Agency

40 CFR Part 300
Hazard Ranking System; Final Rule

TABLE 3-6.—HYDRAULIC CONDUCTIVITY OF GEOLOGIC MATERIALS

Type of material	Assigned hydraulic conductivity [a] (cm/sec)
Clay; low permeability till (compact unfractured till); shale; unfractured metamorphic and igneous rocks	10^{-8}
Silt; loesses; silty clays; sediments that are predominantly silts; moderately permeable till (fine-grained, unconsolidated till, or compact till with some fractures); low permeability limestones and dolomites (no karst); low permeability sandstone; low permeability fractured igneous and metamorphic rocks	10^{-6}
Sands; sandy silts; sediments that are predominantly sand; highly permeable till (coarse-grained, unconsolidated or compact and highly fractured); peat; moderately permeable limestones and dolomites (no karst); moderately permeable sandstone; moderately permeable fractured igneous and metamorphic rocks	10^{-4}
Gravel; clean sand; highly permeable fractured igneous and metamorphic rocks; permeable basalt; karst limestones and dolomites	10^{-2}

[a] Do not round to nearest integer.

TABLE 3-7.—TRAVEL TIME FACTOR VALUES [a]

Hydraulic conductivity (cm/sec)	Thickness of lowest hydraulic conductivity layer(s)[b] (feet)			
	Greater than 3 to 5	Greater than 5 to 100	Greater than 100 to 500	Greater than 500
Greater than or equal to 10^{-3}	35	35	35	25
Less than 10^{-3} to 10^{-5}	35	25	15	15
Less than 10^{-5} to 10^{-7}	15	15	5	5
Less than 10^{-7}	5	5	1	1

[a] If depth to aquifer is 10 feet or less or if, for the interval being evaluated, all layers that underlie a portion of the sources at the site are karst, assign a value of 35.

[b] Consider only layers at least 3 feet thick. Do not consider layers or portions of layers within the first 10 feet of the depth to the aquifer.

Determine travel time only at locations within 2 miles of the sources at the site, except: if observed ground water contamination attributable to sources at the site extends more than 2 miles beyond these sources, use any location within the limits of this observed ground water contamination when evaluating the travel time factor for any aquifer that does not have an observed release. If the necessary subsurface geologic information is available at multiple locations, evaluate the travel time factor at each location. Use the location having the highest travel time factor value to assign the factor value for the aquifer. Enter this value in Table 3-1.

3.1.2.5 *Calculation of potential to release factor value.* Sum the factor values for net precipitation, depth to aquifer, and travel time, and multiply this sum by the factor value for containment. Assign this product as the potential to release factor value for the aquifer. Enter this value in Table 3-1.

3.1.3 *Calculation of likelihood of release factor category value.* If an observed release is established for an aquifer, assign the observed release factor value of 550 as the likelihood of release factor category value for that aquifer. Otherwise, assign the potential to release factor value for that aquifer as the likelihood of release value. Enter the value assigned in Table 3-1.

3.2 *Waste characteristics.* Evaluate the waste characteristics factor category for an aquifer based on two factors: toxicity/mobility and hazardous waste quantity. Evaluate only those hazardous substances available to migrate from the sources at the site to ground water. Such hazardous substances include:

- Hazardous substances that meet the criteria for an observed release to ground water.
- All hazardous substances associated with a source that has a ground water containment factor value greater than 0 (see sections 2.2.2, 2.2.3, and 3.1.2.1).

3.2.1 *Toxicity/mobility.* For each hazardous substance, assign a toxicity factor value, a mobility factor value, and a combined toxicity/mobility factor value as specified in the following sections. Select the toxicity/mobility factor value for the aquifer being evaluated as specified in section 3.2.1.3.

3.2.1.1 *Toxicity.* Assign a toxicity factor value to each hazardous substance as specified in Section 2.4.1.1.

