



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

ENVIRONMENTAL SERVICES DIVISION

60 WESTVIEW STREET, LEXINGTON, MASSACHUSETTS 02173-3185

Frank Gardner



SEMS DocID

596682

DATE: November 21, 1995

SUBJ: Gas Chromatography-Mass Spectrometry Analysis of Extractable Organics
in Drum Samples - ANGELLILO PROPERTY

FROM: Dr. Agnes VanLangenhove, Chemistry Section

THRU: Dr. William J. Andrade, Advanced Analytical Chemistry Specialist

TO: Frank Gardner

WJA 11/22/95

PROJECT NUMBER: 96015

ANALYTICAL PROCEDURE:

All samples were received and logged in by the laboratory according to the chain of custody SOP (G-2, Rev 2, 2/24/92, DCN: CH-001/88).

Sample processing was done according to the EPA Region 1 Standard Operating Procedures, BNADRML1.SOP. All values are reported out on a dry weight basis.

The analytical support for this report was performed by ESAT contractors.

Date(s) Samples Received by the Laboratory: 11/1/95

Date Analysis Started: 11/6/95

CC:

File: K:\CHEMSTRY\REPORTS\FINAL\96026DR.BNA



US ENVIRONMENTAL PROTECTION AGENCY
60 Westview Street
Lexington, MA 02173

QUALITY CONTROL:

1. A laboratory blank was processed with the samples.

SAMPLE(S) ANALYZED: 05582

US ENVIRONMENTAL PROTECTION AGENCY
60 Westview Street
Lexington, MA 02173

ANALYTICAL PARAMETERS

INSTRUMENTS:

Hewlett Packard 5880 Gas Chromatograph
Hewlett Packard 5988 Gas Chromatograph-Mass
Spectrometer

GC/FID Screening Conditions:

Gas:	Hydrogen
Capillary Column:	DB-1, 30m, .32mm ID, 0.10 micron film thickness
Injection Mode:	Splitless
Temperature Program:	Isothermal for 3 min at 40°C, programmed at 20°C/min to 350°C

GC-MS Conditions:

Gas:	Helium
Capillary Column:	DB-5, 60m, .25mm ID, 0.25 micron film thickness
Injection Mode:	Splitless
Temperature Program:	Isothermal for 4 min at 40°C, programmed at 7°C/min to 300°C
Injector, Transfer Temperatures:	300°C, 290°C
Electron Energy:	70 V
Mass Range:	35-550
Scan Rate:	0.9 seconds

US ENVIRONMENTAL PROTECTION AGENCY
60 Westview Street
Lexington, MA 02173

Chemist who reviewed data: Dr. Agnes VanLangenhove

Holding times meet (Y/N): Yes
Extraction (Water - 7 days, Soils - 14 days)
Analytical (40 days after extraction)

Method modifications:

Limitations of data: None

Laboratory blank problems: None

Instrument performance problems: None

Surrogate and spike recovery problems:

No surrogates added as per SOP.

Additional comments: None

Physical appearance of the sample:

Clay-like consistency

FACILITY SAMPLED:

ANGELILLO PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY

REGION I LABORATORY

GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: 05582

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

PERCENT MOISTURE: 60%

Matrix:

Drum

Dilution Factors

Base: 0.168

Acid: 0.168

RESULTS:

CAS NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment

Priority Pollutants				
83-32-9	Acenaphthene	ND	5E+01	
208-96-8	Acenaphthylene	ND	5E+01	
120-12-7	Anthracene	ND	5E+01	
309-00-2	Aldrin	ND	5E+01	
56-55-3	Benzo(a)anthracene	ND	5E+01	
205-99-2	Benzo(b)fluoranthene	ND	5E+01	
207-08-9	Benzo(k)fluoranthene	ND	5E+01	
50-32-8	Benzo(a)pyrene	ND	5E+01	
191-24-2	Benzo(ghi)perylene	ND	5E+01	
85-68-7	Benzyl butyl phthalate	ND	5E+01	
319-85-7	beta-BHC	ND	5E+01	
319-86-8	delta-BHC	ND	5E+01	
111-44-4	Bis(2-chloroethyl) ether	ND	5E+01	
111-91-1	Bis(2-chloroethoxy) methane	ND	5E+01	
117-81-7	Bis(2-ethylhexyl) phthalate	ND	5E+01	
108-60-1	Bis(2-chloroisopropyl) ether	ND	5E+01	
101-55-3	4-Bromophenylphenyl ether	ND	5E+01	
86-74-8	Carbazole	ND	5E+01	
59-50-7	4-Chloro-3-methylphenol	ND	1E+02	
91-58-7	2-Chloronaphthalene	ND	5E+01	
95-57-8	2-Chlorophenol	ND	1E+02	
7005-72-3	4-Chlorophenylphenyl ether	ND	5E+01	
218-01-9	Chrysene	ND	5E+01	
72-54-8	4,4'-DDD	ND	5E+01	
72-55-9	4,4'-DDE	ND	5E+01	
50-29-3	4,4'-DDT	ND	5E+01	
53-70-3	Dibenzo(a,h)anthracene	ND	5E+01	

(con't)

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: 05582
Results Continued:

CAS NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment
84-74-2	Di-n-butylphthalate	ND	5E+01	
117-84-0	Di-n-octylphthalate	ND	5E+01	
541-73-1	1,3-Dichlorobenzene	ND	5E+01	
95-50-1	1,2-Dichlorobenzene	ND	5E+01	
106-46-7	1,4-Dichlorobenzene	ND	5E+01	
91-94-1	3,3'-Dichlorobenzidine	ND	1E+02	
120-83-2	2,4-Dichlorophenol	ND	1E+02	
60-57-1	Dieldrin	ND	5E+01	
84-66-2	Diethylphthalate	ND	5E+01	
105-67-9	2-4-Dimethylphenol	ND	1E+02	
131-11-3	Dimethylphthalate	ND	5E+01	
51-28-5	2,4-Dinitrophenol	ND	1E+02	
121-14-2	2,4-Dinitrotoluene	ND	5E+01	
606-20-2	2,6-Dinitrotoluene	ND	5E+01	
86-73-7	Fluorene	ND	5E+01	
76-44-8	Heptachlor	ND	5E+01	
1024-57-3	Heptachlor epoxide	ND	5E+01	
118-74-1	Hexachlorobenzene	ND	5E+01	
87-68-3	Hexachlorobutadiene	ND	5E+01	
77-47-4	Hexachlorocyclopentadiene	ND	5E+01	
67-72-1	Hexachloroethane	ND	5E+01	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5E+01	
78-59-1	Isophorone	ND	5E+01	
534-52-1	2-methyl-4,6-dinitrophenol	ND	1E+02	
91-20-3	Naphthalene	ND	5E+01	
98-95-3	Nitrobenzene	ND	5E+01	
88-75-5	2-Nitrophenol	ND	1E+02	
100-02-7	4-Nitrophenol	ND	5E+01	
86-30-3	N-nitrosodiphenylamine	ND	5E+01	
621-64-7	N-Nitrosodi-n-propylamine	ND	5E+01	
87-86-5	Pentachlorophenol	ND	1E+02	
85-01-8	Phenanthrene	ND	5E+01	
108-95-2	Phenol	ND	1E+02	
129-00-0	Pyrene	ND	5E+01	

(con't)

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: 05582
Results Continued:

CAS NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment
120-82-1	1,2,4-Trichlorobenzene	ND	5E+01	
88-06-2	2,4,6-Trichlorophenol	ND	1E+02	
Hazardous Substances				
65-53-3	Aniline	ND	5E+01	
65-85-0	Benzoic Acid	ND	1E+02	
100-51-6	Benzyl Alcohol	ND	5E+01	
106-47-8	4-Chloroaniline	ND	5E+01	
132-64-9	Dibenzofuran	ND	5E+01	
91-57-6	2-Methylnaphthalene	ND	5E+01	
95-48-7	2-Methylphenol	ND	5E+01	
106-44-5	4-Methylphenol	ND	5E+01	
88-74-4	2-Nitroaniline	ND	1E+02	
99-09-2	3-Nitroaniline	ND	1E+02	
100-01-6	4-Nitroaniline	ND	1E+02	
95-95-4	2,4,5-Trichlorophenol	ND	1E+02	
Other Compounds Quantitated				
None detected		ND	4E+02	
Tentatively Identified Compounds		Est. Conc. (mg/Kg)	RL (mg/Kg)	
None detected		ND	8E+01	