3.2.1.2 *Mobility.* Assign a mobility factor value to each hazardous substance for the aquifer being evaluated as follows:

- For any hazardous substance that meets the criteria for an observed release by chemical analysis to one or more aquifers underlying the sources at the site, regardless of the aquifer being evaluated, assign a mobility factor value of 1.
- For any hazardous substance that does not meet the criteria for an observed release by chemical analysis to at least one of the aquifers, assign that hazardous substance a mobility factor value from Table 3-8 for the aquifer being evaluated, based on its water solubility and distribution coefficient (K_d).
- If the hazardous substance cannot be assigned a mobility factor value because data on its water solubility or distribution coefficient are not available, use other hazardous substances for which information is available in evaluating the pathway.

TABLE 3-8.—GROUND WATER MOBILITY FACTOR VALUES [a]

Water solubility (mg/l)	Distribution coefficient (K_d) (ml/g)			
	Karst [c]	≤ 10	> 10 to 1,000	> 1,000
Present as liquid [b]	1	1	0.01	0.0001
Greater than 100	1	1	0.01	0.0001
Greater than 1 to 100	0.2	0.2	0.002	2×10^{-5}
Greater than 0.01 to 1	0.002	0.002	2×10^{-5}	2×10^{-7}
Less than or equal to 0.01	2×10^{-5}	2×10^{-5}	2×10^{-7}	2×10^{-9}

[a] Do not round to nearest integer.

[b] Use if the hazardous substance is present or deposited as a liquid.

[c] Use if the entire interval from the source to the aquifer being evaluated is karst.

REFERENCE NO. 38

SUBJECT TO REVISION

100,000 GPD WATER WITHDRAWAL POINTS ONLY AND COMPREHENSIVE SITE LIST CASES WITHIN 5.0 MILES OF:

LATITUDE 404418
LONGITUDE 740740

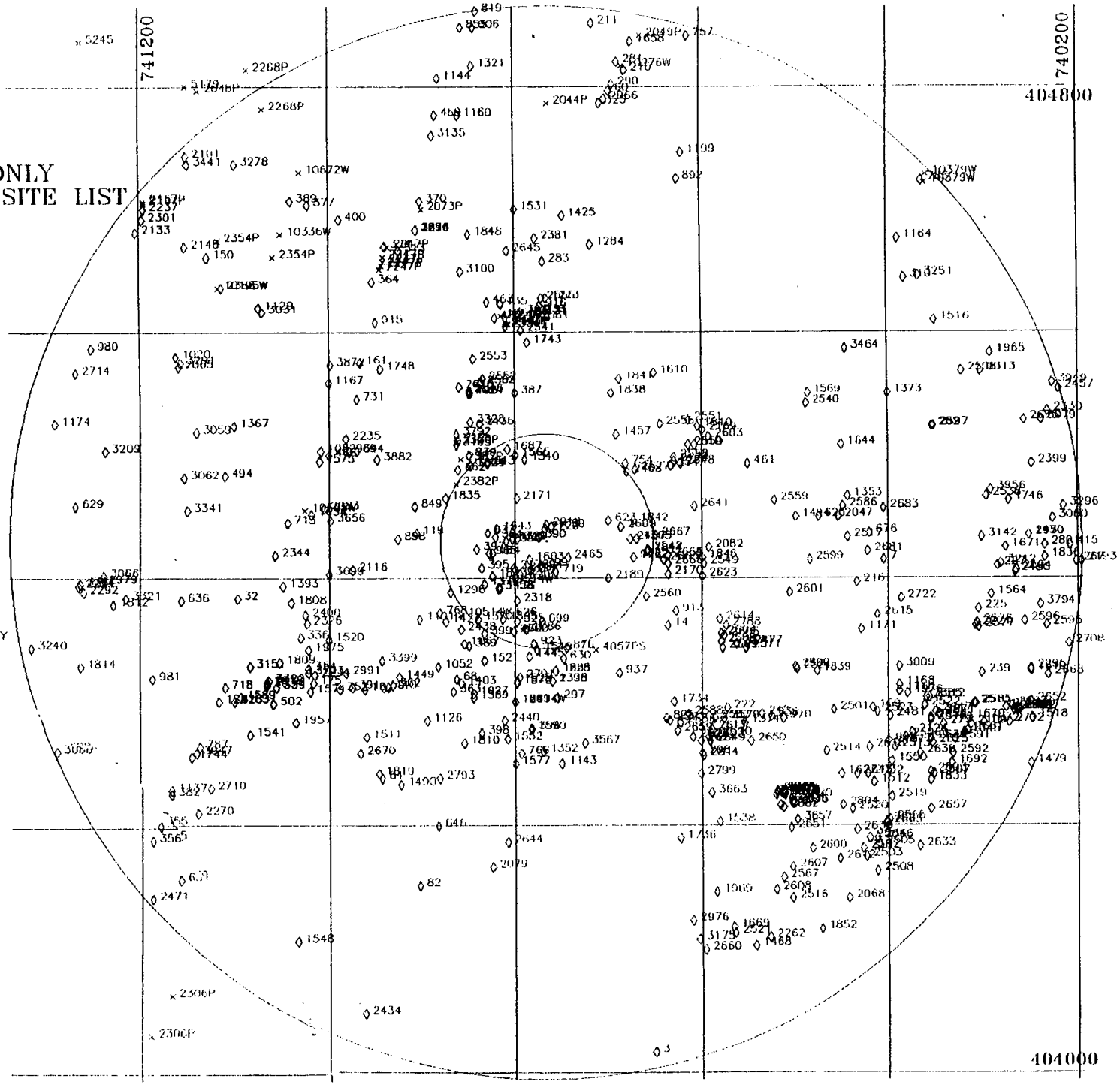
DRAFT

SCALE: 1:63,360
(1 Inch = 1 Mile)

× 100,000 GPD WATER WITHDRAWAL POINTS ONLY
◊ COMPREHENSIVE SITE LIST CASES
1 MILE AND 5 MILE RADII INDICATED

COMPREHENSIVE SITE LIST CASES AS OF 10/01/92

PLOT PRODUCED BY:
NJDEPE
WATER SUPPLY ELEMENT
BUREAU OF WATER ALLOCATION
CN-426
TRENTON, NJ 08625
DATE: 05/18/93



SUBJECT TO REVISION

Page 1 of PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 5.0 MILES OF 404418 LAT. 740740 LON. (IN ORDER BY DECREASING LONGITUDE) - 05/18/93