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: 05582
Results Continued:

Sample Recoveries For Surrogate Compounds:	Recoveries (%)	QC Range (%)
2-Fluorophenol	NA	25-121
Phenol,d5	NA	24-113
Nitrobenzene,d5	NA	23-120
Fluorobiphenyl	NA	30-115
2,4,6-Tribromophenol	NA	19-122
p-Terphenyl,d14	NA	18-137
2-Chlorophenol-d4	NA	20-130
1,2-Dichlorobenze-d4	NA	20-130

Notes:

- RL = Reporting Limit
(6E+00 = 6, 1E+01 = 10, 4E-01 = 0.4)
- ND = None detected
- = Approximate
- < = Less than
- > = Greater than
- NA = Not available, no surrogates added
- E = Estimated value exceeds the calibration range
- L = Estimated value is below the calibration range
- B = Analyte is associated with lab blank or trip blank contamination. Values are qualified when the observed concentration of the contaminant in the sample extract is less than ten times the concentration in the blank extract for the common contaminants (phthalates and adipates), or less than five times for the remaining contaminants.
- C = This compound is confirmation for the pesticide analyses. See the pesticide report for the quantitation

FACILITY SAMPLED:

ANGELILLO PROPERTY

US ENVIRONMENTAL PROTECTION AGENCY

REGION I LABORATORY

GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: LAB BLANK

SAMPLE LOCATION:

DATE OF COLLECTION:

TIME OF COLLECTION:

PERCENT MOISTURE: 60%

Matrix:

Drum

Dilution Factors

Base:

0.067

Acid:

0.067

RESULTS:

CAS NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment
------------	----------	------------------	---------------	-------------------------

Priority Pollutants

83-32-9	Acenaphthene	ND	2E+01	
208-96-8	Acenaphthylene	ND	2E+01	
120-12-7	Anthracene	ND	2E+01	
309-00-2	Aldrin	ND	2E+01	
56-55-3	Benzo(a)anthracene	ND	2E+01	
205-99-2	Benzo(b)fluoranthene	ND	2E+01	
207-08-9	Benzo(k)fluoranthene	ND	2E+01	
50-32-8	Benzo(a)pyrene	ND	2E+01	
191-24-2	Benzo(ghi)perylene	ND	2E+01	
85-68-7	Benzyl butyl phthalate	ND	2E+01	
319-85-7	beta-BHC	ND	2E+01	
319-86-8	delta-BHC	ND	2E+01	
111-44-4	Bis(2-chloroethyl)ether	ND	2E+01	
111-91-1	Bis(2-chloroethoxy)methane	ND	2E+01	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	2E+01	
108-60-1	Bis(2-chloroisopropyl)ether	ND	2E+01	
101-55-3	4-Bromophenylphenyl ether	ND	2E+01	
86-74-8	Carbazole	ND	2E+01	
59-50-7	4-Chloro-3-methylphenol	ND	4E+01	
91-58-7	2-Chloronaphthalene	ND	2E+01	
95-57-8	2-Chlorophenol	ND	4E+01	
7005-72-3	4-Chlorophenylphenyl ether	ND	2E+01	
218-01-9	Chrysene	ND	2E+01	
72-54-8	4,4'-DDD	ND	2E+01	
72-55-9	4,4'-DDE	ND	2E+01	
50-29-3	4,4'-DDT	ND	2E+01	
53-70-3	Dibenzo(a,h)anthracene	ND	2E+01	

(con't)

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: LAB BLANK
Results Continued:

CAS. NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment
84-74-2	Di-n-butylphthalate	ND	2E+01	
117-84-0	Di-n-octylphthalate	ND	2E+01	
541-73-1	1,3-Dichlorobenzene	ND	2E+01	
95-50-1	1,2-Dichlorobenzene	ND	2E+01	
106-46-7	1,4-Dichlorobenzene	ND	2E+01	
91-94-1	3,3'-Dichlorobenzidine	ND	4E+01	
120-83-2	2,4-Dichlorophenol	ND	4E+01	
60-57-1	Dieldrin	ND	2E+01	
84-66-2	Diethylphthalate	ND	2E+01	
105-67-9	2-4-Dimethylphenol	ND	4E+01	
131-11-3	Dimethylphthalate	ND	2E+01	
51-28-5	2,4-Dinitrophenol	ND	5E+01	
121-14-2	2,4-Dinitrotoluene	ND	2E+01	
606-20-2	2,6-Dinitrotoluene	ND	2E+01	
86-73-7	Fluorene	ND	2E+01	
76-44-8	Heptachlor	ND	2E+01	
1024-57-3	Heptachlor epoxide	ND	2E+01	
118-74-1	Hexachlorobenzene	ND	2E+01	
87-68-3	Hexachlorobutadiene	ND	2E+01	
77-47-4	Hexachlorocyclopentadiene	ND	2E+01	
67-72-1	Hexachloroethane	ND	2E+01	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2E+01	
78-59-1	Isophorone	ND	2E+01	
534-52-1	2-methyl-4,6-dinitrophenol	ND	5E+01	
91-20-3	Naphthalene	ND	2E+01	
98-95-3	Nitrobenzene	ND	2E+01	
88-75-5	2-Nitrophenol	ND	4E+01	
100-02-7	4-Nitrophenol	ND	5E+01	
86-30-3	N-nitrosodiphenylamine	ND	2E+01	
621-64-7	N-Nitrosodi-n-propylamine	ND	2E+01	
87-86-5	Pentachlorophenol	ND	5E+01	
85-01-8	Phenanthrene	ND	2E+01	
108-95-2	Phenol	ND	4E+01	
129-00-0	Pyrene	ND	2E+01	

(con't)

US ENVIRONMENTAL PROTECTION AGENCY
 REGION I LABORATORY
 GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: LAB BLANK
 Results Continued:

CAS NO.	Compound	Conc. (mg/Kg)	RL (mg/Kg)	Qualifier or Comment
120-82-1	1,2,4-Trichlorobenzene	ND	2E+01	
88-06-2	2,4,6-Trichlorophenol	ND	4E+01	

Hazardous Substances				

65-53-3	Aniline	ND	2E+01	
65-85-0	Benzoic Acid	ND	4E+01	
100-51-6	Benzyl Alcohol	ND	2E+01	
106-47-8	4-Chloroaniline	ND	2E+01	
132-64-9	Dibenzofuran	ND	2E+01	
91-57-6	2-Methylnaphthalene	ND	2E+01	
95-48-7	2-Methylphenol	ND	2E+01	
106-44-5	4-Methylphenol	ND	2E+01	
88-74-4	2-Nitroaniline	ND	5E+01	
99-09-2	3-Nitroaniline	ND	5E+01	
100-01-6	4-Nitroaniline	ND	5E+01	
95-95-4	2,4,5-Trichlorophenol	ND	5E+01	

Other Compounds Quantitated				

None detected		ND	2E+02	

Tentatively Identified Compounds		Est. Conc. (mg/Kg)	RL (mg/Kg)	

None detected		ND	3E+01	

US ENVIRONMENTAL PROTECTION AGENCY
REGION I LABORATORY
GC/MS EXTRACTABLE ORGANIC ANALYSIS

SAMPLE NO.: LAB BLANK

Results Continued:

Sample Recoveries For Surrogate Compounds:	Recoveries (%)	QC Range (%)
2-Fluorophenol	NA	25-121
Phenol, d5	NA	24-113
Nitrobenzene, d5	NA	23-120
Fluorobiphenyl	NA	30-115
2,4,6-Tribromophenol	NA	19-122
p-Terphenyl, d14	NA	18-137
2-Chlorophenol-d4	NA	20-130
1,2-Dichlorobenze-d4	NA	20-130

1- 4782