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
5245	MONTCLAIR TOWN	2603487	RAND W. #1	404822	741237	S	6.4	13	13	300	GTRB		400
2167P	SCHERING PLOUGH CORPORATION	2600921	1	404704	741157		4.9	13	02	478	GTRB		160
2167P	SCHERING PLOUGH CORPORATION	2604498	2	404703	741157		4.9	13	02	400	GTRB		130
2306P	HAYWARD MANUFACTURING PRODUCTS	2604712	1	404019	741154		5.9	39	19	274	GTRB		100
2306P	HAYWARD MANUFACTURING PRODUCTS	2606867	2	404039	741141		5.5	39	19	275	GTRB		100
5179	BLOOMFIELD TOWN	2604763	1	404800	741130	T	5.4	13	02	380	GTRB		330
2048P	NATIONAL STARCH & CHEMICAL	2604314	1	404758	741122	T	5.3	13	02	410	GTRB		200
10195W	COLUMBUS HOSPITAL	2604664	#1	404622	741110	T	3.9	13	14	354	GTRB		160
2354P	ESSEX COUNTY DEPT. OF PARKS	2604894	2	404645	741110	T	4.2	13	14	450	GTRB		180
2268P	FOREST HILL FIELD CLUB	POND		404808	741051	F	5.2	13	02	14	SPLDW		1200
2268P	FOREST HILL FIELD CLUB	2604258	1	404749	741041	S	4.8	13	02	238	GTRB		60
2354P	ESSEX COUNTY DEPT. OF PARKS	4600216	1	404637	741035	S	3.7	13	14	200	GTRB		240
10336W	CLARA MAAS HOPSITAL	2603344	WELL 1	404648	741030	T	3.8	13	01	501			360
10672W	ROCHE DIAGNOSTIC SYSTEM	4600229	1	404718	741018		4.1	13	01	602	GTRB		60
10673W	ROCHE DIAGNOSTIC SYSTEM	4600230	2	404718	741018		4.1	13	01	610	GTRB		200
10555W	NEW JERSEY BELL TELEPHONE	2603173	1	404433	741015		2.3	13	14	215	GTRB		80
2247P	SETON COMPANY - LEATHER DIV.	2604969	5	404631	740927	F	3.0	13	14	400	GTRB		500
2247P	SETON COMPANY - LEATHER DIV.	4600162	4	404633	740926	F	3.0	13	14	200	GTRB		200
2247P	SETON COMPANY - LEATHER DIV.	4600160	2	404637	740925	F	3.1	13	14	300	GTRB		200
2247P	SETON COMPANY - LEATHER DIV.	4600161	3	404635	740925	F	3.0	13	14	250	GTRB		75
2247P	SETON COMPANY - LEATHER DIV.	2604968	6	404642	740922	F	3.1	13	14	400	GTRB		100
2073P	ISP VAN DYK INC.	4600092	1	404700	740900	T	3.3	13	01	352	GTRB		100
2073P	ISP VAN DYK INC.	4600093	2	404700	740900	T	3.3	13	01	400	GTRB		150
2073P	ISP VAN DYK INC.	2605113	3	404700	740900	T	3.3	13	01	400	GTRB		150
2320P	KOTOW TRADING CORPORATION	4600182	1	404506	740838	S	1.2	17	07	500	GTRB		210
2320P	KOTOW TRADING CORPORATION	2602384	2	404506	740838	S	1.2	17	07	700	GTRB		500
2382P	KARLSHAMNS USA,INC.	2604523	NORTH WELL	404446	740838	S	1.0	17	07	584	GTRB		500
10514W	RONSON METALS CORP.	2604993	3	404342	740835	T	1.1	13	14	165			100
2382P	KARLSHAMNS USA,INC.	2604614	SOUTH WELL	404458	740835	F	1.1	17	07	615	GTRB		1000
10513W	SWENSON CO., INC.	2602717	1	404608	740809	F	2.1	17	07	400	GTRB		150
10514W	RONSON METALS CORP.	2603408	1	404358	740808	T	0.6	13	14	300	GTRB		150
2141P	PFAFF TOOL & MANUFACTURING CO.	2604269	3	404604	740806	F	2.1	17	07	550	GTRB		155
2141P	PFAFF TOOL & MANUFACTURING CO.	2604711	4	404604	740806	F	2.1	17	07	333	GTRB		
2141P	PFAFF TOOL & MANUFACTURING CO.	2602735	2	404604	740805	F	2.1	17	07	740	GTRB		140
2141P	PFAFF TOOL & MANUFACTURING CO.	2602162	1	404604	740804	F	2.1	17	07	590	GTRB		175
10514W	RONSON METALS CORP.	2604514	2	4043	7408	T	1.5	13	14	300			100
2044P	GRAND UNION CO.	4600002		404752	740738	S	4.1	03	39	300	GTRB		80
4057PS	RTC PROPERTIES INC	PASSAIC RIVER	INTAKE 1	404325	740709	F	1.1	17	07		SPLMP		1500
10276W	BENEDICT-MILLER, INC	2603588	WELL 1	404810	740650	T	4.5	03	32	229			60
2049P	SIKA CORPORATION	2604036	1	404825	740638		4.8	03	32	302	GTRB		220
10379W	KEYSTONE METAL FINISHERS, INC.	2604201	3	404713	740336	T	4.9	17	09	312	GTRB		300
10379W	KEYSTONE METAL FINISHERS, INC.	2602297	2	404717	740335	T	4.9	17	09	150	GTRB		150

Number of Observations: 42

 PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 5.0 MILES OF 404418 LAT. 740740 LON. (IN ORDER BY PERMIT NUMBER) - 05/18/93

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
10195W	COLLIERS HOSPITAL	2604664	01	404622	741110	T	3.9	13	14	354	GTRB		160
10276W	BENEDICT-MILLER, INC.	2603568	WELL 1	404810	740650	T	4.5	03	32	228			60
10336W	CLARA MAAS HOSPITAL	2603344	WELL 1	404648	741030	T	3.8	13	01	501			360
10379W	KEYSTONE METAL FINISHERS, INC.	2602277	2	404717	740335	T	4.9	17	07	150	GTRB		130
	KEYSTONE METAL FINISHERS, INC.	2604201	3	404713	740336	T	4.9	17	09	312	GTRB		300
10512W	SWENSON CO., INC.	2602717	1	404608	740809	F	2.1	17	07	400	GTRB		150
10514W	RONSON METALS CORP.	2603408	1	404358	740808	T	0.6	13	14	300	GTRB		150
	RONSON METALS CORP.	2604993	3	404342	740835	T	1.1	13	14	165			100
	RONSON METALS CORP.	2604514	2	4043	7408	T	1.5	13	14	300			100
10555W	NEW JERSEY BELL TELEPHONE	2603173	1	404423	741015		2.3	13	14	215	GTRB		80
10672W	ROCHE DIAGNOSTIC SYSTEM	4600229	1	404718	741018		4.1	13	01	602	GTRB		60
	ROCHE DIAGNOSTIC SYSTEM	4600230	2	404718	741018		4.1	13	01	610	GTRB		200
2044P	GRAND UNION CO.	4600002		404752	740738	S	4.1	03	39	300	GTRB		80
2048P	NATIONAL STARCH & CHEMICAL	2604314	1	404758	741122	T	5.3	13	02	410	GTRB		200
2049P	SIKA CORPORATION	2604036	1	404825	740638		4.8	03	32	302	GTRB		220
2073P	ISP VAN DYK INC.	4600092	1	404700	740900	T	3.3	13	01	352	GTRB		100
	ISP VAN DYK INC.	4600093	2	404700	740900	T	3.3	13	01	400	GTRB		150
	ISP VAN DYK INC.	2605113	3	404700	740900	T	3.3	13	01	400	GTRB		150
2141P	PFAFF TOOL & MANUFACTURING CO.	2602162	1	404604	740804	F	2.1	17	07	590	GTRB		175
	PFAFF TOOL & MANUFACTURING CO.	2602735	2	404604	740805	F	2.1	17	07	740	GTRB		140
	PFAFF TOOL & MANUFACTURING CO.	2604269	3	404604	740806	F	2.1	17	07	550	GTRB		155
	PFAFF TOOL & MANUFACTURING CO.	2604711	4	404604	740806	F	2.1	17	07	333	GTRB		
2167P	SCHERING PLOUGH CORPORATION	2602931	1	404704	741157		4.9	13	02	478	GTRB		160
	SCHERING PLOUGH CORPORATION	2604498	2	404703	741157		4.9	13	02	400	GTRB		130
2247P	SETON COMPANY - LEATHER DIV.	4600160	2	404637	740925	F	3.1	13	14	300	GTRB		200
	SETON COMPANY - LEATHER DIV.	4600161	3	404635	740925	F	3.0	13	14	250	GTRB		75
	SETON COMPANY - LEATHER DIV.	4600162	4	404633	740926	F	3.0	13	14	200	GTRB		200
	SETON COMPANY - LEATHER DIV.	2604969	5	404631	740927	F	3.0	13	14	400	GTRB		500
	SETON COMPANY - LEATHER DIV.	2604988	6	404642	740922	F	3.1	13	14	400	GTRB		100
2268P	FOREST HILL FIELD CLUB	2604258	1	404749	741041	S	4.8	13	02	238	GTRB		60
	FOREST HILL FIELD CLUB	PUMP		404808	741051	F	5.2	13	02	14	SPLUN		1200
2306P	HAYWARD MANUFACTURING PRODUCTS	2604712	1	404019	741154		5.9	39	19	274	GTRB		100
	HAYWARD MANUFACTURING PRODUCTS	2606867	2	404039	741141		5.5	39	19	275	GTRB		100
2320P	KOTOW TRADING CORPORATION	4600152	1	404506	740638	S	1.2	17	07	500	GTRB		210
	KOTOW TRADING CORPORATION	2602384	2	404506	740838	S	1.2	17	07	700	GTRB		500
2354P	ESSEX COUNTY DEPT. OF PARKS	2604894	2	404645	741110	T	4.2	13	14	450	GTRB		180
	ESSEX COUNTY DEPT. OF PARKS	4600216	1	404637	741035	S	3.7	13	14	200	GTRB		240
2382P	KARLSHAMNS USA, INC.	2604525	NORTH WELL	404446	740639	S	1.0	17	07	534	GTRB		500
	KARLSHAMNS USA, INC.	2604614	SOUTH WELL	404458	740835	F	1.1	17	07	615	GTRB		1000
4057PS	RTC MANUFACTURING INC	MASSBURY PARK	WELL 1	404345	740708	F	1.1	17	07		SPLUN		1500
5179	BLOOMFIELD TOWN	2601757	1	404500	741130	T	5.4	13	02	380	GTRB		330
5245	MONTCLAIR TOWN	2602[illegible]	[illegible]	404522	741137	S	5.4	13	13	300	GTRB		400

Number of lines printed: 41

REFERENCE NO. 39

WESTON

T. Varney
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name Bob Soldwedel
Company Chief, Bureau of Freshwater Fisheries (NJDEPE)
Address
Phone (609) 292-8642

Date 05 / 24 / 93
Time 15:40 AM/PM
☒ Originator Placed Call
☐ Originator Received Call
W.O. NO. 04200-016-081-0002

Subject Fishing in Newark Bay Complex

Notes: Mr. Soldwedel told me that, despite certain restrictions people do fish and keep fish from the Passaic River, Newark Bay, Arthur Kill, Kill Van Kull, and the Narrows area. He said that people fish anywhere there's a shoreline along these water bodies. He also said there was something on television showing people fishing in part of these waters.

☒ File Int'l Metallurgical Services
Follow-Up-Action:
☐ Tickle File / /
☐ Follow-Up By:
☐ Copy/Route To:

Originator's Initials TAV

RFW 110-4-83

REFERENCE NO. 40

Water Resources Data New Jersey Water Year 1991

Volume 1. Surface-Water Data

by W.R. Bauersfeld, E.W. Moshinsky, and E.A. Pustay

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NJ-91-1
Prepared in cooperation with the New Jersey Department
of Environmental Protection and Energy and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in New Jersey write to

District Chief, Water Resources Division
U.S. Geological Survey
Mountain View Office Park
810 Bear Tavern Road, Suite 206
West Trenton, New Jersey 08628

1992

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ
(National stream quality accounting network station)

LOCATION.--Lat 40°53'05", long 74°13'35", Passaic County, Hydrologic Unit 02030103, on left bank 0.6 mi downstream from Beattie's Dam in Little Falls, and 1.0 mi upstream from Peckman River.

DRAINAGE AREA.--762 mi^2. Area at site used prior to Oct. 1, 1955, 799 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1897 to current year. Monthly discharge only for September 1897, published in WSP 1302. Published as "at Paterson", September 1897 to September 1955.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 120.00 ft above National Geodetic Vertical Datum of 1929 (levels by Passaic Valley Water Commission). Prior to Jan. 8, 1933, nonrecording gage and Jan. 8, 1933, to Sept. 30, 1955, water-stage recorder, at site 3.7 mi downstream at National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at medium and low flow caused by hydroelectric plant at Beattie's Dam. Flow regulated by reservoirs in Rockaway, Pequannock, Wanaque, and Ramapo River subbasins (see Passaic River basin, reservoirs in). Large diversions for municipal supply from Passaic River above Beattie's Dam, and from Rockaway, Pequannock, Pompton, Ramapo, and Wanaque Rivers (see Passaic River basin, diversions and Hackensack River basin, diversions). In addition, the New Jersey-American Water Company (formerly Commonwealth Water Co.) diverts from Canoe Brook near Summit and from Passaic River (see Passaic River basin, diversions); that company, the city of East Orange, and others also divert water for municipal supply by pumping wells in the basin. Several measurements of water temperature, other than those published, were made during the year. National Weather Service rain-gage and gage-height and USGS satellite telemeters at station.

COOPERATION.--Gage-height record collected in cooperation with the Passaic Valley Water Commission. Analyses of fecal coliform by the MPN method and enterococcus bacteria by the membrane filtration method were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

PEAK DISCHARGES ABOVE BASE FOR CURRENT YEAR[a].--Peak discharges greater than base discharge of 4,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 6	0230	*4,160	*5.70	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	611	337	2370	1210	718	1040	2020	382	151	193	139
2	194	534	307	2280	1120	714	1000	1780	372	149	153	117
3	182	680	436	2170	1030	889	935	1420	310	163	143	106
4	190	626	2630	2020	961	3180	865	1220	457	169	135	89
5	251	485	3910	1830	922	3790	804	928	440	186	144	216
6	237	592	4110	1650	912	3750	769	1260	447	215	130	102
7	212	558	3810	1490	1120	3710	742	2080	355	197	99	41
8	189	466	3390	1320	1320	3550	698	2110	293	193	94	59
9	886	407	3010	1260	1330	3260	666	2020	256	191	235	56
10	936	1180	2620	1340	1280	2910	633	1880	221	175	654	51
11	971	2850	2220	1350	1180	2560	598	1690	172	143	580	52
12	971	2860	1840	1370	1050	2140	548	1450	160	122	375	49
13	1250	2480	1550	1370	926	1780	517	1180	189	174	215	79
14	1950	2200	1310	1320	941	1510	592	952	164	206	151	89
15	1530	1900	1130	1250	1090	1450	673	939	122	160	145	116
16	1470	1560	1370	1480	1110	1460	799	994	103	118	155	114
17	1440	1290	1490	2330	995	1400	866	871	156	117	138	105
18	1380	1060	1570	2480	886	1420	904	732	288	95	126	90
19	1410	885	1760	2640	895	1780	880	607	245	77	424	149
20	1280	760	1720	2720	1060	1880	794	527	289	95	719	175
21	1190	627	1620	2700	1180	1710	1490	475	180	101	690	199
22	1080	509	1660	2500	1180	1440	2640	431	161	198	622	90
23	1270	547	1680	2210	1090	1270	2950	393	133	213	494	42
24	2340	619	2310	1990	968	1350	3050	368	131	296	625	52
25	2220	631	2570	1720	872	1440	3350	342	78	299	453	1460
26	1860	623	2480	1460	822	1390	3270	310	107	378	316	1840
27	1620	514	2310	1240	788	1300	3050	319	54	685	239	1410
28	1420	468	2170	1100	754	1230	2790	591	77	713	204	1090
29	1210	444	2050	1040	---	1150	2470	623	74	482	173	911
30	969	404	2040	998	---	1130	2170	475	100	357	166	737
31	758	---	2330	1170	---	1100	---	384	---	264	147	---
TOTAL	33076	29370	63740	54168	28992	58361	42553	31371	6516	7082	9137	9825
MEAN	1067	979	2056	1747	1035	1883	1418	1012	217	228	295	327
MAX	2340	2860	4110	2720	1330	3790	3350	2110	457	713	719	1840
MIN	182	404	307	998	754	714	517	310	54	77	94	41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1991, BY WATER YEAR (WY)

MEAN	632	953	1262	1343	1450	2390	2089	1339	774	536	556	539
MAX	5613	4757	4497	4039	3787	6755	5760	4554	4290	3124	2859	3561
(WY)	1904	1908	1903	1979	1973	1936	1983	1989	1972	1945	1942	1971
MIN	44.5	79.2	111	104	178	423	228	227	84.6	60.3	30.4	28.9
(WY)	1931	1932	1981	1981	1901	1981	1985	1965	1965	1954	1923	1964

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		WATER YEARS 1898 - 1991	
ANNUAL TOTAL	463444		374191			
ANNUAL MEAN	1270		1025		1154	
HIGHEST ANNUAL MEAN					2394	1903
LOWEST ANNUAL MEAN					269	1965
HIGHEST DAILY MEAN	5980	May 18	4110	Dec 6	28000	Oct 10 1903
LOWEST DAILY MEAN	182	Oct 3	41	Sep 7	.00	Jul 3 1904
ANNUAL SEVEN-DAY MINIMUM	208	Oct 2	55	Sep 7	13	Sep 19 1932
INSTANTANEOUS PEAK FLOW			4160	Dec 6	31700b	Oct 10 1903
INSTANTANEOUS PEAK STAGE			5.70	Dec 6	---	
INSTANTANEOUS LOW FLOW			37	Sep 7	.00	Jul 3 1904
10 PERCENT EXCEEDS	2720		2330		2790	
50 PERCENT EXCEEDS	971		866		640	
90 PERCENT EXCEEDS	335		124		127	

a Unpublished peak discharges above base for water years 1988-90 are available from the U.S. Geological Survey, West Trenton, New Jersey.
b Present site.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to November 1986 (discontinued).
WATER TEMPERATURE: Water years 1963 to 1980 (once daily), September 1980 to November 1986 (discontinued).
DISSOLVED OXYGEN: October 1970 to September 1980 (once daily).
SUSPENDED-SEDIMENT DISCHARGE: August 1963 to July 1965.

INSTRUMENTATION.--Water-quality monitor since October 1980.

REMARKS.--Missing continuous water-quality records are the result of malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 965 microsiemens, Feb. 4, 1985; minimum, 99 microsiemens, April 6, 1984.
WATER TEMPERATURE: Maximum, 29.5°C, July 12, 1981; minimum, 0.0°C on many days during winter months.
DISSOLVED OXYGEN: Maximum daily, 14.4 mg/L, Jan. 7, 1973; minimum daily, 1.7 mg/L, June 23, 1976.

COOPERATION.--Analyses of fecal coliform by the MPN method, eterococcus bacteria by the membrane filtration method, and some water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	ENTERO-COCCI ME,MF WATER TOTAL (COL / 100 ML)
OCT 1990												
17...	1300	1440	220	7.6	16.5	--	9.6	98	2.2	--	--	--
NOV												
08...	1300	458	355	7.8	10.0	9.2	10.7	95	2.0	--	1100	--
DEC												
19...	1100	1780	265	7.8	4.0	--	13.0	100	1.4	--	--	--
JAN 1991												
14...	1300	1310	660	7.5	0.0	4.2	14.8	102	2.1	--	200	--
FEB												
22...	1300	1190	413	8.0	5.5	--	13.0	105	--	--	--	--
MAR												
22...	1230	1430	310	7.9	7.5	5.5	12.1	101	2.4	--	200	--
APR												
30...	1230	2150	234	7.6	14.0	--	9.8	96	2.7	--	--	--
MAY												
09...	1230	2020	222	7.7	16.5	10	9.0	92	--	--	350	--
23...	1215	394	400	8.0	21.5	--	8.0	91	3.3	--	--	--
JUN												
13...	1230	226	495	8.3	23.0	--	8.6	101	3.9	--	--	--
27...	1345	46	520	8.7	24.5	--	7.5	90	5.7	--	--	--
JUL												
24...	1230	314	515	8.4	27.0	5.5	8.5	108	3.4	1700	--	220
AUG												
13...	1145	214	--	8.1	24.0	--	8.3	--	--	--	--	--
SEP												
05...	1200	253	490	8.4	21.5	5.1	8.6	99	5.7	--	K2300	--
25...	1130	2060	200	7.9	17.0	--	9.8	104	1.8	--	--	--